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Release date: September 10, 2021; Expiration date: September 10, 2022

Learning Objectives:

Upon completion of this activity, participants will be able to:

- Integrate into professional practice the updates to the NCCN Guidelines for Older Adult Oncology
- Describe the rationale behind the decision-making process for developing the NCCN Guidelines for Older Adult Oncology

Disclosure of Relevant Financial Relationships

The NCCN staff listed below discloses no relevant financial relationships:

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Individuals Who Provided Content Development and/or Authorship Assistance:

Efrat Dotan, MD, Panel Chair, has disclosed receiving grant/research support from AstraZeneca Pharmaceuticals LP, Boston Biomedical, Eli Lilly and Company, Incyte Corporation, Ipsen, MedImmune Inc., and Pfizer Inc.

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To view all of the conflicts of interest for the NCCN Guidelines panel, go to <https://www.nccn.org/guidelines/guidelines-panels-and-disclosure>.

This activity is supported by educational grants from Agios Pharmaceuticals; AstraZeneca; Clovis Oncology, Inc.; Daiichi Sankyo; Eisai; Epizyme Inc.; Novartis; and Pharmacycics LLC, an AbbVie Company and Janssen Biotech, Inc., administered by Janssen Scientific Affairs, LLC. This activity is supported by an independent medical education grant from Bristol-Myers Squibb, and Regeneron Pharmaceuticals, Inc. and Sanofi Genzyme. This activity is supported by an independent medical educational grant from Mylan Inc. This activity is supported by a medical education grant from Karyopharm Therapeutics. This activity is supported by an independent educational grant from AbbVie.

Older Adult Oncology, Version 1.2021

Featured Updates to the NCCN Guidelines

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ABSTRACT

The NCCN Guidelines for Older Adult Oncology address specific issues related to the management of cancer in older adults, including screening and comprehensive geriatric assessment (CGA), assessing the risks and benefits of treatment, preventing or decreasing complications from therapy, and managing patients deemed to be at high risk for treatment-related toxicity. CGA is a multidisciplinary, in-depth evaluation that assesses the objective health of the older adult while evaluating multiple domains, which may affect cancer prognosis and treatment choices. These NCCN Guidelines Insights focus on recent updates to the NCCN Guidelines providing specific practical framework for the use of CGA when evaluating older adults with cancer.

J Natl Compr Canc Netw 2021;19(9):1006–1019
doi: 10.6004/jnccn.2021.0043

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Category 1: Based upon high-level evidence, there is uniform NCCN consensus that the intervention is appropriate.

Category 2A: Based upon lower-level evidence, there is uniform NCCN consensus that the intervention is appropriate.

Category 2B: Based upon lower-level evidence, there is NCCN consensus that the intervention is appropriate.

Category 3: Based upon any level of evidence, there is major NCCN disagreement that the intervention is appropriate.

All recommendations are category 2A unless otherwise noted.

Clinical trials: NCCN believes that the best management of any patient with cancer is in a clinical trial. Participation in clinical trials is especially encouraged.

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COMPREHENSIVE GERIATRIC ASSESSMENT

Reasons to Perform CGA^{1,2}

- CGA can reveal/detect reversible geriatric problems not found by routine oncology care.
- CGA can predict risk of toxicity/adverse effects from cancer treatment or decrease in QOL, enabling more targeted use of supportive care measures.
- CGA has important prognostic information that can be helpful in estimating life expectancy, which is of paramount importance when making treatment decisions.
- CGA allows targeted intervention, which can improve QOL and adherence to therapy.
- CGA can be helpful in improving communication.³

Collaboration Between Geriatric Trained Clinician and Oncologist in the Care of an Older Patient with Cancer

Older adults may benefit from a referral to a geriatric trained clinician for assessment of vulnerability prior to cancer treatment, to develop a coordinated care plan with the oncologist and/or to manage geriatric syndromes that could jeopardize outcomes of cancer treatment. The geriatric trained clinician thus may be able to assist the oncologist in optimizing the management of the non-cancer aspects of the patient's care, which in turn may enable more effective delivery of direct cancer care. Consider consultation to a geriatric trained clinician for the following:

- Cognitive impairment
 - Dementia/delirium
 - Decision-making capacity evaluation
 - Life expectancy, advance directive/advance care planning, guardianship (See NCCN Guidelines for Palliative Care)
- Functional or physical impairment, mobility issues, or disability
 - Falls evaluation and/or advice on falls prevention
 - Promote independent living or supportive living
- Multimorbidity including vision and hearing impairments
- Polypharmacy evaluation
- When considering a high-risk procedure, such as:
 - Chemotherapy and radiotherapy
 - Hematopoietic cell transplantation
 - Complex surgeries (eg, cystectomy)
- Presence of geriatric syndromes such as frailty, osteoporosis, depression, pressure ulcers, urinary incontinence, neglect or abuse, failure to thrive, or sarcopenia
- Weight loss (≥5% unintentional weight loss in last 3 months) and anorexia
- Caregiver support
- Assistance with social support resources

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References

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Overview

Cancer is the leading cause of death in women and men aged 60 to 79 years.¹ More than 50% of all cancers and more than 70% of cancer-related deaths in the United States occur in patients aged ≥65 years.² It is estimated that by 2030, approximately 70% of all cancers will be diagnosed in adults aged >65 years.³ Aging in the US population and increasing life expectancies suggest that cancer in older adults is becoming increasingly prevalent.

