Epidemiological Profile of Cancer Incidence in Brazil and Regions: Estimates for the 2026-2028 Triennium

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Perfil Epidemiológico da Incidência de Câncer no Brasil e Regiões: Estimativas para o Triênio 2026-2028

Perfil Epidemiológico de la Incidencia de Cáncer en el Brasil y Regiones: Estimaciones para el Trienio 2026-2028

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ABSTRACT

Introduction: Cancer is one of the major social and economic challenges of the 21st century, with far-reaching repercussions for individuals, families, communities, and health systems. Estimates of new cancer cases are essential to support the formulation of public health policies and to guide the appropriate allocation of resources for prevention, early diagnosis, and treatment. **Objective:** To estimate and describe cancer incidence in Brazil, by geographic region, federative unit, and sex, for the 2026-2028 triennium. **Method:** Data were obtained from the Mortality Information System and Population-Based Cancer Registries. The number of new cases and their respective incidence rates were estimated using time-linear prediction models or the incidence-to-mortality ratio method. **Results:** An average of 781,000 new cancer cases per year is expected during the triennium. Excluding non-melanoma skin cancer, 518,000 new cases are projected. Female breast and prostate cancers stand out as the most frequent types, each accounting for approximately 15% of all new occurrences. They are followed by colorectal cancer (10.4%), trachea, bronchus and lung cancer (6.8%), stomach cancer (4.4%), and cervical cancer (3.7%). **Conclusion:** The cancer incidence estimates confirm the high burden of the disease in Brazil and highlight regional disparities, reflecting a transition between tumors associated with aging and those linked to social vulnerability. The rising incidence of colorectal cancer and the renewed increase in lung cancer underscore the need to strengthen prevention, screening, and cancer registry systems.

Key words: Neoplasms/epidemiology; Neoplasms/mortality; Incidence; Statistics; Brazil.

RESUMO

Introdução: O câncer é um dos principais problemas sociais e econômicos do século XXI, com repercussões para indivíduos, famílias, comunidades e sistemas de saúde. As estimativas do número de casos novos de câncer são indispensáveis para subsidiar a formulação de políticas públicas em saúde e orientar a adequada alocação de recursos destinados à prevenção, ao diagnóstico oportuno e ao tratamento. **Objetivo:** Estimar e descrever a incidência de câncer no país, Regiões geográficas e Unidades da Federação, por sexo, para o triênio 2026-2028. **Método:** As informações foram extraídas do Sistema de Informação sobre Mortalidade e dos Registros de Câncer de Base Populacional. Foram estimados os casos novos e suas respectivas taxas de incidência pelos modelos de predição tempo linear ou pela razão de incidência e mortalidade. **Resultados:** São esperados 781 mil casos novos de câncer por ano no triênio. Excetuando o câncer de pele não melanoma, ocorrerão 518 mil casos novos. Os cânceres de mama feminina e próstata se destacam como os mais frequentes, respondendo, cada um, por aproximadamente 15,0% das novas ocorrências. Em seguida, figuram os cânceres de cólon e reto (10,4%), traqueia, brônquio e pulmão (6,8%), estômago (4,4%) e colo do útero (3,7%). **Conclusão:** As estimativas de incidência de câncer confirmam a alta carga da doença no Brasil e as desigualdades regionais, com transição entre tumores relacionados ao envelhecimento e à vulnerabilidade social. Destacam-se o aumento de tumores de cólon e reto e a retomada do crescimento do pulmão, reforçando a necessidade de prevenção, rastreamento e fortalecimento dos registros.

Palavras-chave: Neoplasias/epidemiologia; Neoplasias/mortalidade; Incidência; Estatística; Brasil.

RESUMEN

Introducción: El cáncer es uno de los principales problemas sociales y económicos del siglo XXI, con repercusiones para los individuos, las familias, las comunidades y los sistemas de salud. Las estimaciones del número de casos nuevos de cáncer son indispensables para respaldar la formulación de políticas públicas en salud y orientar la adecuada asignación de recursos destinados a la prevención, el diagnóstico oportuno y el tratamiento. **Objetivo:** Estimar y describir la incidencia de cáncer en el país, las regiones geográficas y las Unidades Federativas, por sexo, para el trienio 2026-2028. **Método:** La información se obtuvo del Sistema de Información sobre Mortalidad y de los Registros de Cáncer de Base Poblacional. Se estimaron los casos nuevos y sus respectivas tasas de incidencia mediante modelos de predicción tiempo-lineales o por la razón incidencia-mortalidad. **Resultados:** Se esperan 781 000 casos nuevos de cáncer por año durante el trienio. Excluyendo el cáncer de piel no melanoma, se estiman 518 000 casos nuevos. Los cánceres de mama femenina y de próstata se destacan como los más frecuentes, representando cada uno aproximadamente el 15,0% de las nuevas ocurrencias. A continuación figuran los cánceres de colon y recto (10,4%), tráquea, bronquios y pulmón (6,8%), estómago (4,4%) y cuello uterino (3,7%). **Conclusión:** Las estimaciones de incidencia de cáncer confirman la elevada carga de la enfermedad en el Brasil y las desigualdades regionales, evidenciando una transición entre tumores relacionados con el envejecimiento y aquellos asociados a la vulnerabilidad social. Se destacan el aumento de los tumores de colon y recto y el resurgimiento del cáncer de pulmón, lo que refuerza la necesidad de fortalecer las acciones de prevención, detección temprana y consolidación de los registros.

Palabras clave: Neoplasias/epidemiología; Neoplasias/mortalidad; Incidencia; Estadística; Brasil.

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INTRODUCTION

Cancer is one of the major public health issues of the 21st century, with economic impacts and expressive repercussions for individuals, families, communities, and healthcare systems. Worldwide, it is responsible for almost one out of six deaths (16.8%) and for approximately one out of four deaths (22.8%) from chronic non-communicable diseases (NCDs). In addition, estimates predict that three out of ten premature deaths from NCDs are due to cancer (30.3% in the 30-69 years age group). These numbers highlight the disproportionate weight of the disease on the global mortality load and its role as a critical barrier to the sustainable increase in life expectancy on a global scale[1].

