Cancer Survivorship Clinical Algorithms

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Objectives

- Identify needs of cancer survivors
- Discuss the development of cancer survivorship algorithms
- Outline implementation of cancer survivorship algorithms
- Describe the clinical management of cancer survivors using survivorship algorithms

The Burden of Cancer Survivorship

- As of 2014, about 14.5 million cancer survivors in United states
- Approximately 64% of all cancer patients expected to live at least five years after diagnosis

18 Million Cancer Survivors Projected in 2022

Who is a Cancer Survivor?

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 therefore included in this definition.

NCI Office of Cancer Survivorship, 1996

Phases of Survivorship

- **Acute**: Begins with diagnosis of cancer, and includes the period of testing and treatment of cancer
- **Intermediate**: Begins upon reaching remission and concluding the acute treatment; this phase can include maintenance, consolidation, or watchful monitoring
- **Long-Term**: Depending on disease type, this phase begins when the period of highest risk of recurrence is past, and long survival from the time of remission is expected.

Cancer survivors should have the best possible quality of life.\textsuperscript{1}

The 2006 Institute of Medicine’s report recommends\textsuperscript{2}:

1. establishing cancer survivorship as a distinct phase of the cancer care continuum;
2. managing late effects of cancer and its treatment with evidenced-based clinical guidelines, assessment tools, and screening instruments;
3. providing survivors with a comprehensive care summary and follow-up plan.

Office of Cancer Survivorship (OCS)

Unmet Needs of Cancer Survivors

  - The most critical issue according to this report was the loss of continuity of care between the oncologist and the primary physician

Why Develop a Cancer Survivorship Program

- Early detection & adjuvant therapies = More survivors
- Unique healthcare needs
- Essential component of comprehensive cancer program
Transition of Care

- Transition may be to:
  - Survivorship clinic
  - Primary care clinician

- Most clinicians in the primary care setting have all the skills needed to manage the long-term follow-up of most cancer survivors
  - Tools needed to guide clinical management

Cancer Survivorship Guidelines

- Clinical pathways to guide clinicians’ practice and decision-making related to survivorship care
- Basis for development of a personalized summary of care/care plan

Background

- There is little evidence-based clinical information to guide the design of optimal models of long-term follow-up care for adult cancer survivors.\(^1\)

- Current clinical models of survivorship care are evolving or have evolved from expert-group consensus based on best practice.\(^1\)

- Variation in practice settings contributes to variation in survivorship models of care, and in the categories of care delivered.

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Survivorship Guidelines

- ASCO Survivorship Guidelines
- NCCN Survivorship Guidelines
- MD Anderson Clinical Practice Cancer Survivorship Algorithms

### ASCO Practice Guidelines

<table>
<thead>
<tr>
<th>Follow-Up Care Recommendation</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Years 4 and 5*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor's visit and physical exam</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
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<tr>
<td>CA-19-9 test</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
<td>Every three to six months</td>
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<tr>
<td>CT scan (chest and abdomen)</td>
<td>Every year (every 6-12 mos if high risk recurrence)</td>
<td>Every year (every 6-12 mos if high risk recurrence)</td>
<td>Every year (every 6-12 mos if high risk recurrence)</td>
<td>Every year</td>
</tr>
<tr>
<td>CT scan (pelvis) (rectal cancer only)</td>
<td>Every 6 to 12 months</td>
<td>Every 6 to 12 months</td>
<td>Every 6 to 12 months</td>
<td>Every year</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>1 yr after surgery*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexible sigmoidoscopy (rectal cancer only)</td>
<td>Every six months for patients who did not have pelvic radiation treatment for five years</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ASCO recommends right hemicolectomy or total colectomy at time of surgery. If the examination shows no signs of recurrence, the patient should have colonoscopy every five years thereafter.

