



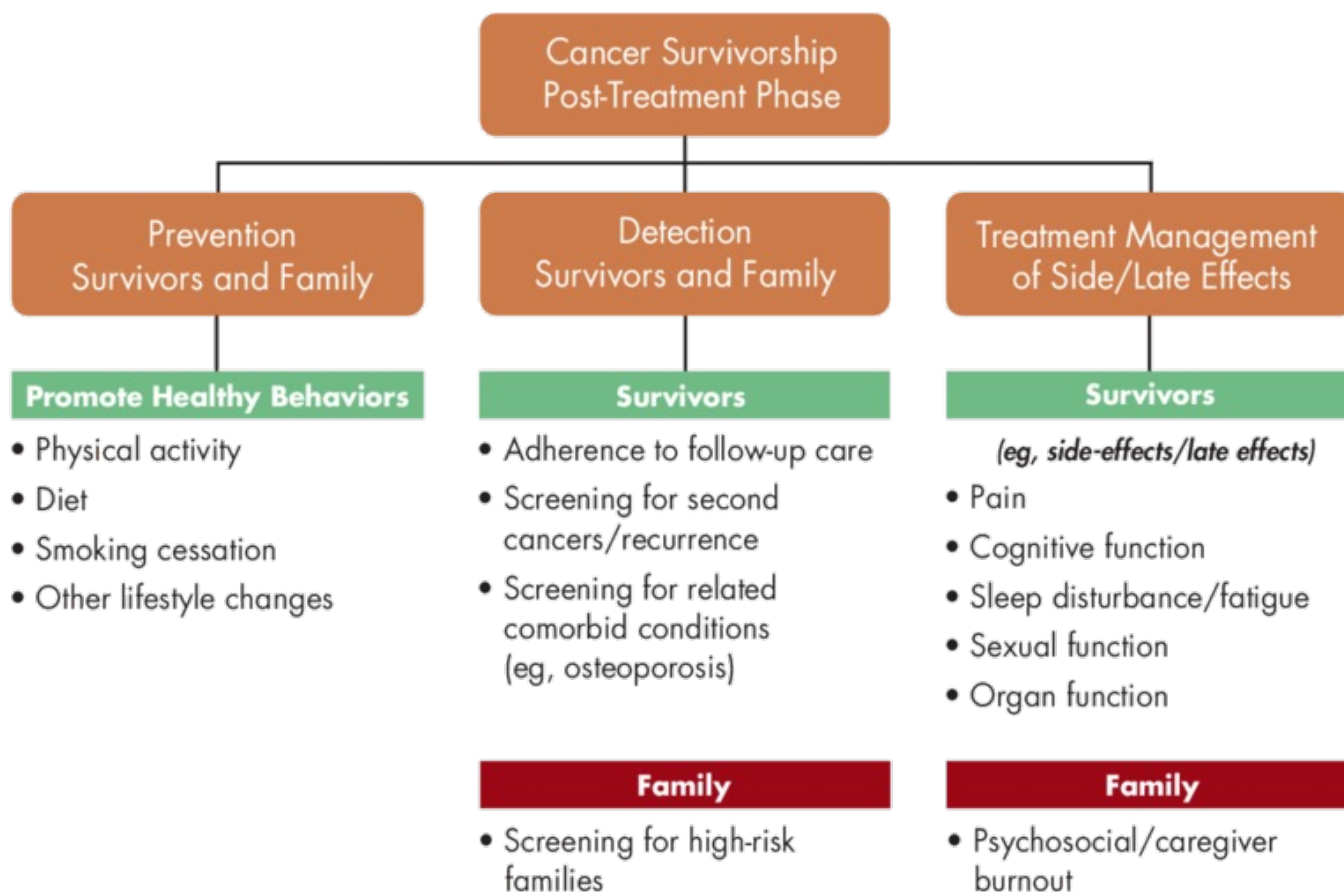
Survivorship Considerations Following Stem Cell Transplant

