



CANADIAN NETWORK ON
AGING AND CANCER

First Annual Geriatric Oncology Conference
Under the auspices of International Society of Geriatric Oncology

Prehabilitation and Preoperative Assessment Toolkit

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Goals of geriatric-specific assessments

- offer more accurate risk stratification
- identify unrecognized issues for targeted intervention
- optimize tolerance of cancer-directed therapy
- Anticipate postoperative needs

Goals of prehabilitation

- offer more accurate risk stratification

Checklist for Geriatric-Specific Preoperative Assessment

To include for all older adults

- Vulnerability screen (VES-13 or G8)

Additional items to include if resources permit

- Timed Up and Go (TUG)
- Mini-Cog
- Falls History
- Nutrition Assessment
- IADLs/ADLs
- ACS Risk Calculator
- ePrognosis

Positive screen should prompt referral to geriatrics team

What to include in referral to geriatrics

- How does the cancer currently affect health?
- What is the trajectory with and without cancer-directed treatment?
- What is the standard cancer-directed treatment?
- What alternative treatment strategies exist?
- What are the benefits and downsides of each treatment option?

Geriatrics team should use CGA and aim to

- Uncover geriatric impairments
- Estimate prognosis with and without the cancer
- Estimate short-term intolerances from treatment
- Optimization and ongoing management of deficits
- Identify and coordinate social and other supports to facilitate treatments and recovery

Hamaker ME, van Huis-Tanja LH, Rostoft S. Optimizing the geriatrician's contribution to cancer care for older patients. *Journal of geriatric oncology*.2019 Jul 5.

Preoperative Assessment Approach for Older Adults

Disease-Based Assessment



standard approaches to diagnosis, staging, and determination of technical and oncologic resectability
Recommendation of standard treatment & details of alternatives

Geriatric-Specific Assessment



identify those with vulnerability at increased risk as well as geriatric deficits that may be targets for optimization. Clinicians with geriatric expertise should be included either for all older patients, or those at risk on screening.

Patient-Centred Recommendation

Integrate both assessments in shared decision-making approach incorporating patient goals and values.

Include planned treatment, sequencing, and understanding of expected goals & geriatric-specific treatments including nutrition, physiotherapy, functional supports, caregiver supports.

Ongoing Multidisciplinary Reassessment and Support

Ongoing interval reassessments of both disease-status and overall health status incorporating geriatric-specific assessments should guide ongoing treatments and changes to treatment planning and supports

Vulnerable Elders Survey-13 (VES-13)

Category		Points
Age (years)	< 75	0
	75-85	1
	≥ 85	3
Self-Rated Health	Good, very good, or excellent	0
	Fair or poor	1
Physical Disability	Difficulty with any of the following	0 (0 items)
	• Stooping, crouching, or kneeling	1 (1 item)
	• Lifting or carrying objects as heavy as 10 lbs	2 (≥ 2 items)
	• Reaching or extending arms above shoulder level	
	• Writing, handing or grasping small objects	
• Walking a quarter mile (400m)		
• Doing heavy housework		
Functional Disability	Need assistance because of health/physical condition for any of	0 (0 items)
	• Shopping for personal items	4 (≥ 1 item)
	• Managing money	
	• Walking across the room (cane or walker okay)	
	• Doing light housework	
	• Bathing or showering	

A score of ≥ 3 is abnormal (frail)

- Ethun CG, Bilen MA, Jani AB, Maithel SK, Ogan K, Master VA (2017) Frailty and cancer: implications for oncology surgery, medical oncology, and radiation oncology. *CA Cancer J Clin* 67:362-377
- Saliba D, Elliott M, Rubenstein LZ, Solomon DH, Young RT, Kamberg CJ, Roth RNC, MacLean CH, Shekelle PG, Sloss EM (2001) The Vulnerable Elders Survey: a tool for identifying vulnerable older people in the community. *J Am Geriatr Soc* 49:1691-169

