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What is Cancer Survivorship?



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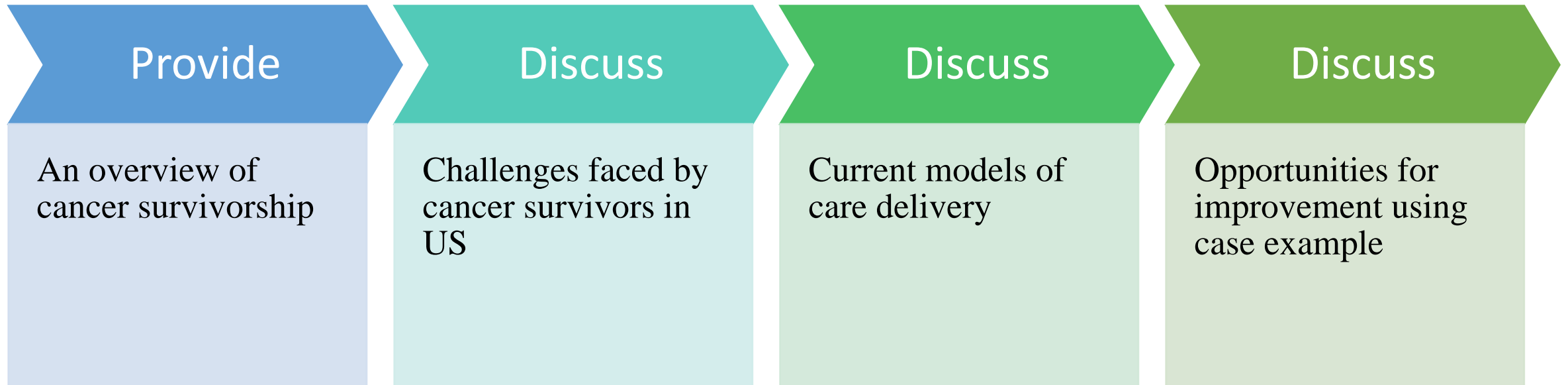
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- No financial conflicts to disclose
- I will not be discussing off-label use of medications

Objectives



Case

- Ms. Johnson is a 53 yo AAF with a personal history of lymph node positive triple negative breast cancer 5 years ago.
- She moved three months ago from Dallas to Chicago to be closer to her family. She is interested in establishing care with you

Case

- Breast Cancer History
 - Screen detected 2.9 cm ER-PR- Her2- IDC [pT2N1Mx]
 - Lumpectomy. Axillary node dissection.
 - AC x 4 --→ T x 4.
{ doxorubicin/cyclophosphamide/paclitaxel }
 - Radiation 60.4 GY

Case

- At her last visit with her oncologist 6 months ago she was told because she had reached the 5 year mark she no longer needed follow-up with a medical oncologist and should receive her care from her primary care physician.

Case

- DM x 2 years
- HTN x 10 years
- HC x 2 years
- Medications:
 - **Metformin XR 1500 QHS**
 - **Lisinopril 10 mg po QD**
 - **Atorvastatin 40 mg po QHS**
- Colonoscopy Summer 2019
- Mammogram Summer 2019
- **dTap 2018**
- **Prevnar/pneumovax 2015**
- **Influenza yearly**

Case

- Nonsmoker
- 3 ETOH/week
- Divorced. Currently unemployed. Previously worked as an accountant for large firm in Dallas.

Case

- Not gotten back to normal since her breast cancer diagnosis
- Significant fatigue, problems with memory/ concentration, dyspareunia, and neuropathy.
- Over the last 3 months she has also been experiencing shortness of breath when going up stairs. She denies chest pain, PND, orthopnea.

Case

- She is concerned about her ongoing symptoms and has daughters ages 27 and 32 years and asks
 - When they should start getting their mammograms
 - If they should have genetic testing

How would you care for her?