The complexity of cancer lies beyond its impact on mortality. It is a condition that reflects, greatly, the interaction between biological, social, environmental, and economic factors. The distribution and magnitude of the cancer burden vary considerably between regions and countries, influenced by social health determinants, availability of prevention, diagnosis, and treatment services, in addition to inequalities in accessing healthcare systems. In low and medium-income countries, a more accelerated relative increase of cases is observed, greatly associated with population aging, demographic transition, and adoption of lifestyles related to socioeconomic development, such as sedentary lifestyle, inappropriate nutrition, and alcohol and tobacco intake[2].

Estimating the number of new cancer cases is crucial for supporting the formulation of public health policies and guiding the allocation of resources for prevention, timely diagnosis, treatment, and disease control. These estimates enable managers to anticipate demands, plan the expansion of the care network, define intervention priorities, and assess the effectiveness of the implemented actions[3].

The elaboration of cancer estimates is grounded on consolidated information of renowned relevance for health vigilance. Among them, we highlight the Population-Based Cancer Registry (RCBP)[4], which enables the measurement of incidence in different regions of the country, and the Hospital-based Cancer Registries (RHC)[5], which contribute to the clinical and epidemiological characterization of cases treated by the healthcare services. Additionally, data from the Department of Informatics of the National Health System (DATASUS)'s Mortality Information System (SIM)[6] offers a broad perspective on the disease load in terms of deaths, allowing for analyses that integrate incidence and mortality[3]. The combination of these sources confers more robustness, consistency, and reliability to the analyses, generating essential evidence to define national cancer control strategies and support the direction of scientific research, as well as the assessment of regional inequalities in health.

The objective of this study is to estimate the magnitude and distribution of the main types of cancer that might occur in the 2026-2028 triennium, for Brazil, geographic Regions, and Federation Units (FU), by sex, for the 21 main types of cancer.

METHOD

The information on incidence was obtained from databases of the 31 RCBP for the 1988-2021 period, available on the National Cancer Institute (INCA) portal's incidence tabulator[4]. Regarding mortality, the information was obtained from SIM[5], for the 1979-2023 period, retrieved from the online mortality atlas available on INCA's portal[7].

For this publication, the denominator for calculating the presented rates was the census population (1980, 1991, and 1996) and intercensal estimates (from 1981 to 1999), in addition to the Inter-Agency Health Information Network (Ripsa), which made available the new municipal population estimates for the 2000-2023 period, disaggregated by sex and age group. Updated based on the 2022 Demographic Census[8], this information represents a milestone for Brazilian demography, offering essential support to the calculation of indicators, in addition to the standardization of population information[9,10].

This study selected 21 primary locations or location groups: lips and oral cavity (C00-C10); esophagus (C15); stomach (C16); colon and rectum (C18-C20); liver (C22); pancreas (C25); larynx (C32); trachea, bronchus, and lung (C33-C34); malignant skin melanoma (C43); other malignant skin neoplasms (C44); female breast (C50); cervix uteri (C53); corpus uteri (C54); ovary (C56); prostate (C61); bladder (C67); central nervous system (C70-C72); thyroid gland (C73); Hodgkin lymphoma (C81); non-Hodgkin lymphoma (C82-C85; C96) and leukemias (C91-C95). The cancer types that were not included in the selection composed the group called "other locations". The total of malignant neoplasms (C00-C97; D46) is the sum of these categories. Additionally, the group of childhood tumors was selected for calculating the cancer estimate in children and adolescents (0-19 years)[11-13]. In the incidence and mortality calculations, the group "colon and rectum" (ICD-10: C18-C20) does not include anus and anal canal (C21), in compliance with the international practice[14]. The exclusion is justified by epidemiological differences — since colorectal cancer is connected to diet, obesity, and hereditary factors, while

anus cancer is associated with the human papillomavirus (HPV) and immunosuppression — and to ensure greater international comparability.

Cancer incidence estimates for the country as a whole (five geographic Regions and 27 FU) were elaborated using the following methods:

LINEAR TIME PREDICTION MODELS

Used for capital cities and States with incidence information with at least six and up to 15 years of historical series and at least 50 cancer cases a year (adding up all the age groups). The estimates were conducted using the short-term model (prediction of up to five years), based on linear time prediction models[15-17].

$$E(rate(i,t)) = \alpha_i + \beta_i \times t$$
$$Log(E(rate(i,t))) = \alpha_i + \beta_i \times t$$
$$Log(E(rate(i,t))) = \alpha_i + \beta \times t$$

That is:

E(rate(i,t)) = expected incidence rate at age i, on year t, having α_i, β, and β_i as parameters.

INCIDENCE AND MORTALITY RATIO

Employed when incidence information could not be estimated by the linear-time prediction method. In the localities where RCBP was operating, the researchers used the incidence and mortality ratio (I/M) of the very RCBP; otherwise, they chose the I/M ratio, meaning the geographic Region of the locality where they wished to estimate[18].

This ratio was applied to crude and adjusted mortality rates estimated by linear regression for the year 2026, by FU, respective capitals, and the Federal District. When the linear model proved inadequate, we used, as an alternative, the mean rate of the last five years available (2019-2023)[9].

That is:

$$TI_L = TM_L \times \left(\frac{I_R}{M_O} \right)$$

In which:

TI_L = Incidence rate (crude or adjusted) estimated for the FU, Federal District, or capital city.

TM_L = Mortality rate (crude or adjusted) estimated by the historical mortality series (or mean rate) for the FU, Federal District, or capital city.

I_R = Number of new cases (incidence) in the RCBP localities (2001-2021 period).

M_O = Number of deaths in the RCBP localities (2001-2021 period) obtained from SIM.

The estimate of new cases for the five geographic Regions and Brazil was obtained by adding up absolute values per FU. The corresponding crude rates were achieved by dividing the values of geographic Regions' or Brazil's new cases by their respective populations. The adjusted rate for the Regions and Brazil was obtained by the median of FU's and the respective Region's rates.