**After five years, the need for future tests and visits are decided by the patient and doctor.


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### Practice Guidelines

NCCN Guidelines Version 1.2013 Table of Contents

- NCCN Guidelines
- ASCO Guidelines
- NCCN Survivorship Guidelines
- ASCO Follow-Up Care Guidelines

### MDACC Survivorship Guidelines

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Specialty</th>
<th>Patients Eligible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast Cancer</td>
<td>Bone Health</td>
<td>Stage I, II and III, HER2+, high-risk, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
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<tr>
<td>Breast Cancer</td>
<td>Radiation</td>
<td>Stage I, II and III, HER2+, high-risk, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Gynecologic Cancer</td>
<td>Bone Health</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Gynecologic Cancer</td>
<td>Radiation</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Gynecologic Cancer</td>
<td>Gynecologic</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Head and Neck Cancer</td>
<td>Head and Neck</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Head and Neck Cancer</td>
<td>Radiation</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>Lymphoma</td>
<td>Stage I, II and III, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>Radiation</td>
<td>All stages, HER2+, endocrine therapy, chemotherapy, radiation therapy, surgery</td>
</tr>
</tbody>
</table>

### MD Anderson Cancer Survivorship Guidelines


### Cancer Survivorship Guideline

#### Eligibility
- Surveillance
- Monitoring for late effects
- Risk reduction/early detection
- Psychosocial functioning

#### Elements
- Evidence-based & expert consensus

#### Multidisciplinary Care
Guidelines Tailored to Risk Status

- Personalization of long-term care of survivors based on survivor’s:
  - disease type/stage
  - treatment
  - late effects
  - recurrence risk

Pathways for different categories of risk status integrated into clinical algorithms.

Tiers of Risk in Cancer Survivors

| Tier 1: Very low risk of complications or relapse |
| Tier 2: Patients with complications/risk of treatment or second malignancies |
| Tier 3: High risk of relapse; active indolent/controlled disease; intensive chemotherapy/radiation/SCT with high risk of sequelae |

Essential Components in Survivorship Care

- Cancer Surveillance
  - Assessing for and diagnosis of cancer recurrence
- Management of Late Effects
  - Monitoring for and managing risks of late effects of the cancer or cancer treatment
- Risk Reduction and Screening for Second Primaries
  - Risk Assessment/Lifestyle changes to reduce cancer risk/Screening for second primary cancers
- Psychosocial Functioning
  - Psychosocial support services to maintain access to health care, healthy relationships and restored life
Development of Clinical Algorithms

- Multidisciplinary Care Model
- Multi-phased process for development of each survivorship clinical algorithm.

MDACC Cancer Survivorship Guideline Development Process

1. Form Disease-Specific Clinical Expert Panel
2. Review and Synthesize Literature
3. Draft Algorithms
4. Review and Vet Drafts (Multidisciplinary Medical Expert Panel)
5. Pilot Approved Drafts in Survivorship Clinic
6. Approve Drafts (Regulatory and Oversight Committees)
7. Conduct Performance Improvement
8. Publish Algorithms (Final Approved Set)

Follow-up

- Process evaluations + institutional policies:
  - critical when algorithms need to be revised (e.g., change in screening guidelines).
- Outcomes research necessary to determine:
  - whether providers’ adherence and satisfaction with algorithms translates into better survivors’ health status;
  - which core elements must be a part of a practice algorithm regardless of the type of clinical setting.
Essential Components in Survivorship Care

- **Cancer Surveillance**
  - Assessing for and diagnosis of cancer recurrence

- **Management of Late Effects**
  - Monitoring for and managing risks of late effects of the cancer or cancer treatment

- **Risk Reduction and Screening for Second Primaries**
  - Identifying risk of second primaries and implementing risk reduction and screening strategies

- **Psychosocial Functioning**
  - Services to maintain healthy relationships and restore life

Breast Survivorship Practice Algorithms

Survivorship – Noninvasive Breast Cancer

Survivorship – Invasive Breast Cancer
Essential Components in Survivorship Care

Cancer Surveillance
- Assessing for and diagnosis of cancer recurrence

Management of Late Effects
- Monitoring for and managing risks of late effects of the cancer or cancer treatment

Risk Reduction and Screening for Second Primaries
- Identifying risk of second primaries and implementing risk reduction and screening strategies

Psychosocial Functioning
- Services to maintain healthy relationships and restore life