G8 Tool

Item	Answers	Points
Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?	severe decrease in food intake	0
	moderate decrease in food intake	1
	no decrease in food intake	2
Weight loss during the last 3 months	weight loss > 3 kg	0
	does not know	1
	weight loss between 1 and 3 kgs	2
	no weight loss	3
Mobility	bed or chair bound	0
	able to get out of bed/chair but does not go out	1
	goes out	2
Neuropsychological problems	severe dementia or depression	0
	mild dementia or depression	1
	no psychological problems	2
Body Mass Index (BMI, kg/m ²)	< 19	0
	19 to < 21	1
	21 to < 23	2
	≥ 23	3
Takes > 3 medications per day	yes	0
	no	1
In comparison to other people of the same age, how does patient consider their health status?	not as good	0
	does not know	0.5
	as good	1
	better	2
Age	> 85	0
	80 – 85	1
	< 80	2

A score of ≤ 14 is abnormal (frail)

- Bellera CA, Rainfray M, Mathoulin-Pelissier S, Mertens C, Delva F, Fonck M, Soubeyran PL (2012) Screening older cancer patients: first evaluation of the G-8 geriatric screening tool. Ann Oncol 23:2166–2172

Single domain tools to consider

Tool	Domains Evaluated	Abnormal score	Time to complete	Comments
Timed Up and Go (TUG)	<ul style="list-style-type: none"> Rise from chair, walk 3m (10ft), and return to sitting in chair 	<ul style="list-style-type: none"> > 12s to complete 	<ul style="list-style-type: none"> <1 minute 	<ul style="list-style-type: none"> Simple test; requires timer and walking space Associated with major postoperative complications
Falls	<ul style="list-style-type: none"> Ask patient about falls in past 6 months 	<ul style="list-style-type: none"> Report of any fall in past 6 months 	<ul style="list-style-type: none"> <1 minute 	<ul style="list-style-type: none"> 1/3 patients had reported a fall when asked Strongly associated with postoperative complication, and institutional discharge Sensitivity for frailty unreported
Mini-Cog	<ul style="list-style-type: none"> Cognitive screening tool 3-word recall (scored 0-3) Clock drawing with all numbers and time set to 10 past 11 (scored 0 or 2) 	<ul style="list-style-type: none"> ≤ 3 	<ul style="list-style-type: none"> ≤3 minutes 	<ul style="list-style-type: none"> Short screen for cognitive impairment Associated with postoperative complications, institutional discharge, and death at 6 months Poor performance with limited education
Nutrition	<ul style="list-style-type: none"> BMI Weight loss MNA-SF 	<ul style="list-style-type: none"> BMI <21 <80% of ideal weight, or weight loss (>5% in 1 month or 10% in 6 months) 	<ul style="list-style-type: none"> 1-3 minutes 	<ul style="list-style-type: none"> Associated with increased complications, hospital stay and mortality. [18]

BMI body mass index, *MNA-SF* mini nutritional assessment short form

- Huisman MG, Van Leeuwen BL, Ugolini G, Montroni I, Spiliotis J, Stabilini C, Carino N de'Liguori, Farinella E, de Bock GH, Audisio RA (2014) "Timed Up & Go": A Screening Tool for Predicting 30-Day Morbidity in Onco-Geriatric Surgical Patients? A Multicenter Cohort Study. *PLoS One* 9:e0086863
- 87. Jones TS, Dunn CL, Wu DS, Cleveland JC, Kile D, Robinson TN (2013) Relationship between asking an older adult about falls and surgical outcomes. *JAMA Surg* 148:1132-1138
- 88. Robinson TN, Wu DS, Pointer LF, Dunn CL, Moss M (2012) Preoperative cognitive dysfunction is related to adverse postoperative outcomes in the elderly. *J Am Coll Surg* 215:12-17

Mini-Cog (1 of 2)

Three word registration

"I'm going to say three words that I want you to repeat after me and then try to remember."

