بسم الله الرحمن الرحيم

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Treatment of cancer in older adults

Dr.Davod Mozaffari MD
MEDICAL ONCOLOGIST & HEMATOLOGIST

Cancer incidence in older adults

- **2012**
- 6.7M(47.5% of all cancers)
- Marked regional disparities
  - 48% in less developed regions
  - Lung, CRC, prostate, stomach and BC 55% global incidence

- **2035**
- 14M (" 60% of all cancers)
- Predicted relative increase
  - Largest in the Middle East & Northern Africa(+157%)
  - China (+155%)
  - Less developed regions+144%
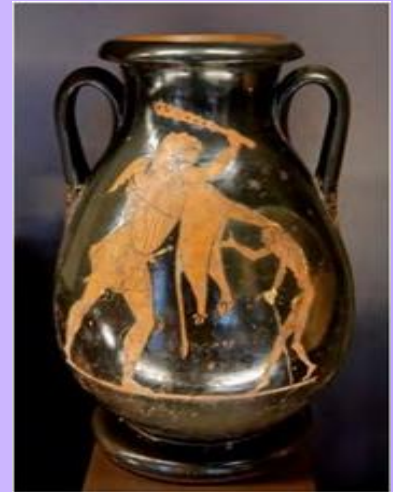 - More developed regions +54%

- Age is the single most important risk factor for developing cancer, with 50% of all newly diagnosed malignant tumors and 70% of all cancer deaths occurring in persons 65 years or older.

- It has been estimated that by the year 2030, 20% of the U.S. population (70 million people) will be older than age 65 years

The mortality rate is disproportionately higher :

1. More aggressive biology
2. Competing comorbidity
3. Decreased physiologic reserve
4. Physicians' reluctance to provide aggressive therapy
5. Barriers in the elderly person's access to care Elderly caregiver or is socially isolated
6. Not participants in clinical trials
7. Registration trials for new drugs

Current dilemma & extreme position

1. Therapeutic **nihilism**
   - Elderly patients **do not receive** any treatment
2. The **intermediate** position?
   - Elderly patients **may** benefit from treatments
3. Blind therapeutic **enthusiasm**
   - Elderly patients **receive futile/non beneficial** treatments

questions from oncologists perspective

- IS die from cancer or from other causes?

- Risk of treatment-or cancer-related complications?

- How to deal impaired cognitive functions?

- Best tools to evaluate end-organ functions?

- What does frailty stand for?

- Can one assess satisfaction in older patients?

- What is a geriatric assessment?

- Can a geriatric assessment be short?

- How to get organized?

- ls there any best endpoint for clinical research?

Ageing makes us unique!

Women life expectancy

Age	Top 25% It	50% Intermediate	Lowest 25"% sick
50	40	33	24.5
70	21.3	15.7	9.5
75	17	11.9	6.8
80	13	8.6	4.6
85	9.6	5.9	2.9
90	6.8	3.9	1.8
95	4.8	2.7	1. 1

Comprehensive geriatric assessment

- **A comprehensive geriatric assessment (CGA) looking at all of the factors that can influence the outcome of therapy**

GERIATRIC ASSESSMENT IN ONCOLOGY

• Medical oncologists have used performance status scales :

> karnofsky performance status

> Eastern Cooperative Oncology Group (ECOG)

• This has been a valuable tool , for the general oncology population

CGA

- The current gold standard for assessment of older adults with cancer is a comprehensive geriatric assessment (CGA).

- Multidimensional, interdisciplinary process to determine the medical, psychosocial, and functional capabilities.

