

Cancer Survivorship Care

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Definition of cancer survivorship

“An individual is considered a cancer survivor from the time of diagnosis, through the balance of his or her life. Family members, friends, and caregivers are also impacted by the survivorship experience and are therefore included in this definition.”

“Survivorship” is not just for individuals in the post-treatment or post-surveillance setting, but apply to those receiving active therapy, particularly those receiving treatment for many years.

“A phase beginning at post-treatment surveillance for recurrence of the primary cancer or even after this surveillance period is complete”

“Patients who may be in remission, those for whom cancer has become a chronic disease, and those who are cured.”

“An individual is considered a survivor from the time of diagnosis, during and immediately after treatment, and through the balance of his or her life”



Cancer Rehabilitation

Issues addressed

- Deconditioning
- Pain
- Fatigue
- Lymphedema
- Peripheral neuropathy
- Cognitive concerns
- Stiffness/ fibrosis
- Balance problems
- Depression
- Stress/ anxiety
- Dietary issues
- Sleep issues

- To maximize a person's physical and emotional functioning with cancer
- Wide range of therapies
 - Psychiatrist
 - Rehabilitation nurses
 - Physical therapist
 - Nutritionist
 - Occupational specialist
 - Lymphedema specialist
 - Speech therapist
 - Counselors
 - Recreation therapist
 - Social workers

Initial cancer treatment



Transition period to new normal



Maintenance treatment/ follow up



Long term follow up/ surveillance



- How long will it take for me to get better and feel more like myself?
- What kind of care should I expect after my treatment?
- What long-term health issues can I expect as a result of my cancer and its treatment?
- What is the chance that my cancer will return?
- What symptoms should I tell you about?
- Who do I call if I develop these symptoms?
- What can I do to be as healthy as possible?
- Which doctor(s) should I see for my follow-up care? How often?
- What tests do I need after treatment is over? How often will I have the tests?
- What records do I need to keep about my treatment?
- Which diet should I take? Should I seek for alternative treatment?



