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The Evolution of Gero-Oncology Nursing

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Abstract

Objectives—This article summarizes the evolution of gero-oncology nursing and highlights key educational initiatives, clinical practice issues, and research areas to enhance care of older adults with cancer.

Data Sources—Peer-reviewed literature, position statements, clinical practice guidelines, web-based materials, and professional organizations' resources.

Conclusion—Globally, the older adult cancer population is rapidly growing. The care of older adults with cancer requires an understanding of their diverse needs and the intersection of cancer and aging. Despite efforts to enhance competence in gerooncology and to develop a body of evidence, nurses and healthcare systems remain under-prepared to provide high quality care for older adults with cancer.

Implications for Nursing Practice—Nurses need to take a leadership role in integrating gerontological principles into oncology settings. Working closely with interdisciplinary team members, nurses should utilize available resources and continue to build evidence through gero-oncology nursing research.

Keywords

Older adult; cancer; geriatric oncology; gero-oncology nursing

Older adults comprise the largest group of patients with cancer. Globally, the number of older adults with cancer is rapidly growing and is projected to increase significantly [1,2]. Older adults with cancer have unique needs and complexities due to physiologic changes associated with aging, the presence of comorbid medical conditions, and psychosocial

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factors related to aging. The nursing care of older adults with cancer requires a sound knowledge of both cancer and gerontological principles and an understanding of the interaction between cancer and aging processes. With this knowledge, oncology nurses will be well prepared to provide appropriate, high quality care to older adults across the cancer continuum. The nursing care of older adults with cancer aims to promote treatment tolerance, manage symptoms, maintain function, improve health, and enhance health-related quality of life (HRQOL), as well as to provide psychosocial support to patients and their family caregivers, many of whom are also older.

Over the past several decades, geriatric oncology has gained increasing recognition as a medical specialty. The integration of geriatric oncology into cancer care has improved the care of older adults with cancer and facilitated positive outcomes [3,4]. The field of gero-oncology nursing is not nearly as well developed. Since the early 1990's, oncology nursing has recognized an imperative to address the unique needs of older adults with cancer, to incorporate gerontological principles into oncology nursing education and practice (See **Table 1**), and to develop evidence through research involving older adults with cancer. Oncology nursing has made strides in these areas and a number of oncology nurses, including clinicians, educators, and researchers, have contributed to the expansion of the field. Yet, oncology nursing and health systems are not fully prepared to provide high quality, evidence-based nursing care for the growing population of older adults with cancer.

In this article, we highlight the development of gero-oncology and nursing's contribution to the care of older adults with cancer. In doing so, we 1) provide a historical perspective on the growth of gero-oncology as an area of critical importance to oncology nursing, 2) describe initiatives to enhance oncology nursing competence in gero-oncology, 3) examine nursing practice issues to enhance care for older adults with cancer, and 4) discuss nursing's contribution to interdisciplinary gero-oncology research in developing a robust evidence-base to improve the care of older adults across the cancer continuum.

Historical Perspective

In 1983, the National Cancer Institute (NCI) and the National Institute on Aging (NIA) convened one of the first symposia on cancer and aging, entitled “Perspectives on the Prevention and Treatment of Cancer in the Elderly.” During that meeting, pioneers in the evolving field of geriatric oncology addressed a number of topics, including differences in physiologic and chronologic age, the biology of cancer and aging, changing demographics of aging and cancer control in older adults, cancer prevention and treatment in older adults, and strategies to increase competence and knowledge in geriatric oncology [7]. Since that time, the field of geriatric oncology as a medical specialty has rapidly developed. The American Society of Clinical Oncology (ASCO) has played a key role in providing education and training focused on geriatric oncology within the medical oncology community [3,4]. A number of other organizations, including the International Society of Geriatric Oncology (SIOG), the Geriatric Oncology Consortium, the National Comprehensive Cancer Network (NCCN), the cooperative research groups through the National Cancer Institute, and the European Organization of Cancer Research and Treatment

(EORTC), have been committed to advancing the field of geriatric oncology and improving care for older adults with cancer.