One of the challenges in managing older patients with cancer is assessing whether the expected benefits of treatment outweigh the risks in a population with decreased life expectancy, competing comorbidities, and decreased tolerance to stress. The biologic characteristics of certain cancers and their responsiveness to therapy are different in older patients compared with their younger counterparts.⁴ The physiologic changes associated with aging also impact an older adult's ability to tolerate cancer therapy and should be considered in the treatment decision-making process. Nevertheless, advanced age alone should not be the only criterion to preclude effective treatment that could improve quality of life (QoL) or lead to a survival benefit in older patients.^{5,6}

The NCCN Older Adult Oncology Panel recommends pretreatment evaluation using a comprehensive geriatric assessment (CGA) for all older adults with cancer, if there are apprehensions regarding the patient's ability to tolerate treatment or if there are abnormalities identified by a geriatric screening tool. Geriatric 8 (G8) and Vulnerable Elders Survey (VES-13) are the most commonly used screening tools to identify older adults with cancer who would benefit from a CGA.^{7,8} At a minimum, assessment using a geriatric screening tool is recommended if there are no concerns regarding a patient's ability to tolerate anticancer therapy.

These NCCN Guidelines Insights focus on the recent updates to the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines) for Older Adult Oncology that provide specific practical framework for the use of CGA when evaluating an older adult with cancer.

Comprehensive Geriatric Assessment

The CGA is a multidisciplinary, in-depth evaluation that assesses the objective health and well-being of the older adult while evaluating multiple domains, each of which may affect cancer prognosis, treatment choices, and

COMPREHENSIVE GERIATRIC ASSESSMENT

Geriatric Assessment Tool & References

Abbreviated CGA (aCGA)

- Overcash JA, Beckstead J, Moody L, et al. The abbreviated comprehensive geriatric assessment (aCGA) for use in the older cancer patient as a prescreen: scoring and interpretation. *Crit Rev Oncol Hematol* 2006;59:205-210.
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Barber questionnaire

- Molina Garrido MJ, Guillen Ponce C. Comparison of two frailty screening tools in older women with early breast cancer. *Crit Rev Oncol Hematol* 2011;79:51-64.

Fried Frailty Criteria

- Fried LP, Tangen CM, Walston J, et al. Frailty in older adults: evidence for a phenotype. *J Gerontol A Biol Sci Med Sci* 2001;56:M146-M156.
- Biganzoli L, Boni L, Becheri D, et al. Evaluation of the cardiovascular health study (CHS) instrument and the Vulnerable Elders Survey 13 (VES 13) in elderly cancer patients. Are we still missing the right screening tool? *Ann Oncol* 2013;24:494-500.

Geriatric (G-8)

- van Walree IC, Scheepers E, van Huis-Tanja L, et al. A systematic review on the association of the G8 with geriatric assessment, prognosis and course of treatment in older patients with cancer. *J Geriatr Oncol* 2019;10:847-858.
- Pottel L, Boterberg T, Pottel H, et al. Determination of an adequate screening tool for identification of vulnerable elderly head and neck cancer patients treated with radio(chemo)therapy. *J Geriatr Oncol* 2012;3:24-32.
- Kenis C, Bron D, Libert Y, et al. Relevance of a systematic geriatric screening and assessment in older patients with cancer: results of a prospective multicentric study. *Ann Oncol* 2013;24:1306-1312.

Groningen Frailty Index

- Kellen E, Bulens P, Deckx L, et al. Identifying an accurate pre screening tool in geriatric oncology. *Crit Rev Oncol Hematol* 2010;75:243-248.

Triage Risk Screening Tool (TRST)

- Kenis C, Bron D, Libert Y, et al. Relevance of a systematic geriatric screening and assessment in older patients with cancer: results of a prospective multicentric study. *Ann Oncol* 2013;24:1306-1312.

Vulnerable Elders Survey (VES-13)

- Pottel L, Boterberg T, Pottel H, et al. Determination of an adequate screening tool for identification of vulnerable elderly head and neck cancer patients treated with radio(chemo)therapy. *J Geriatr Oncol* 2012;3:24-32.
- Saliba D, Elliott M, Rubenstein LZ, et al. The Vulnerable Elders Survey: a tool for identifying vulnerable older people in the community. *J Am Geriatr Soc* 2001;49:1691-1699.
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- Luciani A, Ascione G, Bertuzzi C, et al. Detecting disabilities in older patients with cancer: comparison between comprehensive geriatric assessment and vulnerable elders survey 13. *J Clin Oncol* 2010;28:2046-2050.
- Owusu C, Koroukian SM, Schluchter M, et al. Screening older cancer patients for a Comprehensive Geriatric Assessment: A comparison of three instruments. *J Geriatr Oncol* 2011;2:121-129.