- CGA has been shown:

❖ Identify previously unknown health problems

❖ Predict treatment-related toxicity

❖ Predict oncologic outcomes, overall survival

❖ Influence of cancer treatment decisions

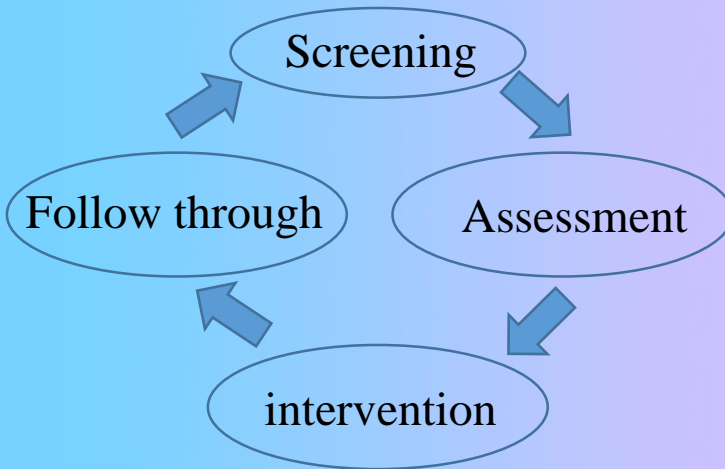# Who needs a CGA?

Consensus guidelines :

- American Society of Clinical Oncology
- National Comprehensive Cancer Network
- International Society for Geriatric Oncology (SIOG)

the routine use of a geriatric

assessment for the older patient

with cancer (age 65 or older)

EVIDENCE – GA IN ONCOLOGY

- GA tools are feasible & acceptable

- Briefer tools reduce time burden to clinicians

- Influence cancer treatment decision-making

- Can lead to clinical intervention to improve health

- GA can predict morbidity, mortality & chemo toxicity

COMPREHENSIVE GERIATRIC ASSESSMENT

Screening

Follow through

Assessment

intervention

4-part clinical process
Screening
Assessment
Intervention
Follow-through

screening tool

- Provide a busy clinician quickly identify
- Commonly short questionnaires
- Administered by any health care provider
- Not necessarily a geriatric specialist
- Some tools can be administered by the patients

- Conversely, screening tools typically assess only a few domains from the CGA

- At least 17 different screening tools for older oncology patients have been developed

- he mostly widely studied:

  The G8

  The Vulnerable Elders Survey 13(VES-13)

TABLE 14.1 The G8 Screening Tool

Items		Points
1	Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?	0: severe decrease in food intake 1: moderate decrease in food intake 2: no decrease in food intake
2	Weight loss during the last 3 months	0: weight loss >3 kg 1: does not know 2: weight loss between 1 kg and 3 kg 3: no weight loss
3	Mobility	0: bed- or chair-bound 1: able to get out of bed/chair but does not go out 2: goes out
4	Neuropsychological problems	0: severe dementia or depression 1: mild dementia or depression 2: no psychological problems
5	BMI (weight [kg]/height [m^2])	0: BMI < 19 1: BMI = 19 to BMI < 21 2: BMI = 21 to BMI < 23 3: BMI = $\geq$ 23
6	Takes more than three medications per day	0: yes 1: no
7	In comparison with other people of the same age, how does the patient consider his or her health status?	0: not as good 0.5: does not know 1: as good 2: better
8	Age	0: >85 1: 80–85 2: <80
	TOTAL SCORE	0–17
	Abnormal score	$\leq$14

TABLE 14.2 VES-13 Screening Tool

Items	Points
1 Age	0: 65–74
	1: 75–84
	3: ≥85
2 In general, compared to other people of your age, would you say your health is: ☐ Poor ☐ Fair ☐ Good ☐ Very Good ☐ Excellent	0: Answer of Good, Very Good or Excellent 1: Answer of Poor or Fair
3 How much difficulty, on average, do you have with the following activities (each scored as none, a little, some, a lot, or unable)? a. Stooping, crouching, or kneeling b. Lifting, or carrying, objects as heavy as 10 pounds c. Reaching or extending arms above shoulder level d. Writing, or handling, and grasping small objects e. Walking a quarter mile f. Heavy housework such as scrubbing floors or washing windows	1: For each answer of "a lot" or "unable" Maximum of 2 points