Option 1	Option 2	Option 3	Option 4
Banana	Leader	Village	River
Sunrise	Season	Kitchen	Nation
Chair	Table	Baby	Finger

Clock Drawing

"Now I want you to draw clock. Put the numbers where they go".
Once done say "Now, set the time to 10 past 11"

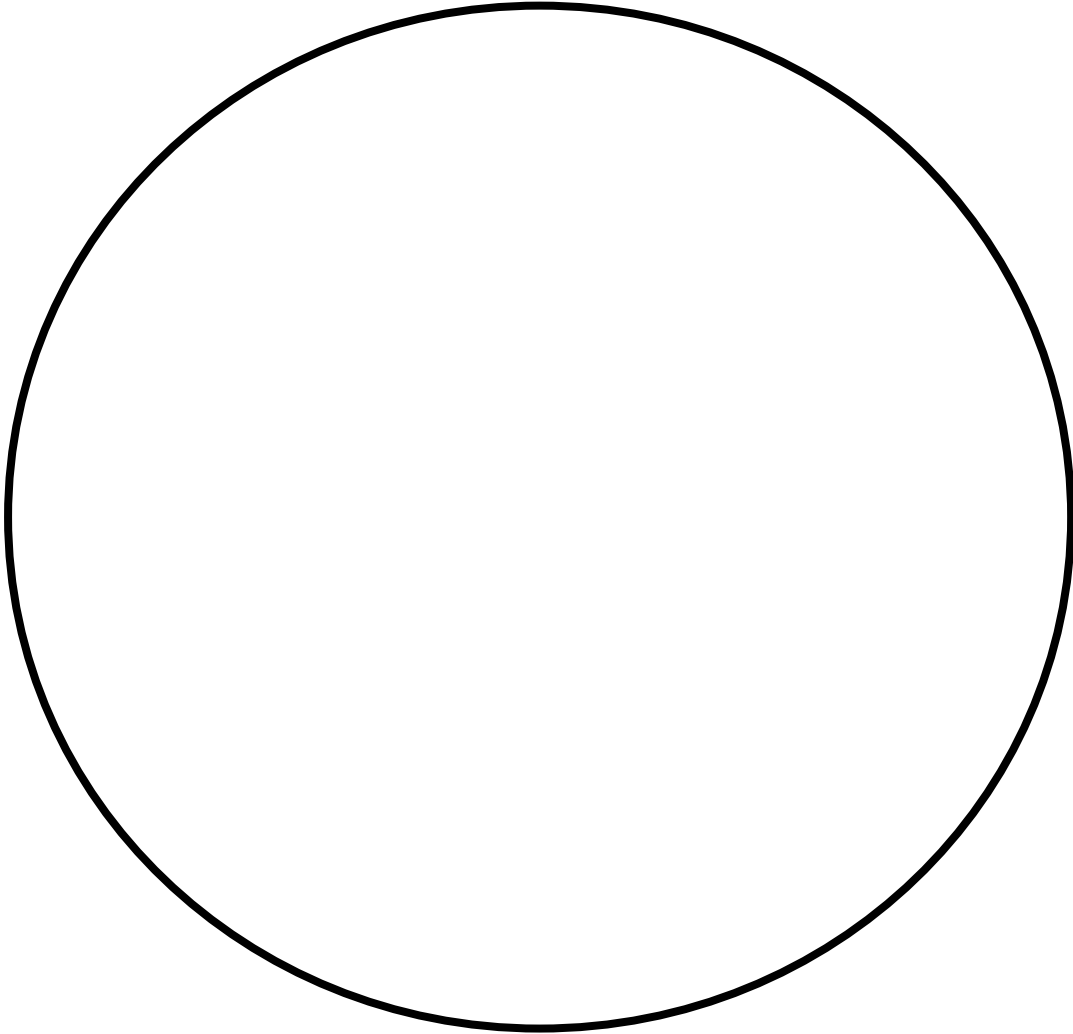
Three words recall

"What were the three words I asked you to remember?"