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tolerance (see OAO-C 1 of 10, page 1008). The CGA includes assessment tools that gauge several domains, including function and mobility, comorbidities that may interfere with cancer treatment, social functioning and support, cognition, psychological status, nutrition, and polypharmacy. The CGA can reveal and/or uncover reversible geriatric issues that are not detected by routine oncology care, including psychosocial, nutritional, and caregiver concerns. Furthermore, it can predict toxicity from cancer treatment, enabling a more targeted use of supportive care measures to improve QoL, ensure compliance, and increase adherence to therapy.⁹⁻¹¹ The components of the CGA have also been incorporated in tools that have been developed to assess the risk of severe toxicity from chemotherapy in older patients with cancer (eg, Cancer and Aging Research Group [CARG] Chemo Toxicity Calculator and Chemotherapy Risk Assessment Scale for High-Age Patients [CRASH] score; see “Considerations for Older Adults Undergoing Therapy: Systemic Therapy” in the full version of these NCCN Guidelines at NCCN.org).¹²⁻¹⁴ The CGA may also be useful in estimating life expectancy, which is of paramount importance when making treatment decisions, and allowing for a shared decision-making with the patient and/or caregiver.

Although typically a thorough CGA is performed by a geriatric trained clinician, many of the tools can be applied to routine practice and conducted by providers without any advanced training in the area. The various domains of CGA and the recommended tools for their assessment are discussed in the following sections.

Function and Mobility

Function and mobility in older patients with cancer may be evaluated using either self-reported or objective measures (see OAO-C 3 of 10 and OAO-C 7 of 10, pages 1010 and 1014). Self-reported measures include the individual's ability to complete activities of daily living (ADLs) and instrumental activities of daily living (iADLs), and the number of falls they've experienced within the past 6 months.^{15,16} ADLs encompass basic self-care skills required to maintain independence at home (eg, bathing) and iADLs entail complex skills that are necessary for maintaining independence within the community (eg, shopping). The need for assistance with iADLs has been associated with decreased treatment tolerance and poorer survival in older patients with cancer.¹⁷⁻²⁰ Objective measures such as the Timed Up and Go (TUG) test,^{21,22}

COMPREHENSIVE GERIATRIC ASSESSMENT

Recommended Assessment Tools and Interventions for Geriatric Assessment of Older Adults with Cancer^a

- CGA can be performed in a number of ways, the most extensive being with a geriatric trained clinician conducting a full assessment. Alternatively, there are tools that allow the clinician to perform these assessments within the oncology clinic setting. See ASCO Guidelines for Geriatric Assessment.
- A patient's goals and objectives with regard to his/her cancer diagnosis should be assessed prior to any treatment decision. Supportive and palliative care assessment is recommended for all older adults with cancer.

Domain	Assessment Tools ^b /Description	Potential Interventions
Self-reported Function and Mobility (OAO-C, 7 of 11)	Activities of Daily Living (ADLs) • Measures limitations in physical function activities, including bathing and dressing › Katz Index of Independence in Activities of Daily Living (ADL)	• Physical medicine & rehabilitation referral • Occupational therapy referral • Home safety evaluation health care • Promote physical activity and exercise • Referral to geriatric trained clinical or primary care physician
	Instrumental Activities of Daily Living (IADLs) • Measures ability to complete activities required to maintain independence ranging from making telephone calls to money management › OARS › Lawton-Brody Instrumental Activities of Daily Living (IADL) Scale	
	Falls (See OAO-D) • Number of falls within the last 6 months	
Objective Function and Mobility (See OAO-D)	Time it takes for individuals to stand up, walk 10 feet, return to chair and sit back down Timed "Up and Go" (TUG) (See OAO-D)	
	Assesses functional mobility Timed 10-Meter Walk Test (See OAO-D)	
	Short Physical Performance Battery (SPPB) Evaluation of lower extremity functioning	

Adapted with permission from Mohile SG, Velarde C, Hurria A, et al. J Natl Compr Canc Netw 2015 Sep;13(9):1120-30.

Abbreviations: OARS: Older Americans Resources and Services

^a Completion of the proposed geriatric assessment will take an average of 20 minutes. Alternative tools that could be utilized are listed in the domain specific section.

^b All of these assessments can be performed in less than 5 minutes.

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References

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the Timed 10-Meter Walk Test (or gait speed),^{23,24} and the Short Physical Performance Battery (SPPB) test²⁵ are also used to assess function and mobility in older adults. The panel recommends including evaluation of ADL, iADL and at least one other objective measure of function and mobility when assessing on older adult with cancer before treatment.

The TUG test score is calculated as the time in seconds it takes for a patient to stand up from an armchair without using his or her arms, walk 10 feet forward at his or her usual pace, turn around, walk back to the chair, and then sit down again. The patient may use an assistive device, such as a cane or walker, but may not require assistance from another person. The TUG test score has been shown to be predictive for the risk of falls in older adults.^{21,22}

Gait speed has also been used to assess functional status and health outcomes in older adults.^{23,24} It has been reported that decline in gait speed (characterized as slow, moderate, or fast) could predict mortality in well-functioning older adults.²⁶ Gait speed may be helpful in identifying older patients with a longer life expectancy and who may be candidates for preventive interventions that are associated with long-term benefit.

