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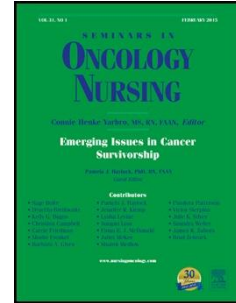
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**Title:**

Models of Care in Geriatric Oncology Nursing

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**Abstract**

Objectives: To review models of care for older adults with cancer, with a focus on the role of the oncology nurse in geriatric oncology care. International exemplars of geriatric oncology nursing care are discussed.

Data source: Published peer reviewed literature, web-based resources, professional society materials, and the authors' experience.

Conclusion: Nursing care for older patients with cancer is complex and requires integrating knowledge from multiple disciplines that blends the sciences of geriatrics, oncology, and nursing. and which recognizes the dimensions of quality of life. Implications for Nursing Practice: Oncology nurses can benefit from learning key skills of comprehensive geriatric screening and assessment to improve the care they provide for older adults with cancer.

**Key words: geriatric oncology, nursing, models of care**

The challenge of caring for older people with cancer is the complexity of assessing and understanding the inter-related physiological and psychosocial aspects of their responses to the diagnosis of cancer and its treatment [1]. The proportion of cancer patients more than 65 years of age is currently 60% in developed countries [2] and is expected to rise markedly in coming decades. Thus, it is timely to consider how nurses can optimize the outcomes of older people with cancer. Geriatrics and oncology, however, often tend to function as completely separate disciplines. Ideally, geriatric oncology nursing merges the art and science of geriatric nursing with the art and science of oncology nursing, while stressing the importance of quality of life concerns and function. For example, geriatric nursing aims to maximize independence by assessing and addressing key areas in which older adults can develop deficits. In contrast, oncology nursing embraces a holistic approach by providing care through the cancer continuum from prevention, early detection, treatment, and palliative care, with a focus on symptom and disease management.

As shown in Figure 1, however, geriatric and oncology nursing have commonalities that enable collaboration to occur. Both fields of nursing value patient participation in care, patient goals, and quality of life and function. The oncology nurse in this model is responsible for the coordination of care.

Figure 1 illustrates the components of geriatric oncology nursing care which extends beyond the traditional medical management of illness and includes assessment and management of the physical, cognitive, affective, social, spiritual, and environmental areas of care in which nurses excel [3-8].

The role of geriatrics in oncology nursing is not widely recognized. For example, a survey of U.S. oncology nurses indicated that the geriatric knowledge levels of nurses working in a comprehensive cancer center was less than that of nurses working in a general population [9]. The aim of this article is to discuss aspects of the nursing care of older adults with cancer, with a focus on the potential role of the oncology nurse in comprehensive geriatric assessment (CGA) and comprehensive geriatric care teams. International exemplars of models from France, the United States, and Australia, which use CGA in different ways in cancer care, are also discussed. The article concludes with a discussion of recommended guidelines for geriatric oncology practice that nurses in this field might find useful.

### **Models of Care in Geriatric Oncology**

The role of nurses in geriatric cancer care is predicated on the precise needs of the health service and its patients, and the personnel and material sources that are available. These roles can be roughly categorized into models of care that are driven by CGAs and those driven by geriatric resource nurses. Broadly speaking, models driven by CGA use the input of a geriatric specialist. For example, older adults with cancer could be admitted to a specialized unit under the supervision of nurses and other members of the multidisciplinary team with geriatric expertise. This model of care includes the geriatric evaluation and management unit (GEMU) [10], which includes both acute care and inpatient rehabilitation care programs. Another example is an oncology acute care for elders unit (OACE unit) [11] in which nurses screen for geriatric specific problems and intervene as applicable.

Another approach to care for the older adult patient involves a geriatric resource nurse (GRN), who functions as an expert geriatric nurse and serves as a role model in clinical areas where older people with cancer receive care [12]. The concept of the GRN was initially

developed by the program Nurses Improving Care for Health System Elders (NICHE). Information about this program is available on their website [13]. NICHE is a program that was designed for hospitals and institutions to improve the care of older adults. The program is used primarily in the U.S. and Canada, with limited expansion to other countries such as Singapore and Bermuda [13]. GRNs work in collaboration with a multidisciplinary geriatric consultation team (GCT) if one is present [14]. The GRN model is acknowledged as an effective method of integrating high-quality evidence-based geriatric nursing into the clinical practice of caring for older persons [15-17]. An organization can become NICHE-designated by participating in the NICHE Leadership Training Program and developing a plan to implement the program. This model of care can be used in both hospital and ambulatory settings. It is not known, however, how many institutions utilize this model or if all GRN teams function in a similar way.