Survivorship care plan



**Coordination with primary
care provider
Survivorship care
planning**

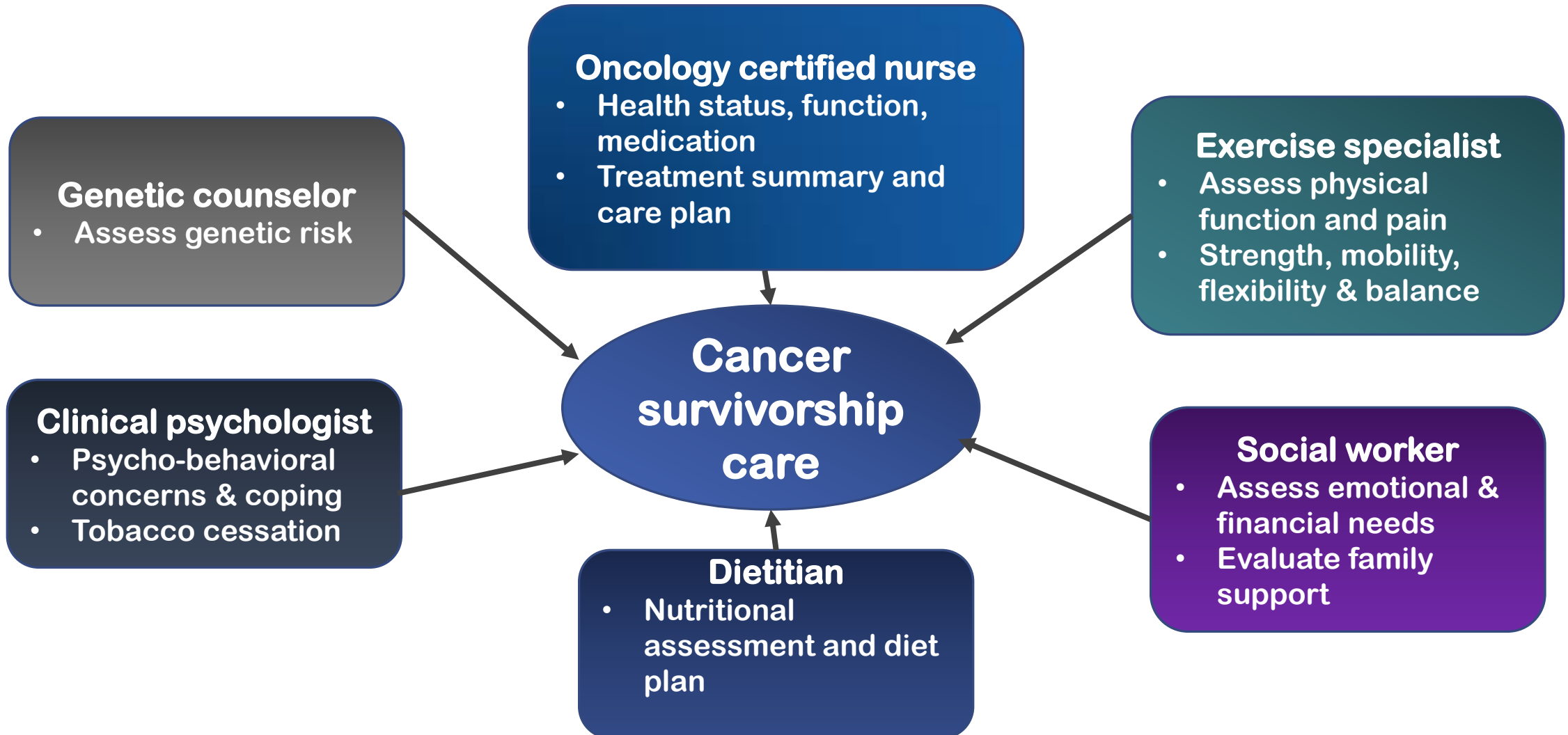


**Assessment and
interventions for
consequence of cancer
treatment**



**Surveillance for cancer
recurrence and screening
for new cancer**

Community model of survivorship care



Barrier of high quality, patient-centered survivorship care

- Lack of evidence
- Lack of a trained survivorship workforce
 - Shared care survivorship model
 - Education opportunities for health care professional
- Lack of reimbursement structures/insurance coverage
- Lack of a health care system that reduces fragmented care



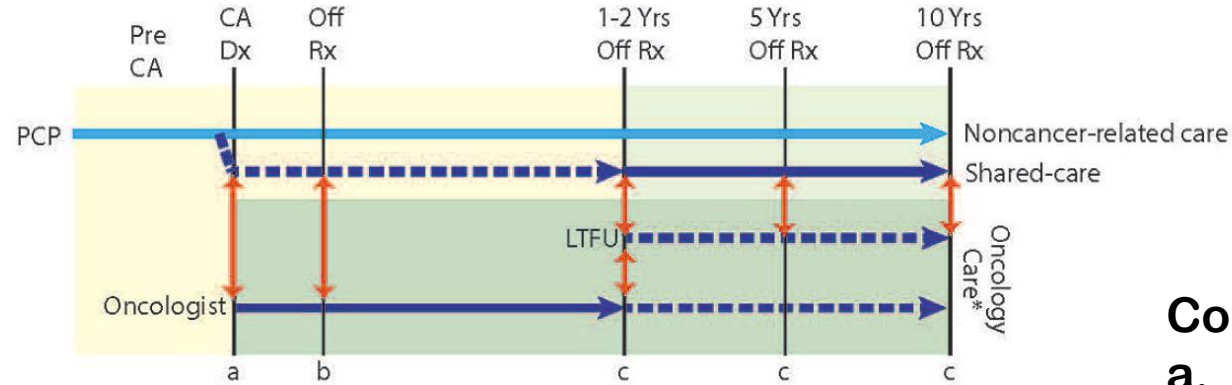
Late effect of treatment
Survivor's quality of life
Health promotion
Palliative care
Cancer prevention
Diagnosis and
treatment of
recurrence

Risk stratified share care model of cancer survivors

Low Risk:

All of the following:

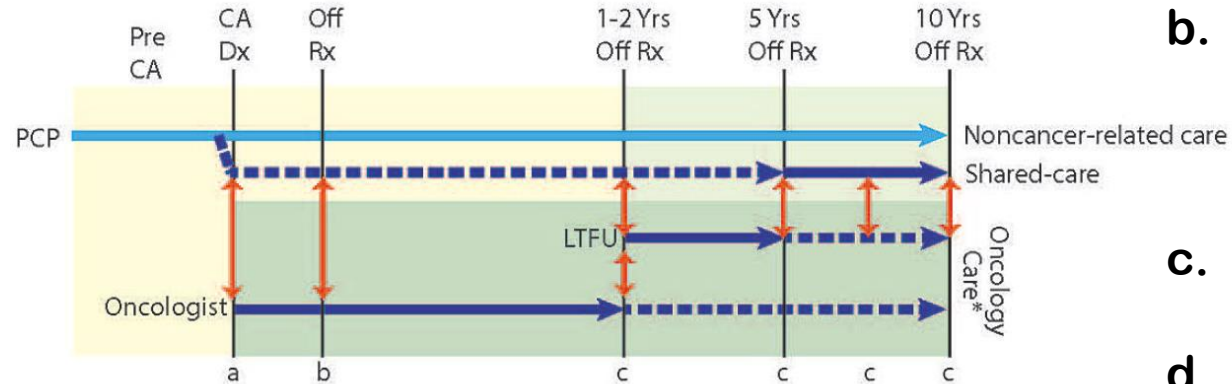
- Surgery only or chemotherapy that did not include alkylating agent, anthracycline, bleomycin, or epipodophyllotoxin
- No radiation
- Low risk of recurrence
- Mild or no persistent toxicity of therapy



Moderate Risk:

Any of the following:

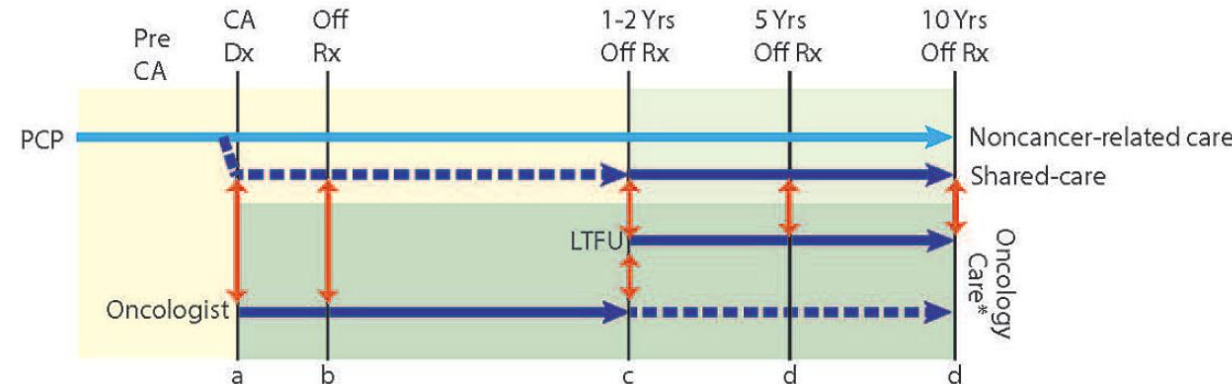
- Low or moderate dose alkylating agent, anthracycline, bleomycin, or epipodophyllotoxin
- Low to moderate dose radiation
- Autologous stem cell transplant
- Moderate risk of recurrence
- Moderate persistent toxicity of therapy



