Access to Nutrition Care in Outpatient Cancer Centers: Moving the Conversation Forward
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Cheryl Rock, PhD, RD
Kim Robien, PhD, RD, CSO, FAND

Learning Outcomes
At the end of this session, the participant will be able to:
• Describe the current state of oncology nutrition services in the ambulatory setting
• Recognize the research challenges related to oncology nutrition interventions
• Identify personal action steps in support of efforts to increase access to oncology nutrition services

Disclosures
I have no conflicts of interest to disclose.
I am expressing my opinions and not the opinions of the NIH or the federal government.

Oncology Nutrition
a dietetic practice group of the Academy of Nutrition and Dietetics

• Crossroads: 2012 ON DPG Executive Committee Meeting
• How do we make Oncology Nutrition MNT a routine component of comprehensive cancer care – access to nutrition care

Oncology Nutrition Connection 2008;16
2015 Institute of Medicine Governing Board: approved workshop!

- Sponsors: AICR, ON DPG, NIH (NCI & ODS), Alcresta, ACS, AND, AND Foundation, Option Care, Savor Health, CNM DPG, Medtrition, Annie Appleseed Project
- Planning Committee: Cheryl Rock (Chair), Kim Robien (Vice-Chair), Steven Clinton, Wendy Johnson-Askew, Marian Neuhouser, Nico Pronk

Access to Nutrition Care in Cancer Centers...
https://vimeo.com/178081335

Workshop Objectives

1. Describe the potential benefits of outpatient nutritional care on morbidity, mortality, and long-term survival
2. Describe the current status of nutritional care for oncology outpatients including the availability of data during treatment and long-term survivorship
3. Describe the barriers to achieving an ideal care setting and the information resources available to patients
4. Describe the ideal care setting, including models of care within and outside of the United States
5. Describe the issues relating to cost benefit assessment for both recent diagnosis and post-treatment care

Background: Malnutrition & Cancer

- 30% - 80% of cancer patients malnourished
- Decreased survival
- Increased morbidity & mortality
- Inability to complete treatment, reduced QOL, increased risk of recurrence
- Obesity: poor treatment response and increased recurrence

Nutritional Interventions

- Treatment tolerance
- QOL
- Survival

- Wt loss and loss of LBM
- Treatment breaks
- Unplanned admissions
- LOS
Lean Body Mass and Cancer

Sarcopenia in cancer patients is associated with:

- Poor functional status
- Shorter time to tumor progression
- Shorter survival
- And may alter metabolism of cytotoxic agents
- Higher incidence of dose-limiting toxicity


Evidence Analysis Library: 2007 - 2013 Oncology Nutrition Update

6 original questions, 95 articles, 16 conclusion statements and 15 recommendations:

- Grade I: Good - the evidence consists of results from studies of strong design for answering the question addressed.
- Grade II: Fair - the evidence consists of results from studies of strong design
- Grade III: Limited numbers of studies
- Grade IV: Expert opinion only
- Grade V: Not assignable

Evidence Analysis Library: 2007 - 2013 Oncology Nutrition Update

Conclusion Statement Grades 2007 vs 2013

Nutritional Status, Nutritional Intervention and Cancer Morbidity & Mortality

- Malnutrition adversely affects outcomes • Data strong
- Certain sub-populations of ca survivors can make positive lifestyle changes, including wt loss • Data relatively strong
- Nutrition intervention improves morbidity, mortality, health outcomes • Data mixed

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Barrier: Access to Nutritional Care

Majority of patients in outpatient centers don’t have access to nutrition services

GATHERING DATA 2011 & 2013

• Identified 56 NCI Centers
• Directed Zoomerang survey to the RD on staff

Colleen Gill, MS RD CSO
University of Colorado Cancer Center
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Nutritional Screening: Validated Tools

Barrier: Costs of Malnutrition

- Hospital costs
- Admissions or readmissions
- LOS
- Rates of consultation with a general MD
- Rates of medication

Medical costs of obesity-related illness in US, $210 B

Few studies directly examine cost-effectiveness of nutritional interventions
Financial Barriers

- Cost benefit approach
  - Cost savings for nutritional care
  - “Work with CMS – they may not change reimbursement but now looking at outcomes; prove to them we can save money.”
- Health programs for corps
  - Employers making ca a priority
  - Health plans provide MNT w/ca dx; RD CSOs
  - Follow NCCN guidelines

Moving Forward...

- More RD/PhDs
- Research and clinical trials
- Standards for screening and intervention
- CMS and other payers

Disclosures

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I have no additional conflicts of interest to disclose.