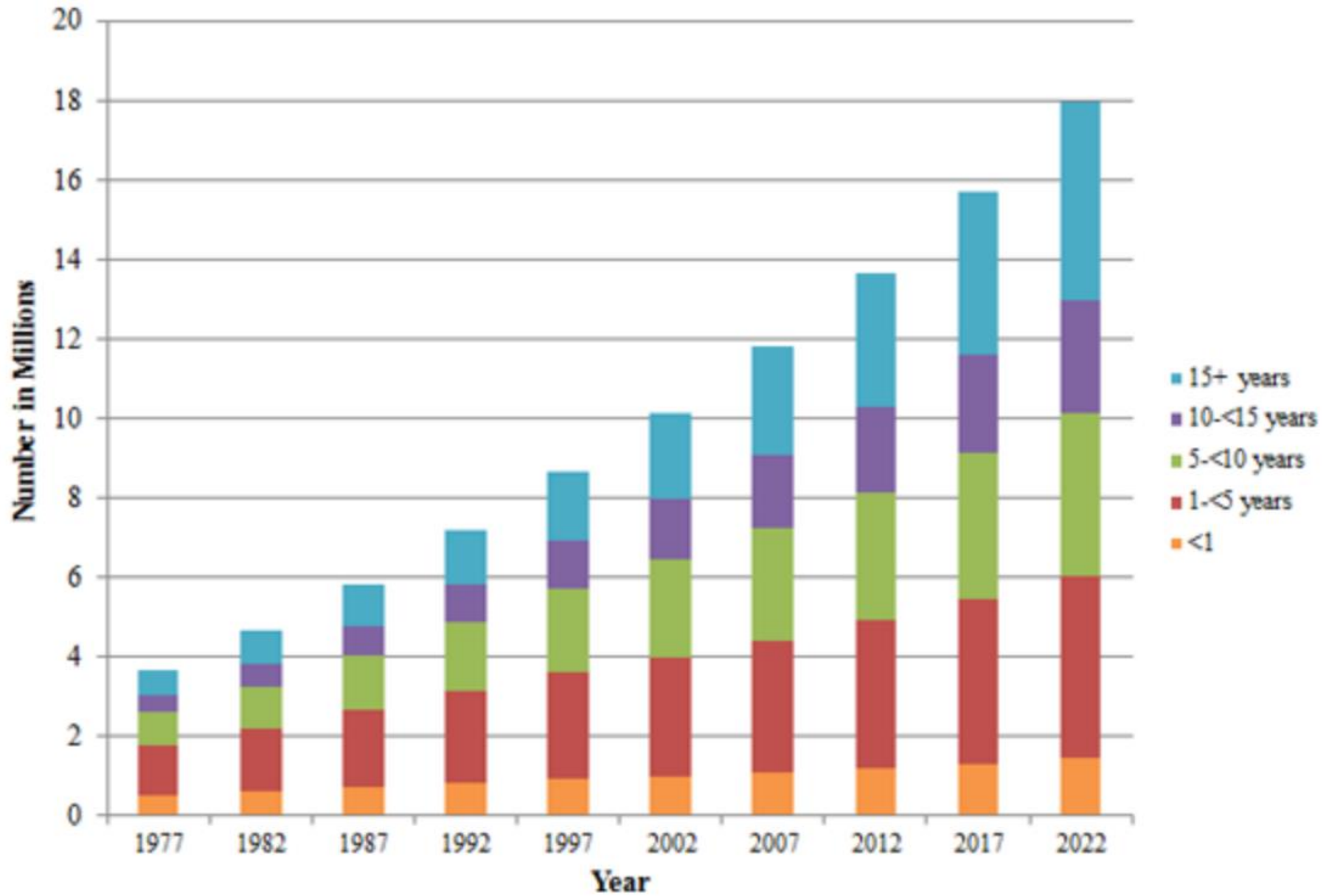
Who are the cancer survivors?

Survivorship defined

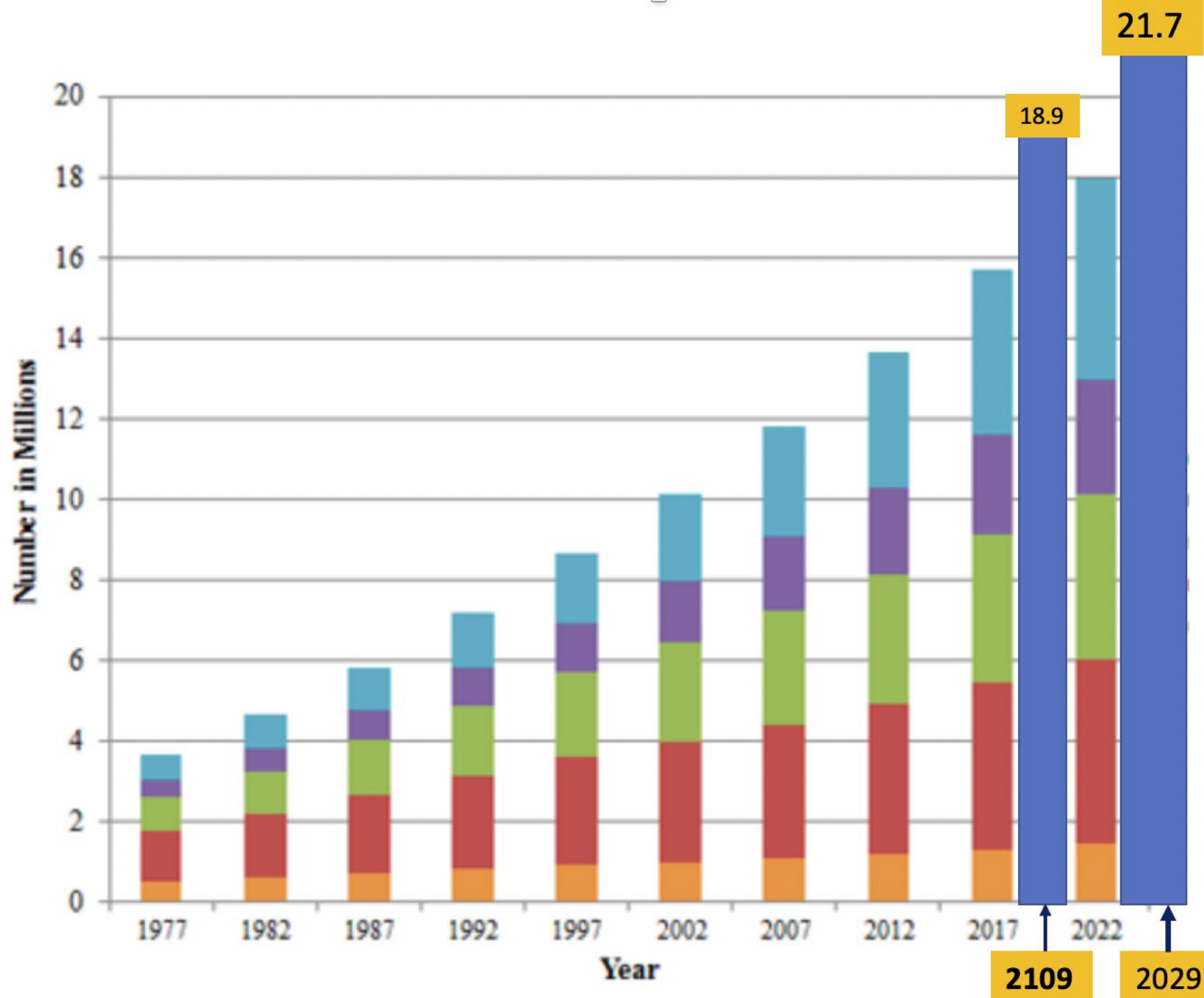
“An individual is considered a cancer survivor from the time of diagnosis, through the balance of his or her life. Family members, friends, and caregivers are also impacted by the survivorship experience and are therefore included in the definition.