High Risk:

Any of the following:

- High dose alkylating agent, anthracycline, bleomycin, or epipodophyllotoxin
- High dose radiation
- Allogeneic stem cell transplant
- High risk of recurrence
- Multi-organ persistent toxicity of therapy



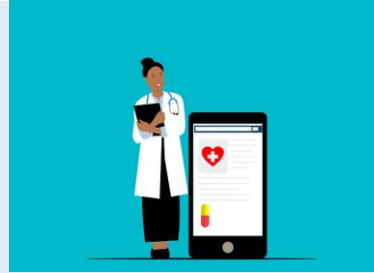
Communication points with PCP

- Cancer diagnosis and planned therapeutic options
- Survivorship care plan: cancer diagnosis, cancer therapy, surveillance recommendations, contact information
- Periodic update with changes in surveillance and new information
- Periodic update of survivor's health

Telehealth care during survivorship phase

Virtual clinic



- Platform: telephone or Videos
- Embedded education Videos
- Real-time support groups
- Asynchronous e-consult if needed
- Patient:
 - invite family member if required
 - Prepare current drug list
 - Prepare questions in advance





- Best matched for patients
- with completion of therapy
 - who may not require frequent physical exam or who are independent of radiographic follow up

Alternate with on-site visit

Estimated number of US cancer survivor by site

As of January 1, 2019	Male				Female	
	Prostate	3,650,030			Breast	3,861,520
	Colon & rectum	776,120			Uterine corpus	807,860
	Melanoma of the skin	684,470			Colon & rectum	768,650
	Urinary bladder	624,490			Thyroid	705,050
	Non-Hodgkin lymphoma	400,070			Melanoma of the skin	672,140
	Kidney & renal pelvis	342,060			Non-Hodgkin lymphoma	357,650
	Testis	287,780			Lung & bronchus	313,140
	Lung & bronchus	258,200			Cervix	283,120
	Leukemia	256,790			Ovary	249,230
	Oral cavity & pharynx	249,330			Kidney & renal pelvis	227,510
	All sites	8,138,790			All sites	8,781,580

As of January 1, 2030	Male				Female	
	Prostate	5,017,810			Breast	4,957,960
	Colon & rectum	994,210			Uterine corpus	1,023,290
	Melanoma of the skin	936,980			Thyroid	989,340
	Urinary bladder	832,910			Colon & rectum	965,590
	Non-Hodgkin lymphoma	535,870			Melanoma of the skin	888,740
	Kidney & renal pelvis	476,910			Non-Hodgkin lymphoma	480,690
	Testis	361,690			Lung & bronchus	398,930
	Leukemia	352,900			Kidney & renal pelvis	316,620
	Lung & bronchus	325,680			Ovary	297,580
	Oral cavity & pharynx	315,750			Uterine cervix	288,710
	All sites	10,995,610			All sites	11,174,200

Breast cancer survivorship care

Surveillance for breast cancer recurrence

- Detailed cancer related history and PE every 3-6 months in the first 3 years, then every 6-12 months for 2 years and annually thereafter
- Screening for local recurrence or new breast cancer
- Educate and counsel about sign/symptoms of recurrence
- Risk evaluation and genetic counseling
- Endocrine therapy impact and its management

Screen for second primary cancers:

- As for general population
- Annual PV in whom receives tamoxifen

Physical and psychological long term side effect

- Lymphedema
- Body image concern
- Cardiotoxicity
- Bone health
- Cognitive impairment
- Distress/ depression/ anxiety
- Fatigue
- Musculoskeletal health
- Pain and neuropathy
- Infertility and sexual health
- Premature menopause/ hot flashes