The SPPB is a tool used to assess lower extremity function and mobility in older adults by measuring gait speed, balance, and strength.²⁵ Several studies have validated its ability to predict mobility disability, frailty, ADL disability, nursing home admission, hospitalization, and mortality.^{27–30} Lower SPPB score (≤ 10 at baseline) was associated with statistically significant disabilities and was also strongly predictive of mobility disability in older adults.^{27,28}

In the case of function and mobility limitations, the panel recommends potential interventions, including referral to physical medicine and rehabilitation (PMR) and/or occupational therapy (OT) and/or a geriatric-trained clinician or a primary care physician; a home safety evaluation; and the promotion of physical activity and exercise (see OAO-C 3 of 10, this page).

Comorbidities

Older adults have an increased prevalence of comorbidities that may impact life expectancy, cancer prognosis, and treatment tolerance.^{31,32} Furthermore, these comorbidities and their management may have a direct impact on the types of treatments that can be offered.

COMPREHENSIVE GERIATRIC ASSESSMENT

Recommended Assessment Tools and Interventions for Geriatric Assessment of Older Adults with Cancer^a

Domain	Assessment Tools ^b /Description	Potential Interventions
Comorbidity	<ul style="list-style-type: none"> Assess the presence or absence of comorbidities <ul style="list-style-type: none"> Charlson Comorbidity Index (CCI) Cumulative Illness Rating Scale-Geriatric (CIRS-G) Assess different categories of organ dysfunction and non-relapsed mortality risk <ul style="list-style-type: none"> Hematopoietic Cell Transplantation-Specific Comorbidity Index (HCT-CI) 	<ul style="list-style-type: none"> Optimize each medical condition prior to therapy Coordinate with primary care physician and other specialists Evaluation of life expectancy See Life Expectancy Table
Social Functioning and Support (See OAO-C, 7 of 11)	<ul style="list-style-type: none"> Measure the availability of social support and engagement in physical or social activities <ul style="list-style-type: none"> MOS Social Support Survey Evaluate the self-reported availability of emotional/informational social support <ul style="list-style-type: none"> RAND Health Care Social Support Survey Instrument: Emotional/Informational Subscale Evaluate the self-reported availability of tangible physical social support <ul style="list-style-type: none"> RAND Health Care Social Support Survey: Tangible Subscale 	<ul style="list-style-type: none"> Refer to social work for <ul style="list-style-type: none"> Transportation assistance Financial toxicity⁵ Home health care Support groups Medication assistance programs, change in level of care, facilitations to assisted living, respite care, skilled nursing facilities, arrangement to local agencies on aging and community resources Home safety evaluation/referral for medical alert devices Refer to psychiatry/psychology Ask about caregiver burden Spiritual care Screen for elder abuse; ask the patient, "Do you feel safe at home?"

Adapted with permission from Mohile SG, Velarde C, Hurria A, et al. J Natl Compr Canc Netw 2015 Sep;13(9):1120-30.
Abbreviations: MOS: Medical Outcomes Study

^a Completion of the proposed geriatric assessment will take an average of 20 minutes. Alternative tools that could be utilized are listed in the domain specific section.

^b All of these assessments can be performed in less than 5 minutes.

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For example, chronic lung disease may affect a patient's ability to undergo thoracic surgery or to have radiation therapy administered to the lungs, and extensive cardiac disease will limit the use of potential cardiotoxic drugs. Renal function carries significant weight when determining treatment approach, as many of the chemotherapy agents are excreted by the kidneys, and dose adjustments to the measured glomerular filtration rate (GFR) should be considered because the GFR decreases with age.

The panel recommends using one of the commonly used scales to determine the risk of mortality associated with comorbidities in older adults with cancer (see OAO-C 4 of 10, this page): the Charlson Comorbidity Index (CCI),³³ the Cumulative Illness Rating Scale (CIRS),³⁴ and the Hematopoietic Cell Transplantation-Comorbidity index (HCT-CI). Among patients with locally advanced non-small cell lung cancer (NSCLC) receiving chemotherapy, a CCI score of >2 was associated with a higher risk of early treatment suspension, and the presence of severe comorbidities as measured by CIRS was associated with a higher risk for neutropenic fever and death.^{35,36} Finally, a HCT-CI score ≥3 was found to be more predictive for a

lower overall survival (OS) among patients aged ≥50 years who had undergone allogeneic HCT.³⁷

For older adults with comorbidities, the panel recommends that clinicians optimize each medical condition prior to therapy, evaluate the patient's life expectancy, and coordinate care with the patient's primary care physician and team of specialists (see OAO-C 4 of 10, this page).