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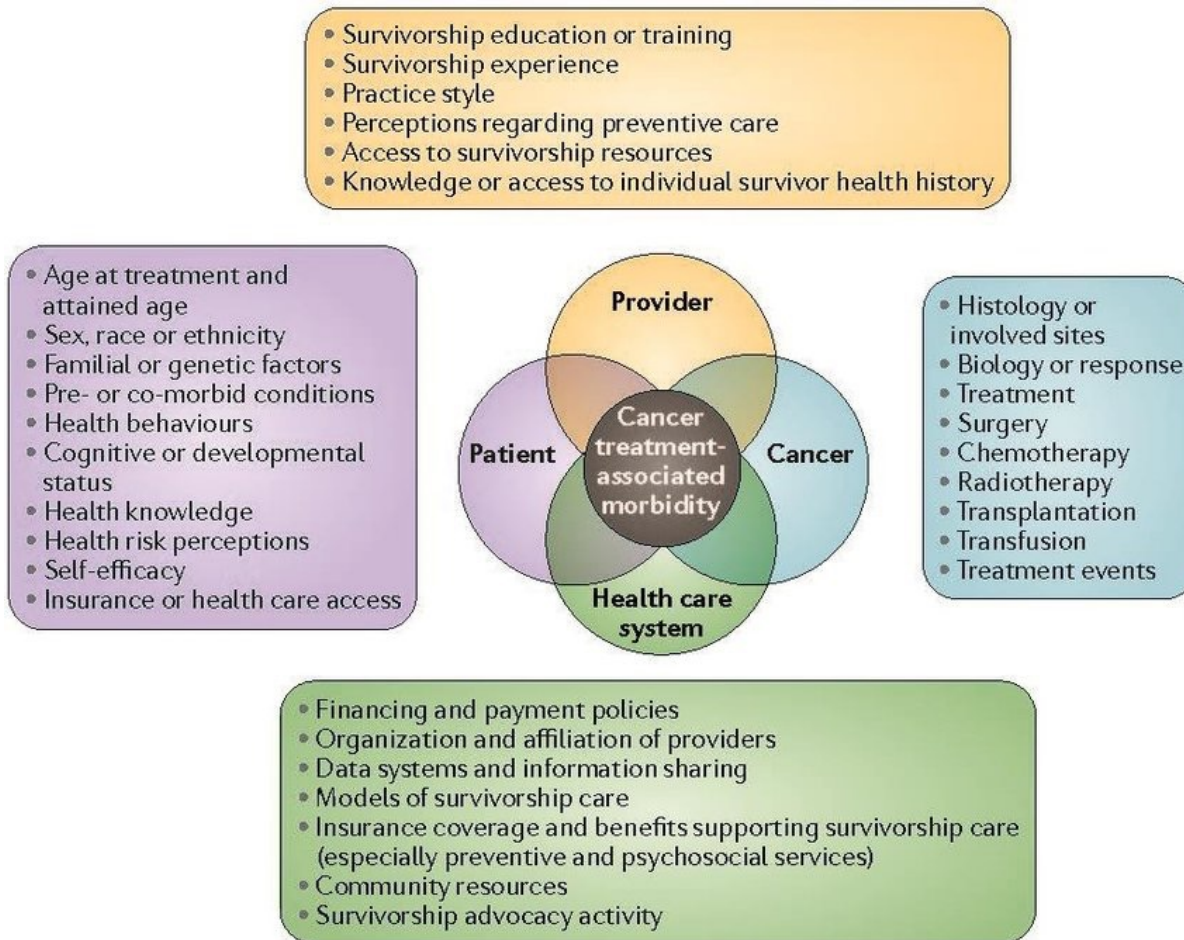
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Aspects of Cancer Survivorship



