How to Implement a Geriatric Assessment in Your Clinical Practice

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ABSTRACT

Cancer is a disease that mostly affects older adults. Other health conditions, changes in functional status, and use of multiple medications change the risks and benefits of cancer treatment for older adults. Several international organizations, such as the International Society of Geriatric Oncology, the European Organization for Research and Treatment of Cancer, recommend the conduct of a geriatric assessment (GA) for older adults with cancer to help select the most appropriate treatment and identify any underlying undetected medical, functional, and psychosocial issues that can interfere with treatment. The aim of this review is to describe what a GA is and how to implement it in daily clinical practice for older adults with cancer in the oncology setting. We provide an overview of

commonly used tools. Key considerations in performing the GA include the resources available (staff, space, and time), patient population (who will be assessed), what GA tools to use, and clinical follow-up (who will be responsible for using the GA results for developing care plans and who will provide follow-up care). Important challenges in implementing GA in clinical practice include not having easy and timely access to geriatric expertise, patient burden of the additional hospital visits, and establishing collaboration between the GA team and oncologists regarding expectations of the population referred for GA and expected outcomes of the GA. Finally, we provide some possible interventions for problems identified during the GA. *The Oncologist* 2014;19:1056–1068

Implications for Practice: This article explains how to conduct a geriatric assessment, how to implement it into clinical practice, and how to use the results of the assessment in clinical oncology practice. Furthermore, information is provided about available resources on geriatric assessment as well as geriatric assessment and screening tools, and important challenges of implementing geriatric assessment in practice are highlighted.

INTRODUCTION

Cancer is a disease that predominantly affects older adults [1, 2]. Older adults are very heterogeneous in terms of functional status [3]. Moreover, in general, older adults are more vulnerable to medical problems that are iatrogenic in nature, and the presentation of illnesses in this population is often atypical [4, 5]. There is currently limited evidence from clinical trials to inform practice because older adults have been underrepresented in clinical trials [6]. Older adults have been overdiagnosed and overtreated, as well as underdiagnosed and undertreated, which impacts their health and well-being as well as the resources available [7–20]. These factors combined necessitated the development and use of geriatric assessments (GA) in the oncology setting [4].

In order to help cancer specialists decide on the best treatment for their older patients, the U.S. National Comprehensive Cancer Network, the European Society of Breast Cancer Specialists, the International Society of Geriatric

Oncology (SIOG), and the European Organization for the Research and Treatment of Cancer have recommended the conduct of a GA to help select treatment [21–26]. The aim of the GA is to identify issues and to develop an integrated plan for treatment and follow-up [27, 28]. A GA can thus help personalize the cancer treatment plan and thus avoid unnecessary overtreatment but also avoid undertreatment.

Several systematic reviews of the benefits of GA for older adults in the general population have been completed [29, 30] and showed that GA is beneficial in reducing the risk of adverse outcomes of death and functional decline. Several systematic reviews of the benefits of GA in the oncology setting [25, 31–37] have showed that there is moderately strong data from observational studies showing the benefits of GA for helping the cancer specialist to decide on the treatment plan as well as to identify unknown medical, functional, cognitive, and social issues that, if left untreated, can increase the risk of complications

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of treatment (e.g., undetected cognitive impairment can increase the risk of delirium after surgery or chemotherapy). The study by Kenis et al. [38] showed that 40% of patients had previously unknown functional impairments, 38% had malnutrition, 31% had falls, 27% had depression, and 19% had cognitive issues. Furthermore, components of the GA such as disability in activities of daily living (ADL) can predict adverse outcomes of treatment [25, 31, 32]. A recent review by Hamaker et al. [37] showed that GA impacted 39% of cancer treatment decisions; in two-thirds this consisted of decreasing treatment intensity. The study by Kenis et al. [38] also showed that when the GA results were known at the time of the treatment decision, in a quarter of the patients, geriatric interventions were implemented to address these issues. Therefore, older adults may benefit if GA is incorporated into standard clinical oncology care for older adults. However, because most health care professionals working in oncology settings are not trained in geriatrics, the aim of this review is to describe what a GA is and how to implement it in daily clinical practice for older adults with cancer in the oncology setting. We will review some of the common challenges and some interventions available for the issues identified in the GA.