Social Functioning and Support

The availability of social support has been associated with physical health and emotional well-being of patients with cancer.³⁸ Older adults with cancer require dependable social support systems to optimize treatment outcomes. Additionally, the lack of social ties has been identified as a significant predictor of mortality in older adults.^{38,39} Therefore, providers should conduct a comprehensive evaluation of the social support an older adult has prior to starting anticancer therapy. The patient's living conditions, presence, and adequacy of caregiver and financial status should be considered. Information should be sought as to whether the patient is a caregiver for someone else and whether cancer treatment may impact their ability to

COMPREHENSIVE GERIATRIC ASSESSMENT

Recommended Assessment Tools and Interventions for Geriatric Assessment of Older Adults with Cancer^a

Domain	Assessment Tools ^b /Description	Potential Interventions
Cognition (See OAO-E)	<ul style="list-style-type: none"> Evaluate the level of cognitive impairment, if any. <ul style="list-style-type: none"> Mini-Cog (See OAO-F) Mini-Mental State Examination (MMSE) Blessed Orientation Memory Concentration Test (BOMC) 	<ul style="list-style-type: none"> Involve family/caregiver Assess/minimize potentially inappropriate medications (See OAO-H) Delirium prevention (See OAO-E) Assess capacity and ability to consent to treatment (See OAO-2) Identify health care proxy/collaborative decision maker Cognitive testing/referral to neuropsychologist/geriatric trained clinician
Psychological	<ul style="list-style-type: none"> Evaluates the level of depression and anxiety experienced in the last month <ul style="list-style-type: none"> Mental Health Inventory (MHI-17) 	<ul style="list-style-type: none"> Complementary (non-pharmacologic) modalities such as guided imagery, meditation, relaxation, acupuncture, etc. Referral to integrative medicine Counseling by a qualified professional Refer to psychiatry/psychology Start medication to treat anxiety/depression Support programs Spiritual care
	<ul style="list-style-type: none"> Evaluates the level of distress <ul style="list-style-type: none"> Distress thermometer (See NCCN Guidelines for Distress Management) 	
	<ul style="list-style-type: none"> Evaluate for the risk for depression <ul style="list-style-type: none"> Geriatric Depression Scale-4 (GDS-4) 	

Adapted with permission from Mohile SG, Velarde C, Hurria A, et al. J Natl Compr Canc Netw 2015 Sep;13(9):1120-30.

^a Completion of the proposed geriatric assessment will take an average of 20 minutes. Alternative tools that could be utilized are listed in the domain specific section.^b All of these assessments can be performed in less than 5 minutes

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provide this care. Finally, the patient's treatment goals should be discussed, clarifying advanced directives and the presence of a healthcare proxy.

The self-administered, 19-item Medical Outcomes Study (MOS) social support survey measures the availability of support in several domains using 4 subscales (emotional/informational, tangible/instrumental, positive social interaction, affection) and 1 overarching index.^{40,41} To facilitate its administration, the survey has been abridged to a modified, 8-item survey with 2 subscales, encompassing 2 domains of social support (emotional and tangible).⁴⁰ In an analysis of 3,241 patients who completed either the MOS social support survey or the modified MOS social support survey, the results of the modified survey were found to be comparable to that of the MOS social support survey.⁴⁰ Other assessment tools include the RAND Health Social Support Survey Instrument: Emotional/Informational Support Subscale and the RAND Health Social Support Survey: Tangible Support Subscale.

In the case of deficient social support, the panel recommends several potential interventions, including referral to social work for a thorough evaluation, home

safety review and issue of medical alert devices, psychiatry/psychology consultation, spiritual care, and screening for elder abuse and caregiver burden (see OAO-C 4 of 10, page 1011).

Cognition

Older patients with cancer who are cognitively impaired have an increased risk of functional dependency, depression, and increased mortality equivalent to that associated with a diagnosis of cancer.⁴² Cognitively impaired patients should be cared for by an experienced multidisciplinary geriatric oncology team and receive good supportive care throughout treatment.⁴² In addition, the ability to weigh the risks and benefits of anticancer therapy and adhere to treatment recommendations must be considered carefully in the setting of cognitive impairment.

Often present in older patients as a comorbid condition, dementia is a progressive condition characterized by impairment of memory and at least one other cognitive function (such as aphasia, apraxia, agnosia, or executive function) that interferes with the ability to perform daily functions independently. Mild cognitive impairment

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Recommended Assessment Tools and Interventions for Geriatric Assessment of Older Adults with Cancer^a

Domain	Assessment Tools ^b /Description	Potential Interventions
Nutrition (See OAO-C, 8 of 11)	Body Mass Index (BMI) Weight (kg)/ Height (m ²)	<ul style="list-style-type: none"> • Nutrition consult • Make specific dietary recommendations • Oral care • Supplemental nutrition • Occupational therapy for assistive devices • Speech therapy and swallowing assessment • Oral and dental evaluation for dentures • Evaluation for appetite stimulants/nausea control/calorie/protein fluid recommendations/food insecurity (eg, local food banks, Meals on Wheels), treatment with dietary supplements
	Percent unintentional weight loss in last 6 months	
	Mini-Nutritional Assessment (MNA) Validated self-reported tool that can identify older adults who are malnourished or at risk for malnutrition	
Polypharmacy (See OAO-C, 8 of 11)	Medications Prescription and over-the-counter medication list	<ul style="list-style-type: none"> • Medication reconciliation with patient and other care providers • Discontinue inappropriate or unnecessary medications • Evaluate for drug-drug and drug-disease interactions

Adapted with permission from Mohile SG, Velarde C, Hurria A, et al. J Natl Compr Canc Netw 2015 Sep;13(9):1120-30.