Caregivers are sometimes referred to as secondary survivors.”

2013 Figures and Projections



de Moor JS, Mariotto AB, Parry C, Alfano CM, Padgett L, Kent EE, Forsythe L, Scoppa S, Hachey M, and Rowland JH. Cancer Survivors in the United States: Prevalence across the Survivorship Trajectory and Implications for Care. *Cancer Epidemiol Biomarkers Prev.* 2013 Apr;22(4):561-70. doi: 10.1158/1055-9965.EPI-12-1356. Epub 2013 Mar 27.



Current Figures

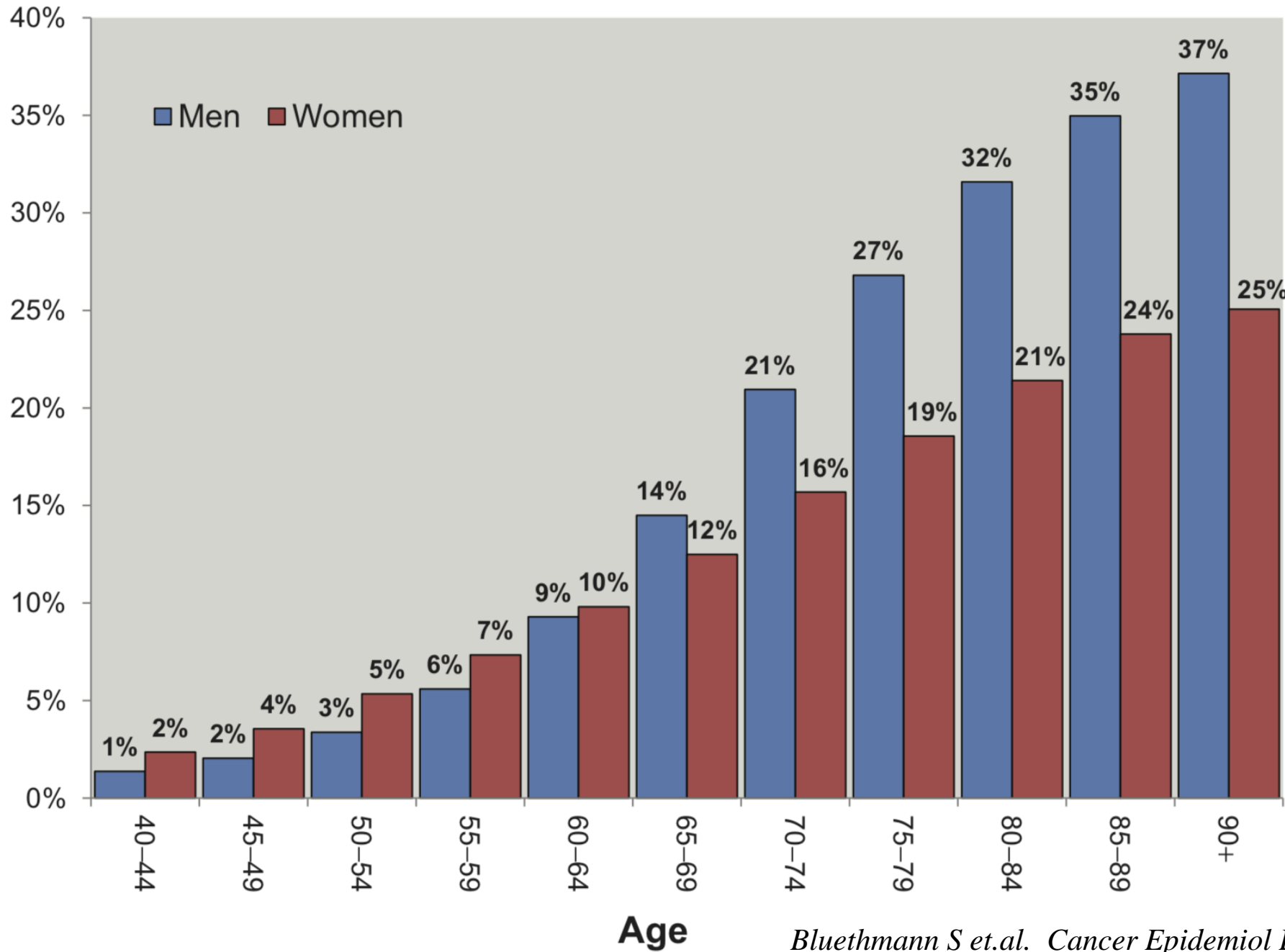


Figure 2. Percentage of cancer survivors in the U.S. population (324 M) by gender and age, 2016.

