

CANCER IN OLDER ADULTS: POPULATION AGING, SPECIFICITIES OF CARE, AND CHALLENGES FOR PUBLIC HEALTH

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Abstract

Population aging has increased the share of older adults in the global and national cancer burden, requiring specific responses from health systems. This study analyzed the epidemiological profile of cancer in older adults, the biological and clinical characteristics of this population, and the main challenges facing public health and care delivery. This is a narrative literature review with a qualitative,

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descriptive approach, based on scientific publications, guidelines issued by geriatric oncology societies, institutional documents, and Brazilian legislation. The results showed that cancer is concentrated in older age groups, with the number of cases projected to increase substantially over the coming decades, particularly in less developed regions, and with lung, colorectal, prostate, breast, and stomach cancers being especially prominent. Chronological age alone was found not to reflect the heterogeneity of aging, supporting the use of comprehensive geriatric assessment to identify vulnerabilities, estimate the risk of toxicity, and guide therapeutic management. The underrepresentation of older adults in clinical trials, inequalities in access, and the need for multidisciplinary teams, including nursing professionals, were also identified. It is concluded that cancer care for older adults requires epidemiological surveillance, individualized assessment, specific professional training, and public policies that ensure equitable access to diagnosis, treatment, and supportive care.

Keywords: Aging, Cancer, Geriatric oncology, Older adults, Public health.

INTRODUCTION

Cancer is defined as a general term for a heterogeneous group of more than one hundred diseases whose fundamental biological characteristic is abnormal and uncontrolled cell proliferation, with the capacity to invade adjacent tissues and produce metastases (Instituto Nacional de Câncer, [n.d.]). In 2022, approximately 20 million new cases, including non-melanoma skin cancers, and 9.7 million cancer deaths were estimated worldwide, and approximately one in five people develops the disease during their lifetime (Bray et al., 2024). Cancer incidence is higher in older age groups, meaning that older adults account for a substantial proportion of the disease burden (Berben et al., 2021). In 2012, for example, 6.7 million new cases, representing 47.5% of the total, occurred among people aged 65 years or older, and 14 million cases are projected for 2035, equivalent to nearly 60% of global incidence (Pilleron et al., 2019).

In Brazil, the Older Persons Act defines an older person as someone aged 60 years or older (Brasil, 2003), whereas much of the international oncology literature uses a threshold of 65 years (Mohile

et al., 2018; Pilleron et al., 2019). In this study, the term “older adult” follows the criterion adopted by each source consulted and is specified whenever relevant. Brazil’s population is aging rapidly: the 2022 Population Census recorded that 15.8% of the population was aged 60 years or older, corresponding to approximately 32.1 million people and representing a 56.0% increase in the number of older adults compared with 2010 (Instituto Brasileiro de Geografia e Estatística, 2023). At the same time, the National Cancer Institute (Instituto Nacional de Câncer – INCA) estimates 781,000 new cancer cases per year during the 2026–2028 period, or 518,000 when non-melanoma skin tumors are excluded (Instituto Nacional de Câncer, 2026).

Despite its significance, cancer care for older adults cannot be treated merely as an extension of care for younger adults. Age is one of the principal risk factors for cancer, and aging and carcinogenesis share mechanisms such as DNA repair and cellular senescence. Furthermore, biological age may differ from chronological age, meaning that two people of the same age may exhibit different aging profiles (Berben et al., 2021). Aging is therefore a heterogeneous process, and understanding a patient’s underlying health status is essential to therapeutic decision-making (Loh et al., 2018). This situation is compounded by the fact that older adults remain underrepresented in the studies that establish cancer treatment standards, which are based predominantly on younger and healthier participants (Sedrak et al., 2021).

At the level of public policy, Law No. 14,758/2023 established the National Policy for Cancer Prevention and Control and the National Navigation Program for People Diagnosed with Cancer within the Unified Health System (Sistema Único de Saúde – SUS) (Brasil, 2023). Subsequent regulations formally established the Cancer Prevention and Control Network (Brasil, 2025a) and regulated the Navigation Program (Brasil, 2025b). These frameworks create the institutional conditions needed to organize the cancer care pathway, making it timely to discuss how the specific characteristics of the older population can be incorporated into them.