Successful GRN programs based on the NICHE model also provide staff education and geriatric care rounds [14]. Lopez et al describe their GRN implementation strategy and the GRNs ability to identify and intervene for patients at high risk for geriatric syndromes [14]. GRNs are typically nurses who volunteered and expressed a specific interest in caring for older patients. They were then educated using the NICHE program, which consists of 20 hours of educational content specific to the nursing needs of the older person. Many NICHE-designated organizations also continue the training and follow-up using patient rounds, case studies, or other methods to apply the learning to nursing practice on an ongoing basis. The limitations of this approach are in instances where nurses are assigned as GRN without an underlying commitment to geriatric nursing. It has been noted that where this occurs, the GRN is largely ineffective at fully integrating the GRN model into the culture of care [18]. Another requisite for success is that the NICHE coordinator at the institution must be present to drive and support the program.

Another nurse-driven program for geriatric care is the Geriatric Resources for Assessment and Care of Elders (GRACE) model, which was developed for care in the home setting. The keystone of the GRACE intervention is the GRACE support team, consisting of a nurse practitioner and a social worker. The GRACE model of primary care was designed for low-income seniors and their primary care physicians (PCPs) in the US. Its aim was to improve the quality of geriatric care, optimize health and functional status, decrease excess health care use, and prevent long-term nursing home placement [19]. The GRACE support team enrolls and meets with the patient to conduct an in-home CGA [20]. The support team then meets with the larger GRACE interdisciplinary team (including a geriatrician, pharmacist, physical therapist, mental health social worker, and community-based services liaison) to develop an individualized care plan including activation of GRACE protocols for evaluating and managing common geriatric conditions [19]. This model of care has improved outcomes by decreasing emergency room visits, hospitalizations, readmissions, and reducing the costs of care [20] however, GRACE is not specific to the oncology population.

### **Comprehensive Geriatric Assessment**

Many approaches to geriatric oncology are based on the notion of comprehensive geriatric assessment (CGA), which is defined as a “multidimensional, interdisciplinary diagnostic process focusing on determining an older person’s medical, psychosocial, and functional capability in order to develop a coordinated and integrated plan for treatment and long-term follow-up” [3]. While this standard definition of the CGA *process* is widely accepted, a CGA *instrument* is best conceived as a suite of tools, the components of which vary according



to assessment need. Each CGA suite measures many of the same domains of care, but in ways considered most relevant to the assessment needs of the patients, clinicians, researchers, and health services that use it. Hence the individual instruments that comprise CGAs tend to vary from one setting to another [21, 22]. However, a standardized, online form of CGA, which has been subjected to rigorous testing, is commonly used in many residential and aged care settings internationally to predict potential vulnerability to treatments and to indicate geriatric domains of risk [23]. This CGA form has been developed by an international multidisciplinary collaborative (the International Resident Assessment Instrument [interRAI]) group, who aim to enhance the quality of life of complex patients through a seamless comprehensive assessment system. InterRAI has also developed a standardized CGA for use in acute settings [24]. Cancer treatment assessment and decision-making, however, is complicated by the additive risks inherent in intensive anti-neoplastic therapies and thus far, the interRAI system has not had great uptake in cancer care [21]. Nonetheless, there are several reasons to perform CGA in older patients with cancer [25]. CGA has significant prognostic value for overall survival and it can often predict adverse events of cancer therapy [26, 27]. Most importantly, CGA can detect previously unknown geriatric problems in more than 50% of patients with cancer [28], thereby enabling targeted geriatric interventions that can improve quality of life, compliance to therapy, and overall survival [4, 25].