US Statistics Cancer Survivors

By 2040 the figure is expected to exceed 26 million

67% of all cancer survivors are at least 5 years out from their initial diagnosis

45% are at least 10 years out from their cancer diagnosis

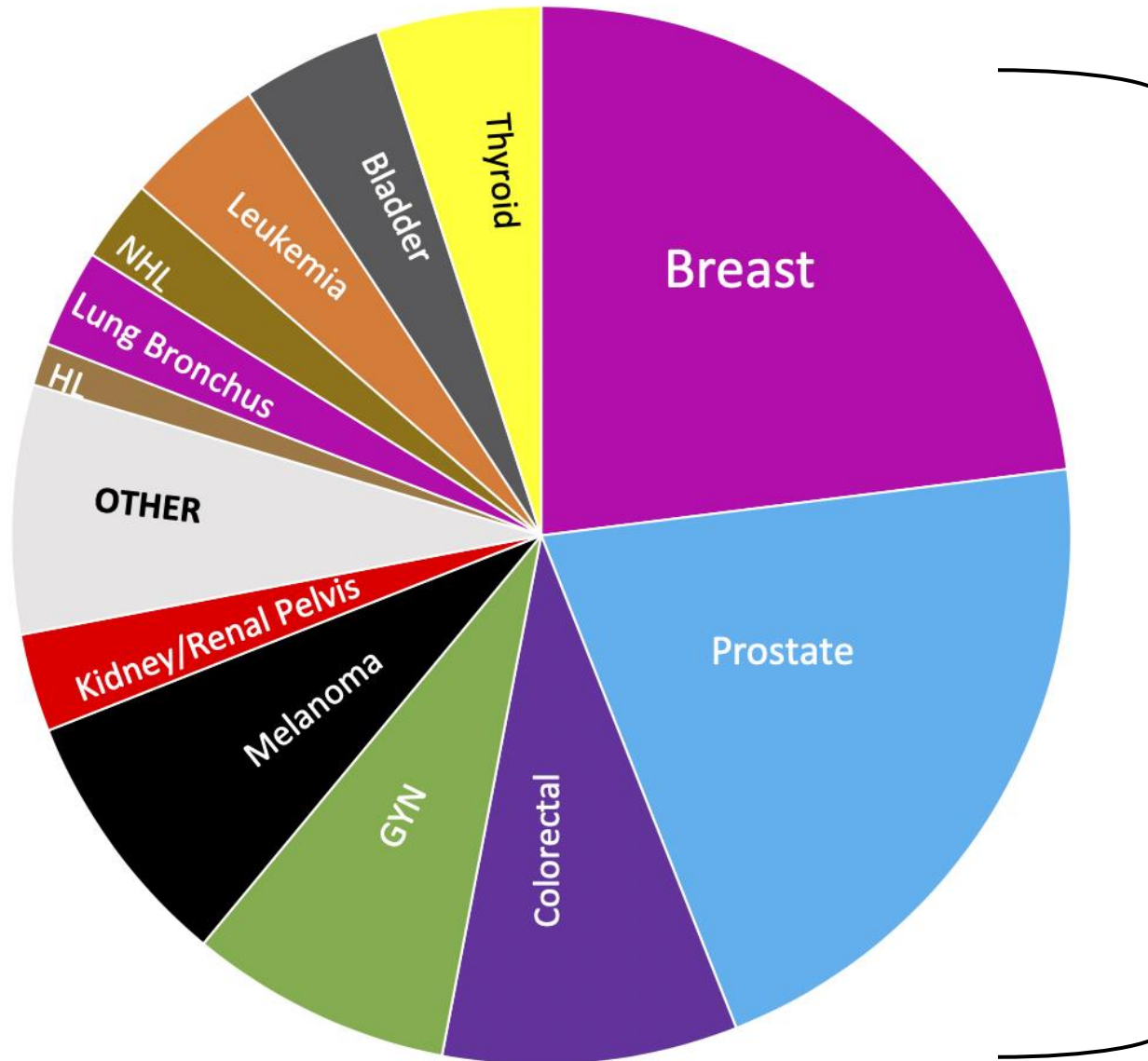
18% are 20 years or more out from their cancer diagnosis