In the United States, the Oncology Nursing Society (ONS) has been a leader in promoting education, networking, policy, and research initiatives aimed at enhancing nursing care of older adults with cancer. In 1988, the ONS established a Gerontology/Oncology Focus Group to promote networking among members with an interest in the care of older adults with cancer. In 2004, the group was comprised of 47 members [8]. The Gerontology/ Oncology Focus Group remains in existence today and holds annual meetings at the ONS Congress. Despite the growth of the older cancer population and the importance of nursing care in the treatment of older adults with cancer, the Focus Group has not achieved Special Interest Group status within the organization.

In 1992, ONS published its first position paper on cancer and aging [9]. The position paper underwent review by an interdisciplinary panel comprised of nurses, physicians, and researchers who were pioneers in the field. This position paper had four specific goals: 1) to increase oncology nurses' awareness of the challenges associated cancer and aging; 2) to stimulate interest in education, practice, and research related to cancer in older adults; 3) to describe nursing's role in changing practice and policy to improve cancer care in older adults; and 4) to provide a direction for national strategic planning related to cancer in older adults. The position paper identified 10 position statements or imperatives for oncology nursing (See **Table 2**).

The initial ONS position paper was followed by position statements on cancer care in the older adult. In 2004, the ONS in partnership with the Geriatric Oncology Consortium (GOC), a non-profit organization promoting cancer clinical trials for older adults and education related to geriatric oncology, developed and published a joint position statement on cancer care in the older adult [10]. The joint ONS/GOC position statement was revised in 2007 [11]. The key assertions from the joint statements are summarized in **Table 3**.

Furthermore, ONS established the Excellence in Care of the Older Adult with Cancer Award to recognize and support an oncology nurse who demonstrates age-sensitive health interventions, quality care, and symptom management to older adults with cancer. The award was given for the first time at the ONS Congress in 2007 and is still offered annually. In 2008, ONS convened a Geriatrics Task Force to examine the needs of older patients and the role of oncology nurses in their care. However, the work of this task force has not been widely disseminated.

The Hartford Institute for Geriatric Nursing at New York University with funding from the John A. Hartford Foundation and the Atlantic Philanthropies and in partnership with the American Nurses Association created the REASN (Resourcefully Enhancing Aging in Specialty Nursing) initiative to infuse geriatric competencies into specialty nursing (http://hartfordign.org/practice/reasn/). This initiative aimed to ensure that all nurses would have the geriatrics knowledge needed to provide quality care to older adults in their specialty areas. The initiative also sought to incorporate geriatric knowledge into specialty certification examinations and to develop and disseminate geriatric-focused specialty

materials and educational programs. The ONS along with 35 other specialty nursing organizations and 7 members of the Coalition of Geriatric Nursing Organizations endorsed the Global Vision Statement on Care of Older Adults [12] (See **Table 4**). In addition to using specialty-based resources, nurses are encouraged to use the Institute's web-based resource portal, ConsultGeriRN.org, which includes evidence-based protocols for dealing with geriatric syndromes and assessment instruments for use in older adults. However, it is not clear how widely these resources are known and used in oncology settings.

The International Society of Geriatric Oncology (SIOG), founded in 2000, as a multidisciplinary society aimed at enhancing care for older adults with cancer through the development of healthcare professionals in the field (www.siog.org). Today, the SIOG has 1000 members representing 40 countries around the world. In 2011, the SIOG reported on its 10 Priorities Initiative [13]. Based on expert consensus the SIOG identified 10 top priorities within the field of geriatric oncology worldwide. The priorities focus on increasing public awareness, education, clinical practice, and research. The SIOG envisions the 10 priorities being used by leaders in developing policy and research initiatives to address global challenges affecting the care of older adults with cancer.

Special nursing symposia have been held in conjunction with the SIOG annual meetings. The SIOG recently established a Nursing and Allied Health Interest Group to provide a forum within the organization for nurses and allied health professionals to develop a collaborative network to promote education, practice, communication, advocacy, and research in geriatric oncology. The chair of the Nursing and Allied Health Interest Group, a nurse, serves on the SIOG Board of Directors. In 2014, the SIOG established the Nursing and Allied Health Investigators Award. The establishment of this interest group and increased involvement of nursing in the SIOG leadership has not yet led to increased educational or practice resources for gero-oncology nurses.

Developing a Gero-Competent Oncology Nursing Workforce

A key requirement for advancing high quality cancer care for older adults is the development of a gero-competent oncology nursing workforce. A barrier is the overall shortage of oncology nurses, generally, and an even greater shortage of oncology nurses with gerontological expertise [14,15]. Professional organizations in oncology and geriatrics have spearheaded educational initiatives and have developed resources to enhance nursing competence in gero-oncology but more efforts are needed to adequately prepare oncology nurses to meet the needs of all older adults with cancer.