SCORING

Word recall _____ (0-3 points)
Clock draw _____ (0 or 2 points)
Total Score _____ (0-5 points)

Mini-Cog (2 of 2)



Daily Living

Instrumental Activities of Daily Living (IADLs)

	Independent	Dependent
Shopping	<input type="checkbox"/>	<input type="checkbox"/>
Meal preparation	<input type="checkbox"/>	<input type="checkbox"/>
Use of telephone	<input type="checkbox"/>	<input type="checkbox"/>
Medications	<input type="checkbox"/>	<input type="checkbox"/>
Housework	<input type="checkbox"/>	<input type="checkbox"/>
Using transportation	<input type="checkbox"/>	<input type="checkbox"/>
Finances	<input type="checkbox"/>	<input type="checkbox"/>

Activities of Daily Living (ADLs)

	Independent	Dependent
Dressing	<input type="checkbox"/>	<input type="checkbox"/>
Bathing	<input type="checkbox"/>	<input type="checkbox"/>
Toilet	<input type="checkbox"/>	<input type="checkbox"/>
Transfers	<input type="checkbox"/>	<input type="checkbox"/>
Feeding	<input type="checkbox"/>	<input type="checkbox"/>

Clinical Frailty Scale*



1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2 Well – People who have **no active disease symptoms** but are less fit than category 1. Often, they exercise or are very **active occasionally**, e.g. seasonally.



3 Managing Well – People whose **medical problems are well controlled**, but are **not regularly active** beyond routine walking.



4 Vulnerable – While **not dependent** on others for daily help, often **symptoms limit activities**. A common complaint is being “slowed up”, and/or being tired during the day.



5 Mildly Frail – These people often have **more evident slowing**, and need help in **high order IADLs** (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6 Moderately Frail – People need help with **all outside activities** and with **keeping house**. Inside, they often have problems with stairs and need **help with bathing** and might need minimal assistance (cuing, standby) with dressing.



7 Severely Frail – **Completely dependent for personal care**, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8 Very Severely Frail – **Completely dependent**, approaching the end of life. Typically, they could not recover even from a minor illness.



9. Terminally Ill - Approaching the end of life. This category applies to people with a **life expectancy <6 months**, who are **not otherwise evidently frail**.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

* 1. Canadian Study on Health & Aging. Revised 2008.

2. K. Rockwood et al: A global clinical measure of fitness and frailty in elderly people. CMAJ 2005;173:489-495.

Considerations for Prehabilitation Program Delivery with Reference to Geriatric Considerations