4 Because of your health or physical condition, do you have any difficulty:

a. Shopping for personal items (like toilet items or medicines)?
YES → Do you get help with shopping?   ☐ Yes ☐ No
NO
DON'T DO → Is that because of your health?   ☐ Yes ☐ No

b. Managing money (like keeping track of expenses or paying bills)?
YES → Do you get help with managing money?   ☐ Yes ☐ No
NO
DON'T DO → Is that because of your health?   ☐ Yes ☐ No

c. Walking across the room? Use of a cane or walker is okay.
YES → Do you get help with walking?   ☐ Yes ☐ No
NO
DON'T DO → Is that because of your health?   ☐ Yes ☐ No

d. Doing light housework (like washing dishes, straightening up, or light cleaning)?
YES → Do you get help with light housework?   ☐ Yes ☐ No
NO
DON'T DO → Is that because of your health?   ☐ Yes ☐ No

e. Bathing or showering?
YES → Do you get help with bathing or showering?   ☐ Yes ☐ No
NO
DON'T DO → Is that because of your health?   ☐ Yes ☐ No

4: For each checkbox answer of "Yes"
Maximum of 4 points

(continued)

TABLE 14.2 VES-13 Screening Tool (continued)

Items	Points
TOTAL SCORE	0–10
Abnormal score	≥3

VES-13, Vulnerable Elders Survey.

Source: Ref. (25). Vulnerable Elders Survey (VES-13). Available at: www.rand.org/health/projects/acove/survey.html.

TABLE 14.3 Comparing G8 and VES-13

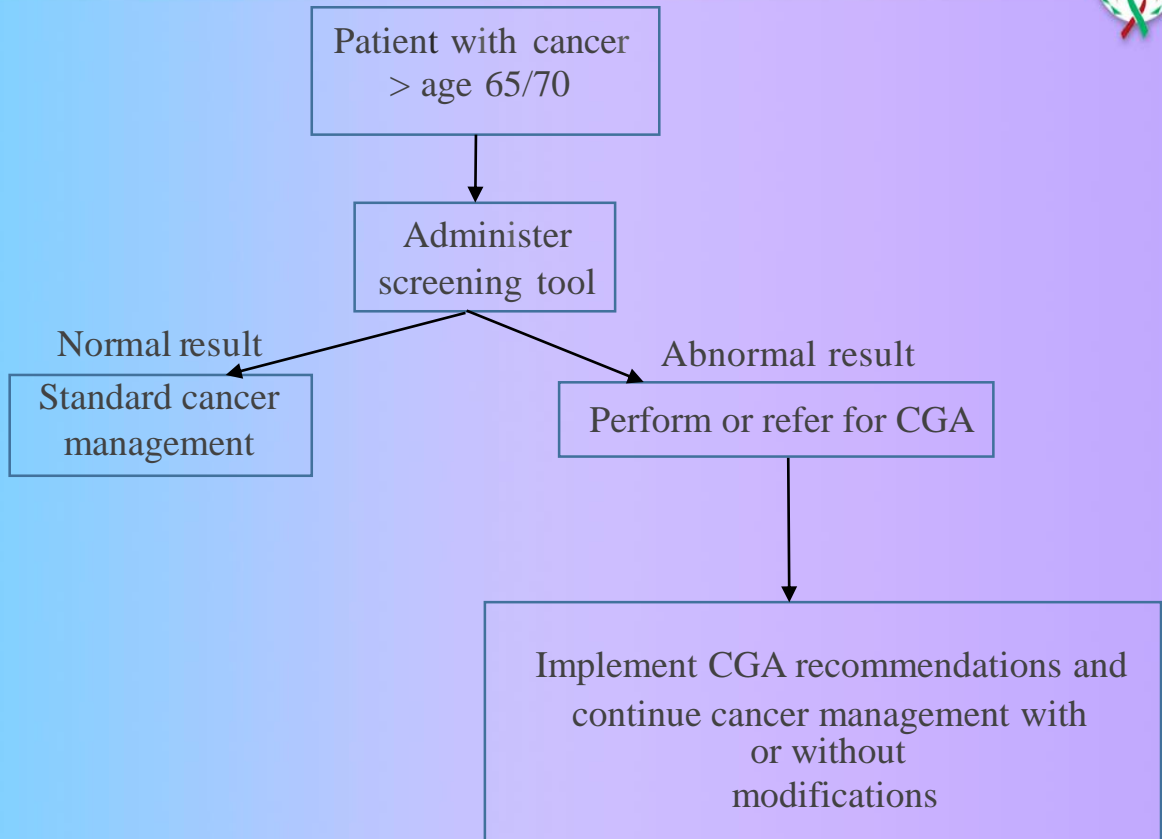|	G8	VES-13
Original target population	Oncology patients over age 70 scheduled for first-line chemotherapy	Community general geriatric patients 65 and over
Who administers the test	Health care professional	Self-administered ± health care professional
Location of administration	Clinic	Home Waiting room Clinic
Cost of the test	Free	Free
Domains covered	Functional status Self-rated health Comorbidities Nutrition Cognitive function	Functional status Self-rated health
Time to perform	~5 min	4–5 min
Number of studies comparing to CGA	8	11
Average sensitivity for an abnormal CGA (range)	82.8 (65–92)	61.1 (39–87)
Average specificity for an abnormal CGA (range)	68.3 (3–75)	71.6 (62–100)
Abnormal score predictive for:		
Chemotherapy-related toxicity	Mixed results	Yes
Functional decline	Yes	Not studied
Falls	Yes	Not studied
Abnormal score prognostic for overall survival	Yes	Mixed results
Limitations	May require special assessment regarding "neuropsychosocial problems"	Some patients may be unable to self-administer test