Oncology researchers and clinicians have developed their own forms of CGA for cancer care. While the forms can be quite different, they typically consist of an evaluation of the older patient's physical, psychological, and socio-environmental function using a range of quantitative survey-based measures that are considered reliable in geriatric science [21, 22]. In general, the CGA in cancer care comprises five consecutive steps (Table 1) [4]. The first step involves a

quick screening of the patient for potential risk or frailty using a brief instrument such as the G-8 [29, 30], the Flemish version of the Triage Risk Screening Tool (fTRST) [30, 31] or the Vulnerable Elders Survey-13 [32] to identify older patients who could potentially benefit from a complete CGA. This first step is essential because a complete screen is often time-consuming and uses vital specialist resources, which in many health care environments might not be economically feasible [21]. The second step entails a comprehensive assessment of the patient. The third step is the development of recommendations for intervention, based on the problems detected by the CGA. In ideal situations, the interventions are developed by consensus of the multidisciplinary team. Step four is the implementation of these recommendations, followed by step five, where assessment is ongoing and care is adjusted according to the findings.

### **Exemplars of Care for Older Adults with Cancer**

Although some models of geriatric oncology are not routinely implemented, they do exist, and nurses play a key role in these programs. We discuss three of these approaches, from France, Australia, and the United States.

#### **France**

The French national cancer plan recommended the creation of a Geriatric Oncology Board at the French National Cancer Institute (INCa) to address the specific needs of older persons [33]. This recommendation was driven by the recognition of the complex needs and incidence of disease in this age group throughout France. In 2006, fifteen Pilot Coordination Units of Geriatric Oncology (UCOGs) were created and charged with 1) initiating collaboration between geriatricians and oncologists; 2) strengthening academic training in geriatric oncology; and 3) disseminating information to professionals and older patients with cancer and their families and caregivers [33]. In 2011, the program was expanded, creating 28 Coordination Units

of Geriatric Oncology (UCOGs) to implement systematic geriatric screening using the G8 tool for patients who are  $\geq 70$  years old and undergoing anticancer treatment.

The G8 is a screening tool for older persons with cancer that includes seven items from the Mini Nutritional Assessment (MNA) [29, 34]. The MNA assesses decline in food intake, weight loss, mobility, neuropsychological problems, body mass index, number of medications taken per day, and patient's assessment of their health status compared to others their own age [35]. If the G8 is positive (implying a potential deficit) then further care would involve performing a CGA with a multidisciplinary team, including nurses. The components of the CGA that are evaluated are listed in Table 2. Post CGA, the geriatrician synthesizes the data from the assessment and makes recommendations to the oncologist to guide decisions about treatment and geriatric oncology care. Figure 2 provides a diagrammatic explanation of the process. Patients who screen negative initially, or who are found to be false positives after CGA, will receive standard oncology care (i.e. standard adult dose of chemotherapy). Patients who screen positive and are deemed to have common or usual aging changes will be further evaluated for geriatric syndromes and comorbidities to determine if the care should be altered or there should be an expanded CGA performed. Patients who are found to be experiencing pathological aging changes will receive supportive palliative care.

Additionally, the UCOG supports the development of clinical trials dedicated to older persons, training in geriatric oncology for caregivers, and education for patients and the general public on care of older adults with cancer. The Geriatric Oncology Nurse in this setting manages and coordinates the geriatric oncology program, including clinical trials and specific nursing research. Most nurses in this role will have an academic degree in geriatric oncology (available at four universities located in Nantes, Nice, Paris, and Toulouse) [36]. The nurse's

clinical role is to coordinate the CGA of older patients with cancer, create and manage individualized care plans, and support patient caregivers while coordinating care with other institutions, teams, and home care suppliers. This model is not followed at every establishment where cancer is treated in France, as it is a challenge for the UCOGs to convince all professionals working in oncology to integrate practice in the recommended way. There is also variability in how the Geriatric Oncology Nurses practice under this program as it depends whether geriatric oncology is a priority for each particular institution, if there are available resources such as a geriatrician, a multidisciplinary team with enough different professionals, and if care providers have completed the recommended geriatric training.