WHAT IS GA?

A GA involves a multidisciplinary diagnostic process that systematically evaluates an older adult's medical, psychological, social, and functional capacity with the aim developing an integrated plan for treatment and follow-up. A GA aims to uncover medical and functional issues that have previously not been identified and treated to improve outcomes, a benefit not only for older cancer patients but for all complex older patients [4].

A GA is thus a multicomponent assessment of the medical, psychological, social, and functional capacity with the aim of uncovering previously unknown issues as well as risk factors that put the older adult at increased risk for adverse outcomes such as hospitalization or severe treatment toxicity. Key disciplines involved in GA include physicians, social workers, nurses, and occupational therapists, as well as physiotherapists, dietitians, and pharmacists. It has been demonstrated that GA is feasible across settings and that its benefit is maximal in the context of frail elderly [5].

For clarity, we will use the term *domain* to indicate an area of health and well-being (for example, comorbidity), *instrument* for a specific measurement instrument that assesses a particular domain (for example, the Charlson comorbidity index), and *GA tool* for an assessment that consists of multiple domains and instruments (for example abbreviated comprehensive geriatric assessment). Table 1 provides an overview of domains and instruments commonly included in GA. The core domains that are evaluated in every older patient include functional status, cognitive function, nutritional status, comorbidities, polypharmacy, and socioeconomic status. Many geriatric oncology programs use a combination of established tools in geriatrics [38, 66], often preceded by a short screening tool to identify fit patients who do not need any GA at all (as described in the section "Which Patients to Assess"). The Moffitt Cancer Center in the United States has developed an abbreviated CGA tool [67, 68] where the existing GA tools were shortened. Most of the described tools are

evaluated in principle by a health care worker, but the Cancer and Aging Research Group has developed a combination of tools, mainly completed by self-assessment for use with oncology patients [69] (an overview of different strategies to GA is given in Table 2).

FUNCTIONAL STATUS AND FALLS

Typical GAs start with a review of functional status, measured by two widely used indicators: ADL and instrumental ADL (IADL). ADL concerns the person's strengths and limitations in self-care, mobility and gait balance, and continence status; IADL pertains to the person's ability in carrying out tasks such as shopping, cooking, household activities, and finances [4]. Additional crucial information is needed to interpret results of impairments in ADL and IADL. Such information includes the amount and type of caregiver support available and the presence and strength of the patient's social network. This information is usually obtained by an experienced nurse or social worker.

Falls can be considered as being related to functional status. It can cause significant mortality and morbidity in older adults. According to the World Health Organization, approximately a third of those aged 65 and older fall each year, and approximately 5%–10% of those falls result in injuries [81]. Two of the most feared injuries of falls include hip fractures and traumatic brain injury. Cancer and its treatment can cause fatigue, muscle weakness, dizziness, and neuropathies that increase the fall risk on one hand. On the other hand, cancer patients during treatment often become inactive, and this sedentary lifestyle is associated with muscle loss in older adults. Currently, there is little research on the prevalence of falls and specific fall risk factors in older cancer patients [82–86, 90, 94]. The American Geriatrics Society has developed a screening guideline indicating that each older adult should be asked at least once per year how many falls they experienced in the past 12 months, as well as about gait difficulty [95].

COGNITIVE FUNCTION

The assessment of cognitive function encompasses the examination of the degree to which the person is alert, oriented, able to concentrate, and perform complex mental tasks, as well as the person's affective functions [4]. Although few patients with moderate to severe dementia tend to be referred to oncology centers [96], several studies have reported that a substantial proportion has mild cognitive impairment or mild dementia [31, 70, 97–99]. It is important to assess cognitive functioning to make sure older adults understand what their disease, prognosis, and treatment plan entail (so they can make an informed decision), as well as their ability to contact health care professionals in case they experience potentially life-threatening side effects (e.g., febrile neutropenia). Furthermore, cognitive impairment may impact adherence to cancer treatment. Nonadherence to cancer treatment in older adults is not uncommon [100]. With the increase in oral chemotherapy agents and targeted therapy, adherence to treatment becomes the responsibility of the older adult (or caregiver) [101–103]. In addition, cancer treatments, especially for breast cancer, have been reported to impact cognitive function during and after treatment completion, but the mechanisms are not completely