TABLE 13.1 Domains in GA and Examples of Tools Used for Each Domain

Domain	Tool
Social status and quality of life	Medical outcomes survey (2)
Comorbidity	CCI (3) CIRS-G (4)
Functional status	ADL (5) IADL (6)
Physical function	TUG (7) Short physical performance battery (8) Gait speed (9) Grip strength (10) 6-min walk (11)
Falls and falls risk	Tinetti Gait and Balance Scale (12)
Cognition	MMSE (13) MoCA (14) The BOMC Test (15) Mini-Cog (16)
Nutrition	BMI Unintentional weight loss MNA (17)
Medication management and polypharmacy	Use of inappropriate medications (such as the Beers list or screening tool for older persons' prescriptions) (18) Number of medications
Psychological status	GDS (19) Hospitalized Anxiety and Depression Scale (20) PHQ-9 (21) DT (22)

ADL, activities of daily living; BMI, body mass index; BOMC, blessed orientation-memory-concentration; CCI, Charlson Comorbidity Index; CIRS-G, Cumulative Illness Rating Scale–Geriatrics; DT, distress thermometer; GA, geriatric assessment; GDS, Geriatric Depression Scale; IADL, instrumental activities of daily living; MNA, Mini Nutritional Assessment; MMSE, Mini-Mental State Examination; MoCA, Montreal Cognitive Assessment; PHQ-9, patient health questionnaire-9; TUG, Timed Up and Go.

Charlson risk index

Condition	Assigned weights for diseases
Myocardial infarct	1
Heart failure	1
Peripheral vascular disease	1
Cerebrovascular disease	1
Dementia	1
Chronic pulmonary disease	1
Connective tissue disease	1
Ulcer disease	1
Mild liver disease	1
Diabetes	1
Hemiplegia	2
Moderate or severe renal disease	2
Diabetes with end organ damage	2
Any tumor	2
Leukemia	2
Lymphoma	2
Moderate or severe liver disease	3
Metastatic solid tumor	6
AIDS	6
Weighted comorbidity classes	
Low	0 points
Medium	1 to 2 points
High	3 to 4 points
Very high	≥ 5 points

AIDS: acquired immunodeficiency syndrome.

Adapted from: Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. J Chronic Dis 1987; 40:373.

