Clinical Integration of Rehabilitation into the Oncology Continuum of Care

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SPEAKER DISCLOSURE:

I have no relationship that could reasonably be viewed as creating a conflict of interest, or the appearance of a conflict of interest, that might bias the content of this presentation.

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SPEAKER DISCLOSURE:

Dr. Stout discloses the following relationships:
- Zansors LLC, Medical Affairs consultant
- CARF International, Education consultant for Oncology
- BSN Medical, Key Opinion Leader consultant
- National Institutes of Health Rehabilitation Medicine Department, Cancer Initiative consultant

Learning Objectives

Upon completion of the course, participants will be able to:
- Understand emerging policy initiatives in cancer and their impact on rehabilitation practice.
- Identify important concepts in cancer rehabilitation program development and their intersection with the oncology continuum.
- Identify resources for clinical practice, education, and research to support the development of cancer rehabilitation programs.

Session Agenda

- 11:00-11:05 Introduction (S, Stout, Litterini)
- 11:15-11:35 Survivorship challenges (20, Litterini)
  - Demographics and epidemiology
  - Shortcomings in existing systems of care
- 11:35-12:05 Policy drivers of practice change in oncology: opportunities for rehabilitation (30, Stout)
  - IOM reports
  - CoC standards
  - CARF standards
- 12:05-12:25 Concepts of cancer rehabilitation program development (20, Litterini)
- 12:25-12:45 Supportive resources (20, Stout)
- 12:45-1:00 Q & A (15, Stout, Litterini)

Estimated New Cancers, US 2017

Estimated Cancer Deaths, US 2017

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>All sites</td>
<td>31,087</td>
<td>48,955</td>
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<td>Cervix</td>
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<td>Gastrointestinal &amp; Other</td>
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<td>Lymph &amp; Hematopoetic</td>
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<td>Liver &amp; Intrahepatic &amp;</td>
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<tr>
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<tr>
<td>Stomach</td>
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<tr>
<td>Thyroid</td>
<td>9,010</td>
<td>10,700</td>
<td>12,200</td>
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Trends in Five-year Relative Cancer Survival Rates (%), 1975-2009

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<tbody>
<tr>
<td>All sites</td>
<td>31,087</td>
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<tr>
<td>Breast (female)</td>
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<td>Lung &amp; bronchus</td>
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<td>Melanoma of the skin</td>
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<td>Non-Hodgkin lymphoma</td>
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<td>Ovary</td>
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<td>Pancreas</td>
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<tr>
<td>Prostate</td>
<td>68</td>
<td>83</td>
<td>100*</td>
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<tr>
<td>Rectum</td>
<td>48</td>
<td>58</td>
<td>68</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>72</td>
<td>79</td>
<td>80</td>
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</tbody>
</table>

Cancer Survivorship in the US

| Projected costs to be    | 2172 billion in 2020 |
| 15.4 million cancer     | survivors now        |
| survivors by 2026       | 20.4 million cancer   |

CDC Definition of a Cancer Survivor:
“Anyone who has been diagnosed with cancer, from the time of diagnosis through the balance of his or her life.”

SURVIVORSHIP CONTINUUM
Increasing Number of Survivors

Cancer Survivorship Groups Across the Lifespan

Phases of Oncology Rehabilitation

Sequencing of Onc Rehab
Cancer Risk Factors

- **Tobacco and Cancer:** Smoking is the most preventable cause of death in our society.
- **Sun Exposure:** UV rays cause the vast majority of skin cancers, including melanoma.
- **Food and Fitness:** Diet and level of physical activity affect risk for cancer.
- **HPV and Cervical Cancer:** Virus-related cancers
- **Environmental Carcinogens:** Radiation, Asbestos, Radon
- **Genetics and Cancer:** Inherited and acquired mutations are associated with carcinogenesis.

Aside from smoking cessation, **weight control, dietary choices, and physical activity** are the most important modifiable risk factors for cancer.