Table 1. Domains of geriatric assessment and commonly used instruments

Assessment domain	Commonly used instruments	Potential relevance for the cancer treatment ^a
Functional status	Timed up and go (TUG) test [39]	Increased risk of toxicity of treatment
ADLs	Physical therapy/occupational therapy evaluation	Difficulty getting to and from the hospital/pharmacy
IADLs	Katz (ADL) [40]	Increased risk of falls
Performance status	Lawson Personal Self-Maintenance Scale (ADL)	
Gait speed	Barthel Index (ADL) [41]	
	Older American Resources and Services Questionnaire (IADL) [42]	
	4/6 meter gait speed test [43]	
	Short physical performance battery [44]	
Cognitive function	Mini Mental State Examination [45]	Reduced overall survival
Dementia	Montreal Cognitive Assessment [46]	Impacts informed consent to treatment
	Blessed Orientation Memory Concentration Test [47]	Increased risk of toxicity of treatment
	Clock drawing test [48]	Impacts treatment adherence
		Impacts communication between patient and health care provider
		Impacts transportation from and to hospital appointments/pharmacy
Depression	Yesavage Geriatric Depression Scale [49]	May impact treatment adherence
	Zung Self-rating Depression Scale [50]	May impact informed consent to treatment
	Hospital Anxiety and Depression Scale [51]	Impacts quality of life
		Screen for suicide ideation
Delirium	Confusion Assessment Method [52]	Increased risk for mortality and long-term morbidity
	Memorial Delirium Assessment Scale [53]	Impacts patient safety
		Impacts informed consent to treatment
		Impacts treatment adherence
Polypharmacy	Medication Appropriateness Index [54]	Increased risk of drug-drug interactions and other adverse drug events
	Beers Criteria [55]	Increased risk of hospitalizations
	STOPP/START Criteria [56]	Increased risk of toxicity of treatment
Nutritional status	Mini Nutritional Assessment Short Form [57]	May impact cancer survival
		Increased risk of complications of treatment (surgical wound infection, delirium, pressure ulcers)
		Malnutrition impacts drug metabolism
		Malnutrition impacts functional status and fall risk
Comorbidities	Charlson Comorbidity Index [58]	May impact survival and cancer treatment goals
	Cumulative Illness Rating Scale [59]	Impacts treatment choices in terms of risk of complications
	Cumulative Illness Rating Scale–Geriatrics [60]	Increased potential for adverse drug events
	ACE-27 [61]	
Socioeconomic issues	Lubben Social Network Scale [62]	Support during treatment
	Medical Outcomes Study social function scale [63]	Impact on ability to afford cancer treatment
		Caregiver burden
		Transportation issues to treatments/pharmacy
Pain	Ten-point visual analog scale	Impacts quality of life
	McGill Pain Questionnaire [64]	Can be a result of comorbidities
	The Brief Pain Inventory [65]	

(continued)

Table 1. (continued)

Assessment domain	Commonly used instruments	Potential relevance for the cancer treatment ^a
Sensory function (vision and hearing)	Self-reported hearing and vision problems Snellen eye chart Whisper test	Impacts communication between provider and patient May impact cancer treatment adherence May impact the choice of treatment Transportation issues to and from treatment
Falls	Timed up and go [39] Self-reported number of falls	The risk of falls may increase during cancer treatment because of dizziness, fatigue, and weakness Falls may become more injurious (bleeding risk) May be a consequence of cancer treatment medications (morphine and other opiates for pain management)

^aMore information in [25, 31, 32].

Abbreviations: ADL, basic activity of daily living; IADL, instrumental activity of daily living.

clear yet [104–112]. However, despite no clear causal pathway, it is important, if the older adult complains about “chemobrain” or “chemofog,” to have a full workup to exclude any other cause of cognitive issues (for example, vitamin B₁₂ deficiency) and to educate and support the patient and family because this condition may create a significant amount of anxiety that impacts their psychosocial well-being [110]. Lastly, cognitive impairment impacts overall survival [113, 114] and thus is important to take into account when making treatment decisions.

It is important to assess cognitive functioning to make sure older adults understand what their disease, prognosis, and treatment plan entail (so they can make an informed decision), as well as their ability to contact health care professionals in case they experience potentially life-threatening side effects (e.g., febrile neutropenia).