Within this context, the following research question was defined: What do the scientific literature and official documents indicate regarding the epidemiological profile of cancer in older adults, the specific features of cancer care for this population, and the challenges facing public health? The general objective is to analyze cancer in older adults from epidemiological, clinical, and public health perspectives. The specific objectives are to describe the global and national landscape of the cancer burden in this age group; discuss the biological and clinical characteristics underpinning comprehensive geriatric assessment; and identify evidence gaps, inequalities, and challenges in the organization of care. The study is justified by the rapid aging of the Brazilian population and the need to inform the practice of health professionals, particularly nursing professionals, as well as the development of public policies.

METHODOLOGY

TYPE OF STUDY

This is a narrative literature review with a qualitative, descriptive approach, conducted to gather, describe, and critically discuss the available knowledge on cancer in older adults. This design was selected because the topic encompasses different dimensions, including epidemiology, the biology of aging, clinical practice, and public policy, whose joint discussion benefits from a broad, interpretive approach. Because it does not follow a systematic search and selection protocol, the narrative review is not intended to exhaust the literature or quantify the number of studies on the subject.

The guiding question was: What do the scientific literature and official documents indicate regarding the epidemiological profile of cancer in older adults, the specific features of cancer care for this population, and the challenges facing public health?

SOURCES AND SELECTION CRITERIA

The sources were identified through a non-systematic search of articles published in scientific journals in the fields of oncology, epidemiology, and geriatrics; guidelines and consensus statements

issued by geriatric oncology societies; national and international reference documents; and current Brazilian legislation. Sources directly related to cancer in older adults or providing population data necessary to contextualize the issue were selected, with priority given to population-based studies, reviews, guidelines, official documents, and more recent publications.

Because no systematic database search was conducted, no descriptors, Boolean operators, fixed date range, or multistage screening process were applied, and no selection flowchart was prepared. The numerical data presented were extracted from the cited sources themselves and retain the age range adopted by each source.

ORGANIZATION AND ANALYSIS OF INFORMATION

The information was organized by thematic affinity into four areas: the epidemiological landscape and projections; the biology of aging and clinical characteristics; comprehensive geriatric assessment and therapeutic decision-making; and evidence gaps, inequalities, and public policies. The analysis was qualitative and descriptive, involving a critical reading and interpretive synthesis of the findings, while the main sources were systematized in Table 1.

ETHICAL CONSIDERATIONS

Because this literature review was conducted exclusively with secondary, publicly available data, the study did not involve human participants and was therefore exempt from review by a Research Ethics Committee, in accordance with Resolution No. 510 of April 7, 2016, issued by the National Health Council.

RESULTS AND DISCUSSION

A synthesis of the main sources analyzed is presented in Table 1. The findings are discussed below according to the thematic areas defined in the methodology.

Table 1

Synthesis of the main sources analyzed concerning cancer in older adults, aging, and cancer care