Weight & Cancer Incidence

*Weight gain and obesity contribute to the incidence of:*

- Postmenopausal breast cancer
- Colon cancer
- Endometrial cancer
- Esophageal cancer
- Renal cancer
- Liver cancer
- Melanoma
- Rectal cancer
- Prostate cancer
- Pancreas
- Gall bladder
- Multiple myeloma
- Lymphoma
- Leukemia
- Prostate cancer

Source: McTiernan et al., 2010

**Prevalence of Overweight or Obese**, Adults 18 Years and Older, by State, 2014

1. Obesity is defined as having a body mass index (BMI) of 30 or more. The BMI is calculated as weight in kilograms divided by height in meters squared (BMI = weight (kg) / height (m)^2).
2. "Overweight or obese" is defined as having a BMI of 25 or more. The BMI is calculated as weight in kilograms divided by height in meters squared (BMI = weight (kg) / height (m)^2).
3. The data is based on the 2014 Behavioral Risk Factor Surveillance System, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention.
POLICY AND REGULATORY DRIVERS

Economic burden of cancer morbidity
- World-wide cancer morbidity creates the largest economic burden on society
- This does NOT include the cost of treating cancer
- Greater than morbidity with HIV/AIDS and TB

National and Global Challenge Goals
- **American Cancer Society 2015**
  - Accomplish measurable improvement in quality of life from the time of diagnosis and for the balance of life, of all cancer survivors
- **Healthy People 2020**
  - https://www.healthypeople.gov/2020/topics-objectives/topic/cancer
  - Increase the proportion of cancer survivors who report physical health-related quality of life similar to the general population.
- **CDC and LIVESTRONG National Action Plan for Cancer Survivorship**
  - Minimizing preventable pain, disability, and psychosocial distress for those living with, through, and beyond cancer.
- **Union for International Cancer Control (UICC) World Cancer Declaration**
  - http://www.uicc.org/WORLD-CANCER-DECLARATION
  - Access to accurate diagnosis, appropriate cancer treatments, supportive care, rehabilitation services and palliative care improve for all patients worldwide.

Global Economic Cost of Cancer Report
- Economic burden of cancer morbidity
- World-wide cancer morbidity creates the largest economic burden on society
- **This does NOT include the cost of treating cancer**
- Greater than morbidity with HIV/AIDS and TB

National Reports
- **Institute of Medicine (IOM)**
  - 2005 “From Cancer Patient to Cancer Survivor: Lost in Transition”
    - Describes the needs of cancer patient treatment and deficits that exist in managing care
    - Heavy emphasis on identification of late effects
    - Started the ‘survivorship’ movement
National Reports

- Institute of Medicine (IOM)
  - 2013 “Delivering Affordable Cancer Care in the 21st Century”
  - Dissemination of recommendations towards improving affordability and quality of cancer care.
    - Novel models of care delivery; medical centered home, bundled payment models
    - Quality indicators


- Institute of Medicine (IOM)
  - 2013 “Delivering High-Quality Cancer Care: Charting a New Course for a System in Crisis”
  - Advocates for patient-centered care
  - Workforce recommendations; training and coordinated care efforts


Cancer Care Continuum

Delivering High Quality Cancer Care

6 recommendations for high quality care
1. Engaged patients
2. An adequately trained staff and coordinated workforce
3. Evidence-based cancer care
4. A learning health IT system
5. Translation of evidence to practice, quality measurement, and performance improvement
6. Accessible and affordable cancer care

IOM Care Plan Component

- Patient demographic information
- Diagnosis, tissue information, stage, biomarkers
- Prognosis
- Treatment goals (curative/palliative)
- Initial treatment plan - treatments
- Expected response to treatment
- Treatment benefits and harms; toxicity screening and management; short and late effects
- Quality of life and patient experience
- Plan for who will take responsibility for aspects of the patients care
- Advance care plans; legal documents
- Estimated total costs
- Plan for psychosocial needs; vocation, disability
- Survivorship plan; treatment summary, follow up surveillance, risk reduction and health promotion

Rehabilitation Relevance

- Patient demographic information
- Diagnosis, tissue information, stage, biomarkers
- Prognosis
- Treatment goals (curative/palliative)
- Initial treatment plan - treatments
- Expected response to treatment
- Treatment benefits and harms; toxicity screening and management; short and late effects
- Quality of life and patient experience
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- Survivorship plan; treatment summary, follow up surveillance, risk reduction and health promotion

AHRQ 2013

- “Models of Survivorship Care: Technical Brief”
  - Survivorship care is highly-specific to the institution and ‘usual care’ does not exist
  - Concerns raised regarding
    - Payment for care
    - Adequacy of training of health care providers
    - Greater rather than less fragmented care

http://effectivehealthcare.ahrq.gov/index.cfm/search-for-guides-reviews-and-reports/?productid=1440&pageaction=displayproduct
Why it matters

- Our cancer care delivery models are being impacted by these policies
- Cancer centers are implementing these aspects of care and care planning
- If we are to demonstrate our value as a part of the team, we must understand these issues from a macro level

Policy Impacting Practice

Policy has lead to practice changes and Accreditation Standards by
- The Commission on Cancer
- Commission for the Accreditation of Rehabilitation Facilities (CARF)

Commission on Cancer

Standard E11: Rehabilitation Services
- A policy or procedure is in place to access rehabilitation services either on-site or by referral.