Late Effects of Therapy

Chemotherapy-related
- Cardiomyopathy (due to doxorubicin)
- Neuropathy

Radiation-related effects
- Local effects
- Compromised pulmonary function

Symptoms related to estrogen deprivation
- Menopausal symptoms including vaginal atrophy
- Osteoporosis

Lymphedema

Breast Survivorship Practice Algorithm:
Bone Health
Education Regarding Late Effects

Essential Components in Survivorship Care

- **Cancer Surveillance**
  - Assessing for and diagnosis of cancer recurrence

- **Management of Late Effects**
  - Monitoring for and managing risks of late effects of the cancer or cancer treatment

- **Risk Reduction and Screening for Second Primaries**
  - Identifying risk of second primaries and implementing risk reduction and screening strategies

- **Psychosocial Functioning**
  - Services to maintain healthy relationships and restore life

Second Primary Cancers (SPC)

- Increasing as number of cancer survivors increases
  - 14% of cancer patients develop SPC by 25 years of follow-up

- By-product of medical successes in treatment of cancer
  - Risk of developing subsequent cancer related to patient survival from their primary cancer

Fraumeni JF Jr et al., NIH Publ No. 05-5302. Bethesda, MD, 2006
Hayat MJ et al., Oncologist 2007 12(1):20
5th Most Common Type of Cancer*

- Colorectal
- Lung
- Breast
- Prostate
- Second primary cancer
  - Approximately 10% of all cancers

*R: excluding non-melanoma skin cancers

Risk of SPC by Age of Initial Diagnosis

<table>
<thead>
<tr>
<th>Age at initial diagnosis</th>
<th>Total</th>
<th>O</th>
<th>O/E</th>
<th>EAR</th>
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<tbody>
<tr>
<td>All ages</td>
<td>185,407</td>
<td>1.14*</td>
<td>21</td>
<td></td>
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<tr>
<td>0-17</td>
<td>351</td>
<td>6.13*</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>1,401</td>
<td>2.92*</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>30-39</td>
<td>4,909</td>
<td>2.37*</td>
<td>39</td>
<td></td>
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<tr>
<td>40-49</td>
<td>13,537</td>
<td>1.61*</td>
<td>39</td>
<td></td>
</tr>
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<td>50-59</td>
<td>34,159</td>
<td>1.27*</td>
<td>32</td>
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</tr>
<tr>
<td>60-69</td>
<td>62,286</td>
<td>1.13*</td>
<td>23</td>
<td></td>
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<tr>
<td>70-79</td>
<td>52,321</td>
<td>1.02*</td>
<td>4</td>
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<tr>
<td>80-115</td>
<td>16,443</td>
<td>0.92*</td>
<td>-19</td>
<td></td>
</tr>
</tbody>
</table>

Origins of Second Cancers

- 13.2% same tissue as first primary
- 3.8% in neighboring tissues, “field effect”
- 83% separate organs
Under Use of Care by Survivors

- Cancer diagnosis may shift attention away from other health problems and health maintenance
- Cancer survivors have approximately twice the probability of developing a new primary cancer than a cancer-free individual of the same age and risk
- Cancer survivors are significantly less likely to receive recommended screening and other preventive services


SPC Carcinogenic Pathways

Risk of Second Primary Cancer

- Genetic predisposition
  - BRCA: breast and ovarian cancers
  - Lynch Syndrome: colon and endometrial cancers
- Treatment-related
  - Chemotherapy (primarily alkylating agents)
  - Leukemia
  - Radiation (occur in radiation field)
    - Sarcoma, skin cancers, cancers of organs in radiation field
  - Tamoxifen
  - Uterine cancer
- Lifestyle factors
  - Obesity: breast, colon, endometrial, esophageal, kidney, pancreas
  - Tobacco: head and neck, lung, esophageal, cervix, kidney, bladder, pancreas
  - HPV: cervix, anal, head and neck, penis

Cancer Risk Reduction

Essential Components in Survivorship Care

- **Cancer Surveillance**
  - Assessing for and diagnosis of cancer recurrence

- **Management of Late Effects**
  - Monitoring for and managing risks of late effects of the cancer or cancer treatment