^a Completion of the proposed geriatric assessment will take an average of 20 minutes. Alternative tools that could be utilized are listed in the domain specific section.^b All of these assessments can be performed in less than 5 minutes.

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is an intermediate state between normal cognition and dementia characterized by subjective memory impairment, preserved general cognitive function, and intact ability to perform daily functions.⁴³

The panel recommends screening for cognitive impairment before treatment initiation using quick assessment and simple tools (see OAO-C 5 of 10, page 1012). The Mini-Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA) are recommended for the assessment of cognitive function in older adults.^{44–46} The MMSE is an 11-item screening test that quantitatively assesses the severity of cognitive impairment and documents cognitive changes occurring over a period of time.^{44,45} The MoCA is a brief screening tool with high sensitivity and specificity for detecting mild cognitive impairment in patients performing in the normal range on the MMSE.⁴⁶ Similarly, the Mini-Cog is a 5-point test (consisting of a 3-word recall and clock drawing test) used to screen for cognitive impairment in older adults.^{47,48} Finally, the Blessed Orientation Memory Concentration (BOMC) test is a weighted, 6-item survey that evaluates patients' orientation, registration, and attention to diagnose dementia.⁴⁹

Assessment of cognitive function can also be confounded by fatigue, depression, anxiety, underlying brain tumors, endocrine dysfunction, nutritional deficiency, alcohol use, and sleep disturbances.⁵⁰ Therefore, if dementia is suspected, further evaluation including brain imaging, neuropsychological testing, and evaluation for vitamin B₁₂ deficiency and thyroid dysfunction may be indicated. The use of certain classes of medications (anticholinergics, antipsychotics, benzodiazepines, corticosteroids, and opioids) has been associated with cognitive impairment and delirium in older adults.^{51–53} Research suggests that chemotherapy is also responsible for cognitive decline in patients with cancer, and chemotherapy-related cognitive impairment may persist for months to years following treatment for varying reasons.⁵⁴

Potential interventions for patients with impaired cognitive function include involving the patient's family/caregiver, minimizing any inappropriate medications, implementing delirium prevention measures, assessing ability to consent to treatment, identifying a healthcare proxy, and cognitive testing as recommended by a neuropsychologist and/or geriatric trained clinician (see OAO-C 5 of 10, page 1012).

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Functional Status

- ADLs - Self-feeding, dressing, continence, grooming, transferring, using the bathroom
- IADLs - Using transportation, managing money, taking medications, shopping, preparing meals, doing laundry, doing housework, using the telephone
- Physical performance status (Refer to Karnofsky or ECOG specifically for PS)
- Visual function and/or hearing impairment
- Falls and/or unstable gait
 - ▶ Falls are more common in older adults with cancer than those without cancer
 - ▶ Factors that have been prospectively associated with increased risk of subsequent falls in older adults with cancer include: prior falls, benzodiazepine use, cancer pain, and neurotoxic chemotherapy
 - ▶ In patients who are at risk, such as those who have experienced a fall in the last 6 months or if the patient is "afraid of falling," consider the following evaluations:
 - ◊ Assessment of gait by evaluating gait speed⁴ or using the Timed Up and Go (TUG) test: See OAO-D
 - ◊ Exercise promotion including physical therapy (PT) or occupational therapy (OT) evaluation, as needed
 - ◊ Checking vitamin D levels and supplementing vitamin D if low
 - ◊ Referral to geriatrics or primary care physician
 - ◊ Home safety evaluation and home modifications as indicated
 - ◊ Medications that put patients at risk for adverse outcomes See Medications Commonly Used for Supportive Care that Are of Concern in Older Patients (OAO-H)

Socioeconomic Issues

- Poor living conditions
- No family/caregiver or limited social support
- Low income
- Screen for elder abuse
 - ▶ Ask the patient, "Do you feel safe at home?"
 - ▶ Refer to social work
- Transportation barriers/access problems
- Food insecurity
- Financial toxicity (eg, underinsurance and/or high out-of-pocket costs)⁵

Psychosocial Distress

- Depression
 - ▶ Geriatric Depression Scale (GDS)
 - ▶ See NCCN Guidelines for Distress Management

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Psychological Problems

Depression and distress have been identified in approximately 28% and 41% of older adults with cancer, respectively, and their prevalence can have a significant impact on the patient's ability to receive life-sustaining treatment for their cancer.^{55,56} Impaired mobility and functional status, impaired ADL, inadequate social support, cognitive impairment, polypharmacy, multimorbidity, and cancer-related pain were independently associated with clinical depression, whereas poorer physical function and loss of independence were the key risk factors contributing to distress.^{55,56}