Higher
proportion of
cancer
survivors are
over 65 years

Currently: 64% of cancer
survivors are currently 65
years or older

By 2040 73% of all cancer
survivors will be over 65
years

Current breakdown by Cancer Type



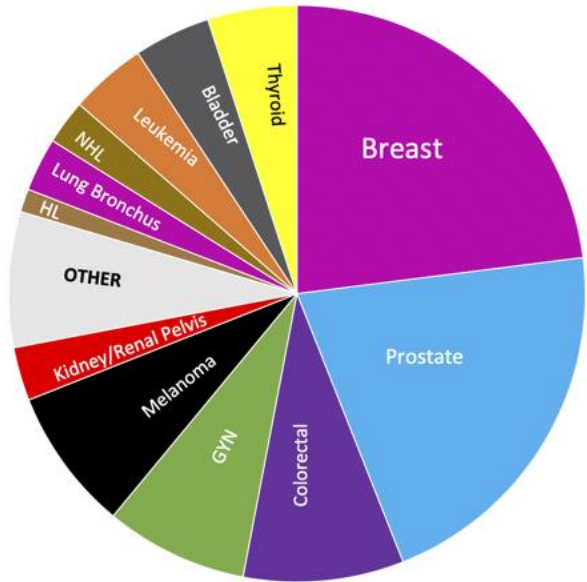
53% breast, prostate, colon



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Cancer Type	% of All Cancer Survivors
Breast	23
Prostate	21
Colorectal	9
Gynecological	8
Melanoma	8
Kidney/Renal Pelvis	3
Other	7.6
HL	1.3
lung/bronchus	3
Leukemia	2.5
NHL	4.3
Bladder	4.3
Thyroid	5

What are some of the challenges
faced by cancer survivors?



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*Richard Westall, The Sword of
Damocles
(painting, 1812)*

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Challenges: Needs of cancer survivors vary

- *Stage of Survivorship*
- Personal Factors (age, genetics, other exposures, health habits)
- Social Determinants of Health

Challenges

- Treatments received/side effects experienced
 - Most still poorly understood
 - Can occur years after completion of treatment
- Comorbidity burden increased after cancer diagnosis
 - Tammemagi et.al. 2005 10 year survival breast cancer 1985-1995 comorbidity explained 50% survival disparity

Challenges

- US healthcare system is poorly coordinated
- Care is still largely reactive not proactive
 - E.g. rehab needs often not available in timely manner

Childhood Cancer Survivor Study (CCSS)

- Retrospective cohort study of childhood cancer survivors diagnosed between 1970-1986
- 26 centers
- Followed for long-term health outcomes

Hudson MM, Mertens AC, Yasui Y. Health Status of adult longterm survivors of childhood cancer. JAMA. 2003;290:1583-1592.

CCSS

	Survivors (10,397)	Siblings (N = 3034)
Age at interview (yrs)		
Mean	26.6±6.1	29.2±7.3
Range	18.0-48.0	18.0-56.0
Multiple Health Conditions		
≥2	3905 (37.6)	397(13.1)
≥3	2470 (23.8)	163(5.4)
Did not complete HS	1099 (11.2)	189(6.5)

CCSS

Condition	Survivors %	Siblings %	RR
CHF	1.24	0.10	15.1 (4.8-47.9)
Second cancers	2.38	0.33	14.8 (7.2-30.4)
CAD	1.11	0.20	10.4 (2.6-43.0)
CVA	1.56	0.20	9.3 (4.1-21.2)
Renal failure	0.52	0.07	8.9 (2.2-36.2)
Severe cognitive dysfunction	0.65	0.10	10.5 (2.6-43.0)

CCSS: long-term outcome

- By 30 years post-treatment
 - 70% had at least one chronic health condition
 - 32% had multiple chronic health problems
- Compared to siblings:
 - CCS = 8.2 times more likely to have severe or life threatening health condition
- Treatment related complications seen 25+ years out

Issues faced by Adult Cancer Survivors

- Treatment-related toxicities are highly variable, can present at any time, poorly understood
- Higher rates of chronic health conditions
- Increased risk for second cancers
 - Risk for treatment-related cancers increases over time

Challenges faced by cancer survivors

Of those survivors employed at any time since their diagnosis,



**made changes
in their work**
because of
their cancer

(Ekwueme et al. 2014)



HOSPITAL BILLING STATEMENT

1234-5678-912345-6789-8765-4321		May 31, 2014	5814637.88	\$178987.88
January 2014	February 2014	March 2014	April 2014	
2746.99	3919.76	4888.60	9277.53	
CURRENT CHARGES				
SURGERY				4247.99
TIER 1				655.88
PHARMACY				1423.45
PERSONNEL				566.99
OVERNIGHT				744.99

62.1% of all
bankruptcies are
result of medical debt

Challenges faced by cancer survivors

Those that **experience pain:**

59% of cancer patients in active treatment

33% of survivors

64% with advanced/metastatic/terminal disease

(Van den Beuken-van Everdingen 2007)



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Challenges faced by cancer survivors

- Higher rates of depression and anxiety

Close to 1/3

- report challenges to activities of daily living

Depression affects:



15-25%

of cancer patients

(National Cancer Institute 2014)



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What is survivorship care?



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*From cancer patient to cancer survivor:
lost in transition: IOM 2005 Report*

Components of Survivorship care

Prevention of recurrent and new cancers,
and other late effects;

Surveillance for cancer spread,
recurrence, or second cancers;

assessment of medical and psychosocial late
effects;

**Hewitt M, Greenfield S, Stovall E. eds. From Cancer Patient to Cancer Survivor: Lost in Transition. Improving Care and Quality of Life. Washington D.C: National Academies Press; 2005.*



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From cancer patient to cancer survivor: lost in transition: IOM 2005 Report

Intervention for consequences of cancer and its treatment

Coordination between specialists and primary care provider to ensure all aspects of the survivor's health needs are met.”