Gero-oncology Workforce Shortage

With the increasing gero-oncology population and complexity of needs, there remains a workforce shortage of nurses and other healthcare providers to provide appropriate care to this vulnerable group. In 2008, the Institute of Medicine (IOM) report, Retooling for an Aging America: Building the Health Care Workforce [14], outlined bold initiatives to address the needs of the rapidly growing older population, including older adults with cancer. Focus must remain on providing skilled care to this population with a variety of health care workers including trained gero-oncology nurses, health care aides, pharmacists,

social workers, dieticians, and physical and occupational therapists. Geriatric and oncology nursing competencies should be integrated to insure that appropriate, evidence-based gero-oncology care is being provided across the continuum. In 2013, the IOM report, *Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis* [16], outlined recommendations to improve the quality of cancer care, with a focus on patient-centered and evidenced-based care [17]. Both IOM reports highlight the critical importance of the increasing demand for high quality cancer care, rising costs of health care and medications, and the decreasing gero-oncology workforce. It is imperative for cancer care teams to re-evaluate their roles to provide efficient, coordinated care to older adults across the cancer continuum.

Educational Initiatives to Enhance Gero-Oncology Competence

There is a critical need to educate all oncology nurses about geriatric principles and the care of older adults with cancer. Oncology nursing professional organizations, including the ONS, the European Oncology Nursing Society (EONS), and the International Society of Nurses in Cancer Care (ISNCC), as well as other organizations such as Nurses Improving Care for Healthsystem Elders (NICHE), have provided educational programs to enhance oncology nurses' competence in caring for older adults with cancer.

Since the early 2000's, ONS has provided numerous presentations, workshops, and seminars on geriatric oncology topics with continuing education credits offered for these courses [18]. In 2003, a "Geriatric Oncology Institute" was offered at the ONS Institutes of Learning, and the 2003 National Cancer Nursing Research Conference included a number of presentations on geriatric oncology topics. A pre-congress workshop entitled, "Gero-oncology care across the continuum" was held in conjunction with the 2004 ONS Annual Congress. This workshop was repeated later that year as part of the GOC's Advancing Cancer Care in the Elderly Conference. Over the years, a number of sessions at ONS educational programs, including the National Cancer Nursing Research Conference, the Institutes of Learning, the ONS Nurse Practitioner Conference, and the Annual Congress, have focused on geriatric oncology topics, such as pain assessment and management in the elderly, breast cancer screening in the geriatric population, geriatric assessment, and polypharmacy in older adults. A number of these educational programs were one time offerings. Others do not exist in their original format or they have not been updated. ONS and other oncology nursing professional organizations should elevate the gero-oncology agenda in all of their educational programs and initiatives.

To increase its educational breadth in geriatric oncology, with funding from the Hartford Institute for Geriatric Nursing and New York University, ONS developed an online continuing education train-the-trainer course entitled, Caring for the Older Adult with Cancer. The course provided a curriculum for trainers to conduct a 4-hour training program for oncology nurses in their geographic regions. The curriculum covered the following topics: cancer in the older adult, age-related and disease-related body system changes, common comorbidities in older adults with cancer, cognitive and neuropsychiatric issues, common psychosocial issues, patient education, and resources for older adults with cancer. However, this train-the-trainer program is no longer available. With the rapid increase in

older adults with cancer in developing countries [19], online educational programs, like the ONS train-the-trainer program, could enhance the quality of gero-oncology nursing worldwide.

In the spring of 2006, the European Oncology Nursing Society (EONS) held a two-day conference focused on cancer in older adults. In conjunction with the conference, the EONS and SIOG sponsored a symposium on supportive care in geriatric oncology. The EONS vision for cancer nursing in 2013 recognized the increased burden of cancer associated with an aging population. Geriatrics content and the care of older adults are integrated into the EONS Cancer Nursing Curriculum 2013 (4th Ed) [20] which is still available.

