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Educating healthcare providers in geriatric oncology – A call to accelerate progress through identifying the gaps in knowledge

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Abstract

The majority of patients with cancer are over the age of 65. This patient population often has unique care needs. Thus, clinicians require additional competencies and skills to care for this population. Most clinicians, however, receive little to no training in geriatrics. There has been increasing recognition of the importance of learning about geriatric oncology. However, teaching of geriatric oncology principles is not standard or widespread. Here we highlight educational work and scholarship accomplished thus far in the field of geriatric oncology and identify gaps in knowledge that need to be addressed in order to help accelerate the development, implementation, integration, and dissemination of geriatric oncology curricula. These, in turn, will hopefully help improve the knowledge and skills of clinicians caring for older adults with cancer globally.

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1. Introduction

The aging of the population is one of the primary drivers of the projected increase in cancer incidence [1]. In the United States, already, 60% of all cancers diagnosed and 70% of cancer deaths occur in persons aged 65 and over [2]. Aging is a heterogeneous process. Declines in organ function occur with increasing age resulting in decreased physiologic reserve and increased vulnerability to stressors. These factors can impact a patient's ability to tolerate and/or complete cancer treatments. With the advent of newer cancer treatment options, however, there is an increasing breadth of treatment options available to older patients with cancer.

With the rapid growth of the aging population and its contributions to the rising incidence of cancer, most oncologists are inherently "geriatric oncologists." Healthcare providers treating older adults may require additional training to properly evaluate these patients and help select the ideal treatment strategy for older adults. Training in geriatric oncology has been generally limited but there have been several efforts to address this issue. We sought to summarize the work done thus far to better characterize and address education in the field of geriatric oncology and identify shared areas of need in order to stimulate more targeted efforts in those areas that will help accelerate educational change and advancement.

2. What's Been Done So Far

The work done thus far in geriatric oncology education has focused on two main areas: needs assessments and curriculum delivery. Needs assessments help educators determine gaps in knowledge and help with planning of curricula [4]. As there are many stakeholders in any curricula, these can be done from the perspective of educators, teachers, students, or the ultimate stakeholders, patients and society. Several needs assessments have been published in the field of geriatric oncology (Table 1). These have mostly targeted the needs of hematology/oncology physician trainees, although there have been a few needs assessments done in other specialties, such as radiation oncology and geriatrics [5–7]. The learning needs of allied health professionals, as they relate to geriatric oncology, however, are poorly defined as no formal needs assessments have been reported.

Prior needs assessments demonstrate that most hematology-oncology trainees never receive training in geriatric oncology and as a consequence there is lower confidence in caring for older adults with cancer [9,10,14]. Although few training programs (30–32%) formally incorporate geriatric oncology training into their curricula [8,14], most (88%) program directors and (84%) trainees felt that a geriatric oncology teaching was an important component of hematology-oncology training [8,9]. Some of these studies have identified areas of geriatric oncology of most interest to trainees and/or educators which could provide a framework for a geriatric oncology curriculum (Table 2) [8,10,15,16].

Similarly, surgeons and radiation oncologists also lack training in geriatric oncology [5,6,12]. The majority (70–85.3%) of radiation oncology trainees felt additional training would be helpful [5,12]. However, despite a paucity of training in geriatrics, 73.8% of radiation oncology trainees and about half of surgical trainees felt competent to care for older adults. A short survey to general practitioners in France suggested that 2/3 of respondents felt they would benefit from training in geriatric oncology [13]. In contrast, the majority (81%) of geriatrics program directors reported that their trainees did receive formal teaching about caring for older adults with cancer [7].

The other main area of educational work has been in curricular development and delivery. Most of the work that the authors are aware of has been targeted at continuing professional development (CPD) with some work being done in the field of post-graduate medical education. There have been several educational courses developed and offered to nurses. These have included a 3-day in person course targeted at teams of nurses working in North America and has been held annually from 2016 to 2019 [17]. The Nurses Improving Care for Healthsystem Elders (NICHE) organization provides teaching to nurses about geriatrics, though it does not focus specifically on oncology nursing. Furthermore, this is only available to nurses in the United States and Canada whose organizations are members of NICHE. The European Oncology Nursing Society, which has previously held a 2-day conference in geriatric oncology in 2006, has a curriculum, available online, which covers topics on the impact of aging on cancer, the impact of cancer on older patients, basic science and treatment of cancer in older adults, nursing assessment and intervention, and decision-making and communication [18]. The Oncology Nursing Society in the United States previously offered a 4-h training on geriatric oncology, however, this program is no longer available.