Commission on Cancer

Standard 3.3- Survivorship Care Plan
- A survivorship care plan is prepared by the principal provider(s) who coordinated the oncology treatment for the patient with input from the patient’s other care providers

Care plan elements were developed by American Society of Clinical Oncology (ASCO)

Two Components to the Care Plan
- Treatment Summary (what happened)
- Follow Up Care (what needs to happen)

Chapter 3 of Cancer Program Standards, 2012: Ensuring Patient-Centered Care, v. 1.2.1

Commission on Cancer

- Follow Up Care Components
  - Ongoing adjuvant therapy
  - Scheduled follow up visits
  - Surveillance for recurrence
  - Screening for early detection of other cancers
  - Other testing and examinations
  - Symptoms of recurrence
  - Late effects that may occur based on the treatment rendered
    - Supportive resources (emotional or mental health, parenting, work/employment, financial issues, and insurance)
    - General statement about healthy lifestyle

Commission on Cancer

Standard 3.3- Survivorship Care Plan
- Who will provide survivorship care services?
- At what intervals?
- In what settings of care?
Why it matters
• Survivorship care planning is foundational to cancer care
• Rehabilitation services can bring value to survivorship care planning by integrating with the cancer care team, in any setting
• Rehabilitation services can provide
  — Input on response to treatments
  — Recommendations for ongoing assessment and screening
  — Screening and triage

Regulatory Drivers
• Bundled Payment
  CMS Oncology Care Model (OCM) Pilot Program
  • Uses financial incentives and performance-based payments
  • Incentivizes care coordination, appropriateness of care, and access to care
  • 6 month-episode from initiation of chemotherapy

  https://innovation.cms.gov/initiatives/oncology-care/

OCM Bundled Payment Pilot
• Participating Practices Must:
  — Provide the core functions of patient navigation;
  — Document a care plan that contains the 13 components in the Institute of Medicine Care Management Plan (slide 11)
  — Provide 24 hours a day, 7 days a week patient access to an appropriate clinician who has real-time access to practice's medical records;
  — Treat patients with therapies consistent with nationally recognized clinical guidelines;
  — Use data to drive continuous quality improvement; and
  — Use an ONC-certified electronic health record

OCM Pilot
• Payment incentives
  — $160/month/beneficiary (beyond current FFS)
  — Performance-based incentives
    • Achievement of and improvement on select quality measures (based on National Quality Strategy domains)
      — Patient satisfaction
      — Clinical quality of care
      — Care coordination
  • Pilot launched in Summer 2016

Regulatory Drivers
• Quality Oncology Practice Initiative (QOPI)
  — Practice-based assessment program
  — Library of quality metrics for oncology
  — Includes NQF endorsed measures as well as additional measures
  — Document and address
    • Pain
    • Dyspnea
    • Fatigue
    • Depression
Why it Matters

• Rehabilitation services have a role to play in improving quality of cancer care delivery and improving patient satisfaction
• Rehabilitation adds value to the care team by improving the ability to meet quality incentives
• Rehabilitation needs to be well-positioned as pilot studies may lead to payment changes for cancer care

Cancercare survivorship challenges

Cancer Treatment-Related Sequelae
Neuromuscular, Musculoskeletal, Cardiovascular, Integumentary

Causes:
• Surgery-related
• Chemo-related
• Radiation-related
• Endocrine Therapy related
• Combination Therapy related
• Disease-related

Side Effects:
• Physical
• Functional limitations/ADL Deficits
• Occupational challenges
  – Work Role, Family Role
• Activity Limitations and Participation Restrictions
• Psychosocial/Emotional
• Cognitive

Side Effects of Chemotherapy

• Most common dose-limiting toxicity of chemotherapy rx is bone marrow myelosuppression
  – Nadir: Lowest point in blood cell counts during chemo cycle...know the schedule and values
• Always ask about internal or external access devices

Chemotherapy-Induced Peripheral Neuropathy (CIPN)

Incidence Varies

Symptoms:
• Symmetrical
• Diminished or absent reflexes
• Motor symptoms
• Mucositis
• Neurotoxicity Scale
• Pain (especially pain)
• Diminished or absent reflexes
• Altered proprioception
• Onset after chemo
  – Progressive, rapid, or "coasting"
• Dose-dependent