The Status of Nutrition in Outpatient Oncology Settings

Cheryl Rock, PhD, RD
University of California San Diego

The Burden of Cancer

- 1.6 Million new cancer cases in 2016 alone
- Rising cost of cancer care: an estimated $124 billion was spent in 2010, expected to rise to $158 billion by 2020
- Reviews by the American Institute for Cancer Research, the World Cancer Research Fund International, and the American Cancer Society have summarized scientific evidence linking diet, nutrition and physical activity to cancer risk and progression, but effects on reducing cancer burden have not been realized

Persons Alive in the U.S. Who Were Diagnosed With Cancer Distributed by Site (2012)

Source: Moor et al., 2013
Estimated Number of Cancer Survivors in the U.S. (1975 – 2012)

Source: Parry et al., 2011

U.S. Cancer Prevalence Projections (2010-2020)

Current Knowledge and Status of Nutrition Practices in Oncology Outpatient Care

- An estimated 90 percent of cancer patients in the U.S. are treated in outpatient settings
- Due to advances in early detection and treatment, 65% of Americans diagnosed with cancer now live >5 years. Over 14.5 million persons in the U.S. are cancer survivors – roughly 4 out of 100 Americans.
- Of the >14.5 million people living with cancer, 7 million are 65 years or older
- Breast cancer patients and survivors are the largest group of cancer survivors, followed by prostate cancer survivors and colorectal cancer survivors

The Continuum of Cancer

- Nutritional needs, issues and challenges change over the course of survivorship:
  - During active treatment and recovery
  - Long-term disease-free living
    - Reduce risk for cancer recurrence and progression
    - Prevention and management of comorbidities
  - Advanced cancer and palliative care

Nutritional Issues in Early Oncology Treatment

- Nutritional screening and assessment
- Lack of agreement of operational definitions for inadequate nutritional status, and non-standardized screening
- Effect of cancer on nutritional status
- Effect of treatment on nutritional status
- Nutritional status affects treatment and outcomes

Treatment Effects

<table>
<thead>
<tr>
<th>Radiation Therapy</th>
<th>Chemotherapy</th>
<th>Surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mucositis</td>
<td>Nausea/Vomiting</td>
<td>Nausea, Vomiting, Bloating, Cramping</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Diarrhea</td>
<td>Diarrhea</td>
</tr>
<tr>
<td>Dry Mouth</td>
<td>Taste Changes and Acquired Food Aversions</td>
<td>Delayed Gastric Emptying and Early Satiety</td>
</tr>
<tr>
<td>Anorexia</td>
<td>Anorexia</td>
<td>Anorexia</td>
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</tbody>
</table>
Symptoms
Almost all (84%) of cancer patients experience some symptoms. Symptoms are most likely to occur among those...

- Losing weight unintentionally
- Consuming less food and beverages since beginning treatment
- Avoid foods during treatment

Source: Cox et al. Nutr Cancer, 2015

Effects of Nutritional Status on Treatment and Clinical Outcomes
- Decreased treatment response
- Increased treatment complications and toxicity
- Alteration of treatment schedule
- Treatment interruption
- Dose de-escalation
- Increased hospital admissions or re-admissions and infections
- Increased length of hospital stay
- Poor quality of life
- Early mortality

Diet, Recurrence and Survival
- Biological evidence suggests that nutritional factors are likely to influence cancer progression
- Epidemiological studies suggest that many of the nutritional factors associated with risk for primary cancer may affect survival following diagnosis
- For breast cancer, clinical trials examining whether diet modification can affect risk for recurrence and survival have been conducted, and others are ongoing

Obesity and Cancer Risk and Progression
- Overweight/obesity is associated with mortality from cancer of the esophagus, colon and rectum, liver, gallbladder, pancreas, kidney, non-Hodgkin’s lymphoma, multiple myeloma; stomach and prostate (men); breast, uterus, cervix and ovary (women)
- Being lean and physically active is associated with fewer cancer treatment-related problems such as lymphedema (breast), incontinence (prostate), and physical function

Treatment-Related Problems with Nutritional Implications
- Chemotherapy-induced peripheral neuropathy, particularly problematic for older patients with gait instability, affects physical activity and function
- Bone health issues and skeletal side effects:
  - Especially for breast and prostate cancer patients, due to effects of aromatase inhibitors and androgen deprivation therapy, respectively
  - Cytotoxic chemotherapy can have direct effects on bone resorption and formation