NUTRITIONAL STATUS

Nutritional deficiency and malnutrition are common among older patients. In many, malnutrition is related to inadequate caloric intake. Potential vitamin D deficiency should also be assessed because it may be linked to osteoporosis and fractures [115].

COMORBIDITIES

Many geriatric cancer patients also have comorbidities that can have direct or indirect impact on the cancer prognosis and treatment tolerance. Comorbidities include cardiovascular problems, diabetes, renal insufficiency, chronic infections pressure ulcers, dementia, osteoporosis, and prior cancer diagnosis.

POLYPHARMACY

Polypharmacy can be defined as the use of an excessive number of medications (usually five or more), using more than what is clinically indicated, use of potentially inappropriate medications, and medication duplication [87]. The use of multiple medications can increase the incidence of adverse

drug reactions and drug-to-drug interactions [88]. Adverse drug events are a significant cause of morbidity and mortality in older adults and are associated with substantial health care resource use [116–119]. In several countries, the Beers Criteria are used to avoid prescribing potentially inappropriate medications to older adults; this list was last updated in 2012 [55]. Recent studies have shown that currently most adverse drug events are related to drugs not on the Beers list [117, 119], stressing the importance of a comprehensive drug review. Among cancer patients receiving systematic anticancer therapy, one or more drug-to-drug interactions occurred in 27% of the patients [91, 92]. Medication review, which includes all prescription and over-the-counter medications, vitamins, and supplements, should be performed at every visit to detect any duplication and inappropriate use. Other tools developed to assess appropriateness of prescribing include the STOPP/START criteria [120]. For older adults with several medications for comorbid conditions who are facing cancer treatment, the help of a pharmacist can be very beneficial to optimize the medication regimen and avoid potential adverse drug events.

SOCIOECONOMIC STATUS

Social ties and support network have been identified as among the most significant predictors of mortality in older adults [89]. In a study of older breast cancer patients ($n = 2,835$), those who were socially isolated had a higher risk of mortality [93]. Social support should be an integral part of geriatric assessment. Also, the person's living conditions, financial status, and availability and adequacy of caregiver should also be taken into consideration [139]. Assessment of adequate financial resources is important, and if there are any issues, referral to a social worker is indicated to see whether financial assistance is available to help pay for cancer treatment costs. In older adults, assessment should include an inspection for signs of abuse, especially if the older adult is in poor physical health, cognitively impaired, and/or functionally dependent on others [121]. The GA should include a physical examination [4], and this provides an excellent opportunity to inspect for evidence of abuse and neglect.

GERIATRIC SYNDROMES

A geriatric syndrome refers to a health condition that is prevalent in older adults, has multifactorial etiology, and is

Table 2. Different approaches to GA used and their pros and cons

Name of the tool	Mode of administration	Time needed to complete	Pros and cons of the approach
Full GA for all patients based on certain criteria for example age [70–73]	In clinic assessment by one or more health care providers	30–120 minutes	<p>Pros:</p> <ul style="list-style-type: none"> • Using a multidisciplinary approach, a detailed health and functional status picture of the patient is obtained with the professional opinions of each team member what is needed in terms of further workup/tests/interventions and referrals • The full assessment can also be done by one health care professional (e.g., nurse or physician) who can request further workup/tests and referrals on an if needed basis • Because the patient is present during the assessment, it is possible to detect issues such as cognitive impairment and elder abuse, clarify issues, add additional investigations, as well as provide instructions to the patient and their caregiver • Gold standard of geriatric assessment in the geriatric literature [74] <p>Cons:</p> <ul style="list-style-type: none"> • Takes 90–120 minutes and is thus resource-intensive • Not all oncology patients will have “geriatric issues” (i.e., not everyone needs a full assessment) • Older adults may object to this extra visit or may depend on caregiver to bring them in for this visit • Oncology patients can decline rapidly during treatment; thus timely referral for detailed assessment is crucial and requires sufficient resources
Full GA (as described above) for those identified with a screening instrument such as the G8 or VES-13 (the two-step screening process) [38, 75]	Depending on the tool used, the health care provider fills it out (G8) or the patient does (VES-13)	Ranges for screening from 2 to 10 minutes on average, and for the full GA 30–120 minutes	<p>Pros:</p> <ul style="list-style-type: none"> • In settings with high volume older cancer patients, it can help reduce the number of patients requiring a full GA • The two-step screening process reduces costs <p>Cons:</p> <ul style="list-style-type: none"> • There is currently no perfect screening tool [76, 77] • A health care provider needs to make sure screening tools are completed, documented in the patient chart and for those who need it get a referral/appointment for the full GA • Timely referral for full GAs for those who screen positive need to be organized, preferably performed by a multidisciplinary team so that the patient and the oncologist benefit the most from the full GA