	Exercise	Nutrition	Psychology	Geriatric Considerations
Potential target candidates for prehabilitation	<ul style="list-style-type: none"> Physical activity volume below 150 min of MVPA per week (e.g., GLTEQ, GPPAQ) DASI (weighted score) <24 Unhealthy BMI* <p><i>Consider general health screening for exercise risk factors (e.g., Get Active Questionnaire) and medical clearance for exercise</i></p>	<ul style="list-style-type: none"> Malnutrition or risk of malnutrition as identified by validated nutrition screen (e.g., NRS-2002, CNST) Unhealthy BMI* 	<ul style="list-style-type: none"> PHQ-9 ≥ 10 GAD-7 ≥ 10 Distress Thermometer ≥ 3 	<ul style="list-style-type: none"> Older adult frailty screening (e.g., VES-13 ≥ 3) Mini-Nutrition Assessment (for adults 65 years and older) GDS-15 ≥ 11
Potential referrals for prehabilitation modality delivery	<ul style="list-style-type: none"> Physiotherapist, exercise physiologist, or kinesiologist 	<ul style="list-style-type: none"> Registered dietitian or nutritionist 	<ul style="list-style-type: none"> Psychologist, psychiatrist, psychotherapist, social worker 	<ul style="list-style-type: none"> Geriatrician, occupational therapist, social worker, nurse educator, occupational therapist
Assessment considerations for prehabilitation planning	<ul style="list-style-type: none"> Comprehensive health history to identify potential contraindications to exercise (resulting from cancer or other morbidity/injury) Aerobic Fitness (e.g., CPET or 6MWT) Functional musculoskeletal fitness (e.g., grip strength, timed up and go, chair sit-to-stand test, short physical performance battery, manual muscle testing for strength and ROM) 	<ul style="list-style-type: none"> Comprehensive nutrition assessment of nutritional deficiencies and dietary behaviours (including over-nutrition) Sarcopenia (CT, DEXA, US) and muscular function Additional markers of nutritional status (e.g., vitamin D and albumin) 	<ul style="list-style-type: none"> Comprehensive psychological assessment for pre-existing psychopathology, or psychopathology related to diagnosis or treatment Health behaviour facilitators and barriers Self-efficacy for health behaviour 	<ul style="list-style-type: none"> Comprehensive Geriatric Assessment Maximal fitness tests may be not feasible in some older adults, consider submaximal functional performance measures Exercise intensity should be relative to physiological age, not chronological age Bone health and fracture risk (e.g., FRAX, BMD) Cognitive function Small amounts of weight loss (e.g., 3-4 kg) may be significant and should be monitored
Prehabilitation intervention components	<p>Conditioning-Based Exercise Objectives: improve general physical function and well-being</p> <ul style="list-style-type: none"> Aerobic, resistance, and flexibility exercises (e.g., sample program described by Carli & Scheede-Bergdahl²²) <p>Impairment-Based Exercise Objectives: to introduce post-treatment regimens to improve compliance; to reduce localized dysfunction; and to manage impairments through healthy compensatory strategies.</p> <p>Examples:</p> <ul style="list-style-type: none"> Pelvic floor exercises for GU treatments Inspiratory muscle exercises for thoracic treatments Ipsilateral and contralateral exercises for partial/complete extremity amputation Upper quadrant training for breast and head and neck cancer treatments 	<p>Education and Meal Planning</p> <ul style="list-style-type: none"> Healthy eating and meal plan education Protein intake of $>1.2\text{g/kg}$ body weight (consider consumption relative to anabolic effects of exercise training) Education re: post-treatment nutritional requirements and care <p>Supplementation and Nutrition Therapy</p> <ul style="list-style-type: none"> Oral nutrition supplements and immunonutrition formulas Enteral and parenteral nutrition support (if necessary) 	<p>Relaxation and Stress Management</p> <ul style="list-style-type: none"> Breathing exercises (deep/abdominal breathing) Relaxing sounds/music psychoeducation on stress experience / response; progressive muscle relaxation Mindfulness Imagery or visualization Problem solving / coping skill development Yoga, Tai Chi <p>Psychology-based Behavioural Support</p> <ul style="list-style-type: none"> Cognitive Behavioural Therapy Motivational Interviewing Acceptance and Commitment Therapy <p>Psychotherapy</p> <ul style="list-style-type: none"> As required based on psychological assessment by qualified practitioner May include general cognitive behavioural therapy to address problematic thoughts related to disease and/or treatment Pharmacotherapy as clinically indicated 	<ul style="list-style-type: none"> Home-based programming (or consider adaptations for long-term care facilities) Prioritization of safety and feasibility Focus on the benefits of health behaviour rather than consequences of non-participation Use of simple technology that reminds and supports health behaviours (e.g., step count apps in a smartphone, digital activity tracker, etc.) Engagement with caregivers to support health behaviours (if applicable)
<p>Legend: * = Unhealthy body mass index (BMI) refers to: $<20\text{ kg/m}^2$, $>40\text{ kg/m}^2$, OR $>35\text{ kg/m}^2$ with obesity -related morbidity); 6MWT = 6-minute walk test; BMD = bone mineral density; CNST = Canadian Nutrition Screening Tool; CPET = cardiopulmonary exercise test; CT = computed tomography; DEXA = Dual Energy X-Ray Absorptiometry; FRAX = Fracture Risk Assessment; GAD-7 = Generalized Anxiety Disorder; GDS = Geriatric Depression Scale; GLTEQ = Godin-Shephard Leisure-Time Exercise Questionnaire; GPPAQ = General Practice Physical Activity Questionnaire; GU = genito-urinary; HADS = Hospital Anxiety and Depression Scale; MVPA = moderate to vigorous physical activity; PHQ-9 = Patient Health Questionnaire; NRS-2002 = Nutrition Risk Screening 2002; ROM = range of motion; US = ultrasound; VES = Vulnerable Elders Survey</p>				