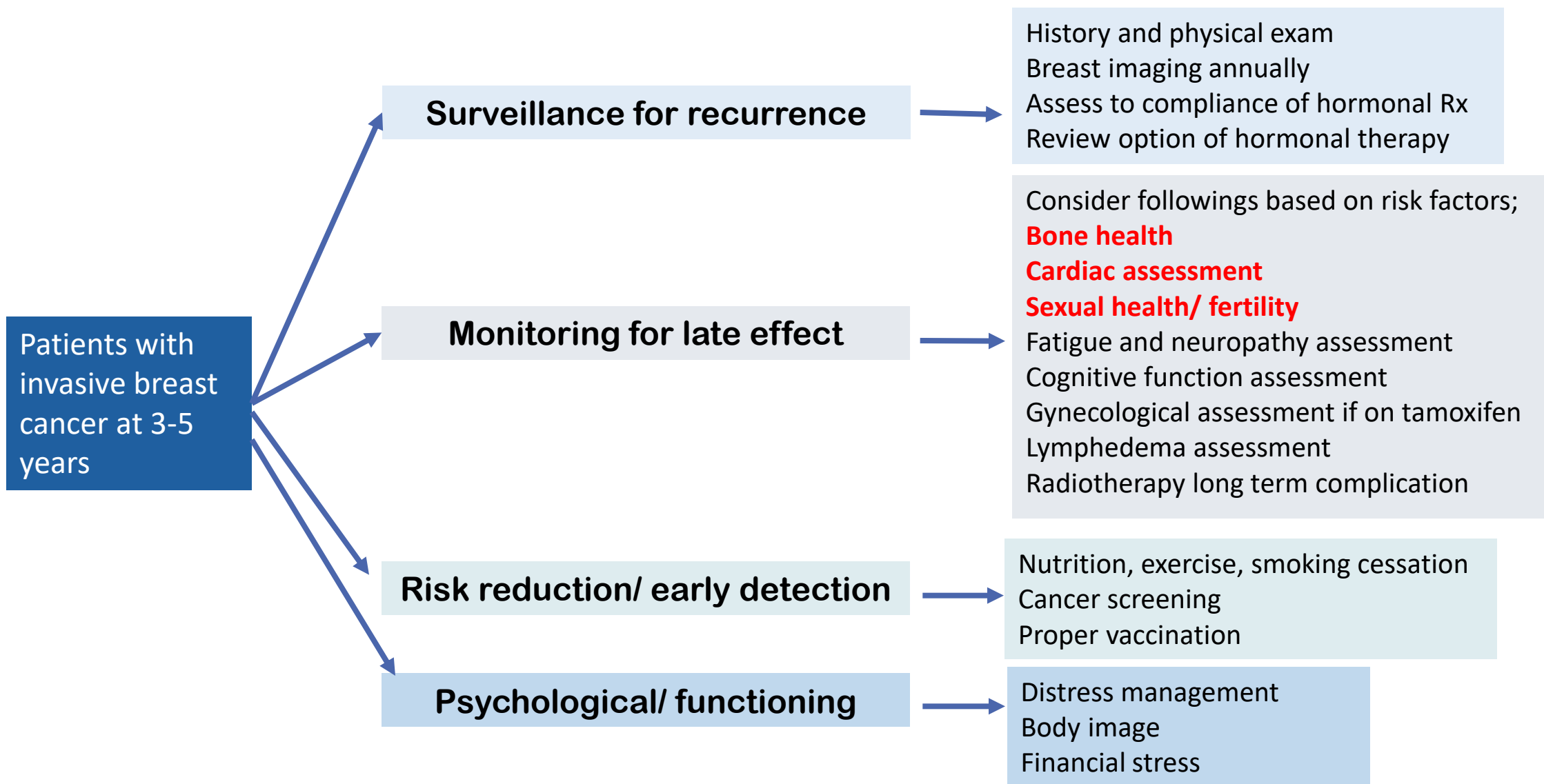
Health promotion

- Obesity
- Physical activities; 150 min of moderate or 75 min of vigorous exercise per week
- Nutrition: low saturated fat and omit alcohol consumption
- Smoking cessation

Care co-ordination

- Survivorship care plan
- Communication with oncology team
- Inclusion of family

Disclaimer: This algorithm has been developed for MD Anderson using a multidisciplinary approach considering circumstances particular to MD Anderson's specific patient population, services and structure, and clinical information. This is not intended to replace the independent medical or professional judgment of physicians or other health care providers in the context of individual clinical circumstances to determine a patient's care. This algorithm should not be used to treat pregnant women.



Anti-cancer therapy associated with cardiovascular complications or toxicities

Anti-cancer agents	Types of cardiotoxicity
Doxorubicin, epirubicin	HF, LVD, arrhythmia
Ifosfamide	HF, LVD, arrhythmia, myopericarditis
Cisplatin	Arrhythmia, VTE, ischemia, HT
Fluorouracil	Coronary spasm, ischemia, arrhythmia, LVD, myocarditis
Capecitabine	Coronary spasm, ischemia, arrhythmia, LVD,
Docetaxel	HF, LVD, arrhythmia
Paclitaxel	Ischemia, bradyarrhythmia
Trastuzumab, pertuzumab	HF, LVD
Trastuzumab emtansine	LVD
Lapatinib	HF, LVD
Sorafenib	HT, LVD, HF, ischemia
Sunitinib	HT, LVD, HF, VTE, arterial thromboembolism