Author/Year	Objective	Main findings	Implication
Bray <i>et al.</i> (2024)	To estimate cancer incidence and mortality in 185 countries in 2022.	Approximately 20 million new cases and 9.7 million deaths; lung, female breast, colorectal, prostate, and stomach cancers were the most common.	Reinforces the need for cancer prevention and control measures on a global scale.
Pilleron <i>et al.</i> (2019)	To describe incidence among people aged 65 years or older in 2012 and project it to 2035.	6.7 million cases, or 47.5% of the total, in 2012; 14 million cases projected for 2035, nearly 60% of the total, with a greater relative increase in less developed regions.	Population aging poses a growing challenge to health systems, particularly those with limited resources.
Pilleron <i>et al.</i> (2021)	To estimate incidence among people aged 80 years or older in 2018 and 2050.	2.3 million cases in 2018, representing 13% of the total; 6.9 million projected for 2050, representing 20.5%.	The oldest adults should be considered in cancer control policies.
Pilleron <i>et al.</i> (2022)	To analyze incidence trends among people aged 50 years or older in 44 countries from 1998 to 2012.	Overall incidence increased in most countries and age groups; the greatest increase among people aged 75 years or older occurred in Ecuador; colorectal cancer incidence increased.	Cancer care systems need to adapt to the growing number of older patients.
Berben <i>et al.</i> (2021)	To review the connections between aging and cancer and biomarkers of biological age.	Age is a central risk factor; DNA repair and senescence are shared mechanisms; biological age may differ from chronological age.	Biomarkers may support individualized treatments.
Wildiers <i>et al.</i> (2014)	To update SIOG recommendations on geriatric assessment in older patients with cancer.	Recommended assessing function, comorbidities, cognition, mental health, fatigue, social support, nutrition, and geriatric syndromes.	Evidence of the usefulness of geriatric assessment is increasing, but further research is still needed.
Mohile <i>et al.</i> (2018)	To provide guidance on assessing and managing vulnerabilities among older adults receiving chemotherapy.	For patients aged 65 years or older, geriatric assessment and toxicity-risk tools, namely CARG or CRASH, were recommended.	Collaboration with caregivers and assessment-guided interventions are essential.
Sedrak <i>et al.</i> (2021)	To review barriers and interventions relating to the participation of older adults in cancer clinical trials.	Older adults remain underrepresented; few studies have evaluated strategies to increase their inclusion.	Therapeutic evidence is derived primarily from younger and healthier patients.

Source: Prepared by the authors (2026), based on the cited publications.

GLOBAL AND NATIONAL EPIDEMIOLOGICAL LANDSCAPE

Global data confirm the magnitude of cancer. According to Bray et al. (2024), lung (12.4%), female breast (11.6%), colorectal (9.6%), prostate (7.3%), and stomach (4.9%) cancers were the most

common cancers in the overall population in 2022. When the analysis is restricted to older adults, Pilleron et al. (2019) found that lung, colorectal, prostate, stomach, and breast cancers accounted for 55% of incidence among people aged 65 years or older in 2012, with distinct regional patterns, and that approximately 48% of these cases occurred in less developed regions. Among individuals aged 80 years or older, breast, lung, and colon cancers were the most common in women, while prostate, lung, and colon cancers were the most common in men (Pilleron et al., 2021).

Projections indicate substantial growth. Pilleron et al. (2019) estimated that, by 2035, new cases among older adults would increase by 144% in less developed regions, compared with 54% in more developed regions. Pilleron et al. (2021) projected that 6.9 million new cases, representing 20.5% of the total, would occur among people aged 80 years or older in 2050, compared with 2.3 million cases, or 13%, in 2018. From a broader perspective, Bizuayehu et al. (2024) projected a global increase of 77% in cancer cases and 90% in cancer deaths by 2050, with proportionally greater growth in countries with a low Human Development Index. Because these estimates encompass the general population, they should be interpreted in light of population aging, which contributes substantially to the increase in the number of cases (Pilleron et al., 2019).

Regarding trends, Pilleron et al. (2022), in their analysis of registries from 44 countries between 1998 and 2012, observed an increase in overall cancer incidence in most countries and across all age groups beginning at age 50. The largest increase among people aged 75 years or older occurred in Ecuador. Colorectal cancer incidence increased in most countries, while lung cancer followed different patterns, increasing among women and decreasing among men.

In Brazil, INCA's 2026–2028 estimates indicate that, apart from non-melanoma skin cancer, prostate cancer, with 77,920 cases per year, and female breast cancer, with 78,610 cases per year, have the highest incidence among men and women, respectively. Colon and rectal cancer is the third most common cancer in both sexes, with 53,810 cases per year (Instituto Nacional de Câncer, 2026). These tumors are among the most common cancers affecting older adults internationally (Pilleron et al., 2019); however,

the national figures cited refer to the general population. Given that 15.8% of Brazilians are aged 60 years or older (Instituto Brasileiro de Geografia e Estatística, 2023), analysis by age group using cancer registry data is a necessary step toward determining the specific burden in this population.