The Geriatric Depression Scale (GDS) is a reliable and valid tool to screen for depression in older patients with no or mild-moderate cognitive impairment.⁵⁷ The GDS was originally developed as a 30-item scale.⁵⁷ Shortened versions of GDS have been found to be equally accurate and less time-consuming in screening for depression in older adults.^{58,59} Cancer-related fatigue and depression frequently occur together; therefore, patients reporting fatigue should probably be assessed for depression.⁶⁰⁻⁶²

The NCCN Distress Thermometer (DT) and accompanying 36-item problem list is a well-known screening

tool, specifically developed for patients with cancer by the NCCN Distress Management Panel.^{63,64} The NCCN DT has been validated by several studies in patients with different types of cancer and has revealed good correlation with the more comprehensive Hospital Anxiety and Depression Scale.⁶⁵ The tool identifies whether patients with cancer have problems in 5 different categories: practical, family, emotional, spiritual/religious, and physical. Finally, the Mental Health Inventory (MHI-17) is a method to evaluate overall emotional functioning by measuring the level of depression and anxiety experienced within the past month.

For those detected to have psychological distress or depression, potential interventions include complementary modalities, referral to integrative medicine, counseling, referral to psychiatry/psychology, the addition of anxiolytics/antidepressants, support programs, and spiritual care (see OAO-C 5 of 10, page 1012).

Nutrition

Nutritional deficiency or malnutrition is a common and serious condition that is often underdiagnosed in all older adults and specifically those with cancer. Poor

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Nutritional Status⁶

Patients with cancer are at risk for severe malnutrition that is underdiagnosed.⁷

- Poor nutritional status is associated with increased mortality and poor chemotherapy tolerance.^{8,9,10,11}
- Malnutrition among hospitalized patients with cancer is associated with increased length of stay.⁷
- Practical consideration to guide further nutritional assessment of at-risk patients includes:
 - ◇ Unintentional weight loss of greater than 5% over 6 months^{12,13}
 - ◇ Body mass index (BMI) of 22 or below¹⁴
 - ◇ Weighing less than 80% of ideal body weight¹⁵
 - ◇ Practical suggestions for evaluation of and treatment for optimizing nutrition among patients with cancer:
 - Guide to Nutritional Intervention from NCI Nutrition in Cancer Care (PDQ)
 - MNA® Mini Nutritional Assessment
 - ◇ Referral to speech and language pathologist to assess for swallowing issues

Polypharmacy

- Reconcile medications at every visit, including prescription and over-the-counter medications, vitamins, and supplements.^{c,d,e,f}
- Medication review^e may also be indicated with any initiation or change in oncologic treatment, change in comorbid disease management, or change in clinical condition, and at other times as determined by the clinical team and during transition of care. See Medication Review on next page.
- Carefully review indications, duration of therapy, and dosage when using these medications or classes of medications that are not recommended for older adults. See Medications Commonly Used for Supportive Care that Are of Concern in Older Patients (OAO-H).
- Evaluate adherence to therapy (See OAO-F).

^c Reconciliation and review of medications, and medication changes in particular, should ideally occur in the context of a patient's oncologic treatment and with the input from other physicians involved in the patient's care. The extent to which a patient's oncologic care occurs in a shared model of care with primary care providers will guide the extent of involvement of a primary care physician in medication management questions.

^d Reconciliation refers to the process of developing an accurate list of medications a patient is taking in order to communicate and make care decisions about medication.

^e Medication review refers to the process of providing a structural, critical evaluation of a patient's medication list in order to optimize care and avoid harm.

^f Memorial Sloan Kettering Cancer Center Search About Herbs. Available at: <https://www.mskcc.org/cancer-care/diagnosis-treatment/symptom-management/integrative-medicine/herbs/search>.

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nutritional status is associated with an increased risk of severe hematologic toxicity, an increased mortality risk, poor chemotherapy tolerance, and an increased length of stay among hospitalized patients with cancer.^{66–69} The malnutrition universal screening tool uses cutoffs such as a body mass index ≤ 22 kg/m² and percent unintentional weight loss in the previous 6 months.⁷⁰ These cutoffs can be used easily in clinic to identify patients at risk for malnutrition and treatment intolerance.

The Mini-Nutritional Assessment (MNA) is a validated, self-reported tool that can identify older adults who are malnourished or at risk for malnutrition.⁷¹ The summed scores differentiate between those with sufficient nutrition, protein-calorie malnutrition, or risk of malnutrition. The MNA was also found to be predictive of mortality and hospital cost.⁷¹

For those detected to have nutritional deficits, the panel recommends a nutrition consult, specific dietary interventions, oral care, supplemental nutrition, occupational therapy for assistive devices, speech therapy and swallowing assessment, oral/dental evaluation for dentures, screening for food insecurity, social/caregiver support, and evaluation for appetite stimulants/nausea

control/calorie, protein, and fluid recommendations (see OAO-C 6 of 11, page 1013).