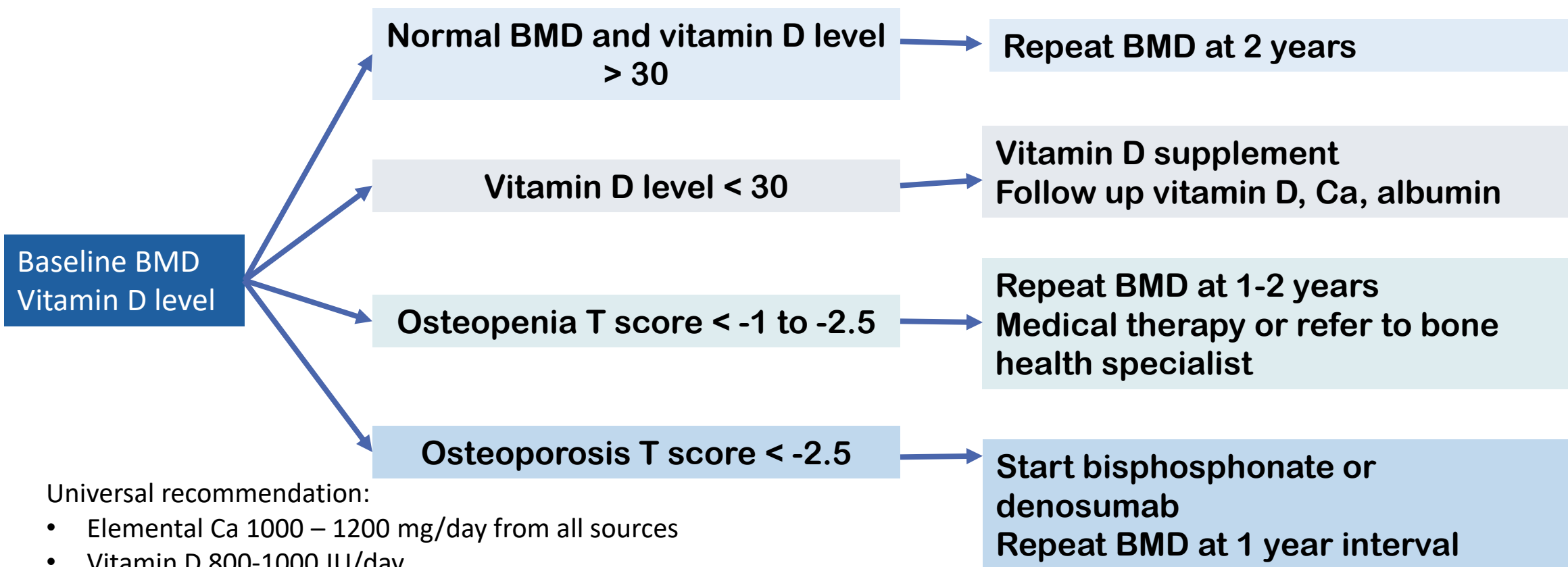
HF; heart failure, LVD; left ventricular dysfunction, VTE; venous thromboembolism, ATE; arterial thromboembolism

Breast cancer survivorship: bone health

Survivorship – Breast Cancer: Bone Health

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Universal recommendation:

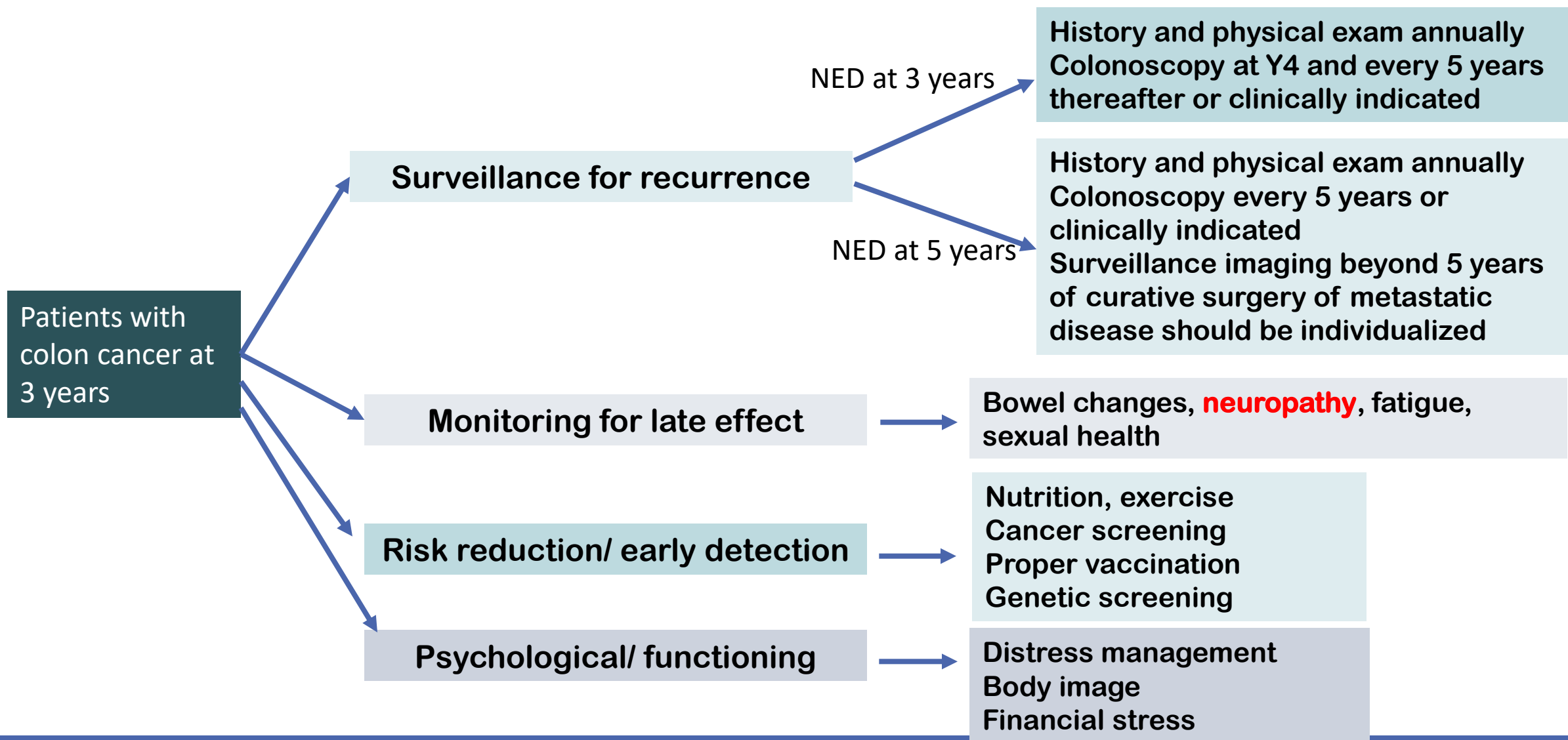
- Elemental Ca 1000 – 1200 mg/day from all sources
- Vitamin D 800-1000 IU/day
- Limit alcohol, caffeine
- Weight bearing/ muscle strengthening exercise