(continued)

Table 2. (continued)

Name of the tool	Mode of administration	Time needed to complete	Pros and cons of the approach
Abbreviated comprehensive geriatric assessment (approach developed by the Moffitt Cancer Center in the United States) [67, 68]	The patient fills out only one or two items of GA instruments, and if the patient scores above an agreed cutoff, the full instrument needs to be administered; the abbreviated GA has only 15 items	5–10 minutes	<p>Pros:</p> <ul style="list-style-type: none"> • Time savings <p>The information from the aCGA can be used again in the GA, which also is resource-efficient</p> <p>Cons:</p> <ul style="list-style-type: none"> • The aCGA needs to be done by a health care professional • Patients might not fill out the form correctly and in case of self-assessment; there is no opportunity for the GA team to use their clinical judgment or ask additional questions/order additional tests
Cancer-specific geriatric assessment (U.S. Cancer and Aging Research Group Approach) [69, 78, 79]	For the most part, the patient completes the tool in advance of the appointment (tool is sent to patient's home)	27 minutes for the self-assessment (most patients can complete the tool by themselves); in clinic, a research assistant completes the Blessed Orientation Memory Concentration test, the Timed Up and Go and the Karnofsky Performance Status	<p>Pros:</p> <ul style="list-style-type: none"> • Mostly completed by the patient thus limited time needed from health care providers • Shown to predict treatment toxicity • The tool has recently been modified so it can be administrated electronically [80], but in that study half the patients needed assistance to complete the tool <p>Cons:</p> <ul style="list-style-type: none"> • Need a system in the oncology clinic that allows identification of new older cancer patients well in advance of appointments so the assessment can be sent • It is not certain that the patient always evaluates his or her "geriatric performance" adequately. • The health care professional reviewing the assessment lacks the professional opinion of a multidisciplinary team because the patient completes the assessment

Abbreviations: aCGA, abbreviated comprehensive geriatric assessment; GA, geriatric assessment.

often associated with substantial morbidity and mortality [122]. Geriatric syndromes subsume dementia, depression, delirium, osteoporosis, falls, fatigue, and frailty, all of which are common among geriatric patients with cancer [94, 123]. Geriatric syndromes are sometimes approached separately in geriatric literature, but most are detected by the previously mentioned tools (including evaluation of comorbidity), so we do not mention these syndromes separately.

PAIN

Older adults with pain have been underassessed and undertreated [124, 125]. Older cancer patients may have pain as a result of their comorbid conditions. Persistent pain is difficult to treat, but it affects function [126–131]. Having persistent pain affects all areas of function and negatively affects quality of life. Research has shown that increasing age is associated with less appropriate pain management. Because older adults

more often have advanced cancer at diagnosis, along with one or more comorbidities that contribute to pain (e.g., arthritis), pain management should be an important treatment goal. The American Geriatric Society has developed guidelines for persistent pain management [132].

WHAT TO DO WITH THE RESULTS OF THE GA

GA instruments mainly identify potential problems. These detected problems generally require more extensive (diagnostic) evaluation. In an office setting, a streamlined approach is often necessary because of the constraints of time and availability of physicians and/or other health care professionals. Setting priorities among the problems for initial evaluation and treatment is a crucial first step. Often the priority is the problem that bothers the patient the most or that interferes with the ability to deliver cancer treatment and/or one that affects the ability to manage other problems, such as alcoholism or depression. The second step after performing