**Hewitt M, Greenfield S, Stovall E. eds. From Cancer Patient to Cancer Survivor: Lost in Transition. Improving Care and Quality of Life. Washington D.C: National Academies Press; 2005.*



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Current Models of Survivorship Care Delivery

Models of Care Delivery

- Clinical Consultative Model –
 - Modeled after long-term follow-up clinics of adult survivors of pediatric cancer
 - Multidisciplinary
 - Led by pediatric oncologist or NP
- Shared Care Model
 - Care is coordinated between PCP and cancer specialist
 - Clear delineation of responsibilities

Delivery of care for cancer survivors highly variable

- Survivorship clinics differ widely based on
 - Who is delivering care
 - Patient population served
 - Whether supportive services are in place
 - Financial constraints of the institution
- Emphasis on cancer treatment summary and care plan

Barriers to care delivery

- US Healthcare System is highly fragmented and poorly coordinated
- Patient records are not easily transferable
- Health impacts of cancer are poorly understood
- Limited evidence-based guidelines on follow-up care

Barriers to care delivery

- PCPs report limited knowledge and self-efficacy in follow-up of long-term care of cancer survivors
- Even some oncologists report incomplete knowledge of the late effects of cancer treatment

Opportunities for Improvement?



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Case

- 53 yo AAF with DM, HTN, HC and history of stage IIb (pT₂N₁M_x) TNBC → lumpectomy, AND, ddACT
 - Fatigue
 - Neuropathy
 - Dyspareunia
 - Problems with memory and concentration

Case

- DOE/Shortness of breath x 3 months
- Concerned about recurrence
- Concern about daughters – mammograms, genetic testing

Treatment-related side effects

- Can occur immediately with treatment
 - e.g. neuropathy with taxanes
- Can present years after completion of therapy
 - e.g. breast cancer in HL treated with mantle field radiation
- Risk can be increased due to host factors
 - e.g. higher risk for cardiotoxicity in patients with other CVD risk factors

Cancer-Related Fatigue (CRF)

- *“Distressing, persistent, subjective sense of physical, emotional, and/or cognitive tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning”*

CRF-ICD 10 (R53.0)

- Symptom presence for 2 or more weeks
- Significant distress or impairment,
- Consequence of cancer or its treatment
- Absence of comorbid or psychiatric disorders.

CRF

- Persists in 1/3 long-term cancer survivors
- Unclear etiology but may be related to ongoing activation of immune system

Evaluation of CRF

- History including sleep hygiene/ evaluate for depression/anxiety
- Physical examination/labs/sleep study
- Therapy: nonpharmacologic interventions
 - Exercise-resistance
 - Yoga
 - CBT
 - Acupuncture?



Neurocognitive dysfunction: “*Chemo-brain*”

- Cancer Treatment-Related Cognitive Dysfunction
- Linked to chemotherapy exposure, radiation, adjuvant hormone therapy
- 30% of cancer patients report some degree cognitive impairment

Neurocognitive dysfunction

- Impairment in executive functioning, working memory, processing speed, episodic verbal memory
- Diagnostic tools do not strongly correlate with cognitive dysfunction
- Etiology unknown

Neurocognitive dysfunction

- Evaluation
 - Complete history/physical examination/lab tests
 - Assess sleep hygiene
 - Screen for depression/anxiety
 - Consider formal neuropsychological testing

Neurocognitive dysfunction

- Treatment
 - Mindfulness-based stress reduction, CBT,
 - Occupational Therapy
 - Brain exercise programs?

Cardiotoxicity

- Chemotherapy induced heart failure may take years or even decades to manifest.
- Signs of cardiac dysfunction can be seen prior to the development of symptoms.
- Having additional cardiovascular risk factors increases the risk of developing cardiomyopathy and heart failure.

Table 1 Incidence of left ventricular dysfunction associated with chemotherapy drugs^{10–21}

Chemotherapy agents	Incidence (%)
Anthracyclines (dose dependent)	
Doxorubicin (Adriamycin)	
400 mg/m ²	3–5
550 mg/m ²	7–26
700 mg/m ²	18–48
Idarubicin (>90 mg/m ²)	5–18
Epirubicin (>900 mg/m ²)	0.9–11.4
Mitoxantrone >120 mg/m ²	2.6
Liposomal anthracyclines (>900 mg/m ²)	2
Alkylating agents	
Cyclophosphamide	7–28
Ifosfamide	
<10 g/m ²	0.5
12.5–16 g/m ²	17