To improve the quality of information on mortality, a redistribution of deaths classified with poorly defined codes was conducted.

Order of redistribution of poorly defined codes:

1. POORLY DEFINED CAUSES (CHAPTER XVIII – R00-R99)

Used when the death is recorded without a well-specified basic cause. These causes represent a challenge, since they can hide deaths from neoplasms that were not properly identified.

Procedure: 50% of deaths in this category were destined to neoplasms, being later proportionately redistributed (*pro rata*) among all topographies, by sex and age group[19].

2. POORLY DEFINED AND UNSPECIFIED MALIGNANT NEOPLASMS (C76-C80, C97)

Tumors whose primary anatomical sites were not identified or whose diagnoses do not clearly indicate the original location.

Procedure: proportionately redistributed (*pro rata*) for all topographies, by sex and age group[20].

3. NEOPLASMS IN POORLY DEFINED LOCATIONS OR UNSPECIFIED PORTIONS

Tumors that target broad anatomical areas or multiple adjacent regions, with no exact determination of origin, can include an unspecified part of an organ.

Procedure: Proportionately redistributed to the locations suggested by the International Agency for Research on Cancer (Iarc): (C14.0 => C09-C13; C14.8 => C00-C13, C14.2; C26.0 => C17-C21; C26.8-C26.9 => C15-C25, C26.1; C39.0, C39.8-9 => C30-34, C37-C38; C57.8- C57.9 => C51-C54, C56, C57.0- C57.7; C63.8-C63.9 => C60-C62, C63.0- C63.7; C68.8- C68.9 => C64-67, C68.0- C68.1; C75.8- C75.9 => C73-74, C75.0- C75.5)[21].

4. UNSPECIFIED UTERINE CANCER (C55)

Deaths initially codified as corpus uteri, unspecified, were redistributed to cervical cancer and corpus uteri cancer.

Additional procedure: in the combined category, the deaths were relocated to the original codification in corpus uteri and corpus uteri, unspecified, according to the methodology described in Loos et al.[22].

Cancer incidence was corrected like mortality, except for poorly defined causes**,** which were not distributed in this process.

The R software version 4.5.1[23] was used to calculate the mean rate linear regression, and the estimate by linear time model using the Depreed program developed by Iarc[15]. This study was not submitted to the approval of INCA's Research Ethics Committee, since it is exclusively based on secondary data, with no identification of individuals in compliance with the National Health Council Resolution N. 510, of April 7, 2016[24].

RESULTS

A total of 781 thousand new cancer cases were estimated in Brazil for each year of the 2026-2028 triennium. Excluding non-melanoma skin cancer, the estimate is approximately 518 thousand new cases, of which 49.4% will occur in men (about 256 thousand cases) and 50.6% in women (about 262 thousand cases) (Tables 1 and 2).

The analysis according to sex shows that, among men, prostate cancer is the most common (30.5% of new cases), followed by colon and rectum cancers (10.3%), trachea, bronchus, and lung (7.3%), stomach (5.4%), and oral cavity (4.8%). Among women, breast cancer remains the most frequent (30.0% of new cases), followed by colon and rectum cancer (10.5%), cervix uteri (7.4%), trachea, bronchus, and lung (6.4%), and thyroid gland (5.1%) (Figures 1A and 1B).

The most common types correspond to approximately 65.0% of all new cases in the country. Female breast and prostate cancers stand out as the most frequent types, each accounting for approximately 15% of all new occurrences. Next, there is colorectal cancer (10.4%), trachea, bronchus, and lung cancer (6.8%), stomach cancer (4.4%), and cervical cancer (3.7%) (Figures 1C and 1D).

For the children's group (0-19 years), a total of 7,560 new cancer cases were estimated in Brazil, corresponding to a crude incidence rate of 134.81 cases per 1 million children and adolescents. A slight predominance in the male sex (3,960 cases, 52.4%) was observed in comparison to the female sex (3,600 cases, 47.6%).

REGIONAL ANALYSIS

Cancer incidence in Brazil presents regional variations, as observed by the estimated rates and the most common types in different Regions and FU (Figures 2 and 3; Tables 1 and 2; Supplementary Table 1).