Seen commonly with:
• Platinum Analogs
• Vinca Alkaloids
• Taxanes

Radiation Side Effects

**Acute**
- Radiation dermatitis
- Moist desquamation
- Dry desquamation
- Fatigue
- Radiation pneumonitis
- Stomatitis, Mucositis, Esophagitis
- Trismus
- Dysphagia

**Late**
- Radiation-Induced Fibrosis
- Telangiectasias
- Lymphedema
- Xerostomia
- Sexual Dysfunction
- Incontinence
- Radiation Myelopathy

Low Bone Mass, Osteoporosis and Pathological Fracture in Oncology

**Treatments that reduce circulating hormone levels:**
- Endocrine therapies such as aromatase inhibitors (AIs)
- Hormone antagonists such as Lupron®
- Chemotherapy-induced ovarian failure/“chemical menopause”
- Oophorectomy/“surgical menopause”
- Castration

**Treatments that increase risk:**
- Glucocorticoid steroid use
- Stem Cell transplantation
- Radiation to long bones

Diagnoses that increase risk:
- Multiple Myeloma
- Breast Cancer
- Advanced Prostate Cancer
- Bone metastasis
  - Lytic, blastic, mixed lesions

Cancer Pain

**NCCN Clinical Practice Guidelines: Adult Cancer Pain:**
- Multi-disciplinary Approach
  - Rehabilitation: Non-pharmacologic Intervention
  - Assessment
  - Management/Intervention
  - Reassessment
  - Physical Medicine and Rehabilitation
  - Functional Assessment of Cancer Therapy–Breast cancer subscale
  - Multi-dimensional Fatigue Symptom Inventory Short Form

NCCN Clinical Practice Guidelines: Cancer-Related Fatigue

<table>
<thead>
<tr>
<th>Phase of Treatment</th>
<th>National Comprehensive Cancer Network Recommendations: Cancer-Related Fatigue, v1.2016, Non-pharmacologic Interventions</th>
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</thead>
</table>
| Patients on Active Treatment | **Physical Activity:**
  - Consider starting and maintaining an exercise program, as appropriate per health care provider, of both endurance (walking, jogging or swimming) and resistance (light weights) exercises
  - Consider referral to rehabilitation (physical therapy, occupational therapy, physical medicine)

  **Functional Assessment of Cancer Therapy–Breast cancer subscale**

  **Multi-dimensional Fatigue Symptom Inventory Short Form**

  **EDGE Recommendation for Fatigue Assessment (BC): Brief Fatigue Inventory**

  **Related Fatigue Treatments**

  **Physical Activity:**
  - Maintain optimal level of physical activity
  - Consider initiation of exercise program of both endurance and resistance exercise
  - Consider referral to rehabilitation (physical therapy, occupational therapy, physical medicine)
  - Caution with late effects of treatment (eg. Cardiomyopathy)

  **Optimize level of physical activity with careful consideration of the following constraints: bone metastases, chemotherapy, anemic, fever or active infection, assessment of safety issues (ie. risk of falls, stability)**

Oncologic Emergencies

**Potentially life threatening medical emergency associated with one or more of the following cancer-related causes:**
- A serious metabolic, cardiovascular, infectious, neurologic, hematologic or respiratory malfunction
- An obstruction of a vital structure
- A chemotherapeutic reaction
  - Hypercalcemia
  - Hyponatremia
  - Hypoglycemia
  - Tumor lysis syndrome
  - Cardiac tamponade
  - Superior vena cava syndrome
  - Neutropenic fever
  - Spinal cord compression
  - Increased intracranial pressure
  - Seizure
  - Hyperviscosity syndrome
  - Leukostasis
  - Airway obstruction
  - Chemotherapeutic emergencies

Advanced Cancer

**Metastatic Mechanism:**
- Blood
- Lymphatics
- Direct Extension

Tumor cells must detach, migrate towards and penetrate the vasculature to invade the systemic circulation.
Common Patterns of Metastasis by Cancer Type

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Sites of Metastasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast cancer</td>
<td>Most common: bone, lung, pleura, liver</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>Most common: liver, peritoneal cavity</td>
</tr>
<tr>
<td>Multiple myeloma</td>
<td>Osteolytic bone lesions; occasionally spreads to other organs</td>
</tr>
<tr>
<td>Ovarian cancer</td>
<td>Peritoneal cavity</td>
</tr>
<tr>
<td>Pancreatic cancer</td>
<td>Liver, lungs, local tissues</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>Bone</td>
</tr>
<tr>
<td>Sarcoma</td>
<td>Lung</td>
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</table>