Endocrine therapy and its effects to sexual function

- Endocrine therapy can cause sexual dysfunction: multifactorial
- Woman with breast cancer often experience premature menopause
- Symptoms:
 - Hot flashes, vaginal dryness, urogenital atrophy, dyspareunia, decreased libido and change in sexual response
- Treatment options:
 - lubricants, moisturizers, counseling, sex therapy, altering contributing medications, physical therapy for pelvic floor disorders



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Neurotoxicity

Agents	Distal, symmetrical loss of sensory modality	Early sign	Neuropathic pain	Sensory ataxia/ gait imbalance	Cold-induced transient paresthesia	Distal symmetric weakness of lower limb	Autonomic symptoms
Cisplatin	frequent	Reduction / loss of reflex	not frequent	frequent	--	NA	NA
Oxaliplatin	frequent		not frequent	frequent	Common/ acute	NA	NA
Taxanes	frequent			possible	--	mild	
Vinca alkaloids, esp vincristine	frequent		frequent		--	Can progress to foot drop	May be severe

Adapted from ASCO education book 2015; e555

Neuropathy following cancer treatment

Course and severity

- Grade 1-3 neuropathy after 18 months of treatment: 24%
- ¼ of patients with grade 3 neuropathy have persistent symptom
- Nearly all cases is reversible (partially)

Characteristics of neuropathy

- Tingling in toe and feet: 30%
- Tingling in fingers and hands: 15%
- Numbness in toes and feet: 19%
- Burning or shooting pain in toes and feet: 19%

Importance and its effects

- Increased propensity to fall, esp. in elderly

Management

Exercise and acupuncture:

- Muscle strengthening and balancing
- Improved functional QOL, reduced neuropathic pain score

Duloxetine and pregabalin:

- **Duloxetine vs venlafaxine or placebo:**

Duloxetine > venlafaxine > placebo

- **Duloxetine vs vitamin B12:**

Duloxetine decreased VAS of pain score/ numbness

- **Duloxetine vs pregabalin:**

Duloxetine provide 93% of meaningful improvement (33%) of VAS (38% in pregabalin arm)

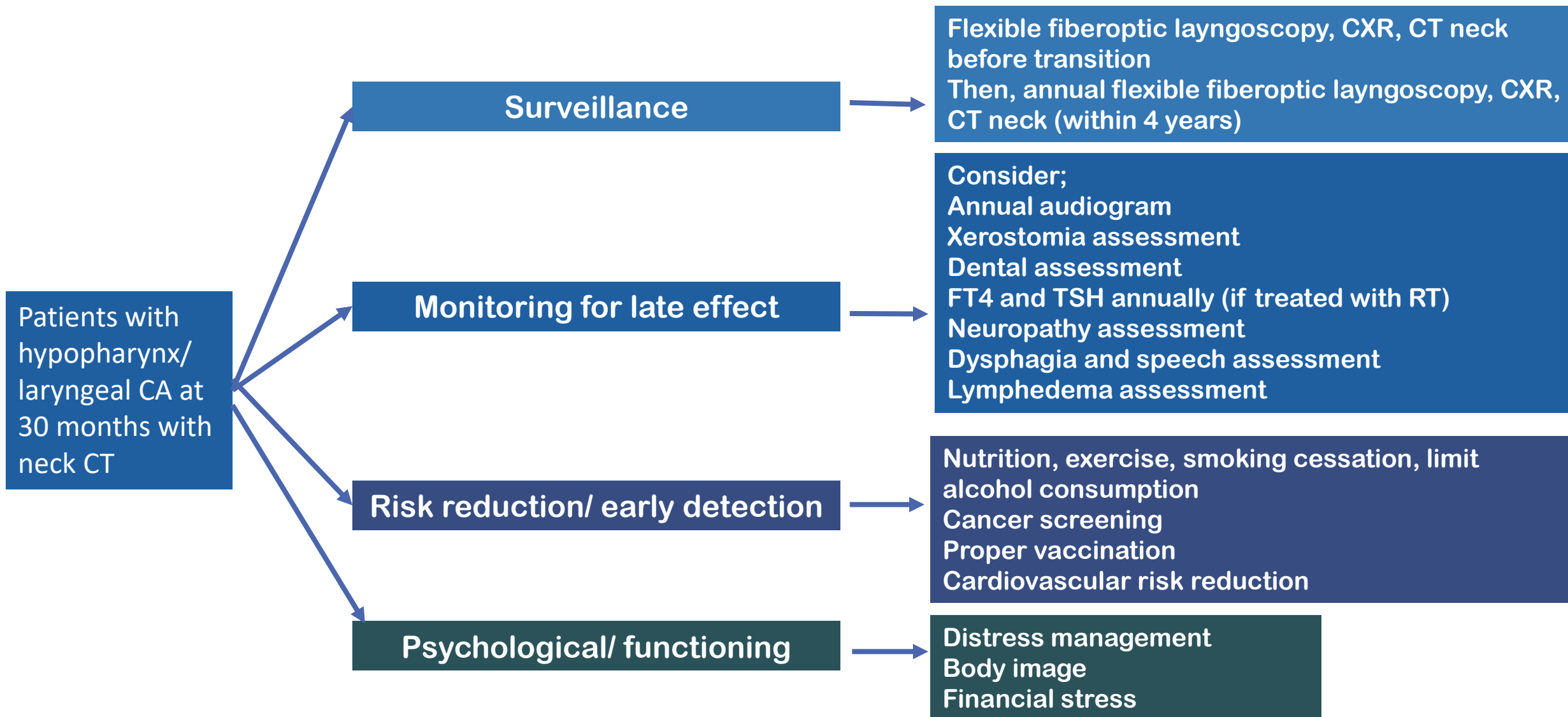
Potential therapy for chemotherapy-induced neuropathy