The Nurses Improving Care for Healthsystem Elders (NICHE) program, a membership organization program housed at the New York University College of Nursing, aims to help hospitals improve the care of older adults (www.nicheprogram.org). Currently, over 620 hospitals and healthcare organizations in the US, Canada, Bermuda, and Singapore maintain NICHE designation. NICHE offers Nursing Care of the Older Adult with Cancer, an online continuing education course for nurses working in NICHE member organizations.

The ONS has published nurse-authored articles related to cancer and aging in the *Clinical Journal of Oncology Nursing* and in the *Oncology Nursing Forum*. In 2006, an issue of *Seminars in Oncology Nursing* [21] addressed a range of topics related to care of older adults with cancer. In 2010, an issue of the *Journal of Gerontological Nursing* focused on cancer care for older adults addressed the impact of physiological aging on treatment decision-making and toxicity management [22], glycemic control in older adults undergoing hematopoietic stem cell transplantation [23], and fall risk in community dwelling older adult cancer survivors [24]. Since 2000, ONS has published several textbooks focused on the care of older adults with cancer across different settings [25-27]. Other nurse-authored texts have provided an overview of cancer care in older adults [28] and addressed the experiences of older adults facing cancer and their families [29,30].

Implementing Gero-Oncology in Practice

Clinical Guidelines

The SIOG has developed multiple clinical guidelines related to site-specific cancer care in older adults and supportive care of older adults with cancer. Nurses participated on the SIOG taskforces that developed the guidelines addressing comprehensive geriatric assessment (CGA) [31] and multidimensional health screening tools for use in older adults with cancer [32]. The National Comprehensive Cancer Network (NCCN) publishes the NCCN Clinical Practice Guidelines in Oncology which have become a standard in oncology care in the U.S. The guidelines are based on consensus of available evidence by an interdisciplinary expert panel of clinicians and researchers from NCCN member institutions. The guidelines are updated on an ongoing basis at least annually. In 2005, the NCCN Senior Adult Oncology guidelines were first published [33]. In the current update [34], the name of the guideline was changed from Senior Adult Oncology to Older Adult Oncology. The Older Adult Oncology guidelines address risk assessment and screening, risk reduction strategies, and treatment considerations in older adults with cancer. The guidelines also

highlight disease-specific issues and special treatment considerations related to aging and refer to the disease-specific guidelines and supportive care guidelines for treatment recommendations. Until recently, the expert panels for the Older Adult Oncology guidelines have not included nursing representation. Currently, a nurse with expertise in cancer and aging serves on the expert panel. It is important for gero-oncology nurses to participate in guideline development to bring out unique nursing issues, perspectives, and expertise. This also aligns with the reality of clinical practice where nurses provide most of the day-to-day care to older adults with cancer.

Integration of Comprehensive Geriatric Assessment (CGA) into Clinical Care

The ONS/GOC Joint Position on Cancer Care of the Older Adult [11] calls for the use of CGA to optimize treatment planning, access to care, and outcomes. In 2005, the SIOG created a task force to review current evidence on the use of a comprehensive geriatric assessment (CGA) in patients with cancer. Extermann and colleagues [35] recommend use of the CGA in both clinical care and research to uncover undetected medical problems and functional impairments. This is also recommended in the recently updated SIOG guideline [31]. The CGA is a multidisciplinary, diagnostic process that identifies medical, psychosocial, and functional limitations [36]. In the past decade, there has been increased awareness and integration of the CGA in clinical, research, and cooperative group settings [37], with a focus on assessment and development of a prioritized list of complex clinical problems. This list is important to determine various clinical needs, however input from the patients and caregivers are critical in determining next steps. The CGA not only informs treatment decision-making but also helps to identify and address unmet physical, psychological, and social support needs. Nurses with expertise in gero-oncology can play a key role in conducting CGA and providing evidence-based interventions to address uncovered needs. When appropriate, nurses should also refer patients to other interdisciplinary team members with geriatric expertise (e.g., social workers, pharmacists, occupational therapists, and physical therapists).

Older adults with cancer are consistently under-represented in clinical trials, and the ones enrolled are not representative of the typical multi-morbid patients seen in the hospital and clinics [38]. In addition, few trials collect data on functional status, physical and cognitive limitations, or healthcare utilization, which are critical to inform treatment decisions and models of care for older adults with cancer. Gero-oncology nurses must encourage patients to enroll in clinical trials that will provide data on changes in pharmokinetics, the impact on physiologic reserve, and treatment tolerance. Furthermore, gero-oncology nurses must advocate for inclusion of the general population of older adults in cancer clinical trials to enhance the evidence base for all older patients and not just the fittest.