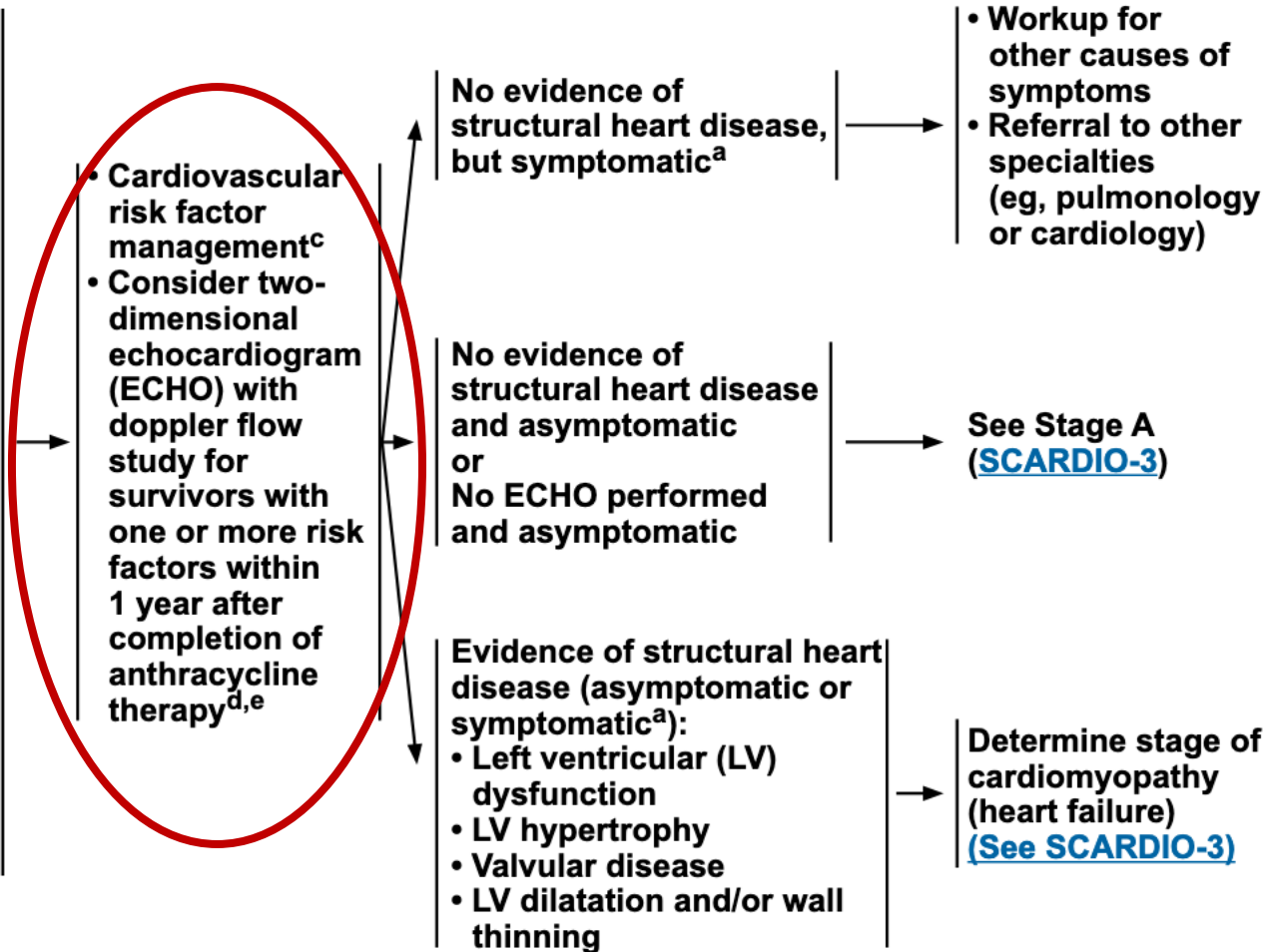
Chemotherapy agents	Incidence (%)
Antimicrotubule agents	
Docetaxel	2.3–13
Paclitaxel	<1
Monoclonal antibodies	
Trastuzumab	1.7–20.1 ^{28a}
Bevacizumab	1.6–4 ^{14b}
Pertuzumab	0.7–1.2
Small molecule tyrosine kinase inhibitors	
Sunitinib	2.7–19
Pazopanib	7–11
Sorafenib	4–8
Dasatinib	2–4
Imatinib mesylate	0.2–2.7
Lapatinib	0.2–1.5
Nilotinib	1

European Heart Journal (2016) **37**, 2768–2801
doi:10.1093/eurheartj/ehw211

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INITIAL CLINICAL ASSESSMENT FOR PATIENTS WHO HAVE RECEIVED PREVIOUS ANTHRACYCLINE THERAPY

- **History and physical**
 - ▶ Assess for signs and symptoms of heart failure^{a,d}
 - ▶ Assess patient's ability to perform routine and desired activities of daily living
 - ▶ Look for signs of volume overload
- **Evaluate for presence of heart failure risk factors**
 - ▶ Hypertension
 - ▶ Dyslipidemia
 - ▶ Diabetes mellitus
 - ▶ Family history of cardiomyopathy
 - ▶ Age >65 years
 - ▶ High cumulative anthracycline dose (ie, cumulative doxorubicin dose at or higher than 250 mg/m² or equivalent)
 - ▶ Low-normal LVEF (50%–54%) at baseline
 - ▶ History of other cardiovascular comorbidities (ie, atrial fibrillation, known coronary artery disease [CAD], baseline evidence of structural heart disease)
 - ▶ Smoking
 - ▶ Obesity
- **Review medications, alcohol use, and other substance use**
- **Review oncologic history**
 - ▶ Review total cumulative dose of anthracycline
 - ▶ Other systemic therapy^b and/or chest radiation therapy



^aSigns and symptoms of heart failure include: shortness of breath or chest pain after physical activity or exercise; shortness of breath when sleeping; waking up at night

Chemotherapy Induced Peripheral Neuropathy (CIPN)

- 40% patients report neuropathy due to chemotherapy
- Sensory symptoms >>> Motor
- Stocking and glove, symmetric, bilateral
- Paresthesia, dysesthesia
- Pain: burning, freezing, lancination, shock-like,