For physicians, there have been a number of training pathways developed to train oncologists in geriatrics. For those with a keen interest in geriatric oncology, a series of 1–2 year fellowships have been developed in the United States, Canada, and France. The most well-known of these were initially supported through a collaboration between the Hartford Foundation and the American Society of Clinical Oncology (ASCO) [19]. The International Society of Geriatric Oncology (SIOG) offers an intensive 4-day in-person course annually for physicians in a variety of specialties to learn principles of geriatric oncology [20]. Several electronic modules exist that target the broader population of oncologists and trainees, including those developed by ASCO University and SIOG [21–23]. Despite the call for the incorporation of geriatric oncology into the training curriculum in medical oncology by both ASCO and the European Society of Medical Oncology (ESMO) [24], very few programs have formally done so. One such curriculum has been developed and implemented at a large tertiary cancer center and includes clinical exposure to geriatrics, review of two ASCO University modules, reading geriatric oncology articles (chemotherapy toxicity predictors, drug-drug interactions), and review of pharmacology cases [25].

Several courses which target multiple healthcare specialties have also been developed and implemented. The Association of Community Cancer Centres (ACCC) has recently released a series of webinars to educate healthcare providers on caring for older adults [26].

Memorial Sloan Kettering Cancer Center (MSKCC) offers a 2-day in person course to help healthcare providers improve their communication skills with older adults [27].

Lastly, there has been increasing integration of geriatric oncology at international societal conferences, including ASCO, ESMO, the American Geriatrics Society, the Canadian Association of Nurses in Oncology, Oncology Nursing Society, the Multinational Association for Supportive Care in Cancer, the American Society of Hematology, and the European Hematology Association. These sessions have been well-received and help to establish cross-disciplinary links that highlight the relevance of geriatric oncology principles and help to promote their integration into daily practice.

3. Where Are the Gaps?

Despite gains in improving education for clinicians in geriatric oncology over the last decade, large gaps in implementation and dissemination of curricula remain. We summarize these gaps as those related to needs assessments, curriculum development, curriculum implementation, and dissemination (Table 3).

3.1. Needs Assessments

Both general and specific needs assessments have generally established both the importance of learning about geriatric oncology and the general paucity of teaching during training. Both of these are important to establishing the need for curricula and buy-in from stakeholders to uptake such curricula. Notably most of the published needs assessments have been completed in American and Canadian training programs and involved trainees and physicians working in large tertiary centres. These results thus may not be reflective of the needs and perceptions of clinicians in other settings. Clinicians working in settings with less contact with geriatricians or geriatric oncology clinics, for example, may not recognize or appreciate that these patients may benefit from additional assessments and supports, or may not have ready access to multidisciplinary teams of allied health professionals.

In addition, there have been few studies done to understand the needs of specialists other than medical oncologists and virtually none in nursing and other allied health care professionals. Given cancer care is a truly multidisciplinary enterprise, educational endeavours must be directed at all stakeholders involved in the care of older adults with cancer in order to improve the uptake of geriatric principles in the approach to caring for older adults with cancer.

3.2. Curriculum Development

While understanding the needs of the target audience is critical to ensure uptake of any delivered curriculum, in general the field has moved beyond establishing awareness of the problem to the need to develop, implement, and integrate teaching of geriatric oncology principles into curricula [11]. Although there has been some success in reaching those clinicians particularly interested in care of older adults, it is clear that to more rapidly improve the care for older adults with cancer in general, the educational reach must be expanded to encompass all clinicians who care for older adults, from oncologists (medical,

radiation, surgical) to geriatricians and primary care providers to allied health professionals (nurses, pharmacists, social workers, etc.).