Treatment	Strength of recommendations	Strength of evidence	Benefits	Harms
Acupuncture	No recommendation	Low	Low	Low
Duloxetine	Moderate	Intermediate	Moderate	Low
Exercise	No recommendation	Low	Low	Low
Gabapentin/ pregabalin	No recommendation	Low	Low	Low
BAK	No recommendation	Low	Low	Low
Oral cannabinoids	No recommendation	Low	Low	Low
Tricyclic antidepressants	No recommendation	Low	Low	Low
Scrambler therapy	No recommendation	Low	Low	Low

BAK; topical amitriptyline, ketamine +/-baclofen

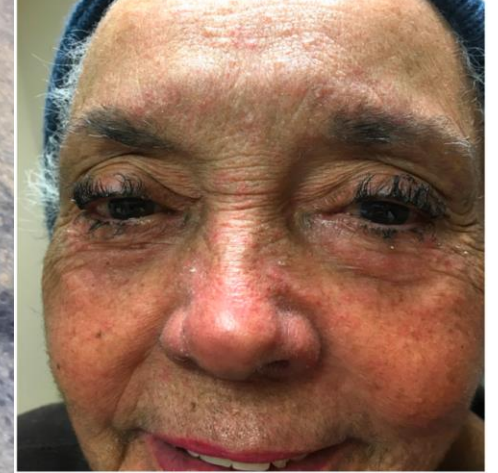
J Clin Oncol 2020; 38: 3325-3348

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Skin toxicities in patients receiving targeted therapy

Anti-EGFR



Papulopustular eruptions

Fissures

Trichomegaly



Hand foot skin reaction: sorafenib, sunitinib, cabozantinib, regorafenib

Second cancer(s) in cancer survivors

- 14% higher risk of developing new cancer than expected in general population
- Incidence related to age
 - 6x in childhood cancer patients
 - 2x-3x in young adult cancer patients
 - 1.5x in 40-59 years old patients
- Highest incidence in the first 5 years after diagnosis

Treatment related

- Radiotherapy
- chemotherapy

Genetic syndromes

- Li-Fraumeni syndrome
- HNPCC
- BRCA-related
- Others

Share etiologic influences

- Lifestyle: tobacco, alcohol, sun exposure
- Host factors: immune dysfunction, genetic, hormones
- Environment: contaminants, occupation

Cancer treatment associated malignancy

Alkylating agents

- Agents: cyclophosphamide, busulphan, lomustine, melphalan, semustine
- Leukemia
- Peak at 5-10 years and then decreased
- Myelodysplastic syndrome is reported
- Increased risk with higher dose and longer duration and some genetic syndromes, eg. Fanconi's anemia and NF1
- Refractory to treatment and poor survival

Topoisomerase agents

- Topoisomerase II related AML: etoposide, doxorubicin
- Shorter induction period (2-3 years)
- AML types: monoblastic, myelomonocytic and frequent involve MLL gene (11q23), t(9,11), t(11,19), t(6,11) or (21q22) – usually response to chemotherapy, in contrast to de novo leukemia of same types
- ALL: t(4, 11)(q21;q23)

Radiotherapy

- Sarcoma
- Bone or soft tissue
- Most common: MFH, osteosarcoma
- Long latency and plateau over time

How cancer patients get back to their new normal life?