Models of Care to Improve Care for Older Adults with Cancer

Various models of care have been implemented to enhance care for older adults with cancer. These include nursing-specific models (e.g., integration of Geriatric Resource Nurses in the oncology setting) and interdisciplinary models that have significant nursing involvement. The NICHE model involves staff education and the implementation of Geriatric Resource Nurses into the clinical setting. Geriatric Resource Nurses provide consultation to staff

nurses on the complex care needs of older adults and promote the use of evidence-based geriatric protocols and practice. The City of Hope in Duarte, CA and Hartford Hospital in Hartford, CT, NICHE-designated hospitals, have implemented the Geriatric Resource Nurse model. At the Barnes-Jewish Hospital in St. Louis, MO, clinicians established an Oncology-Acute Care for Elders (ACE) Unit to provide care to older cancer patients hospitalized for an acute illness [39]. The ACE Unit model of care which incorporates patient-centered care, evidence-based nurse-driven geriatric protocols, frequent interdisciplinary team rounds, and ongoing discharge planning has been associated with multiple positive patient and provider outcomes [40-42]. Geriatric evaluation and management inpatient units and outpatient clinics have also been used in caring for frail older adults with cancer [43,44].

Dedicated geriatric oncology programs have also been established to ensure that older adults receive cancer care tailored to their needs. A number of U.S. cancer centers have developed geriatric oncology programs to enhance care for older adults with cancer (e.g., Senior Adult Oncology Program at Moffitt Cancer Center, 65+ Clinical Geriatrics Program at Memorial Sloan Kettering Cancer Center, Cancer and Aging Research Program at City of Hope, and Geriatric Oncology Program at the University of North Carolina at Chapel Hill Lineberger Cancer Center). The French National Cancer Plan established the creation of oncogeriatric units nationwide [45]. These programs provide interdisciplinary clinical care and consultation for older adults with cancer and conduct clinical trials in the older adult cancer population. Oncology nurses at the staff nurse and advanced practice levels play a central role in these programs. Healthcare professionals associated with geriatric oncology programs can play a key role in providing gero-oncology education and facilitating gero-oncology nursing research.

Transitions can occur anytime across the cancer care continuum (prevention to end of life care). The 2005 Institute of Medicine (IOM) report, From Cancer Patient to Cancer Survivor: Lost in Transition [46], identified the survivorship phase as a time when future roles of the various healthcare providers are often unclear, and resulting in patients being frustrated and confused as they enter back into the healthcare system for follow-up care. One strategy to address this problem is a shared care model between the primary care provider (PCP) and oncology provider in which nurses can be the liaison between these providers. Barriers to shared care between providers include fragmented follow-up cancer care services, lack of appropriate primary care providers who are aware of long-term needs of cancer survivors, lack of communication and/or miscommunication between and among providers and survivors, and educating survivors about shared care [47,48]. A promising approach to address fragmentation of services between providers is the use of the survivorship care plans (SCPs). The ASCO Survivorship Care Plan Working Group developed a new survivorship care plan template that includes the minimum components for survivorship care plans. In 2015, the American College of Surgeons' Commission on Cancer's (CoC) mandated that every patient with cancer receive a SCP and treatment summary upon completion of treatment as a requirement for certification for cancer centers members across the US [49]. Benefits of the SCPs include continuity of care with the treatment team, ability to monitor adherence with follow-up care, and patient satisfaction that their needs are being adequately met by providers who are familiar with their cancer. Adequate reimbursement for survivorship care in a shared care model is currently being

reviewed in the U.S. An individualized SCP and treatment summary can help to address the needs and concerns of older adults with cancer, and result in decreased fragmentation and lack of coordination in gero-oncology care.