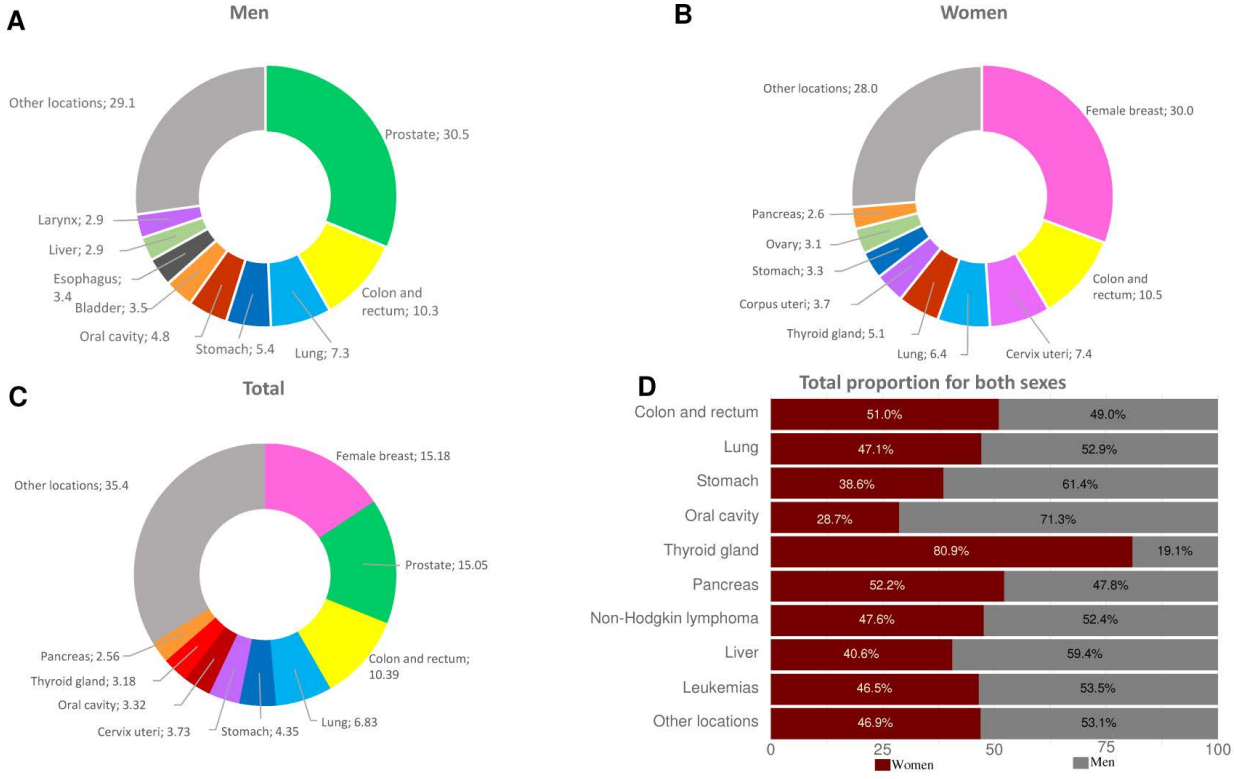

Figure 1. Proportional distribution of cancer cases, by sex and tumoral location, for each year of the 2026-2028 triennium
Source: Data extracted from the 2026 Estimate: INCA's Cancer Incidence in Brazil[25].

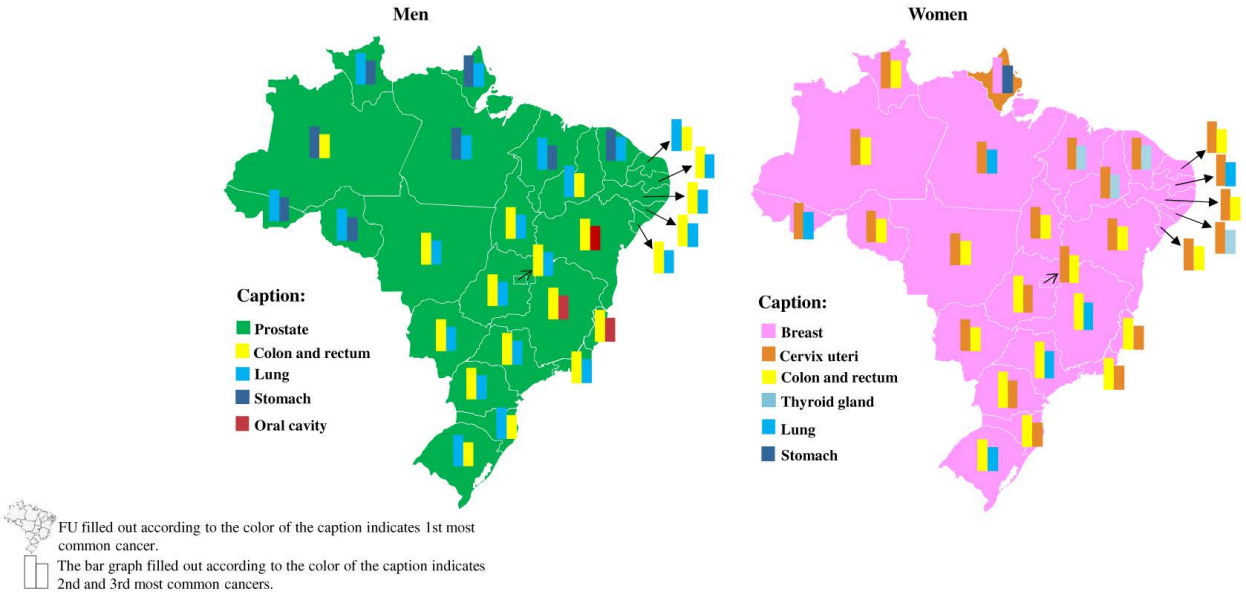

Figure 2. Distribution of the three most common types of cancer (adjusted rate) by State and sex, for each year of the 2026-2028 triennium
Source: Data extracted from the 2026 Estimate: INCA's Cancer Incidence in Brazil[25].

Among men, prostate cancer is still the most common in every FU. A total of 77,920 new cases, with an adjusted rate of 45.31 per 100 thousand men, while the greatest rates were observed in the Southeast Region (64.12 per 100 thousand men) and the Midwest (58.31 per 100 thousand men).

In the North Region, prostate cancer is the most common in every State (31.38 per 100 thousand men), followed by stomach cancers (11.41 per 100 thousand men) and trachea, bronchus, and lung (10.32 per 100 thousand men).

The Northeast Region presents a similar pattern to the North Region, with a predominance of prostate cancer (49.28 per 100 thousand men), followed by colon and rectum (11.90 per 100 thousand men) and trachea, bronchus, and lung (11.29 per 100 thousand men). In the State of Ceará, however, stomach cancer stands out, with an adjusted rate of 13.77 per 100 thousand men, occupying the second place in incidence among men. In Bahia, oral cavity cancer ranks third (10.19 per 100 thousand men).

In the Midwest Region, prostate cancer is the most common (58.31 per 100 thousand men), followed by colon and rectum (22.70 per 100 thousand men) and lung (12.97 per 100 thousand men), in all FU of the Region.

In the Southeast Region, prostate cancer also shows up as the most common in every State (64.12 per 100 thousand men), followed by colon and rectum cancers (23.18 per 100 thousand men) and trachea, bronchus, and lung (12.63 per 100 thousand men). In this Region, colon and rectum cancer is the second most frequent type in every FU, with adjusted rates varying from 18.28 to 26.83 per 100 thousand men. Whereas lung cancer is the third most frequent in São Paulo and Rio de Janeiro, with adjusted rates of 15.06 per 100 thousand and 13.01 per 100 thousand, respectively. In Minas Gerais and Espírito Santo, oral cavity cancer ranks third, with adjusted rates of 15.07 and 13.74 per 100 thousand men, respectively.