Significant Spectrum of Survivorship Issues



Physical Long-Term Effects of Treatment

Growth and development

Linear growth

Skeletal and tissue growth

Intellectual function

Emotional/social maturation

Sexual development

Organ Function

Cardiac

Pulmonary

Renal

Endocrine

Reproductive

Gastrointestinal

Vision/Hearing

Subsequent Neoplasms

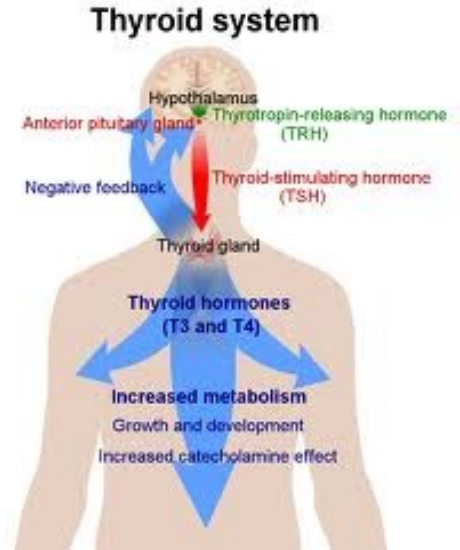
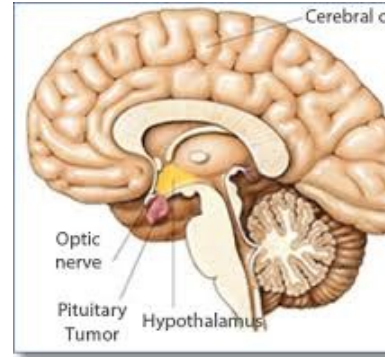
Benign

Malignant

Endocrine Effects

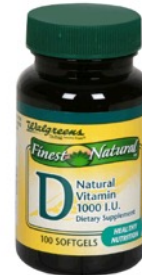
Restrictive and Obstructive defects:

- CNS radiation
- Neck radiation
- Gonadal radiation



Metabolic syndrome:

- CNS radiation
- Corticosteroids



Bone Health:

- Corticosteroids
- CNS and bone radiation
- Decreased sun exposure

Metabolic syndrome (Syndrome X)

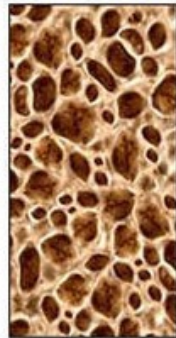
- Central obesity
- High blood pressure
- High triglycerides
- Low HDL-cholesterol
- Insulin resistance