Table 3. What to do with the data obtained with the geriatric assessment

Domain of assessment	Potential interventions
Potential cognitive impairment	<ul style="list-style-type: none"> • Blood tests to rule out reversible causes, including complete blood cell count, electrolytes, calcium, renal function, thyroid-stimulating hormone, and vitamin B₁₂ levels, neuroimaging of brain • Possible referral for neuropsychological evaluation • Possible home safety evaluation by occupational therapist
Depression	<ul style="list-style-type: none"> • Diagnosis of depression according to standard diagnostic criteria and treatment (pharmacotherapy or psychotherapy) started • Possible referral to psychologist and/or psychiatrist and/or social worker
Medication review to detect potential interactions, inappropriate medications for older adults and to identify patient education needs with regard to medication, review medication adherence, OTC medication, self-medication	<ul style="list-style-type: none"> • Complete updated medication list is often obtained from patient's community pharmacy; problems regarding medications often need to be addressed immediately and appropriate changes made; if patient education needs are identified (such as the need for dosettes), the physician and nurse or pharmacist can provide counseling on medication management
Weight loss or lack of appetite	<ul style="list-style-type: none"> • Referral to a dietician for nutritional assessment and recommendations • Review of contributing medications and possible prescription of nutritional supplements if indicated • Referral to community services (home meal delivery programs, nursing support with meals and shopping) as indicated
Disability in (basic) ADLs	<ul style="list-style-type: none"> • Review of supports available to assist the patient with ADLs, such as support from family, friends, and community caregivers (e.g., home care nursing or private caregiver) • Referral to physical therapy/social work/outpatient rehabilitation as appropriate
Disability in IADLs	<ul style="list-style-type: none"> • Review of supports available to assist the patient with IADLs • Referral to appropriate allied health care professional and/or services • Referral to outpatient rehabilitation as appropriate
Fall risk	<ul style="list-style-type: none"> • Referral to occupational therapy and/or physical therapy to evaluate and decrease fall risk • Review of medications and comorbidities for possible contributing factors • Possible referral to multidisciplinary falls clinic; if indicated, patient can be prescribed a walking aid; if indicated, referral to an outpatient rehabilitation program/physical therapy
Pain	<ul style="list-style-type: none"> • Evaluation of location and severity of pain; investigation of etiology of pain • Review of present pain management, including medications; possible referral to other specialists (e.g., palliative care, pain service) if necessary
Hearing impairment	<ul style="list-style-type: none"> • If indicated, referral to ear-nose-throat specialist and/or audiology for further assessment and management
Vision impairment	<ul style="list-style-type: none"> • Review of medication management, safety at home, social support available, visual aids, and community support • Possible referral to optometrist or ophthalmologist, if indicated

Abbreviations: ADL, basic activity of daily living; IADL, instrumental activity of daily living.

a GA is to understand the exact nature of the disability through performing a task or symptom analysis. In a non-specialized setting, when the disability is mild or clear-cut, this often involves taking a careful history. However, when the disability is more severe, detailed assessment is needed, ideally performed by an interdisciplinary team. Once the nature of the disability is identified, systematic physical assessment and ancillary investigations are needed to clarify the cause of the problem. For instance, difficulty in dressing can be due to a number of causes ranging from cognitive impairment, poor finger mobility and dexterity, impaired movement of shoulders, back, or hip, etc. Evaluation by a physiotherapist or occupational therapist may be needed to pinpoint the problem adequately. Evaluation by a social worker may be necessary to determine the extent of family

dysfunction engendered by or contributing to the dependency. In general, one impairment may lead to another. Impaired gait may contribute to depression and deterioration in social functioning. Even once the cause of the problem has been addressed, there may be residual impairment in performance of ADL because of deconditioning and loss of function.

Once the disability and cause are understood, the treatment and management strategies often become clear. In Table 3 some interventions are listed for commonly identified issues. It should be acknowledged that the main benefit of a "geriatric approach" relies on actions/interventions based on the GA results. Just doing a GA and not doing anything with it will provide little to no benefit to older patients.

Figure 1. Overview of two-step screening process to identify those who may benefit from GA.
Abbreviation: GA, geriatric assessment.