### **Australia**

There is recognition in Australia at the highest clinical and cancer policy levels that geriatric oncology is important, yet little of this concern has translated to practice<sup>31</sup>. There are three geriatric oncology-specific approaches to care currently operating in Australia: at the Princess Alexandra Hospital in Brisbane, the Royal Perth Hospital, and the Gold Coast University Hospital in Southern Queensland (which was under implementation at the time of writing). They are multidisciplinary in nature, with a key role for specially-trained geriatric oncology nurses. For example, the Royal Perth model (see Figure 3) comprises a phone or face-to-face geriatric screening by nurses of all patients  $\geq 70$  years referred to the service. The outcomes from the screening are discussed at a geriatric oncology multidisciplinary team meeting comprising medical oncologists, a geriatrician, a geriatric oncology nurse, a pharmacist, and allied health team members.

The Princess Alexandra Hospital has a designated geriatric oncology clinical nurse consultant who similarly screens all patients over 70 years of age for potential functional deficits

(with a combination of the Vulnerable Elders Survey, quality of life data, and degree of social support) prior to their first consultation with the physician for potential chemotherapy. All patients who screen as having potential deficits in any domain of health automatically receive a CGA, the outcomes of which are available to all interested team members. The geriatric oncology nurse also implements interventions and makes allied health referrals where older patients are identified by the CGA as requiring physical or psychosocial support throughout their cancer treatment.

The experience to date with this model, which has been in place for 18 months is equivocal. Older patients comprise a significant proportion of all cancer patients in this service; and on screening, most require a full CGA. This is a heavy assessment burden for one nurse. Moreover, while allied health and other nursing staff have embraced the CGA, and often base their interventions upon its findings, oncologist uptake is mixed. In the context of a very busy health service, it has also been logistically difficult to involve specialized geriatric medical input into care. Hence a research project is currently underway at the Princess Alexandra Hospital to investigate the present utility and the optimal use of the CGA in this patient group, specifically determining whether interventions by the geriatric oncology nurse that are based on the CGA assessment improve survival, quality of life, quality of function, and lessen the impact of comorbidities. An efficient way of incorporating geriatric medical input is also being explored.

### **United States**

One model that exists in the US includes the use of a GRN program and the use of CGA in cancer care. The City of Hope model has at least one GRN in each inpatient unit and several in ambulatory care areas. The GRNs attend the NICHE 20 hour training program and participate in

monthly meetings for six months to apply the lessons to practice and discuss relevant cases. After completion of the formal course, GRN meetings occur quarterly and learning continues through webinars, lectures, and participation in organizational projects that affect older adults, such as prevention of falls and delirium. This program is limited in that a GRN is not available to take care of all older adults with cancer and is not always available as a resource to other staff. Additionally, the course provides basic knowledge about caring for older adults, and learning to care for this population is an ongoing endeavor. This institution has also adopted a CGA-based chemotherapy toxicity prediction tool, which has been integrated into the electronic medical record [37]. The results of key questions from the CGA-based chemotherapy toxicity prediction tool generate a score that will predict the likelihood of the patient developing a grade 3-5 chemotherapy related toxicity. The key questions of a CGA that were found to predict toxicity included falls in the last six months, hearing impairment, limited ability to walk one block, assistance required in taking medications, and decreased social activity [37]. A high score on the toxicity predictor prompts a nurse to provide additional patient education and/or a referral to another discipline such as Physical Therapy, if indicated. A new program has also been started in which the geriatric oncology Nurse Practitioner (NP) completes a CGA on an older individual and develops a care plan based on the results. This program is being conducted as a clinical trial with the outcome is pending at the time of writing, however, the assessment may prompt referrals to other disciplines (rehabilitation, pharmacy, urology, etc.) or additional education (sleep promotion, exercise recommendations, etc.) to be performed by the nurse as needs are uncovered.

Another U. S. institution, Memorial Sloan Kettering Cancer Center (MSKCC) in New York, NY, also employs GRNs on each inpatient unit to recognize geriatric issues and

recommend interventions (S. McMillan, oral communication, September 2015). Additionally, MSKCC utilizes geriatric NPs in both the outpatient and inpatient arenas. Geriatric consults, termed internal referrals (IR), are generated for at-risk older adult outpatients, such as those that are pre-operative, pre-transplant, or identified as having geriatric concerns that might affect disease course. The outpatient geriatric oncology NP and a geriatrician provide a comprehensive evaluation of the patient, and make care recommendations to the oncologist. The inpatient geriatric NP follows patients that have been cleared for surgery on post-op day one and as needed throughout their hospital course. In addition, IR patients that become hospitalized may be followed by the inpatient geriatric team as medical/geriatric needs arise. The inpatient NP may also receive direct referrals for inpatients 65 years and older with geriatric concerns and makes joint daily rounds with a geriatrician. The MSKCC geriatric department also offers specialized rehabilitation, medication, social work, and psychiatric programs for patients 65 and older [38].