The Southern Region presents a similar pattern to those observed in other Regions, with a predominance of prostate cancer (35.91 per 100 thousand men), followed by lung cancer (23.02 per 100 thousand men) and colon and rectum (22.39 per 100 thousand men). Lung cancer ranks second in incidence in the Rio Grande do Sul and in Santa Catarina, and third in Paraná, presenting the highest rates in the country for this type of cancer.

Among women, breast cancer is the most common in almost every FU, being the main type of female cancer in Brazil. A total of 78,610 new cases, with an adjusted rate of 42.50 per 100 thousand women, were estimated, while the highest rates were observed in the Southeast (51.72 per 100 thousand) and the South (47.65 per 100 thousand) Regions.

In the North Region, cervical cancer remains the most common in the State of Amapá, with an adjusted rate of 31.13 per 100 thousand women, followed by breast cancer (30.20 per 100 thousand women).

The Northeast Region presents a mixed pattern, with breast cancer (42.50 per 100 thousand women) as the most common in most States, followed by cervical cancer (15.06 per 100 thousand women), which still presents high incidence rates in every FU in the Region.

In the Midwest Region, breast cancer (45.94 per 100 thousand women) is the most common in every FU, followed by colon and rectum cancers (17.26 per 100 thousand women) and cervix uteri (12.89 per 100 thousand women).

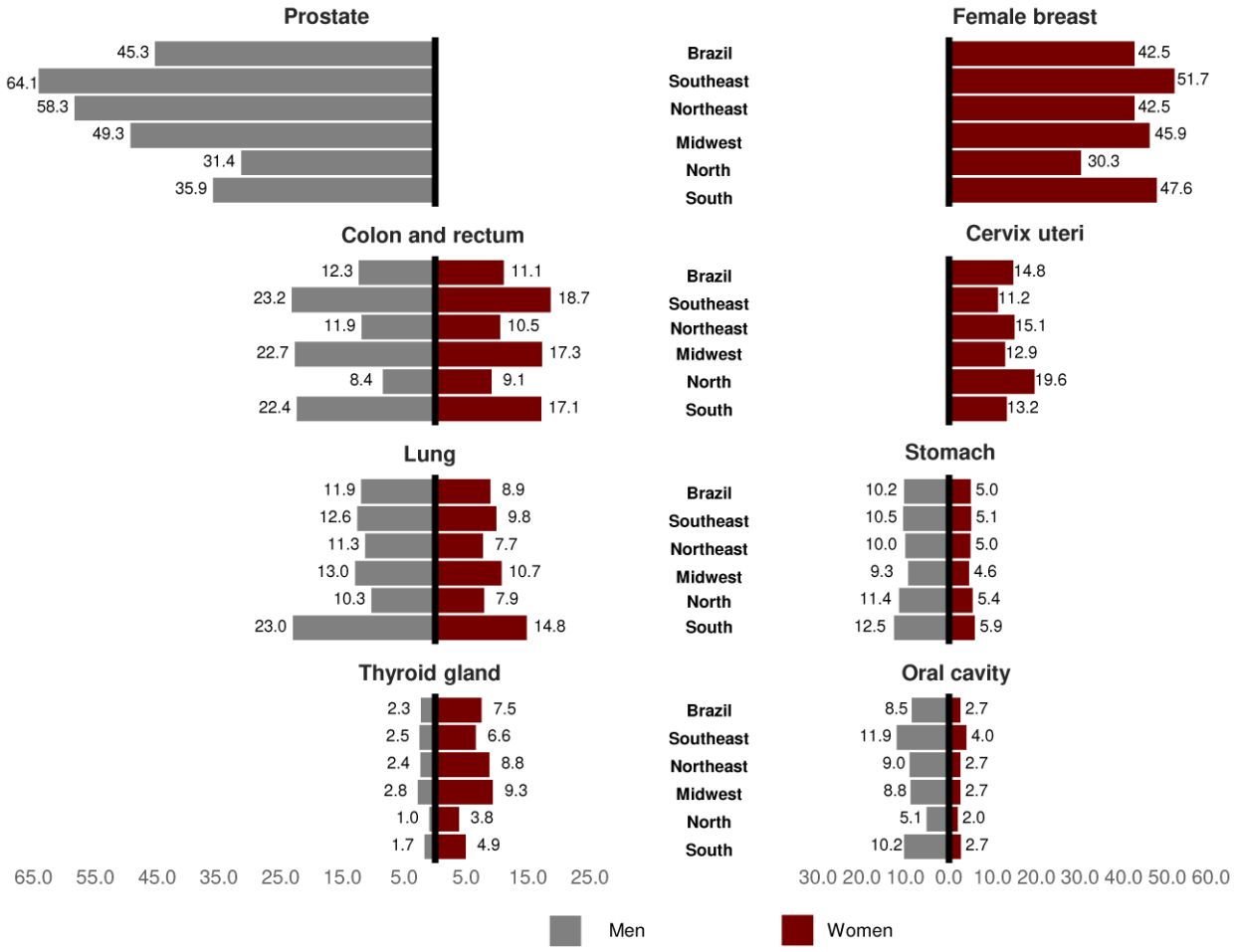

Figure 3. Age-adjusted incidence rates for the country and geographic regions estimated for each year of the 2026-2028 triennium
Source: Data extracted from the 2026 Estimate: INCA's Cancer Incidence in Brazil[25].

In the Southeast Region, breast cancer (51.72 per 100 thousand), colon and rectum cancer (18.67 per 100 thousand), and cervical cancer (11.20 per 100 thousand women) are among the three most frequent. The highest rates of cervical cancer are observed in Rio de Janeiro and Espírito Santo.

In the South Region, however, breast cancer (47.65 per 100 thousand women), colon and rectum cancer (17.13 per 100 thousand women), and lung cancer (14.77 per 100 thousand women) are the most frequent. In Rio Grande do Sul, trachea, bronchus, and lung cancer ranked third (14.77 per 100 thousand women), while in Paraná and Santa Catarina, this position is occupied by cervical cancer, with adjusted rates of 13.23 and 17.93 per 100 thousand women, respectively.