Building the Evidence through Gero-Oncology Nursing Research

In the late 1980s and early 1990s, research priorities related to nursing care of older adults with cancer were outlined explicitly for the first time [50,51]. These were focused across the cancer treatment trajectory on understanding how aging and cancer treatment influenced cancer treatment outcomes but also important issues such as how do cancer treatments affect functional status and psychosocial well-being of older adults and their caregivers. Issues such as what is the cost-effectiveness and efficacy of cancer screening in older adults were included in the list of research priorities. Around the same period, ONS published its first position paper on cancer and aging to improve care for older adults with cancer [9], and Boyle, a primary author of the position paper, suggested that older cancer patients were a forgotten priority [52]. Since that time, well-known nurse researchers in the field have conducted research focusing on the needs of older adults and their family caregivers. In the 1990s, the first longitudinal study by Given and colleagues clearly demonstrated that cancer and its treatment negatively impacted functional status and well-being in older adults with cancer and their caregivers [53,54]. Several intervention studies have also been conducted. A landmark trial by McCorkle and colleagues showed that home care nursing provided by advanced practice nurses' positively impacted survival in older adults with advanced cancer [55].

In the early 2000's, nurse leaders in the field, including Boyle [56] and Kagan [57] called for additional gero-oncology nursing research and established updated research agendas focusing on older adults with cancer. The volume of gero-oncology research has increased significantly in recent years. The early landmark studies in gero-oncology nursing were conducted by researchers in the U.S. Although older cancer patients have since received more attention in gero-oncology nursing research internationally, there is a need to expand gero-oncology nursing research to increase the evidence- base to enhance the quality of care for older adults with cancer receiving care in other healthcare systems elsewhere in the world, including developing countries.

Since the early 1990's, significant progress has been made in the area of cancer screening. Trials of new cancer screening methods have focused on older adults, and changes to screening guidelines based on age have been adapted to focus the screening decision to be around remaining life expectancy based on health status and functioning, not on chronological age alone [58-63]. Despite the importance of cancer screening, this topic has not received much attention by gero-oncology nurses and nurse researchers.

Landmark randomized controlled trials [64-67] have shown the positive impact comprehensive geriatric assessment (CGA) has on hospitalized older adults. Research in geriatric oncology has focused on implementing comprehensive geriatric assessment (CGA) for older cancer patients as well. Despite an extensive body for work showing the benefits of CGA for older adults with cancer [31,68,69], there has been much less work on nursing

interventions based on these findings. Although most of the care provided for older adults is being provided by nurses, oncologists and geriatricians have taken the lead in conducting these assessments and CGA research. Furthermore, as most studies have stopped short of using the CGA results to implement nursing interventions, the amount of undetected medical and functional status issues during these assessments shows a clear need for gero-oncology nurses to take the lead in implementing interventions. As geriatric assessment and management in other healthcare settings is the standard of care, there are many evidence-based nursing interventions such as fall prevention programs, counseling about home safety, care coordination, and patient education that nurses have currently available to implement in their daily practice. Gero-oncology nurses should take the lead in evaluating the implementation of interventions to demonstrate impact on patient reported outcomes that are important to patients, such as HRQOL and the ability to remain independent during treatments [70].

Older adults often have different conditions that impact on their cancer treatments. In fact, 65% of those aged 65 and over have 2 or more chronic conditions (i.e., multimorbidity) which increases to 78% in those 80 years and older [71]. The IOM report, Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis [16] observed, “Given that the majority of cancer patients are over 65 years and have comorbid conditions complicated by other health (e.g., physical and cognitive deficits) and social (e.g., limited or absent social support, low health literacy) risks, the committee is particularly concerned about the lack of clinical research focused on older adults and individuals with multiple chronic diseases” (p. 12). It is thus paramount that gero-oncology nurse researchers design and take a lead role to evaluate the impact of how other diseases and functional impairment affect the cancer treatments. Gerooncology nurses are in an excellent position to advocate for assessing the impact of new interventions and treatments on health and well being of older adults with cancer.

With advances in cancer treatment there are also newly emerging research priorities. The shift from systemic to oral anticancer treatments raises concerns about medication safety and adherence in older adults who may be taking numerous medications. There are exciting developments such as the implementation of text and app interventions to increase adherence and symptom management [72-78]. Medication adherence and symptom management during cancer treatment are areas in which gerooncology nurses can play a tremendous role to develop and test new interventions to improve outcomes as there have been few interventions developed and tested for older adults with multimorbid conditions. The older population, in particular those aged 80 years and over, probably have different digital literacy skills and potential cognitive impairment and other sensory/functional impairments. These impairments may impact ehealth/mhealth use as compared to younger populations in whom most studies are conducted, thus it is important to include older adults in the design and testing of new interventions to accommodate their needs.