Normal bone

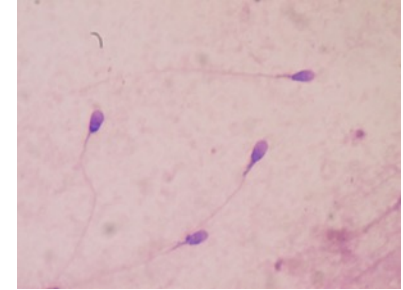


Bone with Osteoporosis



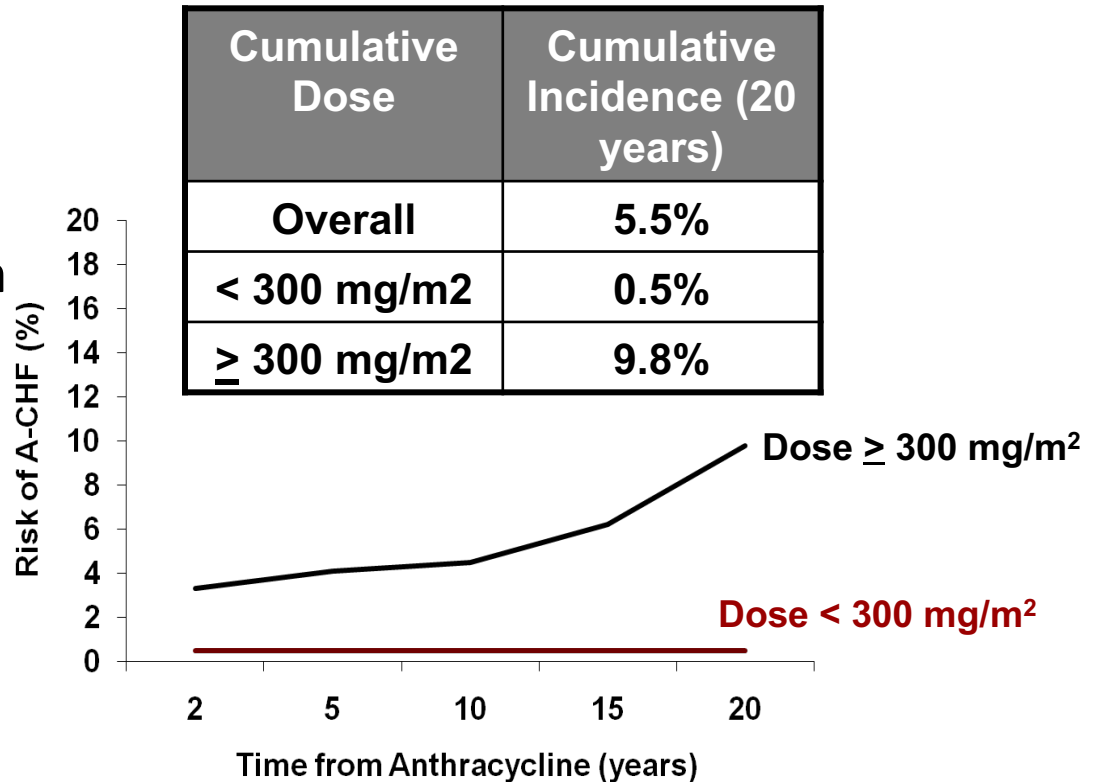
Fertility After Cancer

- **Surgery**
 - Removal of reproductive organs
 - Pelvic/spinal surgeries that injure pelvic nerves
- **Radiation**
 - Hypothalamus/pituitary (head/brain/TBI)
 - Ovaries/uterus (abdominal/pelvic/TBI)
 - Testes (pelvic/gonadal/TBI)
- **Alkylating agent chemotherapy**
 - Cyclophosphamide, ifosfamide, procarbazine, nitrogen mustard, carmustine, lomustine, mephalan