FUNCTIONAL STATUS

• "Activities of Daily Living" = ADLs

   Barthel's Index

• "Instrumental Activities of Daily Living" = IADLs

   Lawton & Brody Index

PHYSICAL FUNCTION

Gait speed

Grim reaper´s maximum
speed: 1.36 m/s
Stanaway, BMJ, 2011

Grip strength

TUG (timed up and go test)

Normative Reference Values by Age

Age Group	Time in Seconds	(95% Confidence Interval)
60 – 69 years	8.1	(7.1 – 9.0)
70 – 79 years	9.2	(8.2 – 10.2)
80 – 99 years	11.3	(10.0 – 12.7)

Cut-off Values Predictive of Falls by

Group	Time in Seconds
Community Dwelling Frail Older Adults	> 14 associated with high fall risk
Post-op hip fracture patients at time of discharge	> 24 predictive of falls within 6 months after hip fracture
Frail older adults	> 30 predictive of requiring assistive device for ambulation and being dependent in ADLs

References

Falls

- Major health concerns person's ability to live independently

 One-third ,fall each year, half of falls are recurrent

1. Intrinsic factors (e.g., visual impairment, muscle weakness, poor balance)

2. Extrinsic factors (e.g., polypharmacy, medication side effects)

3. Environmental factors (loose carpets , poor lighting)

   Multidisciplinary approach (physical therapy, occupational therapy, home safety, medication evaluation, evaluation for cataracts, etc.)

TABLE 13.2 Common Instruments Validated for Cognitive Screening

MMSE (13)	Widely used screening tool covering multiple domains such as orientation, memory, attention, calculation, language, and constructional ability.
MoCA (14)	More sensitive test designed as a rapid screening instrument for mild cognitive dysfunction. It was found to provide addi• tional information over the MMSE in brain tumor patients (24).
0MC(15) Mini-Cog	Brief, six-item scale frequently used in the geriatric oncology literature.
assessment instrument (16)	Brief test that screens for cognitive impairment in a com• munity sample of culturally, linguistically, and educationally heterogeneous older adults. It requires minimal training to administe, so it can be readily incorporated into general practice.

BOMC, blessed orientation-memory-concentration; MoCA , Montreal Cognitive Assessment; MMSE, Mini-Mental State Examination

NUTRITION

- Poor nutritional status is associated

  Icreased risk of severe hematologic toxicity

  Increased mortality risk

  Poor chemotherapy tolerance

  Increased length of stay among hospitalized

- Screening tool uses cutoffs such as a body mass index (BMI) of <22 , and unintentional weight loss of >5% in the previous 6 months

MEDICATION AND POLYPHAMACY

- use of increased number of medications (5 or more)
- more than is clinically indicated
- use of potentially inappropriate medications
      medication underuse
      medication duplication

- Risk of drug interactions :
      comorbid conditions
      brain tumor patients
      taking many medications

Socioeconomic Issue

- In a study of 2,835 women diagnosed with breast cancer, <u>socially isolated women</u> had an elevated risk of mortality

- The patient's treatment goals should be discussed

- Living conditions, presence, adequacy of caregiver

- Financial status should also be taken into consideration

- Consultation with a social worker

Frailty

- Biologic syndrome of decreased reserve and resistance to stressors

- Risk for falling, disability, hospitalization, death

- In a prospective, observational study of 5317 men and women :

1.   predictive of incident falls

2.   worsening mobility

3.   ADL function

4.   incidence of hospitalization

5.   death

How do we measure/define frail?

- 1. Fried Phenotype

- 2. Dificit Accumulation model(Rockwood)

- 3. Clinical Frailty Scale

- 4.CGA based impression

- 5. Balducci Frailty Criteria

Characteristics of Frailty (fried phenotype)

Unintentional weight loss   Baseline: > 4,5 Kg (10 lbs) lost
unintentionally in prior year

Weakness   Hand Grip: <5,85 Kg (12,89 lbs) for
males; <3,37 Kg (7,43 lbs) for females

Exhaustion   Self-reported: at least 3 days / week

Slowness   > 7 seconds to travel 4.57 m (15 feet)
on a known route

Low activity   Assessed using the Physical Activity
Scale for the Elderly (PASE); or
Kcals/week: < 383 Kcals/week for
males, < 270 Kcals/week for females