Common Symptoms Associated with Metastasis

<table>
<thead>
<tr>
<th>Metastatic Site</th>
<th>Common Symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletal</td>
<td>Reduction in quality of life and early mortality (Agarwal &amp; Nayak, 2015)</td>
</tr>
<tr>
<td></td>
<td>Pain, pathological fracture, spinal lesions, risk for spinal cord compression;</td>
</tr>
<tr>
<td></td>
<td>“Skeletal Related Events”</td>
</tr>
<tr>
<td>Central Nervous System</td>
<td>Headache; seizures; nausea and vomiting; visual, vestibular, and hearing changes; sensory deficits; motor deficits, resulting in hypo/hypotonicity, weakness, and/or incoordination; sensory and/or proprioception deficits; and psychosocial and emotional issues (APA, 2013).</td>
</tr>
<tr>
<td>Liver</td>
<td>Anorexia, jaundice, weight loss, nausea, confusion, pain (often in the right upper abdomen), and ascites (U.S. National Library of Medicine, 2014a)</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Shortness of breath, cough, weight loss, chest pain, bloody sputum, and weakness (U.S. National Library of Medicine, 2014a)</td>
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</tbody>
</table>

Evidence to Support Physical Activity with Metastasis

<table>
<thead>
<tr>
<th>Metastatic Site</th>
<th>Evidence to Support Physical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skeletal</td>
<td>Reducedometric resistance training of the pectoral/shoulder muscles can improve functional capacity and reduce fatigue, thereby enhancing quality of life over a six-month period in patients with skeletal metastasis (Hall et al., 2004).</td>
</tr>
<tr>
<td>Central nervous system</td>
<td>Benefits of brain training that focuses on learning and memory functions (Boe et al., 2012).</td>
</tr>
<tr>
<td>Liver</td>
<td>Exercise may limit patient comfort and treat frailty during physical activity; therefore, providing exercises that limit reportable back, neck or hip pain greater than 60 days may improve exercise tolerance for patients receiving palliative care as route for rehabilitation (Mastrogiannis et al., 2012).</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Patients with thoracic metastases were administered a supervised exercise program on the effects of aerobic exercise on physical function, quality of life, and exercise capacity in patients with advanced lung cancer (Karmakar et al., 2015).</td>
</tr>
</tbody>
</table>

Physical Therapy in Hospice Care


Physical therapy services, occupational therapy services, and speech-language pathology services must be available, and when provided, offered in a manner consistent with accepted standards of practice.

The PT/PTA’s Role on the Interdisciplinary/Interprofessional Cancer Care Team

Serious Illness Conversation Guide

The American Physical Therapy Association

Oncology Section

The PT/PTA’s Role on the Interdisciplinary/Interprofessional Cancer Care Team
Multi-disciplinary Collaboration: The Cancer Rehab Team

- Physical Therapists, PTAs
- Occupational Therapists, COTA's
- Speech Language Pathologists
- Exercise Specialists
- Physicians, Advanced Providers
- Nurses, Allied Health providers
- Dietitians
- Social workers, Navigators
- Wellness, Market, Case Managers, Ancillary Services

Requires:
- Systems in place
- Stakeholder buy-in
- Marketing (pt/provider)
- Referral mechanisms
- Communication
- Smooth Handoffs

Programming Opportunities

Pre-op Assessments
- Prehabilitation
- Prospective Surveillance

Screening
- Fall risk
- CIPN
- Lymphedema
- Cancer-related fatigue
- Bone Health

Traditional Rehab
- All settings
- All patient populations
- Preventative, Restorative, Palliative, Supportive Care

Specialty Settings
- Lymphedema
- Pelvic Floor
- Cancer Wellness Research

Collaboration Opportunities

- Be present
- Make your department/clinic/programs available
- Patients/Caregivers/Community (direct marketing)
- Engage state consortia for networking
  - Volunteer, Board participation
- Solicit student-faculty collaboration
  - Community projects
  - Offer to lecture at a local PT/PTA Program
- Offer clinical expertise:
  - Fitness, Wellness, Yoga, Support Groups
- Consider grant opportunities
- Seek educational opportunities

Establishing Referrals

Screening Opportunities
- Who does it?
- How are they doing it?
- What do they do with that information?
  - NCCN Distress Screening
  - Fall History
  - Neuropathy
  - Gait speed
- Can you do screening?
  - In person or via phone
- Can you make a suggestion for a screening tool?