WHICH PATIENTS TO ASSESS

Because the GA is best used for frail elderly, it depends on the clinical setting in which older adults are at risk for adverse outcomes. Many GA programs in oncology start screening at age 70 because physiological reserves and diminished treatment tolerance start playing a role in treatment choice above this age cutoff, but it should be acknowledged that this cutoff is a pragmatic choice; patients younger than 70 can be extremely frail, whereas very old persons can still be fit. A full comprehensive GA is time-consuming; it has been reported to take on average between 30 and 120 minutes [31, 32]. In oncology settings, where 60%–70% of newly diagnosed cancer patients are older, it might not be feasible to give all older adults a full comprehensive GA because of lack of resources. Several screening instruments have been developed, such as the Groningen Frailty Indicator [133], the G8 screening tool [75], and the Vulnerable Elders Survey [134]. SIOG has just published recommendations with regard to screening instruments, and no particular screening instrument was recommended [76], although the data (sensitivity, specificity, and prediction of mortality) were somewhat more robust for G8) because there are conflicting findings with regard to the prognostic value across tumor types and treatment regimens for cancer treatment outcomes such as treatment toxicity and overall survival [135–137]. However, in clinical settings where there are high volumes of older adults with cancer that are seen in the oncology clinics, a two-step screening process can be used (Fig. 1). In the first step, all older adults will be screened using a screening tool. In the second step, those older adults who scored above the cutoff of the screening instrument (i.e., were deemed at risk) will be seen for a full GA. Commonly used GA and screening tools and their cutoffs have been described on the SIOG website by Wildiers and Kenis [138],

in the Senior Adult Oncology Guideline [139], and the ConsultGerIRN website (<http://consultgerirn.org>) of the Hartford Institute for Geriatric Nursing [140].

HOW TO ORGANIZE THE ASSESSMENT

An important aspect in the decision of which patients to assess is who will assess the patients. There have been several models of GA reported in the literature for oncology settings [25, 31, 33] (Table 2). This is largely a result of the differences in practices across treatment centers and local resources, because many countries have specialized comprehensive cancer centers, where all cancer treatments are centralized and therefore the facilities might not always have access to geriatric expertise on site, whereas in other countries the cancer treatment may be provided in general hospitals that have other medical specialties available, and thus more direct access for oncologic patients to geriatric expertise is available. In most countries, the majority of cancer patients are seen in outpatient clinics. Furthermore, in most developed countries, older adults often depend on others such as family members and friends for transportation to cancer treatment centers and thus may not come back for GA if it requires additional hospital visits. Furthermore, these caregivers may need to take time off work for each appointment, and this can lead to considerable expenses during the diagnostic and treatment phase. In addition, there may be a waiting list for geriatric medicine clinics, and thus the oncological team has to decide a treatment plan before the patient can be seen for a GA in a geriatric medicine clinic. In North America, the nurse practitioner may be a good person to conduct the GA because they are trained to conduct extensive health assessments as well as have the authority to prescribe medication and order diagnostic tests [141–148]. For the management of other chronic diseases,

Table 4. Potential challenges and solutions

Potential challenge	Potential solutions
Patient-related challenges	
Unwillingness to attend extra hospital visits	The GA program should be advertised. For example, in hospital newsletters, the benefits or aim of this new program can be explained so that older cancer patients understand the aims and potential benefits.
Dependency on others to attend the extra visits	All appointments can be combined on 1 day, and by using an electronic clinical system that can identify patients in advance, an information letter can be sent to new patients about what to expect in the oncology center and approximate time requirements.
Use of the word “geriatric” in the name of the service	Older adults do not consider themselves “geriatric,” so it is important to check with potential patients what name could be used for the service.
Accessibility of the GA program in the same hospital	Because older adults may have vision, hearing, cognitive, and functional impairments, if the GA cannot take place in the busy oncology clinic, it is crucial to select a location in the hospital that is familiar and easily accessible and to use clear signage in large enough font in visible locations.
Accessibility of the GA program in another location (patient referred outside for GA)	It is important for the health care provider to make it clear what is expected with regard to the referral to both the GA team and the patient/caregiver. Instructions should be provided if documents are needed to be provided to the GA team from the oncologist.
Patient and family are confused about who is responsible for which part of the care plan and who to call in case of questions	There should be an agreement between the GA program and the oncology team on who will be responsible for which part of the care (e.g., follow-up) and who should be contacted by the patient and their caregiver if needed. Providing patients with a patient brochure about the GA program can set out those responsibilities, as well as including all contact information.
Challenges for collaboration between GA team and oncologists	
Unclear expectations about the aim of the GA program	Prior to the start of the GA program, there should be a discussion between those who are expected to refer patients as well as the GA team. It should be explicit what the criteria for appropriate referrals are and what the cancer specialist can expect from the GA (e.g., impact on treatment decision, or just advice on management of geriatric issues?) and the time frame when to expect to hear back (same day, same week, 2 weeks, etc.) so they can take that into account when considering a referral.
Less than optimal collaboration between the two specialties	Development of the goals of the program, referral criteria and process of how to refer, and expectation management (with regard to results) is needed to have all stakeholders on board. Identifying champions in each specialty can help convince the other team members. In addition, organizing rounds where cases are presented to increase knowledge and appreciation of each discipline. Organization of joint tumor boards would also provide the input of each expertise as well as increasing knowledge and appreciation of each other’s discipline, and the patient would directly benefit from having two specialties reviewing his or her case simultaneously.
Sharing of information	It is crucial that patients’ information be shared to avoid duplications and omissions that impact the quality of care provided as well as increase patient burden of having to give the information more than once. An electronic patient record would be best for providers in the same setting for sharing that information.