Development of curricula targeted at the general oncologist/practitioner is clearly still needed. To enhance engagement of clinicians and trainees, curricula should leverage principles of adult learning. Teaching should be case-based, content should be practical and relevant to practice, and ultimately it should help clinicians to accomplish their goal to better care for their older patients [28]. Educators should be cognizant that the baseline level of knowledge of clinicians will be variable, with some possessing little knowledge about geriatric oncology while others will be more advanced. Thus, there is need for curricula which introduces key principles of geriatric oncology while others focus more on the practicalities of implementation. Importantly, while some geriatric principles may apply to all settings, some tailoring may be necessary in order to implement curricula across different regions of the world, where the needs, available resources, and priorities might be different [29,30]. It is important that curricula align with the learners' expectations and objectives to optimize engagement and uptake of curricula.

Potential topics to be covered have been identified by prior needs assessments and include knowledge and skills about geriatric assessment, cognition, pharmacology, and cancer-specific management [8,10,15]. However, given the recent development of guidelines by ASCO regarding the assessment of older adults being considered for chemotherapy [31], educating providers about the guidelines and rationale for these recommendations may be particularly relevant and timely. Teaching should seek to address not only gaps in knowledge, but also provide useful strategies to address barriers commonly cited by clinicians regarding implementation of geriatric assessment and its related interventions. These include perceived lack of time, resources, and supports, as well as lack of compensation for performing more indepth assessments. Addressing attitudinal biases healthcare providers may have about older adults with cancer, both implicitly and explicitly, is also important as these can affect not only treatment decisions, but also hinder implementation of geriatric assessment [32,33]. For example, lack of motivation or interest in geriatric assessment, a lack of understanding about the relevance of geriatric assessment, and an unfavorable view of geriatric care have all been found to hinder implementation of geriatric assessment.

In addition to the delivery of curricula directly to the end-user (learner), future models of curriculum delivery that should be explored include a train-the-trainer model. This model allows a relatively small number of teachers to have a larger impact through educating others to disseminate knowledge and skills. This model has been leveraged by a number of organizations, such as Project ECHO, which links academic specialists with primary care practitioners in the community [34].

3.3. Curriculum Implementation

In addition to creation of curricula, it is important to address potential barriers to the uptake and utilization of curricula. Several organizations, including ASCO, SIOG, and Medscape, have already developed and implemented geriatric oncology curricula, which is available electronically. However, utilization of many of these resources is low [9]. This

is despite prior studies suggesting that hematology-oncology trainees agree that learning about geriatric oncology is important [9,10]. The reasons for this are unclear. It is possible that results of prior studies were affected by response bias, with those stakeholders most interested in the subject more likely to respond. Potential barriers to uptake include lack of time or lack of perceived need for the implemented curricula [35]. Research is needed to adequately address barriers and improve uptake of geriatric curricula.

The aging population is resulting in a critical need for all clinicians to be able to competently care for older adults. Other specialties that have successfully developed and integrated geriatrics training into their specialties, include geriatric emergency medicine and geriatric cardiology. Research to better understand the facilitators and strategies that led to the successful integration of geriatric principles into these specialties and/or collaboration with educators and clinicians in these fields could help accelerate the integration of geriatrics into the field of cancer care. Lastly more formal integration of geriatric oncology into curricula can help to improve curriculum development and implementation. One such strategy could be through the lobbying of accreditation bodies to make geriatric oncology a mandatory part of the curriculum or incorporation of geriatric oncology into licensing examinations.

3.4. Dissemination

Finally, dissemination of educational research and curricula related to geriatric oncology is important. The educational gaps highlighted in this paper are based on published data and is supplemented by the authors' knowledge of the field. Dissemination of educational research and initiatives, however, has generally been limited. However, dissemination is important to ensure that teachers and educators are not unnecessarily spending time answering similar research questions and/or re-developing curricula and tools. Furthermore, if possible, sharing of educational objectives, curricula, and models will help accelerate implementation of curricula and delivery of geriatric teaching to all healthcare practitioners involved in the care of older adults with cancer.