Hardwired Opportunities
- Automatic visits during clinics
  - At diagnosis
  - At start of treatment
  - At end of treatment
- Referral with trigger
  - Predetermined
- At a specific interval
  - Consider challenges
  - Be flexible
  - Have tracking system
  - Survivorship Care Plan

Commission on Cancer (CoC) Requirement

The Distress Thermometer

First please circle the number (0-10) that best describes how much distress you have been experiencing in the past week including today.

- 0: None
- 1: Slight
- 2: Mild
- 3: Moderate
- 4: Severe
- 5: Very Severe
- 6: Extreme

Next, please indicate if any of the following has happened to you in the past week including today. Be sure to check YES for each.

- Difficulties sleeping
- Loss of appetite
- Distress from physical symptoms other than fatigue
- Distress from fatigue
- Confusion, memory loss, or difficulty concentrating
- Feelings of hopelessness
- Suicide thoughts
- Coping with other problems you have as a result of your cancer diagnosis and treatment

The Distress Thermometer is designed to help patients and providers assess and address distress in cancer care.
Survivorship Care Plans (SCP)

SCP = Treatment Summary + Follow-up Care Plan

- **Complete** Cancer Treatment Summary: Surgery, Med Onc, Rad Onc
- **Follow-up** Recommendations/Care Plan
  - Return Visit/Testing
  - Rehabilitation/Physical Activity
  - Nutrition
  - Psychosocial Counseling
  - Integrative Oncology
- **Treatment Specific Considerations:**
  - Secondary Cancers
  - Cardiac Issues
  - Peripheral Neuropathy
- **ASCO Link:**

Remember the Caregivers

Oncology Specialization

- **Oncology Specialist Certification**
  - Petition to ABPTS complete
  - Successful open forum occurred at CSM in Anaheim
  - Recommendation by ABPTS to APTA Board
  - Motion from APTA Board made to the 2016 House of Delegates
  - House voted **unanimously** to approve in June, 2016 in Nashville
  - Specialist Council appointed in September, 2016

Supportive Resources for Developing Integrated Rehabilitation Services

- Payment
- Education
- Clinical

### 60/40 Rule and “Cancer”

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>Cancer-Related</th>
</tr>
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<tbody>
<tr>
<td>Stroke</td>
<td>• 3–5% attributable to cancer (hypercoagulability, tumor compression of blood vessels, hemorrhagic)</td>
</tr>
<tr>
<td></td>
<td>• Lung and Pancreatic cancers are higher risk <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4550304/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4550304/</a> <a href="http://stroke.ahajournals.org/content/43/11/3029.short">http://stroke.ahajournals.org/content/43/11/3029.short</a></td>
</tr>
<tr>
<td>Spinal Cord Injury</td>
<td>• 6–11% of individuals with metastatic cancer will have cord compression</td>
</tr>
<tr>
<td>Congenital Deformity</td>
<td>N/A</td>
</tr>
</tbody>
</table>
| Amputation          | Osteosarcoma
  - Limb Amputation – prevalent in osteosarcoma
  - Limb Salvage (single extremity deficits, loss of more than one body part (bone replacement) |

<table>
<thead>
<tr>
<th>Diagnostic Category</th>
<th>Cancer-Related</th>
</tr>
</thead>
</table>
| Hip Fracture        | • Bone metastasis common among most prevalent cancers
  • Long bones most commonly impacted |
| Burns               | N/A |
| Polyarticular RA    | N/A |
| Severe OA           | N/A |
| Knee or Hip Replacement | All central nervous system tumors
  All patients with metastasis to central or peripheral nervous system (melanoma, lung, breast)
  Most patients receiving CNS prophylaxis for leukemia (whole brain radiation therapy)
  Severe peripheral neuropathy
  Isolated Limb Perfusion with neurological compromise |
| Neurological Disorder | All central nervous system tumors
  All patients with metastasis to central or peripheral nervous system (melanoma, lung, breast)
  Most patients receiving CNS prophylaxis for leukemia (whole brain radiation therapy)
  Severe peripheral neuropathy
  Isolated Limb Perfusion with neurological compromise |
### Functional Limitation Reporting – CMS G-Codes

- Mobility: Walking and Moving Around
- Changing and Maintaining Body Positions
- Carrying, Moving and Handling Objects
- Self Care
- Other Functional Limitation

### Domains of ICF - Mobility

- Changing and maintaining body position – inability to transfer oneself
- Carrying, moving and handling objects – inability to lift, carry or move objects with upper or lower extremities. Fine motor deficits
- Walking and moving around w/or w/out equipment
- Moving around using transportation

Cancer Considerations: cancer fatigue, neuropathies, cardiotoxicity, lymphedema, cognitive changes, bone density loss,

### Domains of ICF - Self Care

#### Self Care

Washing and caring for body parts. Toileting, dressing, eating, drinking, looking after one’s health

Cancer Considerations: cancer fatigue, cognitive changes, neuropathies, lymphedema, ANY education for self care, infection prevention, risk analysis, falls prevention, skin care, hygiene, etc.