Presence of Frailty

Frailty phenotype: $\geq$ 3 criteria present

Intermediate or pre-frail: 1 or 2 criteria present

ASSOCIATION OF CGA WITH CANCER TREATMENT OUTCOMES

- CGA not only helps to better inform treatment decision making, but also helps to better tailor individualized treatment

- A prospective multicentric study on the large-scale feasibility and usefulness of CGA:

  detected unknown geriatric problems in 51%

  geriatric interventions and adapted treatment occurred in 25.7% and 25.3% of the patients

CGA INTERVENTIONS

Comorbidities
- Review medications:
    - e.g. low BP, are all needed?

- Multiple, complex needs, geriatric syndromes:
    - Geriatrician, internal medicine, General practitioner

- Single organ
    - diabetes (please think diabetes with steroids/chemo!), cardiology

- Treat anemia!

Nutrition

- Dieticians, practical advice

CGA INTERVENTIONS

Mood & anxiety
- +++ important!!
- psychological support **services**
- anti-depressant?

Memory impairment
- Significant : local services map, personalized support
- Mild: do they need personalized support?

Incontinence

- Cancer related?
- Continence services

Functional & social problems

- Physiotherapist or occupational therapy - **PREHAB!**

- Social care - home support

- Palliative care - pain control

- Can we improve socialization/support/mood when isolated?

POTENTIAL BENEFITS

- Predicting complications , side effects of treatment
- Predicting functional decline during treatment
- Estimating survival
- Assisting in cancer treatment decisions
- Detecting problems not found by routine history and physical examination
- Identification and treatment of new problems during follow up care
- Improving mental health and well being
- Better pain control

HOW DO I PICK WHICH TOOLS TO USE?

PICKING TOOLS

- Keep it simple!
- Start with one of the quick screening tools
- Needs to be feasible in busy clinic & feel achievable
- Think about what is important for your tumor group/ treatment modality
- Avoid long search for the "best evidence tool"
- Reserve the more detailed tools for later stages of development and assessment

OBTAINING PATIENT DATA

- Mailed CGA
- Self-administered CGA
- Electronic CGA
- Clinical interview

CONTEXT……

- Case :

- 73 years old man with prostate cancer & bone mets

- For consideration of docetaxel with ADT

- PMH: hypertension , diabetes, proximal humerus fracture

- Needs help with activities of daily living, PS 2

1. Uncontrolled metastatic bony pain restricting mobility and causing fatigue

> Co-codamol stopped. Start regular NAIDS with appropriate pain re-review plan with GP
>
> Radiotherapy
>
> PT/OT review to work on strength, fatigue & prehab
>
> PS improved to1

2. Poor appetite and not eating well: weight loss 5kg in 3 weeks

> Referred to dieticians - dietary advise
>
> Macmillan grant: new fridge!!

3. Diabetes pre-chemo: HbA1C 55, known diabetes:

> Gliclazide increased
>
> BS monitoring (think steroids!)

4. Hypertension: BP low on current meds

   Co-amilofruse stopped

5. Financial concerns - poverty

   Can't afford to travel before 9.30am for cancer appointments - adjust appt times

   Fridge broken and unable to afford a new one - impacting on nutrition -

   Macmillan grant

6. LUTs secondary to prostate cancer

   Nurse led practical advise : exercises, fluids (tea!), follow up

CASE – MDT NEEDED

- Physio T
- OT
- Dietician
- Financial assessment services
- Nurse
- Radiotherapist
- GP
- Geriatrician

NCCN
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NCCN Guidelines Version 1.2021
Older Adult Oncology

APPROACH TO DECISION-MAKING IN THE OLDER ADULT PRIOR TO THERAPY[a,b]

Is the patient a candidate for cancer treatment considering his or her overall life expectancy?[c,d]

No → Symptom management/supportive care (See NCCN Guidelines for Palliative Care)