- A 33 years old female with triple-negative breast cancer (T1N1M0)
- s/p MRM and adjuvant AC-> weekly paclitaxel and radiotherapy
- She has married and expected a baby.
- After treatment, she concerns of fatigue, insomnia, occasional pain at chest wall and numb in her hands and feet



- Schedule next visit and plan for annual breast imaging
- Inform clinical course, follow up schedule and symptoms which needs urgent visit
- Inform possible late effect of treatment
- Contraception and fertility management
- Symptom control of fatigue and insomnia – depression or anxiety are required to be treated
- Body build image
- Geneticist consultation

Survivorship care plan



Surveillance for cancer recurrence and screening for new cancer



Assessment and interventions for consequence of cancer treatment



**Coordination with primary care provider
Survivorship care planning**

ASCO Treatment Summary and Survivorship Care Plan

General Information	
Patient Name:	Patient DOB:
Patient phone:	Email:
Health Care Providers (Including Names, Institution)	
Primary Care Provider:	

Surgeon:
Radiation Oncologist:
Medical Oncologist:
Other Providers:

ASCO treatment summary and survivorship care plan

Treatment Summary		
Diagnosis		
Cancer Type/Location/Histology Subtype:		Diagnosis Date (year):
Stage: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> Not applicable		
Treatment		
Surgery <input type="checkbox"/> Yes <input type="checkbox"/> No		Surgery Date(s) (year):
Surgical procedure/location/findings:		
Radiation <input type="checkbox"/> Yes <input type="checkbox"/> No		Body area treated:
End Date (year):		
Systemic Therapy (chemotherapy, hormonal therapy, other) <input type="checkbox"/> Yes <input type="checkbox"/> No		
Names of Agents Used		End Dates (year)
Persistent symptoms or side effects at completion of treatment: <input type="checkbox"/> No <input type="checkbox"/> Yes (enter type(s)) :		
Familial Cancer Risk Assessment		
Genetic/hereditary risk factor(s) or predisposing conditions:		
Genetic counseling: <input type="checkbox"/> Yes <input type="checkbox"/> No		Genetic testing results:

ASCO treatment summary and survivorship care plan

Cancer surveillance or other recommended related tests	
Coordinating Provider	What/When/How Often
Please continue to see your primary care provider for all general health care recommended for a (man) (woman) your age, including cancer screening tests. Any symptoms should be brought to the attention of your provider: <ol style="list-style-type: none">Anything that represents a brand new symptom;Anything that represents a persistent symptom;Anything you are worried about that might be related to the cancer coming back.	
Possible late- and long-term effects that someone with this type of cancer and treatment may experience:	
Cancer survivors may experience issues with the areas listed below. If you have any concerns in these or other areas, please speak with your doctors or nurses to find out how you can get help with them. <div><div><input type="checkbox"/> Emotional and mental health</div><div><input type="checkbox"/> Fatigue</div><div><input type="checkbox"/> Weight changes</div><div><input type="checkbox"/> Stopping smoking</div><div><input type="checkbox"/> Physical Functioning</div><div><input type="checkbox"/> Insurance</div><div><input type="checkbox"/> School/Work</div><div><input type="checkbox"/> Financial advice or assistance</div><div><input type="checkbox"/> Memory or concentration loss</div><div><input type="checkbox"/> Parenting</div><div><input type="checkbox"/> Fertility</div><div><input type="checkbox"/> Sexual functioning</div><div><input type="checkbox"/> Other</div></div>	
A number of lifestyle/behaviors can affect your ongoing health, including the risk for the cancer coming back or developing another cancer. Discuss these recommendations with your doctor or nurse: <div><div><input type="checkbox"/> Tobacco use/cessation</div><div><input type="checkbox"/> Diet</div><div><input type="checkbox"/> Alcohol use</div><div><input type="checkbox"/> Sun screen use</div><div><input type="checkbox"/> Weight management (loss/gain)</div><div><input type="checkbox"/> Physical activity</div></div>	
Resources you may be interested in:	
Other comments:	
Prepared by:	Delivered on:

ASCO Treatment Summary and Survivorship Care Plan

General Information

Patient Name:

Patient DOB:

Patient phone:

Email:

Health Care Providers (Including Names, Institution)

Primary Care Provider:

Surgeon:

Radiation Oncologist:

Medical Oncologist:

Other Providers:

Treatment Summary

Diagnosis

Cancer Type/Location/Histology Subtype:

IDC, triple-neg

Diagnosis Date (year):

2015

Stage: ☐ I ☒ II ☐ III ☐ Not applicable

Treatment

Surgery ☒ Yes ☐ No

Surgery Date(s) (year):

2015

Surgical procedure/location/findings:

WE and SLNBx

Radiation ☒ Yes ☐ No

Body area treated:

End Date (year):

Systemic Therapy (chemotherapy, hormonal therapy, other) ☐ Yes ☐ No

Names of Agents Used

End Dates (year)

AC -> weekly paclitaxel

2015

Persistent symptoms or side effects at completion of treatment: ☐ No ☐ Yes (enter type(s)) :

Neuropathy

Familial Cancer Risk Assessment

Genetic/hereditary risk factor(s) or predisposing conditions:

Genetic counseling: ☒ Yes ☐ No

Genetic testing results:

No BRCA mutation

ASCO treatment summary
and survivorship care plan

ASCO treatment summary and survivorship care plan

Cancer surveillance or other recommended related tests	
Coordinating Provider	What/When/How Often
Please continue to see your primary care provider for all general health care recommended for a (man) (woman) your age, including cancer screening tests. Any symptoms should be brought to the attention of your provider: <ol style="list-style-type: none">Anything that represents a brand new symptom;Anything that represents a persistent symptom;Anything you are worried about that might be related to the cancer coming back.	
Possible late- and long-term effects that someone with this type of cancer and treatment may experience: <p>Neuropathy, cardiotoxicity</p>	
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Resources you may be interested in:	
Other comments:	
Prepared by:	Delivered on:

We wish our patients for.....

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**Healthy living after or during
cancer treatment**