AGING, CANCER BIOLOGY, AND CLINICAL CHARACTERISTICS

From a biological perspective, Berben et al. (2021) emphasize that age is one of the principal risk factors for cancer and that the two processes share mechanisms, including DNA repair and cellular senescence, in which the tumor suppressor genes TP53 and p16INK4a play a central role. The authors also stress that biological age may differ from chronological age and that biomarkers capable of reflecting biological age could support individualized treatments.

This heterogeneity has direct consequences for clinical practice. Loh et al. (2018) state that aging is a heterogeneous process and that understanding underlying clinical, psychosocial, and functional conditions is critical to therapeutic decision-making. In practical terms, this suggests that defining a care plan solely on the basis of chronological age may underestimate the capacity of some patients and overestimate that of others.

COMPREHENSIVE GERIATRIC ASSESSMENT AND THERAPEUTIC DECISION-MAKING

Comprehensive geriatric assessment (CGA) is the principal instrument proposed for addressing this heterogeneity. According to the consensus statement of the International Society of Geriatric Oncology (SIOG), CGA detects impairments not identified through routine history-taking and physical examination, helps predict severe treatment toxicity and overall survival across several tumor types, and can influence therapeutic decisions (Wildiers et al., 2014). The consensus recommended assessing function, comorbidities, cognition, mental health, fatigue, social circumstances and support, nutrition, and geriatric syndromes, without endorsing one specific set of instruments over another.

The American Society of Clinical Oncology (ASCO) guideline, in turn, recommends CGA for patients aged 65 years or older receiving chemotherapy. At a minimum, the assessment should cover function, comorbidities, falls, depression, cognition, and nutrition. The Cancer and Aging Research Group (CARG) tool or the Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) should be used to estimate toxicity risk, while Geriatric-8 or the Vulnerable Elders Survey-13 (VES-13) should be used to predict mortality (Mohile et al., 2018). The guideline also stresses collaboration with caregivers and the implementation of interventions targeting the non-oncological problems identified. Chart 1 summarizes these recommendations.

Chart 1

Recommendations concerning comprehensive geriatric assessment in older patients with cancer

Document	Recommended components or domains	Observations
SIOG (Wildiers et al., 2014)	Functional status; comorbidities; cognition; mental health; fatigue; social circumstances and support; nutrition; geriatric syndromes.	The panel did not endorse one specific combination of instruments over another.
ASCO (Mohile et al., 2018)	At a minimum: function, comorbidities, falls, depression, cognition, and nutrition.	Patients aged 65 years or older receiving chemotherapy; CARG or CRASH for toxicity risk; Geriatric-8 or VES-13 for mortality; collaboration with caregivers.

Source: Prepared by the authors (2026), based on Wildiers et al. (2014) and Mohile et al. (2018).

Despite this recommendation, incorporating CGA into routine oncology practice is hindered by time and resource constraints and a lack of specialized interpretation (Loh et al., 2018). Because CGA is multidimensional and depends on caregiver collaboration, multidisciplinary teams are likely to play an important role in its implementation. In a systematic review of 13 studies, Komatsu and Komatsu (2023) found that nursing professionals’ involvement in decision-making for older adults with cancer centers on conducting geriatric assessments to identify geriatric syndromes, providing information, and advocating for patient preferences, with lack of time identified as a barrier. These findings place nursing professionals within the CGA process, although applying them to the SUS context is an interpretation by the authors and warrants evaluation in specific studies.

EVIDENCE GAPS AND UNDERREPRESENTATION IN CLINICAL TRIALS

Another challenge concerns the evidence base. The systematic review by Sedrak et al. (2021) concluded that older adults remain substantially underrepresented in the studies that establish standards of cancer treatment. Consequently, much of the available knowledge is derived from trials involving younger and healthier patients. Of the 8,691 studies screened by the authors, only 13 met the inclusion criteria concerning barriers and interventions, and only one evaluated a strategy intended to increase the participation of older adults. In practice, this means that management approaches for older adults frequently depend on extrapolation, reinforcing the importance of CGA and of trials designed specifically for this population.