Polypharmacy

Polypharmacy can be defined in various ways, including use of several medications (≥ 5) or more than are clinically indicated, use of potentially inappropriate medications, medication underuse, and medication duplication.⁷² Although polypharmacy can be an issue across all age groups, it can be a more serious problem in older patients due to the presence of comorbidities treated with ≥ 1 drugs. The use of multiple medications can lead to an increased incidence of adverse drug reactions (which can lead to functional decline and geriatric syndromes), drug–drug interactions, and nonadherence.^{73,74}

Alterations in pharmacokinetics and pharmacodynamics of drug metabolism in the older population can also contribute to adverse drug interactions.⁷⁵ The use of potentially inappropriate medications (especially hypnotics, sedatives, antidepressants, long-acting benzodiazepines and other inappropriate psychotropics, and medications with anticholinergic properties) is also

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Medication Review¹⁶

- Does every medication match a known medical problem or chronic condition?
 - ▶ Any duplications?^{17,18,19,20}
 - ▶ Any duplications?
- Are the dosages appropriate for each medication for the patient's age, renal function, or liver function?
- Are there potential drug-drug or drug-disease interactions or other adverse effects of the medication?
 - ▶ Drug interactions:²²
 - ◊ <http://medicine.iupui.edu/clinpharm/ddis/>
 - ◊ <http://www.mskcc.org/cancer-care/integrative-medicine/about-herbs-botanicals-other-products>
- Are there any high-risk/low-benefit or inappropriate medications?
 - ▶ Beers criteria:²³
 - ◊ <http://geriatricscareonline.org/toc/american-geriatrics-society-updated-beers-criteria-for-potentially-inappropriate-medication-use-in-older-adults/CL001>
 - ▶ Screening Tool of Older Persons' Prescriptions (STOPP) and Screening Tool to Alert to Right Treatment (START) criteria^{18,19,20,21}
 - ▶ Medication Appropriateness Index²⁴
- Could a medication-related problem be responsible for current complaints or presenting problems?
- Can the regimen be simplified?
- Are there any less expensive alternative medications that are of equal utility?

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associated with an increased risk of falls in older adults (age ≥65 years).^{76,77}

The panel recommends using validated tools to screen for polypharmacy, especially in older adults receiving chemotherapy regimens, as many of those agents interact with other commonly used medications in older adults (see OAO-C 9 of 11, page 1016). The Beers criteria and the Medication Appropriateness Index (MAI) are 2 of the most common approaches used to evaluate potentially inappropriate medication use in older patients. The Screening Tool of Older Persons' Potentially Inappropriate Prescriptions (STOPP) and the Screening Tool to Alert Doctors to Right Treatment (START) criteria also evaluate drug interactions, medication duplication, and medication underuse.

The Beers Criteria identify inappropriate medications that have potential risks that outweigh potential benefits based on the risk of toxicity and the presence of potential drug-disease interaction in older patients with cancer.^{78,79} It was recently updated by the American Geriatrics Society to improve monitoring of drug use, e-prescribing, interventions to decrease adverse events in older adults,

and patient outcomes.⁸⁰ In the updated criteria, medications that are used in older adults are divided into medications that should be avoided in most older patients, medications that should be avoided in older patients with select conditions, medications that should be administered with caution because the benefits outweigh the risks, medication interactions, and dose adjustment of medication based on renal function.⁸¹

The MAI was developed to measure appropriate prescribing based on a 10-item list and a 3-point rating scale.⁸² The STOPP criteria are composed of 65 indicators for potentially inappropriate prescribing, including drug-drug and drug-disease interactions, therapeutic duplication, and drugs that increase the risks of geriatric syndromes, whereas the START criteria incorporate 22 evidence-based indicators to identify prescribing omissions in older people.^{83,84}

Medication review of existing prescription and over-the-counter medications may be indicated prior to initiation or change in treatment, when there is a change in comorbid disease management or in clinical condition, and at other times as determined by the clinical team and

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during transition of care. A careful review of the indication for treatment, duration of therapy, and dosage should be performed when using specific medications or classes of medications that are not recommended for older adults. Finally, patients should be evaluated for drug–drug and drug–disease interactions.

Summary

There are unique issues to consider when caring for an older adult with cancer. The physiologic changes associated with aging may impact an older adult's ability to tolerate cancer therapy and should be considered in the treatment decision-making process. Nevertheless, advanced age alone should not be the only criterion to preclude effective cancer treatment that could improve QoL or lead to a survival benefit in older patients. Treatment should be individualized based on the nature of the disease, the physiologic and psychosocial status of

the patient, and the patient's preferences. Appropriate use of geriatric screening tools and/or CGA enables physicians to develop a coordinated plan for cancer treatment and to guide interventions tailored to the individual patient based on their functional status and physiologic age rather than the chronologic age. The goal of the NCCN Guidelines for Older Adult Oncology is to assist clinicians in providing evidence-based oncology care that enhances treatment decision-making and improves QoL in older adults with cancer. The updated guidelines include a roadmap that could assist providers in tailoring a geriatric assessment that could be routinely used in their clinical practice as they provide care to this vulnerable patient population.

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