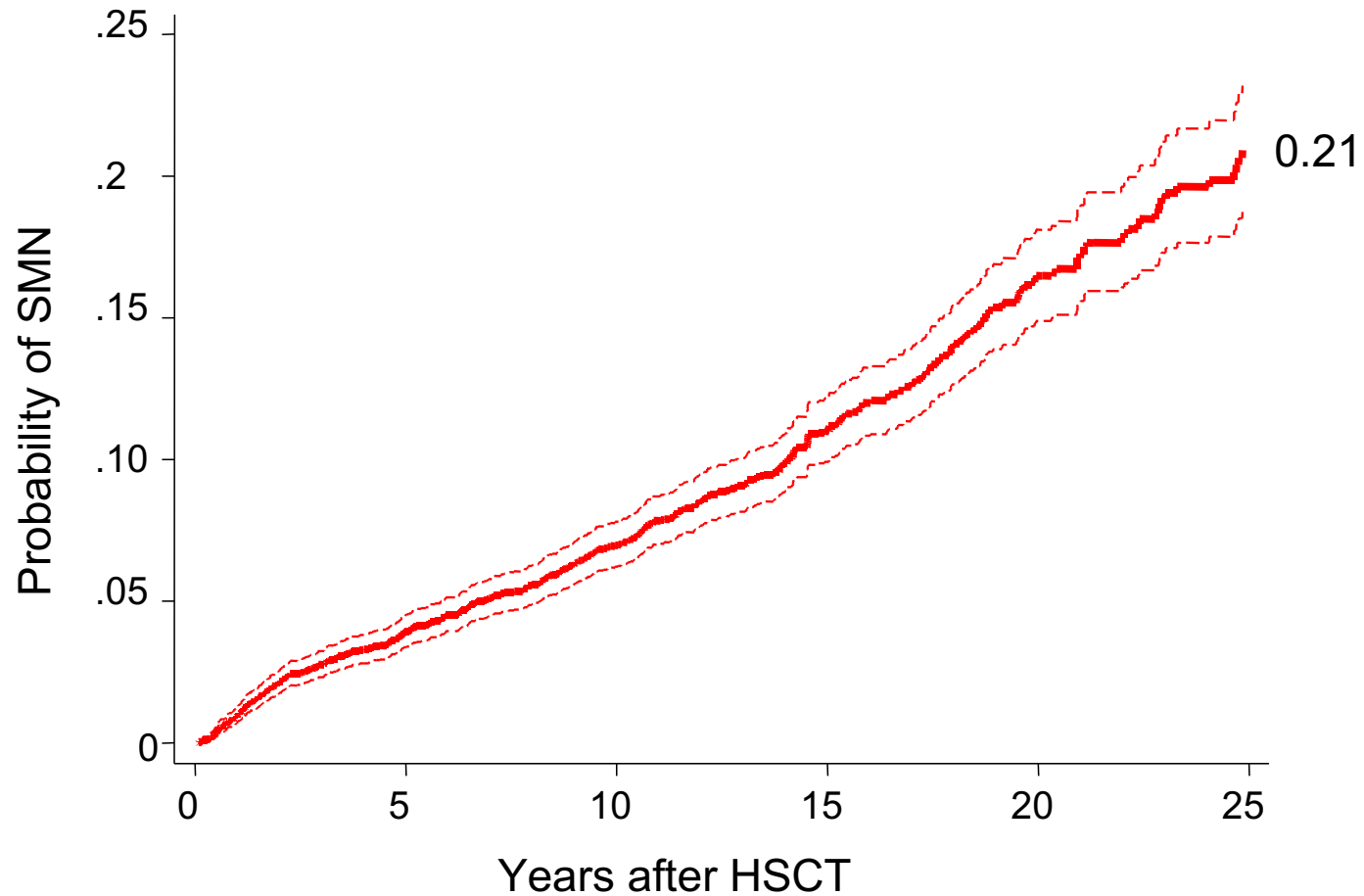


Heart Health

- **Anthracyclines :**
 - Cardiomyopathy
 - Congestive heart failure
 - Subclinical LV dysfunction
- **Platinums**
 - Hyperlipidemia
 - Hypertension
- **Immunotherapy**
 - Myocarditis
- **Chest radiation:**
 - Cardiomyopathy
 - Heart valve disorders
 - Coronary artery disease
 - Stroke