INEQUALITIES, PUBLIC POLICIES, AND ORGANIZATION OF CARE

Inequalities constitute a cross-cutting issue. Bizuayehu et al. (2024) demonstrated disparities in the cancer burden according to the Human Development Index (HDI), with cases projected to increase by 142% in low-HDI countries by 2050, compared with 42% in very-high-HDI countries. Pilleron et al. (2019) caution that the increase in cancer cases among older adults poses a distinctive challenge to health systems with limited resources and weaker infrastructure. In Brazil, INCA attributes the regional differences observed in the 2026–2028 estimates to unequal access to prevention, screening, and treatment (Instituto Nacional de Câncer, 2026).

From a regulatory perspective, the Older Persons Act guarantees comprehensive health care for this population through the SUS (Brasil, 2003), while Law No. 14,758/2023 established the National Policy for Cancer Prevention and Control and the National Navigation Program (Brasil, 2023). These were complemented by ordinances issued in 2025 that established the Cancer Prevention and Control Network and the Navigation Program for People Diagnosed with Cancer (Brasil, 2025a, 2025b). These instruments provide an institutional basis for continuous care. One possibility for consideration is that patient navigation could incorporate geriatric screening and caregiver support, in accordance with the

recommendations of Mohile et al. (2018). This proposal derives from the authors' interpretation rather than from the results of the studies analyzed.

IMPLICATIONS FOR NURSING PRACTICE

Taken together, the sources analyzed allow implications for nursing practice to be outlined. These implications constitute an interpretive synthesis by the authors rather than findings from the studies. First, the domains that the guidelines recommend assessing through CGA, such as function, comorbidities, cognition, nutrition, falls, and social circumstances and support (Wildiers et al., 2014; Mohile et al., 2018), can be related to areas monitored in nursing care, suggesting that these professionals may contribute to identifying vulnerabilities. Second, the review by Komatsu and Komatsu (2023) describes the role of nursing professionals in providing information and advocating for the preferences of older patients during decision-making, which aligns with the principle that decisions should consider each person's clinical, psychosocial, and functional conditions (Loh et al., 2018). Third, the ASCO guideline's emphasis on collaboration with caregivers and interventions targeting identified non-oncological problems (Mohile et al., 2018) indicates scope for actions aimed at guiding family members and coordinating with the care network. These possibilities are constrained by the limitations of time and resources already identified in the literature (Loh et al., 2018; Komatsu; Komatsu, 2023), and their feasibility in the SUS context still needs to be investigated.

STUDY LIMITATIONS

Because this is a narrative review without a systematic search, the selection of sources may not have encompassed all published research on the topic. The epidemiological studies used different age ranges, namely 50, 60, 65, and 80 years or older, as well as estimates from different periods, which limits direct comparisons. A substantial proportion of the evidence also derives from high-income settings.

Furthermore, the national estimates mentioned refer to the general population. These aspects should be considered when interpreting the findings.

CONCLUSION

This study analyzed cancer in older adults from epidemiological, clinical, and public health perspectives, thereby fulfilling its stated objective. The findings indicate that older adults account for a substantial proportion of cancer cases, with incidence projected to increase over the coming decades, particularly in less developed regions, and with lung, colorectal, prostate, breast, and stomach tumors being especially prominent. In Brazil, rapid population aging and the estimate of 781,000 new cases per year reinforce the need to plan cancer care with this age group in mind.

Chronological age alone was found not to reflect the heterogeneity of aging, which supports comprehensive geriatric assessment as a strategy for identifying vulnerabilities, estimating risks, and individualizing management, with the involvement of caregivers and multidisciplinary teams. The underrepresentation of older adults in clinical trials, inequalities in access, and time and resource constraints affecting the implementation of geriatric assessment are among the principal challenges.

As its contribution, this study systematizes evidence that may inform the practice of health professionals, particularly nursing professionals, and the discussion regarding the inclusion of geriatric needs in SUS cancer policies. Further studies are recommended to describe the cancer burden among older Brazilians by age group, evaluate the feasibility of comprehensive geriatric assessment and patient navigation within the SUS, and conduct systematic reviews to expand and confirm the evidence discussed herein.

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