- **Risk Reduction and Screening for Second Primaries**
  - Identifying risk of second primaries and implementing risk reduction and screening strategies

- **Psychosocial Functioning**
  - Services to maintain healthy relationships and restore life

Psychosocial Functioning

- **Distress**
  - Fear of recurrence
  - Anxiety
  - Depression

- **Body Image Issues**

- **Relationship issues**
  - Assess for sexual health issues

- **Financial Issues**
Sexuality and Cancer

• If positive findings
  – Cancer recurrence or new malignancy: return to primary oncologist
  – Late effects: appropriate specialist referrals

• If no positive findings
  – continues to receive Survivorship care in the appropriate setting

• Summary of care (Passport) generated
  – recommendations to community physician

Outcomes of Survivorship Visit

Passport Plan for Health

• Medical summary of treatment and recommended plan for follow-up
• Provides internal and external physicians as well as the patient with information related to:
  ✓ Cancer treatment the patient received
  ✓ Late effects of treatment manifested or potentially expected
  ✓ Preventive care recommendations
  ✓ Psychosocial concerns
  ✓ Recommended Referrals
Passport Plan for Health

Survivorship Care Plans

Commission on Cancer (CoC) Standard 3.3
By 2015, Survivorship care plans provided to all patients at end of treatment

Coordination of Care

- Shared EHR between patient, survivorship team, and primary care physician
- Promotes communication and continuity of care
- Electronic cues when patients reach milestones

www.mymdanderson.org
Survivorship Guideline Research
Validate services being provided

Survillance for recurrence
- Compliance with surveillance recommendations
- Are the recommendations appropriate?

Screening for late effects
- Appropriate monitoring for late effects?

Risk reduction/cancer screening
- Compliance with screening recommendations
- Are patients getting healthy lifestyle recommendations

Psychosocial assessment
- Best approach for managing these issues
**Cancer Survivorship Website**

www.mdanderson.org/survivorship

**Survivorship Education Resources**

- **Free Online Courses for Health Care Professionals:**
  
  www.mdanderson.org/POE

- **Target Audience:**
  - Physicians
  - Physician Assistants
  - Nurses
  - Allied Healthcare Providers
  - Healthcare Professionals in Training

- **Courses Available:**
  - Breast Cancer
  - HPV-associated Cancers
  - Inflammatory Breast Cancer
  - Introduction to Clinical Oncology
  - Ovarian Cancer
  - Palliative Care
  - Tobacco Cessation
  - Cancer Survivorship including:
    - Breast Cancer
    - Colorectal Cancer
    - Prostate Cancer
    - Bone Health
    - Bowel Function
    - Advances in Survivorship Care

**Professional Oncology Education**

- Courses:
  - Introduction to Clinical Oncology: 2014
  - Cancer Survivorship: 2014
  - Breast Cancer: 2014
  - Ovarian Cancer: 2014
  - Palliative Care: 2014
  - Tobacco Cessation: 2014
  - Cancer Survivorship including:
    - Breast Cancer
    - Colorectal Cancer
    - Prostate Cancer
    - Bone Health
    - Bowel Function
    - Advances in Survivorship Care
This volume presents the MD Anderson experience in providing care and services to the rapidly growing population of cancer survivors, which is currently estimated to be 7 million in the United States and more than 25 million worldwide. As cancer survival rates have increased, it has slowly become clear that the challenges faced by people with cancer do not end with treatment but simply change. This book aims to assist community oncologists, physicians, and their staff who care for the vast majority of cancer survivors by disseminating models of surveillance for disease recurrence, screening for second primary cancers, education regarding potential late effects of treatment, and psychosocial counseling. These models have proven valuable to cancer survivors who receive care at MD Anderson.

Additional Resources

- American Cancer Society: http://www.cancer.org/Treatment/SurvivorshipDuringandAfterTreatment/index
- ASCO: Cancer.net www.cancer.net/survivorship/asco-cancer-treatmentsummaries
- LiVESTRONG: www.livestrong.org
- National Coalition for Cancer survivorship: www.canceradvocacy.org/resources/guide/
- Oncology Nursing Society: www.onc.org
- Wellness Community: www.thewellnesscommunity.org