### RUG Considerations

- Extensive Services*
  - Services in last 14 days: IV feeding or medications, suctioning, tracheostomy care, ventilator / respirator.
  - Consideration for complicated GI cancer post surgical, pt with multiple co-morbid conditions, complicated head and neck cancer surgery
- Clinically Complex*
  - Indication with chemotherapy

*considerations for depression
Workforce Education and Training Resources

APTA Oncology Section
Board Specialization in Oncology
• ABPTS recognition as an area of specialty practice
• Description of Advanced Practice
  – Knowledge areas
    • Ex: Histology and pathology of disease, medical interventions, physiology, hematology, blood chemistry
  – Professional roles, responsibilities and values
    • Ex: EBP, consultant role, professional org. participation
  – Practice expectations for the clinical specialist
    • Ex: tests and measures, communication, specialized interventions

American College of Sports Medicine
• Certified Cancer Exercise Trainer (CET)
  – A wide array of health care professionals may qualify to take the certification program as well as athletic trainers and other certified ACSM fitness providers.
  – GOAL: Provide basic cancer-related knowledge to exercise professionals to enable safe implementation of an exercise program
    http://members.acsm.org/source/custom/Online_locator/onlineLocator.frm

Relevant Cancer-specific Journals
• Ca: A Cancer Journal for Clinicians
  http://onlinelibrary.wiley.com/journal/10.3322/ISSN1542-4863
• Cancer
• Supportive Care in Cancer
  http://www.springer.com/new+%26+forthcoming+titles+(default)/journal/520
• Journal of Cancer Survivorship Research and Practice
  http://link.springer.com/journal/11764
• Rehabilitation Oncology
  http://oncologypt.org/publications/rehabilitation-oncology-journal/

Cancer Rehabilitation-Specific Special Issues
• Cancer
  – European-American Dialogues on Cancer Survivorship: Current Perspectives and Emerging Issues
  – A Prospective Surveillance Model for Rehabilitation for Women With Breast Cancer
    http://onlinelibrary.wiley.com/doi/10.1002/cncr.v118.8s/issuetoc

Cancer Rehabilitation-Specific Special Issues
• Topics in Geriatric Rehabilitation
  – Rehabilitation Considerations for the Older Cancer Survivor (2015)
    http://journals.lww.com/topicsingeriatricrehabilitation/toc/2015/10000
  – Cancer Rehabilitation (2011)
    http://journals.lww.com/topicsingeriatricrehabilitation/toc/2011/07000
# Cancer Rehabilitation Textbooks

- Rehabilitation in Cancer Care *Rankin, Robb et al* eds.
- Occupational Therapy in Oncology and Palliative Care *Cooper* ed.
- Palliative care and rehabilitation of cancer patients *van Guenten* ed.


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# Evidence-Based Practice Guidelines and Resources

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# Distress, Depression and Anxiety

- Pan-Canadian Practice Guideline  
- American Society of Clinical Oncology  
  - Recommendations include:  
    - Screening from the point of diagnosis at regular intervals  
    - Multifactorial management  
    - Pain, fatigue, psychological, sleep

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# Cancer-Related Fatigue

- National Comprehensive Cancer Network (NCCN)  
- Pan-Canadian Practice Guideline  
- American Society of Clinical Oncology  
  - Recommendations include:  
    - Physical activity guidelines*  
    - Walking program parameters  
    - Suggested referral for physical therapy to address precautions

*ACSMEvidence-Based Recommendations for Cancer Survivors

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# Chemotherapy-induced peripheral neuropathy

- American Society of Clinical Oncology  
- Heavily focused on drug therapies  
  - No guidance provided for managing sequelae of CIPN (balance, fine motor dysfunction)