The highest incidence rates for childhood cancer are estimated for the South Region (173.35 per 1 million), followed by the Southeast Region (145.11 per 1 million), Northeast Region (126.53 per 1 million), Midwest Region (118.54 per 1 million), and finally, the North Region (96.88 per 1 million). In the South Region, Paraná stands out with a total of 560 new estimated cases, and in the Southeast Region, 1,730 new cases are estimated for São Paulo.

When stratified by sex, higher rates are observed in the South (181.09 and 165.96 per 1 million for females and males, respectively) and Southeast (142.73 and 147.37 per 1 million for females and males, respectively) Regions. In the Northeast, the rates are higher for males (136.74 per 1 million) than for females (115.81 per 1 million). The North Region remains with the lower rates in the country (102.20 for males and 91.29 for females) (Supplementary Table 2).

DISCUSSION

Results from the incidence estimates for the 2026-2028 triennium highlight the heavy burden of cancer in Brazil and the complexity of its epidemiological profile, marked by regional heterogeneity and differences between sexes, underscoring the growing importance of the disease as a public health issue. This setting reflects, on one hand, population aging, and changes in the patterns of exposure to behavioral and environmental

Table 1. Number of new cases[a] and adjusted rates[b] of cancer incidence per 100 thousand people, according to sex and primary location. Brazil and Geographic Region, 2026-2028

Primary location Malignant Neoplasm	Men												Women											
	Brazil		North		Northeast		Midwest		Southeast		South		Brazil		North		Northeast		Midwest		Southeast		South	
	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR
Female breast	-	-	-	-	-	-	-	-	-	-	-	-	78,610	42.50	2,950	30.26	17,130	42.50	5,420	45.94	40,560	51.72	12,550	47.65
Prostate	77,920	45.31	2,850	31.38	19,620	49.28	5,920	58.31	40,890	64.12	8,640	35.91	-	-	-	-	-	-	-	-	-	-	-	-
Colon and rectum	26,270	12.34	780	8.44	3,660	11.90	1,980	22.70	14,390	23.18	5,460	22.39	27,540	11.10	830	9.08	4,140	10.50	1,920	17.26	15,400	18.67	5,250	17.13
Trachea, bronchus, and lung	18,730	11.95	920	10.32	3,580	11.29	1,410	12.97	8,200	12.63	4,620	23.02	16,650	8.90	720	7.91	3,490	7.70	1,140	10.72	7,700	9.85	3,600	14.77
Stomach	13,830	10.23	1,260	11.41	3,610	10.00	870	9.32	5,660	10.47	2,430	12.54	8,700	5.01	640	5.42	2,370	4.95	540	4.64	3,690	5.09	1,460	5.91
Cervix uteri	-	-	-	-	-	-	-	-	-	-	-	-	19,310	14.76	2,150	19.62	6,130	15.06	1,730	12.89	6,450	11.20	2,850	13.23
Thyroid gland	3,140	2.30	120	0.96	920	2.39	270	2.85	1,490	2.53	340	1.72	13,310	7.49	410	3.81	4,120	8.76	1,100	9.32	6,540	6.57	1,140	4.90
Oral cavity	12,260	8.47	490	5.10	2,680	8.77	890	9.01	6,060	11.94	2,140	10.23	4,930	2.67	290	2.01	1,150	2.67	300	2.66	2,560	3.99	630	2.71
Non-Hodgkin lymphoma	6,580	4.35	220	2.37	1,380	4.35	450	4.38	3,130	5.49	1,400	6.12	5,980	3.18	170	1.45	1,220	3.13	350	3.20	2,950	3.57	1,290	4.49
Leukemias	6,540	4.81	410	4.20	1,880	5.12	390	4.42	2,680	4.74	1,180	5.77	5,680	3.49	320	3.42	1,590	3.72	320	2.96	2,300	3.37	1,150	4.50
Central nervous system	6,500	4.85	350	3.67	1,450	4.73	500	5.27	2,890	5.36	1,310	6.08	5,560	3.81	310	3.36	1,290	3.45	440	3.94	2,490	3.84	1,030	4.53
Bladder	9,040	4.19	270	2.43	1,420	3.94	500	4.61	5,050	7.41	1,800	6.14	4,070	1.69	120	0.96	670	1.51	240	1.98	2,370	2.52	670	2.29
Esophagus	8,750	5.53	330	4.45	1,870	5.19	650	6.45	3,980	7.39	1,920	8.88	2,640	1.23	100	0.67	670	1.31	160	1.26	1,080	1.38	630	2.55
Pancreas	6,330	3.95	250	2.92	1,170	3.63	410	4.79	3,130	4.93	1,370	6.17	6,910	3.43	250	2.36	1,400	3.43	440	3.68	3,340	3.84	1,480	4.94
Liver	7,340	4.80	450	5.30	1,710	4.77	410	4.32	3,150	4.60	1,620	7.88	5,010	3.11	360	4.10	1,410	3.03	300	2.77	1,970	2.35	970	3.80
Melanoma skin	4,930	2.38	120	1.05	730	2.26	240	2.37	2,340	3.20	1,500	5.65	4,430	1.73	110	0.92	680	1.41	240	1.93	2,050	2.49	1,350	3.44
Corpus uteri	-	-	-	-	-	-	-	-	-	-	-	-	9,650	5.22	300	2.92	2,160	6.31	690	6.93	5,290	6.40	1,210	4.41
Larynx	7,310	4.70	280	3.36	1,730	5.54	500	4.72	3,600	6.29	1,200	5.48	1,200	0.63	80	0.50	300	0.63	100	0.87	560	0.67	160	0.71
Ovary	-	-	-	-	-	-	-	-	-	-	-	-	8,020	5.22	400	3.72	2,180	5.77	540	4.12	3,690	5.13	1,210	4.83
Hodgkin lymphoma	1,740	1.31	80	0.53	380	1.50	130	1.57	850	1.43	300	1.68	1,330	0.77	90	0.51	300	0.82	90	0.75	570	0.79	280	1.42
Other locations	38,570	25.33	1,710	18.43	7,910	24.21	2,720	26.50	19,210	30.98	7,020	31.10	32,460	18.64	1,460	14.98	7,620	19.09	2,280	19.23	15,380	20.14	5,720	18.41
All neoplasms, except non-melanoma skin	255,780	164.04	10,890	115.98	55,700	156.49	18,240	199.72	126,700	204.93	44,250	228.08	261,990	149.88	12,060	139.35	60,020	140.51	18,340	162.56	126,940	171.92	44,630	187.41
Non-melanoma skin	136,180		2,350		21,760		11,520		74,750		25,800		127,100		2,570		24,790		11,670		57,000		31,070	
All neoplasms	391,960		13,240		77,460		29,760		201,450		70,050		389,090		14,630		84,810		30,010		183,940		75,700	