### **Guidelines to Support the Care of Older Patients with Cancer**

In addition to models of care for older patients with cancer, guidelines that focus on this target population are available for oncology nurses. These guidelines outline the standards and competencies that are expected from nurses and other health care workers and describe points of interest from a clinical point of view.

The National Comprehensive Cancer Network (NCCN) has developed a set of guidelines for the older adult oncology (OAO) patient [39]. These guidelines contain valuable information for care of older persons with cancer. For example, the guidelines recommend non-pharmacological methods of sleep promotion for patients with insomnia. Other OAO NCCN guidelines that can assist nurses in providing care to this population include a list of medications

for supportive care; assessment of and strategies to improve adherence to oral medications; assessing for cognitive function and decision making capacity; and assessing functional status and fall risk.

The International Society of Geriatric Oncology (SIOG) has similarly developed a broad range of guidelines in the field of geriatric oncology [40]. For nurses, the recent guidelines on geriatric screening tools are the most relevant [22, 41]. Decoster, et al [41] reported on 17 different screening tools and concluded that VES-13 and G8 were the most widely used, finding G8 to have the highest sensitivity in older adults with cancer . A SIOG position statement is available that promotes culturally competent care by addressing not only the pathophysiology of the disease state and aging physical and psychological changes, but also the social and cultural components of care [42]. SIOG has formed a Nursing and Allied Health Interest Group to promote excellence in geriatric oncology for nurses and allied health care workers. The goals of this group include improving the knowledge, expertise, practice, and personal development in geriatric oncology nursing.

Less prevalent are guidelines from nursing organizations on the care of older adults with cancer. The Oncology Nursing Society (ONS) does not have a specific position statement pertaining to the care of older adults, but they have published several books outlining approaches to care for older adults with cancer. Nurses Improving Care for Health System Elders (NICHE) is primarily focused on educating nurses about geriatrics. NICHE does however provide a program “Nursing Care of the Older Adult with Cancer”, which highlights practical information and special considerations in this population [13]. There is generally, however, very little attention paid to geriatrics for the oncology nurse and even fewer guidelines to direct their care.



Geriatric nursing organizations, which are not oncology-focused, can provide guidance on general geriatric care principles. A reliable resource is the Hartford Institute for Geriatric Nursing, including their ConsultGerRN.org program [43], which provides an evidence-based source for common geriatric syndromes and issues. The Try This series on their website contains many useful assessment tools. The American Geriatrics Society published recommendations for potentially inappropriate medication use in older adults; this guideline can assist the nurse working in geriatric oncology to assess drug use in older adults [44].

## **Conclusion**

Geriatric oncology nursing is rapidly expanding and nurses continue to be challenged to incorporate the special needs of older patients in their daily oncology practice. An ideal model of care would weave the concepts of oncology, geriatrics, and nursing care together. This can best be accomplished by educating oncology nurses in the concepts of geriatrics and exposing them to the use of geriatric assessment and screening tools to help identify and act on areas of concern. This article described several models that are implemented in daily practice for the care of older patients in general and more specifically for older patients with cancer. In addition, guidelines were described which can be helpful for nurses to improve and further expand the care they give to their patients. These approaches are primarily nurse-driven and require the motivation of the individual nurse to obtain the necessary skill set to advance the care of older people with cancer.

Programs that promote education in geriatrics for oncology nurses are needed to allow the concept of merging geriatrics and oncology in nursing practice. Geriatric oncology programs dedicated to health professionals and students will teach nurses about the vulnerability of this population so they may identify vulnerable older adults to prevent functional decline, intervene on developing geriatric syndromes, while maintaining an individual's quality of life.