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# Sleep Disturbance

- Pan-Canadian Practice Guidelines  
Survivorship Guidelines

- National Comprehensive Cancer Network
  - Late Effects/Long-Term Psychosocial and Physical Problems, Anthracycline-Induced Cardiac Toxicity
  - Anxiety and Depression
  - Cognitive Function
  - Fatigue
  - Pain
  - Sexual Function (female/male)
  - Sleep Disorders
  - Preventive Health

Nutrition and Physical Activity Guidelines

- American Cancer Society
  - Compendium document on practical clinical implementation

Exercise Guidelines

- American College of Sports Medicine

  Recommendation:
  Moderately intense cardio 30 min/day, 5 x/week
  Or
  Vigorously intense cardio 20 min/day, 3x/week
  And
  Eight to 10 strength-training exercises, 8-12 repetitions of each, twice a week.

  Moderate-intensity physical activity: working hard enough to raise your heart rate, break a sweat, carry on a conversation.

Oncology Nursing Society

- Putting Evidence into Practice (PEP)
  [https://www.ons.org/practice-resources/pep](https://www.ons.org/practice-resources/pep)

  Likely to Be Effective in Practice
  Evidence Supports use in Practice
  Benefits Balanced with Harm
  Effectiveness not established
  Effectiveness unlikely
  Not Recommended in Practice
  Expert Opinion

ONS PEP Topics

- Anorexia
- Anxiety
- Caregiver Burden
- Chemotherapy-Induced Nausea and Vomiting
- Cognitive Impairment
- Constipation
- Depression
- Diarrhea
- Dyspnea
- Fatigue
- Hot Flashes
- Lymphedema
- Mucositis
- Pain
- Peripheral Neuropathy
- Prevention of Bleeding
- Prevention of Infections
- Radiodermatitis
- Skin Reactions
- Sleep-Wake Disturbances

APTA Evidence Database to Guide Effectiveness (EDGE)

- EDGE Oncology
  - Systematic review of measurement literature
  - Stratification of evidence
  - Completed:
    - Breast
    - Prostate
    - Colon
    - Head and Neck
  - In process
    - Gyn and GU
  [www.oncologypt.org](http://www.oncologypt.org)

Annotated bibliography:
Evidence Based Measurement

<table>
<thead>
<tr>
<th>Rating</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Highly Recommended: this outcome has excellent psychometric properties and clinical utility. The measure has been used in research on individuals with or post breast cancer.</td>
</tr>
<tr>
<td>3</td>
<td>Recommended: this outcome measure has good psychometric properties and good clinical utility. No published evidence that the measure has been applied to research on individuals with or post breast cancer.</td>
</tr>
<tr>
<td>2A</td>
<td>Unable to recommend at this time: there is insufficient information to support a recommendation of this outcome measure; the measure has been used in research on individuals with or post breast cancer.</td>
</tr>
<tr>
<td>2B</td>
<td>Unable to recommend at this time: there is insufficient information to support a recommendation of this outcome measure; no published evidence that the measure has been applied to research on individuals with or post breast cancer.</td>
</tr>
<tr>
<td>1</td>
<td>Do not recommend: poor psychometrics &amp;/or poor clinical utility (time, equipment, cost, etc.)</td>
</tr>
</tbody>
</table>

Upper Extremity and Movement Related Function

- Sensory Function and Pain
- Lymphedema
- Fatigue

Research Resources

- National Cancer Institute: Office of Cancer Survivorship
  - Structured within the Division of Cancer Control and Population Sciences
  - ~$425M in grant funding in 2015 (inclusive of health services, epidemiology, implementation science, survivorship etc.)
  - [http://cancercontrol.cancer.gov/funding_apply.html#ocs](http://cancercontrol.cancer.gov/funding_apply.html#ocs)
National Center for Medical Rehabilitation Research (within the National Institute of Child Health and Human Development)
https://www.nichd.nih.gov/about/ncmrr/Pages/overview.aspx

National Institute on Disability and Rehabilitation Research (within the National Institute of Neurological Disorders and Stroke)
http://www.nidilrr/
Rehab in Hospice & Palliative Care Resources

- Oncology Section Hospice & Palliative Care SIG
- National Hospice & Palliative Care Organization
  - Facts & Figures for adults and pediatrics
- World Confederation for Physical Therapy (WCPT): Oncology, Hospice and Palliative Care
  - Webinars available
- Death with Dignity legislation
  - Know your patients’ rights by state

Rehabilitation ONCOLOGY

- New format
- New publisher
- On-line searchable site
- Previous editions with abstracts to 2009
- Collections Tab
  - http://journals.lww.com/rehabonc/pages/currenttoc.aspx

References