4. Conclusion

Older adults make up the majority of patients diagnosed with cancer. Their care can be challenging due to the heterogeneity of aging and unique care needs. Despite this increasing need, there is a general paucity of training in geriatric oncology spanning various disciplines and specialties. Although work has been done to characterize what the learning needs are, more work is needed to help accelerate development, implementation, and widespread integration and dissemination of educational curricula in geriatric oncology if the workforce is to become competent and capable of caring for the growing needs of the aging cancer population.

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Declaration of Competing Interest

Conflicts unrelated to the submitted work: Dr. Hsu reports other from Celgene, Apobiologix, and Ipsen, outside the submitted work. Dr. Wildes reports other from Janssen and personal fees from Carevive Systems, outside the submitted work. No other disclosures reported.

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Table 1

Published geriatric oncology needs assessments.

Discipline	Stakeholders surveyed			
	Educators/Teachers	Trainees	Clinicians	Society/patients
Medical/Hematology-Oncology	U.S. hematology-oncology program directors [8]	U.S. trainees [9], U.K. trainees [10]	ASCO members [11]	-
Radiation Oncology	-	Canadian trainees [5]; Trainees in Australia, New Zealand, Singapore [12]	-	-
Surgical Oncology	-	Subgroup of Canadian surgical oncology fellows [6]	Subgroup of Canadian general surgeons [6]	-
Geriatrics	U.S. geriatric program directors [7]	-	-	-
General practitioners	-	-	French general practitioners [13]	-
Nursing	-	-	-	-
Other Allied Health	-	-	-	-

Table 2

Topics related to geriatric oncology identified in prior needs assessments for hematology/oncology trainees.

Program director identified	Trainee identified
<ul style="list-style-type: none"> • Association between cancer and aging • Physiologic changes with aging and implications on cancer care and treatment • Knowledge of findings of tumor-specific studies in older adults • Assessment of older patients • Evaluation of comorbidities that influence cancer therapy • Chemotherapy toxicity prediction • Prescribing systemic therapies in older adults • Pharmacology of cancer drugs in older adults • Identifying potential drug interactions • Optimizing treatment outcomes in older patients • Caregiver identification and support • Psychosocial needs of older adults 	<ul style="list-style-type: none"> • Cognitive impairment/delirium • Polypharmacy • Cardiac and comorbidity management • Recognition of geriatric syndromes • Assessment of older patients • Discharge planning

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Table 3

Summary of gaps and recommendations to advance geriatric oncology education.

	Current knowledge	Identified gaps and recommendations
Needs assessments	Needs assessments thus far done predominantly in hematology-oncology trainees in Canada and United States	Expand needs assessments to: <ul style="list-style-type: none"> • Other countries, in particular those with less health care resources and/or less exposure to geriatric oncology • Other healthcare disciplines (e.g. other medical specialties; allied health professionals) • Clinicians working in non-tertiary centres
Curriculum development	Currently available curricula predominantly aimed at oncologists and nurses	Curricula should be expanded to: <ul style="list-style-type: none"> • Encompass all clinicians who care for older adults • Address attitudinal barriers to uptake and also barriers to implementation in addition to gaps in knowledge and skills Educators should utilize adult principles of learning in development of curriculum (case-based learning, learning linked to clinical relevance, practical). Specific considerations: <ul style="list-style-type: none"> • Tailor curriculum to clinicians with variable knowledge and levels of engagement with geriatric oncology • Tailor to audience's varied level of healthcare resources to facilitate potential for uptake and implementation of teaching Develop train-the-trainer models of educational dissemination to enhance reach of educational offerings
Curriculum implementation	Despite creation of geriatric oncology curricula, utilization of available curricula is not widespread	Research should focus on understanding reasons for low uptake of geriatric oncology curricula <ul style="list-style-type: none"> • Learn from and collaborate with other fields that have successfully integrated geriatrics into their fields (e.g. geriatric emergency medicine) Advocate for formal integration of geriatric oncology into oncology curricula and oncology board exams by educational accreditation organizations
Dissemination	Dissemination of educational research and scholarship, especially in publication form, is relatively low	Encourage dissemination and publication of educational research and curricula <ul style="list-style-type: none"> • Share geriatric oncology curricula (e.g. objectives, content, etc.) to help educators and teachers more quickly implement curricula