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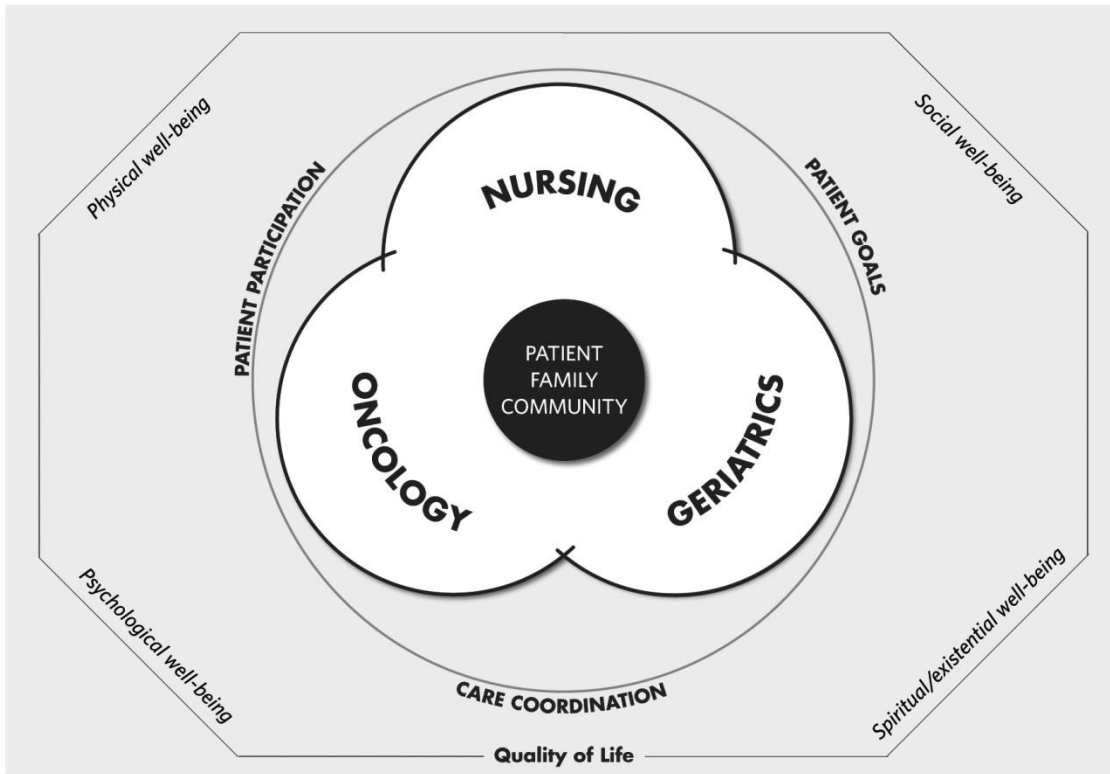
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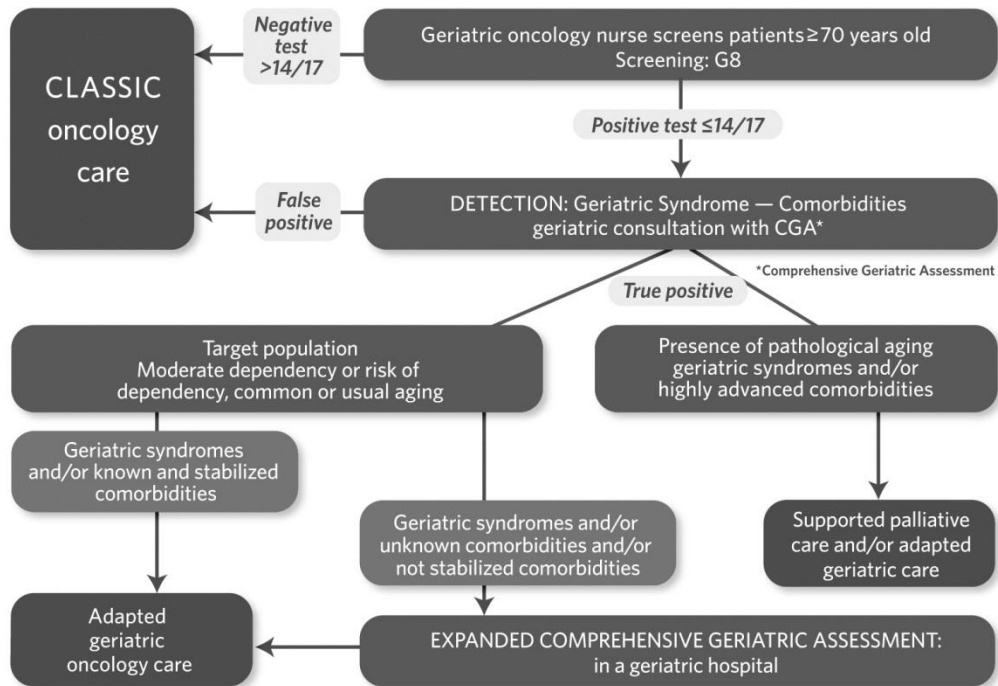
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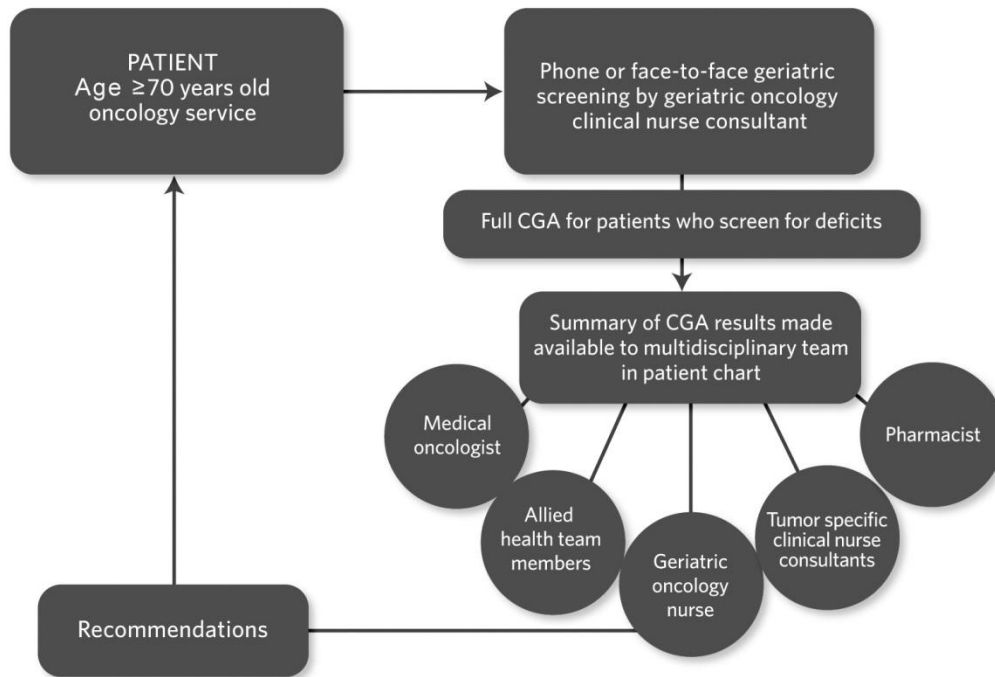
**Figure 1. Proposed Model for Geriatric Oncology Nursing (5-8)**

Accepted

**Figure 2. French model of care in geriatric oncology**



Accepte

**Figure 3. Princess Alexandra Hospital Model of Geriatric Oncology Care**

Accepted



**Table 1. Five Consecutive Steps of Comprehensive Geriatric Assessment (CGA) [4]**

|   |
|---|
| I. Identifying older patients who can benefit from CGA through screening                          |
| II. Assessing identified patients using a CGA   |
| III. Developing recommendations for geriatric interventions based on the problems detected by CGA |
| IV. Implementing these recommendations in a care plan   |
| V. Provision of follow-up and adjustment of the care plan with repeated CGA                       |

**Table 2. Comprehensive Geriatric Assessment Components: French Model of Care**

|  |
|--|
| Social evaluation                              |
| Medication review                              |
| Review of comorbidities                        |
| Weight loss during last 3 months               |
| Cognitive evaluation                           |
| Depression assessment                          |
| Fall risk assessment                           |
| Vision and hearing evaluation                  |
| Activities of daily living dependence measures |

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