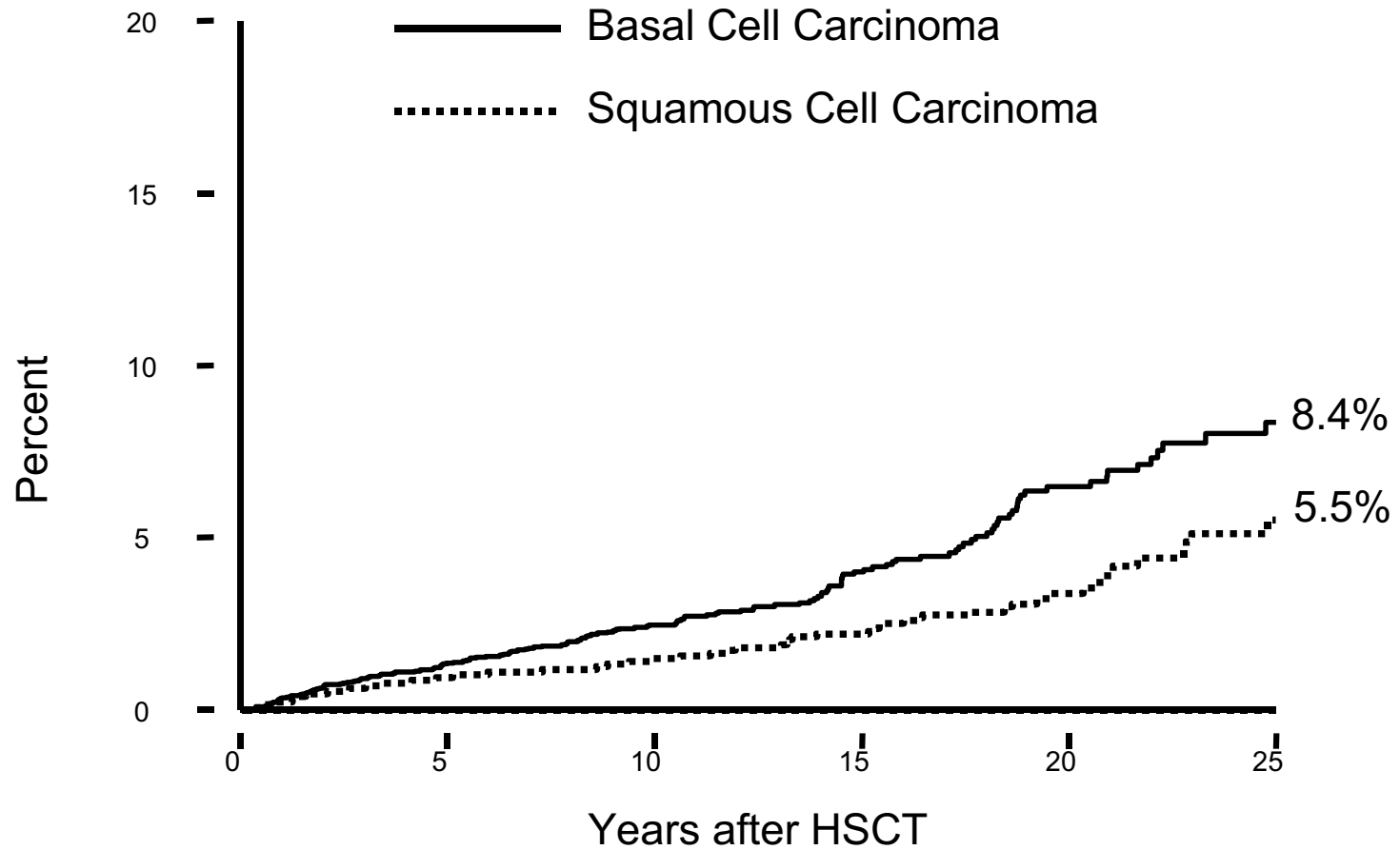


Cumulative Incidence of Second Neoplasms

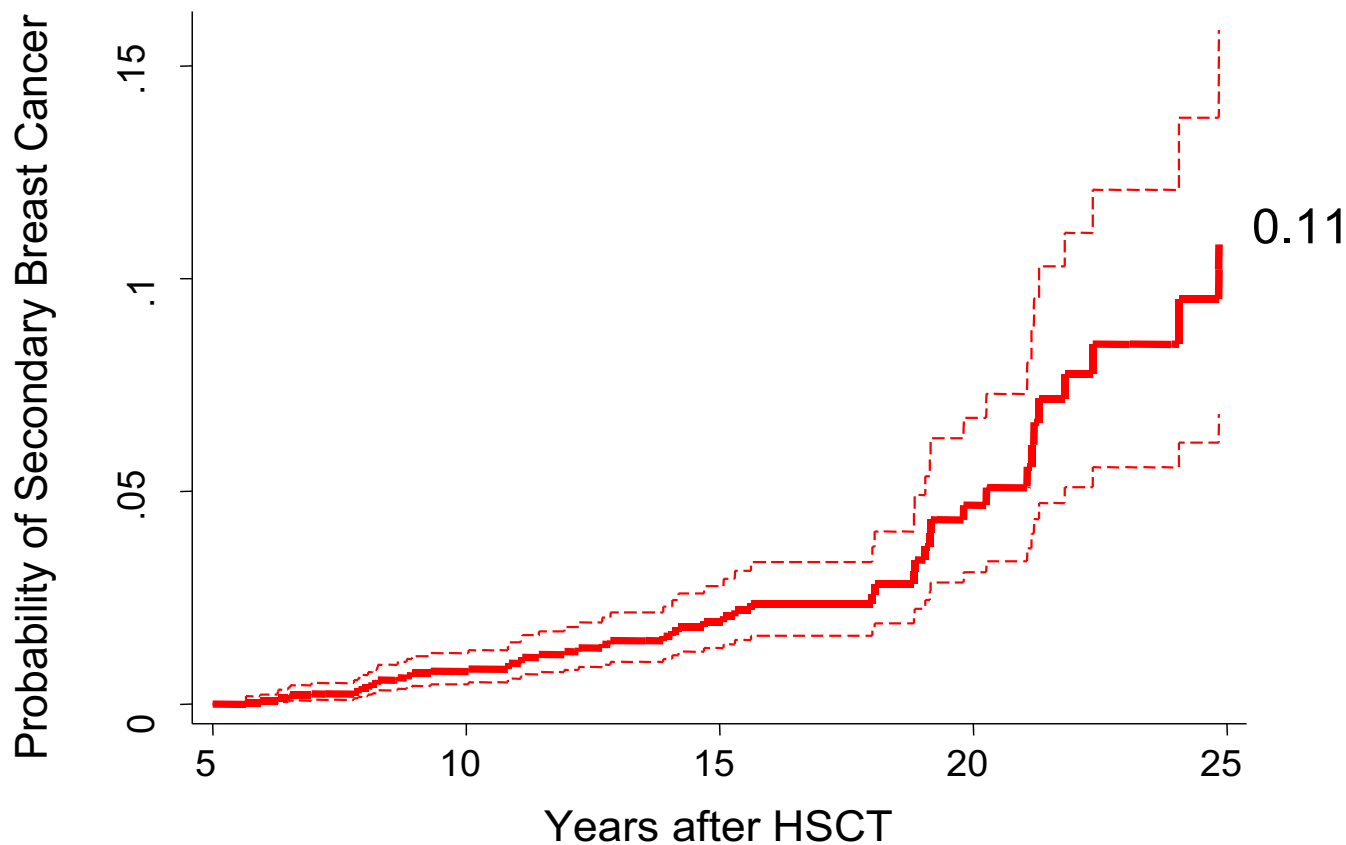


Friedman, 2007

Cumulative Incidence of Skin and Mucosal Cancers



Cumulative Incidence of Breast Cancer



Psychosocial Effects

Mental Health

- Mood and Affect
- Distress and Anxiety
- Post-traumatic stress

Education/Vocation/Health

- Academic achievement
- Vocational achievement
- Employment
- Access to Insurance
- Access to Health Care

Social Interaction

- Family/peer relationships
- Social withdrawal/isolation

Social competence

- Ability to live independently
- Intimacy/marriage/family

Health Risking Behaviors

- Substance Use/Abuse
- Medical noncompliance

Cognitive Complaints



Memory acquisition and retrieval



Executive functions

Planning and organizing
Trial and error reasoning
Complex attention



Speed of information processing



Sustained attention, screening out distractions



Multi-tasking

Health-related quality of life

- **Most survivors after treatment have good-excellent health by self-report**
- **Physical impairments have a major impact on function and quality of life in a meaningful minority.**
 - **~ 1 in 5 will have work limits up to 5 years later**
 - **~ 50% of those continue working**
 - **8% cannot work after cancer treatment**

Survivorship Care Plan

- Diagnostic information
- Treatment modalities/cumulative dose
- Clinical events and status