Source: Data extracted from the 2026 Estimate: INCA's Cancer Incidence in Brazil[25].
Captions: AR = adjusted rate. [a] Rounded up numbers for multiples of 10; [b] Standard world population (1960).
Note: lung = trachea, bronchus, and lung (C33–C34); colon and rectum = colon, rectosigmoid junction, and rectum (C18-C20); oral cavity = lip, tongue, oral cavity, oropharynx, and major salivary glands (C00-C10).

Table 2. Numbers of new cases[a] and adjusted rates[b] of cancer incidence per 100 thousand people, according to sex and primary location. Brazil and Geographic Region, 2026-2028

Primary location Malignant Neoplasm	Brazil		North		Northeast		Midwest		Southeast		South	
	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR	New cases	AR
Female breast	78,610	42.50	2,950	30.26	17,130	42.50	5,420	45.94	40,560	51.72	12,550	47.65
Prostate	77,920	45.31	2,850	31.38	19,620	49.28	5,920	58.31	40,890	64.12	8,640	35.91
Colon and rectum	53,810	11.39	1,610	8.42	7,800	10.63	3,900	19.64	29,790	20.76	10,710	19.85
Trachea, bronchus, and lung	35,380	10.53	1,640	8.88	7,070	8.88	2,550	12.37	15,900	11.56	8,220	18.28
Stomach	22,530	7.39	1,900	8.43	5,980	6.96	1,410	6.93	9,350	7.57	3,890	8.92
Cervix uteri	19,310	14.76	2,150	19.62	6,130	15.06	1,730	12.89	6,450	11.20	2,850	13.23
Thyroid gland	16,450	5.47	530	2.39	5,040	7.47	1,370	6.25	8,030	5.57	1,480	3.61
Oral cavity	17,190	5.23	780	3.44	3,830	5.48	1,190	5.63	8,620	6.75	2,770	6.24
Non-Hodgkin lymphoma	12,560	3.95	390	2.07	2,600	3.50	800	3.95	6,080	4.43	2,690	4.85
Leukemias	12,220	4.20	730	3.94	3,470	4.35	710	4.01	4,980	3.83	2,330	5.10
Central nervous system	12,060	3.95	660	3.52	2,740	3.75	940	4.56	5,380	4.55	2,340	5.25
Bladder	13,110	2.76	390	1.85	2,090	2.63	740	3.19	7,420	4.45	2,470	3.98
Esophagus	11,390	3.41	430	2.68	2,540	3.18	810	3.64	5,060	4.20	2,550	4.93
Pancreas	13,240	3.76	500	2.79	2,570	3.36	850	4.25	6,470	4.21	2,850	5.50
Liver	12,350	3.97	810	4.53	3,120	3.82	710	3.53	5,120	3.38	2,590	5.64
Melanoma skin	9,360	1.92	230	0.97	1,410	1.71	480	2.04	4,390	2.71	2,850	4.44
Corpus uteri	9,650	5.22	300	2.92	2,160	6.31	690	6.93	5,290	6.40	1,210	4.41
Larynx	8,510	2.45	360	2.03	2,030	2.69	600	2.53	4,160	3.27	1,360	2.91
Ovary	8,020	5.22	400	3.72	2,180	5.77	540	4.12	3,690	5.13	1,210	4.83
Hodgkin lymphoma	3,070	1.04	170	0.53	680	1.13	220	0.94	1,420	1.09	580	1.92
Other locations	71,030	21.82	3,170	17.09	15,530	21.70	5,000	24.00	34,590	25.81	12,740	24.18
All neoplasms, except non-melanoma skin	**517,770**	158.12	**22,950**	132.44	**115,720**	147.80	**36,580**	192.72	**253,640**	187.67	**88,880**	204.48
Non-melanoma skin	263,280	-	4,920	-	46,550	-	23,190	-	131,750	-	56,870	-
All neoplasms	**781,050**	-	**27,870**	-	**162,270**	-	**59,770**	-	**385,390**	-	**145,750**	-

Source: Data extracted from the 2026 Estimate: INCA's Cancer Incidence in Brazil[25].
Captions: AR = adjusted rate. [a] Rounded up numbers for multiples of 10; [b] Standard world population (1960).
Note: lung = trachea, bronchus, and lung (C33-C34); colon and rectum = colon, rectosigmoid junction, and rectum (C18-C20); oral cavity = lip, tongue, oral cavity, oropharynx, and major salivary glands (C00-C10).

risk factors[26] and, on the other hand, improvements in the capacity of diagnosis and coverage of the recording systems.

For the 2026-2028 triennium, 781 thousand new cancer cases are estimated per year in Brazil, or 518 thousand when excluding non-melanoma skin cancer. The general overview shows that a few types of cancer concentrate most of the disease burden in the country. Six primary locations — female breast, prostate, colon and rectum, lung, stomach, and cervix uteri — correspond to about 65% of all new cases predicted. This pattern is similar to that observed in medium and high-income countries, where epidemiological transition is more advanced, with a predominance of tumors associated with aging and modifiable risk factors, such as inappropriate diet, obesity, alcohol intake, smoking, and physical inactivity[26,27].