CIPN

- Etiology unclear
- Accumulation in DRG results in damage to sensory neurons
- Testing: EMG – results often do not correlated with severity of symptoms
- Treatment
 - Nonpharmacologic – OT, mindfulness

Dyspareunia

- Underreported among cancer survivors
- Can be direct result of therapy (e.g. pelvic radiation), consequence of treatment – premature menopause due to chemotherapy, vaginal dryness from aromatase inhibitors
- Symptom management
 - Lubricants (oil, water, silicone based) for vaginal dryness
 - Estrogens if not contraindicated
 - Pelvic PT

Case

- Evaluation and management of reported symptoms
- Encourage lifestyle modifications: exercise, weight loss, low fat complex carbohydrate diet
- Get cancer treatment records – if she has not had genetic testing she is a candidate
- Yearly mammograms, CBE

Risk is elevated in daughters

- ACS/NCCN – start 10 years earlier but no later than 40
- USPSTF – *Women at higher risk for breast cancer may benefit more than average-risk women from beginning screening in their 40s*
- Anyone 35 yrs and older – evaluate for chemoprevention
- Genetic testing?

Opportunities for Improvement

- PCPs can address the complex health needs of cancer survivors without specialized survivorship clinics
- Resources:
 - National Comprehensive Cancer Network
 - <https://www.nccn.org/>
 - GW National Cancer Survivorship Resource Toolkit
 - <https://smhs.gwu.edu/gwci/survivorship/ncsrc>
 - ASCO –Cancer.net

Clinical Practice Algorithms

Cancer Survivorship Algorithms

Clinical Management Algorithms

Cancer Screening & Risk Reduction Algorithms

Cancer Treatment Algorithms



Cancer Survivorship Algorithms

Survivorship algorithms depict best practices for care delivery by providing patient management tools to patients under surveillance for cancer recurrence and secondary cancers. Patients are transitioned to Survivorship once there is no evidence of disease for a specific time period dependent on the patient's cancer site. These algorithms are not intended to replace the independent medical judgment of the physician in the context of individual clinical circumstances to determine a patient's care.

Breast Cancer

- [Bone Health](#)
- [Invasive](#)
- [Noninvasive](#)

Gastrointestinal Cancer

- [Anal Cancer](#)
- [Colon Cancer](#)
- [Esophageal Cancer](#)
- [Rectal Cancer](#)

Genitourinary Cancer

- [Bladder Cancer](#)
- [Kidney Cancer](#)
- [Penile Cancer](#)
- [Prostate Cancer](#)
- [Testicular Cancer - Germ Cell](#)
 - Germ Cell Seminoma Stage I Surveillance
 - Germ Cell Seminoma Stage I - Post Adjuvant Radiotherapy or Single-Agent Carboplatin
 - Germ Cell Non-Seminoma Stage I Surveillance
 - Germ Cell Non-Seminoma Stage I - Post RPLND and/or Adjuvant Chemotherapy
 - Germ Cell - All Types, Stages II-IV

Gynecologic Cancer

- [Bone Health](#)
- [Cervical Cancer \(Includes Vulvar and Vaginal\)](#)
- [Endometrial Cancer](#)
- [Ovarian Cancer](#)

Head and Neck Cancer

- [Larynx/Hypopharynx Cancer](#)
- [Nasopharynx Cancer](#)
- [Oral Cavity Cancer](#)
- [Oropharynx Cancer](#)
- [Salivary Cancer](#)
- [Unknown Primary](#)

Leukemia

- [Acute Lymphoblastic Leukemia \(ALL\)](#)
- [Acute Myelogenous Leukemia \(AML\)](#)

Lung

- [Non-Small Cell Lung Cancer \(NSCLC\)](#)

Lymphoma

- [Diffuse Large B-Cell Lymphoma](#)
- [Follicular B-Cell Lymphoma for Stage I or II](#)
- [Hodgkin Lymphoma](#)
- [Peripheral T-Cell Lymphoma](#)

Melanoma

- [Cutaneous Melanoma](#)

Thyroid Cancer

- [Thyroid Cancer](#)

MD Anderson Survivorship Guidelines:
<https://www.mdanderson.org/for-physicians/clinical-tools-resources/clinical-practice-algorithms/survivorship-algorithms.html>

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CANCER SURVIVORSHIP

in primary care

RESOURCES FOR PRIMARY CARE PROVIDERS

Home

Key resources

Clinical

Research

Education

Patients & families

About

News

Contact

Cancer Survivorship in Primary Care is a one-stop repository where primary care providers can quickly access resources for medical information and clinical guidance.

<http://www.cancersurvivorshipprimarycare.org/>

Clinical

Information to help you care for your patients



Research

Including clinical trials and funding sources



Education

Opportunities to expand your knowledge and skills



Patients & families

Resources for survivors and caregivers



There are close to 17 million cancer survivors in the U.S., and this population continues to grow.

Survivors are living longer and many are elderly, with chronic medical conditions that also require care.

Primary care providers play an important role in caring for cancer survivors, yet research shows that their skills and comfort levels in managing issues related to cancer survivorship can be improved.



News

Cancer treatment and survivorship statistics, 2019

<https://onlinelibrary.wiley.com/doi/full/10.3322/caac.21565>

Handbook of Cancer Survivorship

<https://www.springer.com/us/book/9783319774305>

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***The Bad News is We Found A
Mass.***

***The Good News is...
We have Weapons of Mass
Destruction.***