- Transfusion history
- Family history
- Cancer-related health risks
- Risk-based screening recommendations



<https://bethematchclinical.org/post-transplant-care/long-term-care-guidelines/>

Health Promotion

- Regular primary care
- Healthy weight
- Physical activity
- Healthy eating
- Avoid or limit alcohol
- Avoid tobacco use
- Cancer screening



Surveillance for Late Toxicities

System	Surveillance
Iron	Blood counts, Ferritin
Cardiac	Lipids, Blood Pressure, Echocardiogram
Liver	Liver function blood tests
Pulmonary	Pulmonary function tests
Neurological	Neurocognitive assessment
Renal	Renal blood tests, BP, urine for protein
Eye	Exam
Thyroid	Thyroid function blood tests
Diabetes	Hgb A1C , blood sugar
Gonadal	Hormone assessment
Bone health	Bone mineral density
Dental	Exam and oral cancer observation
Skin	Exam and skin cancer observation
Vaccines	Up to date

Conclusions

- **Survival post stem cell transplant is increasing**
- **Survivors are at increased risk for adverse health-related outcomes**
- **Special issues exist for patients who receive transplants for non-malignant diseases**
- **Need for integrated survivorship and primary care**
- **Transition remains a problem**
 - from acute to long-term care
 - from stem cell transplant to primary care

Need to continue to conduct efficient and effective research and provide optimal clinical care for stem cell transplant survivors

Thank You!