Nutritional Issues in Special Populations
- Gastrointestinal and head and neck cancer patients can have enduring effects of surgery on dietary intake and nutrient absorption
- In cancer patients undergoing palliative care, nutritional support and counseling may help:
  - Manage cancer symptoms
  - Allow patients to live as actively as possible
  - Improve the quality of life
  - Integrate the psychological and spiritual aspects of patient care
Completed Randomized Clinical Trials of Diet Intervention in Breast Cancer Survivors

- **Women’s Intervention Nutrition Study (WINS)**
- **Women’s Healthy Eating and Living (WHEL) Study**

Women’s Intervention Nutrition Study (WINS)

- 2,437 postmenopausal women who had been diagnosed and treated for early stage breast cancer, 5-yr follow-up
- Diet intervention: Reduced fat intake, with the goal of 15% energy from fat but expected 20%
- Primary analysis was of borderline significance; exploratory analysis showed a significantly reduced risk in the intervention group, especially in women with ER- cancer
- Considerations: Greater weight loss, and higher frequency of mastectomy, in the intervention group


Women’s Healthy Eating and Living (WHEL) Study

- 3,088 pre- and postmenopausal women who had been diagnosed and treated for early stage breast cancer, 7.3-yr follow-up
- Diet intervention: 5 Vegetable servings plus 16 oz vegetable juice or equivalent, 3 fruit servings, 30 g fiber, 15-20% energy from fat, each day; dietary biomarkers indicated good adherence
- No significant differences in breast cancer recurrence or survival; secondary analysis found women without hot flashes (indicative of higher circulating estrogens) had 31% fewer breast cancer events in the intervention group
- Considerations: Average intake of vegetables and fruit at baseline was 7.3/day

Source: Pierce et al. JAMA 2007;298:289-289

Interventions Targeting Prostate Cancer Survivors

- Included in two diet intervention trials targeting breast, colon and prostate cancer survivors
- Twelve small randomized controlled diet intervention studies with various outcomes (e.g., PSA, biomarkers, quality of life, BMI) reported to date

Weight Loss Interventions in Breast Cancer Survivors

- Several studies have examined the effect of weight loss interventions on weight and selected biomarkers in overweight and obese breast cancer survivors (13 RCTs, 5 single-arm or other design)
- The ENERGY trial, the largest weight loss intervention study to date, achieved clinically significant weight loss
- Ongoing lifestyle (weight loss, diet, physical activity) studies with breast cancer outcomes: SUCCESS C (N=3,547) and DIANA-5 (N=1,208)

Conclusions, Considerations and Challenges

- Cancer survivors have special issues and concerns, so involvement of an oncology nutrition specialist dietitian, knowledgeable about these issues, increases the likelihood of appropriate care and improved health outcomes
- Evidence indicates that nutrition counseling and support improve status and clinical outcomes in early oncology treatment
- Nutritional counseling in long-term oncology care may reduce risk for cancer recurrence and progression, and prevent and manage comorbidities
Improving Access to Oncology Nutrition Services: Challenges and Next Steps
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Disclosures
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I have no conflicts of interest to disclose

Optimal Situation – RDNs Available Throughout the Cancer Continuum

<table>
<thead>
<tr>
<th>Pre-treatment</th>
<th>Treatment</th>
<th>Post-treatment</th>
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<tbody>
<tr>
<td>• Determine baseline nutritional status, replete nutrient deficiencies as needed</td>
<td>• Monitor changes in nutritional status as the treatment course progresses, modify nutrition plan as needed</td>
<td>Prevent weight gain, nutrition-related late effects, chronic diseases</td>
</tr>
<tr>
<td>• Discuss potential treatment related side-effects, and nutritional strategies for minimizing the side effects</td>
<td>• Identify appropriate foods (e.g. taste, texture, temperature) to optimize dietary intake as treatment-related side effects develop</td>
<td></td>
</tr>
<tr>
<td>• Review food safety guidelines</td>
<td>• Review safe food handling procedures during neutropenia</td>
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Current State of Oncology Nutrition Services
90% of oncology care in the ambulatory setting

- In-patient: nutrition screening within 24 hours of admission
- Ambulatory setting: nutrition services when warranted by a patient's need or condition (ambiguous)

Data on Access to Nutritional Services
Survey of Comprehensive Cancer Centers (2012)

- 32 of 40 centers (80%) responded
- 30 of 32 centers (94%) offered referral or consult-based service with an RDN
- Other services included nutrition classes (56%), nutrition pamphlets (94%), and counseling by non-nutrition health care providers (81%)


CDR: Practice Analysis for Oncology Nutrition (2014)

- 1606 RDNs surveyed (985 ON DPG members, 621 CSOs)
- 21% overall response rate (40% among CSOs)
- 96% currently provide oncology nutrition services