The number of older cancer survivors will increase significantly due to the aging of the population and the increased success rates in cancer treatment. Since the 2005 IOM report, From Cancer Patient to Cancer Survivor: Lost in Transition [46], there has been more awareness of the long-term consequences of cancer treatment on everyday well-being and

HRQOL for patients diagnosed with cancer. Research has shown that older adults with cancer have poorer health and functional status than those older adults not diagnosed with cancer [79]. Older adults with cancer who have received cancer treatment are different from younger cancer survivors due to the aging processes, as they may experience a decline in functional status accelerated by the impact of the cancer treatment. Recent reviews show that uptake of survivorship care plans in North America is varied, impact on patient reported outcomes have varied and several barriers to implementation have been described by patients and health care providers [80-85]. As previously noted, gero-oncology nurses are in an excellent position to take the lead on developing survivorship care plans specifically designed to meet the needs of older patients, taking into account their multimorbidity and potentially conflicting treatment recommendations. Survivorship care plans for older adults with cancer should focus on improving their well-being during treatment and addressing their priorities and concerns. Although healthy lifestyles are important for all individuals, it might not be realistic to expect an older adult with multimorbid conditions to exercise at a moderate intensity level several times a week after cancer treatment if they were not able to do so prior to the cancer due to preexisting functional limitations. Furthermore, their health literacy skills may be lower than other cancer survivors and thus this should be reflected in the survivorship care plans [86].

In the United States research focusing on older adults with cancer has been organized by the Cancer and Aging Research Group (CARG). The aim of the CARG is to develop collaborative research projects across the USA to increase clinical trials in this area (http://www.mycarg.org/home). A similar group in Europe, the EORTC Elderly Task Force (http://www.eortc.org/research-groups/cancer-in-elderly-task-force) has been established many years ago. Both groups meet regularly to move forward the research agenda for this population but both organizations have little involvement of gero-oncology nursing. It is critical for gero-oncology nurses to be present, lead, and collaborate with interdisciplinary colleagues with similar clinical and research interests focused on improving cancer care for older adults. There is currently no developed international gero-oncology nursing group. Because of the growing population of older cancer patients worldwide, it is time for international collaboration. Collaborations could be established through one or more of the existing professional organizations such as SIOG, ONS, or EONS.

Recommendations for Advancing the Gero-Oncology Nursing Evidence Base

Although significant progress has been made in gero-oncology nursing, there are several areas in clinical care that could benefit from a greater evidence base. First, gero-oncology nurses need to determine how they can best support older adults with cancer prior to, during, and after treatment. Care of older adults with cancer should take into account the unique needs and preferences of those older adults to improve outcomes that are important to them, such as HRQOL and remaining independent in their everyday activities. Second, gero-oncology nurses should take a lead in establishing the evidence to improve patient-reported outcomes and issues such as psychological well-being, symptom management during treatment, stress and distress management interventions, self-management interventions, interventions to increase caregivers' abilities to care for their loved ones, and interventions to increase healthy lifestyles and HRQOL during the survivorship phase. These are all well

within the nursing domain. Gero-oncology nurse researchers can develop the evidence base by leading and co-leading collaborative grant proposals offered through governmental agencies (e.g., the NIH in the U.S., the Canadian Institutes of Health Care Research in Canada, and the European Commission grant program in Europe). Finally, with the increasing development of age-friendly treatments, the increase in the number of older adults with cancer receiving treatments in the outpatient setting, and the increase in older cancer survivors, it is important for gero-oncology nurses to develop and participate in successful interdisciplinary interventions [87]. These collaborative interventions could increase the well-being and functional status of older adults during and after treatment while using newly available tools, such as ehealth/mobile interventions, that allow tailoring to the unique needs of the diverse population of older adults with cancer.

Conclusion

The number of older adults with cancer is large, and rapidly increasing. Today, the majority of cancer patients are older adults. Oncology nurses in all settings provide care to this complex population on a daily basis. Since the early 1990's, oncology nursing organizations have acknowledged the imperative for oncology nurses to address the specialized needs of older adults with cancer through education, practice, and research. As noted in this article, oncology nursing organizations and individual oncology nurses have made noteworthy contributions to gero-oncology nursing and made significant advances in enhancing nursing care for older adults with cancer. Despite these efforts, oncology nurses as a group remain vastly under-prepared to meet the specific needs of older adults with cancer. Oncology nurses are under-represented in interdisciplinary organizations focused on improving care of older adults with cancer through practice, education, and research. Paradigm shifts in oncology nursing education, practice, research and policy are needed to advance gero-oncology and meet the challenges of the growing population of older adults with cancer. Oncology nurses in partnership with colleagues in geriatric oncology, including physicians and other allied health professionals, need to provide national and international leadership in promoting innovative change to enhance care for older adults with cancer.