Santa Mina, D., & Alibhai, S. M. H. (2019). Prehabilitation in geriatric oncology. *Journal of Geriatric Oncology*.

List of Key Guidelines and Geriatric Oncology Resources

Guideline or Resource	Contents
International Society of Geriatric Oncology (SIOG) (www.siog.org/content/comprehensive-geriatric-assessment-cga-older-patient-cancer)	<ul style="list-style-type: none"> • Guidelines • Screening Tools (Geriatric 8, Triage Risk Screening Tool, Vulnerable Elderly Survey-13) • Geriatric Assessment Tools
Cancer-Type Specific Guidelines	<ul style="list-style-type: none"> • SIOG Breast cancer guideline • SIOG Rectal cancer guideline • SIOG Colorectal cancer guideline
ACS-AGS preoperative and perioperative guidelines	<ul style="list-style-type: none"> • Detailed recommendations for older adults undergoing surgery not specific to oncology
AGS Postoperative Delirium	<ul style="list-style-type: none"> • Detailed recommendations for prevention, screening, diagnosis, work-up, and management
American Society of Clinical Oncology (ASCO) Geriatric Oncology (www.asco.org/practice-guidelines/cancer-care-initiatives/geriatric-oncology)	<ul style="list-style-type: none"> • Compilation of geriatric oncology resources, tools, updates, and research
Cancer & Aging Research Group (CARG) Tools http://www.mycarg.org/SelectQuestionnaire	<ul style="list-style-type: none"> • Online Chemo-Toxicity Calculator • Online Geriatric Assessment Tool in multiple languages
Senior Adult Oncology Program (SOAP) Tools, Moffitt Cancer Center (moffitt.org/for-healthcare-providers/clinical-programs-and-services/senior-adult-oncology-program/senior-adult-oncology-program-tools)	<ul style="list-style-type: none"> • Chemotherapy Risk Assessment Scale for High-Age Patients (CRASH) Calculator • Cumulative Illness Rating Scale-Geriatric (CIRS-G) Calculator • SOAP2 Screening Questionnaire
ConsultGeri, The Hartford Institute for Geriatric Nursing (consultgeri.org/tools/try-this-series)	<ul style="list-style-type: none"> • Geriatric assessment tools with video tutorials
Exercise for People with Cancer Guidelines Campbell, Kristin L., et al. "Exercise guidelines for cancer survivors: consensus statement from international multidisciplinary roundtable." <i>Medicine & Science in Sports & Exercise</i> 51.11 (2019): 2375-2390. (Open Access)	<ul style="list-style-type: none"> • Exercise guidelines for people with cancer, including special considerations for older adults with cancer
Canadian Physical Activity Guidelines for Older Adults (65 years and older) https://csepguidelines.ca/adults-65/	<ul style="list-style-type: none"> • Canadian physical activity guidelines for older adults
Principles and Guidance for Prehabilitation within the management and support of people with cancer, MacMillan, Royal College of Anaesthetists, NIHR https://www.macmillan.org.uk/about-us/health-professionals/resources/practical-tools-for-professionals/prehabilitation.html	<ul style="list-style-type: none"> • Delivery and programmatic guidance for prehabilitation in people with cancer