Yes ↓

Does this patient have decision-making capacity?[e,f]
Patients must have the ability to:
- Understand the relevant information about proposed diagnostic tests or treatments
- Appreciate their situation (including their underlying values and current medical situation)
- Use reason to make a decision
- Communicate a consistent choice (See Optimizing Communication with Older Adults OAO-B)

No →
- Obtain information from:
  ‣ Patient's proxy
  ‣ Advance directive/advance care planning document
  ‣ Living will
  ‣ Health care power of attorney
  ‣ Clinician's documentation
- Consider family/care coordination meeting
- Communicate with patient's primary care provider
- Consider consult from social work, psychology, palliative care (See NCCN Guidelines for Palliative Care) or ethics committee

Yes ↓

- Assess the patient's goals and values regarding the management of his or her cancer
- Are the patient's goals and values consistent with wanting anti-cancer therapy?[g]

No → Symptom management/supportive care (See NCCN Guidelines for Palliative Care)

Yes → Assessment of risk factors (See OAO-3)

National Comprehensive Cancer Network®

PRE-TREATMENT EVALUATION[a]

Are there any concerns about the patient's ability to tolerate anti-cancer therapy?[h]

No → See Geriatric Screening Tools (OAO-C, 2 of 11)[i]

- **Normal →** Treat as recommended in disease-specific treatment guidelines (NCCN Guidelines for Treatment by Cancer Type)

  See Considerations for Older Adults Undergoing Cancer Treatments (OAO-4) and Side Effects for Use of Systemic Therapy (OAO-6)

- **Abnormal →** See Comprehensive Geriatric Assessment (CGA), (OAO-C 1 of 11)

Yes → See Comprehensive Geriatric Assessment (CGA), (OAO-C 1 of 11)

Modifiable abnormalities identified

Treat abnormalities See Comprehensive Geriatric Assessment for Older Adults with Cancer (OAO-C 3 of 11)

Non-modifiable abnormalities identified

Are there alternate treatment options that would reduce toxicity to an acceptable level?

- **No →** See NCCN Guidelines for Supportive Care and NCCN Guidelines for Palliative Care

- **Yes →**

See Considerations for Older Adults Undergoing Cancer Treatments (OAO-4), Management of Side Effects Undergoing Therapy (OAO-6), and NCCN Guidelines for Supportive Care

assessment of the patient's goals and objectives with regard to his/her cancer diagnosis should be completed prior to any treatment decision. Supportive and palliative

CANCER SCREENING FOR ADULT CANCER SURVIVORS

Note: "Cancer screening" refers to screening for new primary cancers of a type different than the cancer survivor's prior cancer(s). There is evidence to support routine screening for the following cancers (although evidence in older individuals is limited): breast, colorectal, lung cancer. There is limited or no evidence to support screening for cervical cancer or prostate cancer. For specific cancer screening recommendations, including NCCN recommendations regarding the early detection of prostate cancer, please refer to the respective NCCN Guidelines.

Approach to decisions about cancer screening in older cancer survivors.

Is the cancer survivor a candidate for routine cancer screening considering overall life expectancy?[a] (See NCCN Guidelines for Survivorship)

Life expectancy <10 years → The patient is unlikely to benefit from routine cancer screening; recommend to stop cancer screening

Life expectancy ≥10 years →
- Assess goals and values:
  ‣ Are the patient's goals and values consistent with wanting anti-cancer treatment, if cancer is detected? (See OAO-2)

→ Is the patient's health status such that anti-cancer treatment would be appropriate?

No → Stop cancer screening

Yes → Engage in shared decision making →

- Benefits likely to exceed harms of screening if:
  ‣ Patient's risk of cancer is higher than average (eg, genetic cancer syndrome, prior exposures such as radiation or chemotherapy)
  ‣ Life expectancy is longer

- Benefits unlikely to exceed harms of screening if:
  ‣ Comorbid illness increases harms associated with screening (eg, colonoscopy) or cancer treatment, if cancer detected
  ‣ Risk of cancer low

[a] Refer to life table and eprognosis (See OAO-A).

Thanks for your attention!