Practice setting:
- Medical oncology/chemotherapy 88%
- Radiation oncology 78%
- Survivorship/Prevention/Wellness 54%
- Hospice/Palliative Care 37%
- Stem Cell Transplant 24%
- Oncology Nutrition-related research 13%

www.cdrnet.org/CSO
**Work setting:**
- Ambulatory/outpatient: 51%
- Hospital/inpatient: 28%

**Patients seen per month:**
- 1 – 25 patients: 15%
- 26 – 50 patients: 21%
- 51 – 75 patients: 24%
- 76 – 100 patients: 37%

**Hours per week providing oncology nutrition services:**
- 6 – 10 hours: 8%
- 11 – 20 hours: 13%
- 21 – 30 hours: 18%
- 31 – 40 hours: 26%
- > 40 hours: 27%

**Association of Community Cancer Centers (ACCC) Trends in Cancer: Programs Survey**

**2015 Survey:**
- Average number of FTEs in oncology budget
  - Dietitians = 1.0 FTEs
  - Social Workers = 1.6 FTEs

**2014 Survey:**
- 98% of programs offer Nutrition Services

**Challenges to Advocating for Universal Oncology Nutrition Services**
- Variability in the type and quality of oncology nutrition services provided
- Lack of strong evidence-base linking nutrition interventions with improved patient outcomes
- Clinical oncology practice guidelines do not currently address nutrition issues
- Accrediting bodies have not been requiring provision of nutrition services

**How do we Change the Status Quo?**
- Standardization of services provided by RDNs (EAL, SOP/SOPP, CSO)
- Strengthen the evidence base regarding benefits of oncology nutrition services
- Incorporation of nutrition services in accreditation and clinical practice guidelines
- Work with CMS, insurers to allow RDNs to bill for oncology nutrition services.

**Challenges in Strengthening the Evidence Base**
- Insufficient numbers of researchers
- Competing research protocols
- Lack of nutrition clinical practice guidelines to test whether they improve patient outcomes
- Need to individualize interventions to patient’s unique experience, food preferences
Challenges of Evaluating the Cost-Benefit of Oncology Nutrition Interventions

- Difficulties in disentangling the effects of comorbidities and primary treatment from the effects of the nutrition intervention
- Measuring costs, benefits accurately is complicated and costly.
  - Costs can vary significantly by practice and by patient
  - Relevant outcomes can be difficult to identify and measure.

Research Needs

Increase the number of PhD, RDNs:

- Conducting research on health outcomes related to oncology nutrition interventions, especially during the treatment phase
- Training in cost-benefit, implementation and dissemination research methods
- Participating in protocol development and implementation through the Cooperative Oncology Groups and other clinical trials

Commission on Cancer

1500 Commission on Cancer (CoC)-accredited centers across the U.S.
1995 Academy member first appointed to the CoC
2012 RDN recommended to be part of cancer community at each site, but not required
2016 Standards require access to RDN and nutrition services on-site or by referral
  - adequate spectrum of services is available (screening, referral, assess, counseling)

Association of Community Cancer Centers

2,000 hospitals and practices nationwide are members of ACCC
2012
  - Nutrition services added to guidelines
  - Nutrition professional is a RD
  - Certified Specialist in Oncology Nutrition (CSO) recommended

National Comprehensive Cancer Network

Goal: Inclusion of nutrition services in the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®)

Practice Applications

How can you get involved and support the effort to increase access to oncology nutrition services?

- If you are not already a member, consider joining (and becoming active in) the Oncology Nutrition DPG (DPG #20!)
- Take advantage of the quality practice resources provided by the Academy when working with oncology patients
- Consider serving on interdisciplinary committees within your cancer center to raise the visibility of the RDN in the oncology setting
A special thank you to Ann Yaktine, PhD, RD, Director, Food and Nutrition Board, The National Academies of Sciences, Engineering, and Medicine - for her major contributions to the workshop and this presentation.

Access to Nutrition Care in Outpatient Cancer Centers: Next Steps

Elaine Trujillo, MS, RDN
National Cancer Institute
National Institutes of Health

Steps ON DPG is taking...

- NCCN submissions
  - Head and Neck Cancer
  - Pancreatic Cancer
- QA Screening Projects
  - Univ of Minnesota
  - Ohio State University
  - Dartmouth
- Publish data on RDN staffing
- Outreach
  - AICR
  - State and Local meetings
  - Research community

What YOU Can Do...

- Connect with NCCN panels w/in the 26 member institutions
- Start screening for malnutrition w/validated tool
- Begin Performance Improvement/QA Projects, Research
- Download & Share Report & Video
  www.nationalacademies.org/oncologynutrition