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Table 1

Gerontological Principles for Integration into Oncology Nursing Education and Practice

• Recognize individual variability in biological aging and potential differences in biological age and chronological age among older adults
• Conduct comprehensive assessments using valid and reliable tools to identify the functional, physical, cognitive, psychological, and social needs of older adults
• Provide patient-centered, individualized care that meets the unique needs of older adults and their families
• Understand the aging process and how that affects treatment delivery and risks and benefits of treatment
• Assess preferences for family involvement in care planning and decision-making
• Facilitate shared decision-making and mutual goal-setting that promotes autonomy and respects the dignity and privacy of older adults
• Assess barriers and preferences for receiving information and provide information in a manner that facilitates effective communication and understanding
• Recognize and manage the complex interaction of cancer and other comorbid conditions common to older adults
• Collaborate with interdisciplinary team members to provide comprehensive, evidence-based care across the cancer continuum incorporating prevention and screening, curative treatment, rehabilitation, surveillance, palliation, advance care planning, and end of life care as appropriate
• Be aware of and use age-friendly resources/programs to promote physical, emotional, and spiritual health and well-being of older adults during cancer treatment and survivorship
• Review and assess medication use by older adults with cancer and evaluate adherence and other difficulties preventing optimal medication use
• Assess and implement strategies to avoid geriatric syndromes such as falls to allow for prevention, early identification and management to promote safety and well-being
• Identify elder mistreatment/abuse (physical, mental, financial) and refer/report appropriately

[a] Source: American Association of Colleges of Nursing [5]; Canadian Gerontological Nursing Association [6]

Table 2

ONS Position Paper on Cancer and Aging: The Mandate for Oncology Nursing [9]

• Recognize personal biases toward aging
• Advocate for cancer prevention and early detection in older adults
• Acknowledge interrelationships between cancer and aging
• Prevent age-specific complications of cancer and its treatment
• Integrate comprehensive gerontological assessment (CGA) into nursing care of older adults
• Assess support networks of older adults and their caregivers
• Increase communication with colleagues to enhance problem-solving in different settings and across the cancer continuum
• Consider age-related factors that affect learning and self-care abilities
• Advocate for ethical decision-making relative to health-related quality of life
• Recognize the impact of health care policy on the care of older adults with cancer

Table 3

ONS and GOC Joint Position on Cancer Care in the Older Adult [10,11]

• Eliminate ageism in cancer care, research, education, and public policy
• Educate students and clinicians in oncology and on the unique needs of older adults with cancer and their families*
• Measure age in ways that move beyond chronology to include biological, functional, and personal dimensions
• Acknowledge and assess risks related to decreased functional reserve due to normal aging*
• Redefine optimal outcomes of cancer care to include impact on comorbidity, function, and quality of life
• Promote full and equal access to care across the cancer trajectory
• Optimize treatment planning, access to care, and outcomes by using interdisciplinary teams and comprehensive geriatric assessment
• Integrate geriatric oncology care across care settings and delivery systems*
• Increase participation in clinical trials and other research through education, outreach and incentives
• Increase funding for basic, clinical, and translational research in aging and cancer
• Advocate for and initiate policy reform that recognizes demographic aspects of aging and cancer and fosters the development of appropriate health and social services to meet the needs of older adults with cancer

* Included in 2004 position statement but not in 2007 revision

Table 4

Global Vision Statement on Care of Older Adults [12]

• Care of older adults considers their unique physiological, functional, and psychological needs
• All nurses appreciate diversity of older adults and are responsive to their diverse needs
• All nurses are familiar with evidence-based care of older adults
• All nursing education programs address competencies related to care of older adults
• Hospital staff development programs incorporate care of older adults
• All care settings (hospital, home care, and long-term care) implement systems that foster best practices in care of older adults
• Nurses across all specialties are responsible for care of older adults
• Specialty nursing associations are resources for evidence-based clinical information related to care of older adults