The analysis according to sex points to distinct incidence patterns. In men, prostate cancer is the most common, followed by colon and rectum; trachea, bronchus, and lung; and stomach cancers. This pattern reflects the coexistence of factors related to aging and Western lifestyle, characteristic of the transition process in which infectious-origin cancers, like stomach, tend to decline, while neoplasms associated with behavioral factors increase[28].

In women, breast cancer is the most common, followed by colon and rectum; cervix uteri; trachea, bronchus, and lung; and thyroid gland cancers. We observe, therefore, a predominance of tumors whose incidence is associated with reproductive, hormonal, and behavioral factors. In addition, social determinants, like the degree of urbanization and inequities in access to healthcare services, contribute to regional differences observed in the country[27]. The highest rates of cervical cancer observed in the North and Northeast Regions, for instance, demonstrate difficulties in access to screening and timely treatment of precursor lesions[29].

The regional analysis indicates the coexistence of different stages of epidemiological transition in the Brazilian territory. In the Southeast and South Regions, cancers associated with aging and urban lifestyles predominate, while the North and Northeast Regions have incidence patterns influenced by structural inequalities of access to prevention and early diagnosis. Whereas the Midwest Region presents an intermediate profile, reflecting the gradual advancement in the demographic and epidemiological transition.

We underscore, in this triennium, an important increase in the rates of colon and rectum cancer for both sexes, especially in the South, Southeast, and Midwest Regions, where the adjusted rates surpass 20 cases per 100 thousand people. This growth reflects the impact of behavioral factors, like unhealthy eating habits, especially the intake of ultra-processed food and red meat; sedentary lifestyle; and excess weight, in addition to population aging and greater access to diagnosis, which can contribute to the identification of initial stage cases as well as for the apparent increase in incidence rates[30,31].

Another relevant aspect is the resurgence of trachea, bronchus, and lung cancer, after a decline over the past decades, particularly among women. In the South and Midwest Regions, this type of cancer is once again among the three most frequent, while among men in the South Region, it presents the highest rate in the country (23.02 per 100 thousand men), almost double the national mean. Such behavior signals the cumulative effect of the smoking epidemic over the last few decades, as well as changes in the profile of tobacco products intake, like electronic cigarettes and hookahs, especially in the younger and urban populations[32,33].

Exposure to these risk factors is associated with several types of cancer, including oral cavity. In Brazil, most cases diagnosed with this type of cancer are Black men, over 40 years-old, with low education level, and frequent consumers of alcohol and tobacco[34]. With the increased disease burden over the last few years, prevention actions focused on controlling risk factors, and secondary actions, including screening programs for the more at-risk population aimed at identifying and treating pre-malignant lesions, should be prioritized[35].

Some aspects need to be taken into consideration in the analysis of results. Estimates do not correspond to the actual counting of new cases occurring in the country, but to projections derived from models that combine historical data from RCBPs, currently with a coverage of about 25% of the Brazilian population, with cancer mortality information provided by SIM/DATASUS. Thus, the representativeness of RCBP and the regional differences in the coverage and quality of data directly impact their degree of precision[3].

Moreover, there is a variation in the quality and completeness of data within the records, related to the availability of human resources, infrastructure, and the capacity for providing local diagnosis. In Regions where the records present lower coverage or inconsistencies, the values projected tend to reflect regional means or patterns with areas with better quality of information, which can overestimate or underestimate the actual occurrence of certain types of cancer.

Regarding childhood cancer, the main limitation related to the databases is that SIM[6] and other information systems use the Classification of Diseases for Oncology (ICD-O)[11] as a classification parameter; only the

RCBP[4] makes the conversion from the ICD-O[11] to the International Classification of Childhood Cancer (ICCC). These differences in the classification system of cancer types, as well as the rarity of the childhood disease (crude rate lower than 60 cases per 1 million people), impair the incidence and mortality estimate of childhood cancer in the way it is done for adults. It is worth noting that the lower rates observed in the North and Midwest Regions may not reflect reality precisely, given the lower number of active RCBPs in those locations.

It must be underscored that Estimates do not allow for direct time analysis between different publication editions, since the modeling methodologies, data sources, and denominating populations are updated every triennium. Comparisons between periods can lead to incorrect interpretations of the time trends. For this type of analysis, more specific modeling methods should be made for trends (like the *Joinpoint*, *NordPred* or *Depreed* techniques)[36].

Finally, although they represent the best available snapshot of the burden of cancer in Brazil, estimates should be interpreted carefully and along with other sources of information, like data on mortality, hospital records, and risk factor inquiries. Their role is to guide planning and prioritize control actions, and not to replace the data obtained from the epidemiological information systems.

CONCLUSION

Cancer incidence estimates for the 2026-2028 triennium confirm the high burden of the disease in Brazil and highlight important inequalities between regions and sexes. The country experiences an epidemiological transition scenario, in which cancers associated with aging and urban lifestyle — predominant in the South, Southeast, and Midwest Regions — coexist with infectious etiology tumors and those more related to contexts of greater social vulnerability, observed mainly in the North and Northeast Regions.

We highlight two relevant trends: the increase in colon and rectum cancer, related to behavioral risk factors and population aging; and the resurgence of lung cancer, especially among women, reflecting the cumulative impact of smoking and new ways of consuming nicotine.

These results reinforce the need for integrated prevention and screening actions, adapted to the regional realities, and the strengthening of RCBP to improve precision and coverage of information.

The estimates must be interpreted carefully but constitute an essential instrument for planning and prioritizing public policies for cancer control in Brazil.

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CONTRIBUTIONS

Luís Felipe Leite Martins, Julio Fernando Pinto Oliveira, Leonardo Borges Lopes de Souza and Paulo Chagas Neto have substantially contributed to the study design and planning; data collection, analysis, and interpretation; wording, and critical review. Gabriela Villaça Chaves, Marcia Sarpa de Campos Mello, Maria Beatriz Kneipp Dias, Flávia Nascimento de Carvalho and Gisele Moledo de Vasconcelos have substantially contributed to wording and critical review. All the authors approved the final version for publication.

DECLARATION OF CONFLICT OF INTERESTS

There is no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The data used in this study may be obtained upon request by contacting the corresponding author.

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