Abbreviation: GA, geriatric assessment.

research has shown that the nurse practitioner can manage these well, and some evidence is also emerging for nurse practitioners in oncology settings [142, 146, 148].

Another important consideration is the location of where the assessment takes place. Many older adults have either vision impairment, hearing impairment, or both [149]. Older adults might also have physical and cognitive impairments, making the location where the GA takes place very important. Going for assessments at different locations may create undue hardship for these patients. It is also important to consider the time of appointments, because appointments early in the

morning may be more difficult if one is dependent on caregivers to help with daily ADLs and/or IADLs such as dressing and transport to the hospital. Also caregivers may need time to get to the older person to pick them up and take them to hospital appointments.

CHALLENGES

In starting a GA service for older adults with cancer, one may experience some challenges. These challenges include patient-related challenges, as well as those related to the collaboration between the oncology team and GA team [150–152]. In

Table 4, we have summarized some of the challenges and provided some potential solutions. From the patient perspective, long hospital visits and multiple hospital visits are burdensome because they often rely on others for transportation. Considering that the target population for GA are frail older adults, it is important to optimize their hospital visits, reduce the burden of lengthy hospital visits, and coordinate patient care. One of the biggest challenges for collaboration between the oncology and GA team is to have clear arrangements about who will be referred for GA and what results are expected by the oncology team (e.g., input on the treatment decision or not), as well as time frame (when they can expect the results). Therefore, it is important to have both specialties' input prior to the start of a GA program.

Considering that the target population for GA are frail older adults, it is important to optimize their hospital visits, reduce the burden of lengthy hospital visits, and coordinate patient care.

CONCLUSION

We have provided the reader with an overview of how to conduct a GA, how to implement it into clinical practice, and how to use the results of the assessment in clinical oncology practice. Furthermore, we have provided the reader with information about available resources on GA, as well as GA tools, and highlighted some important challenges related to implementing GA in practice.

AUTHOR CONTRIBUTIONS

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DISCLOSURES

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For Further Reading:

Nadine J. McCleary, Devin Wigler, Donna Berry et al. Feasibility of Computer-Based Self-Administered Cancer-Specific Geriatric Assessment in Older Patients With Gastrointestinal Malignancy. *The Oncologist* 2013;18:64–72.

Implications for Practice:

The Cancer-Specific Geriatric Assessment (CSGA) developed by Hurria and colleagues has been shown to predict treatment-related toxicity in older adults with solid tumor malignancies. The authors investigated a computer-based version among adults age 70 and older initiating chemotherapy treatment for gastrointestinal cancer at the Dana-Farber Cancer Institute. The feasibility criteria used were: (1) proportion of eligible patients consenting, (2) proportion completing CSGA at baseline and follow-up, (3) total time to complete the CSGA, and (4) proportion of physicians reporting change in clinical decision-making based on CSGA results. The feasibility endpoints were met, although approximately half of the patients required assistance. While the CSGA added information to clinical assessment, results did not impact immediate clinical decision-making, possibly because of limited alternate treatment options in this subset of patients. Further evaluation of the computer-based CSGA is warranted to determine its impact on treatment decisions in a general population of older cancer patients.