



Building Integrative Oncology for the Future

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Laura Mann Integrative Healthcare Lecture Series

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Current Integrative Oncology Challenges

High Use by Cancer Patients and Survivors

- 18+ million cancer survivors in the US
- 60-87% of US cancer survivors use integrative medicine

Varying Levels of Evidence for Different Modalities

- Dietary supplements
- Mind-body
- Acupuncture
- Nutrition
- Physical activity

Medicine's Landscape is Changing

- Financial constraints
- COVID → Telehealth
- Staffing shortages
- Burnout

Patients Using for Multiple Reasons

- Increase survival
- Increase efficacy of conventional cancer therapies
- Prevent & treat side effects of conventional therapies
- Treat existing comorbidities
- Improve quality of life
- Decrease stress

Funding for Integrative Medicine Programs is in Flux

- Changes in institutional priorities
- Changes in philanthropy streams
- Cancer health disparities affect access
- Patient populations sensitive to financial toxicities
- Integrative therapies often require out of pocket payments

Today

1. Describe arc of research program over the past 20 years focused on an integrative approach to health in the oncology setting
2. Innovations in delivering evidence-based information to patients
3. Development of evidence-based clinical practice guidelines
4. Creation of a sustainable Integrative Oncology clinical program

What is Integrative Oncology?



ARTICLE

A Comprehensive Definition for Integrative Oncology

Claudia M. Witt, Lynda G. Balneaves, Maria J. Cardoso, Lorenzo Cohen,
Heather Greenlee, Peter Johnstone, Ömer Küçük, Josh Mailman, Jun J. Mao

- Integrative oncology is a **patient-centered**, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions **alongside conventional cancer treatments**.
- Integrative oncology aims to **optimize health, quality of life, and clinical outcomes** across the cancer continuum and to empower people to prevent cancer and become active participants before, during and beyond cancer treatment.

What Can Cancer Patients and Survivors Do *Beyond Treatment* to Improve Outcomes?

Cohort / Cross-Sectional Studies

- LI Breast Cancer Study Project
- Metropolitan New York Registry
- Kaiser Permanente Pathways Study
- LACE
- NIEHS Sister Study
- National Health Interview Survey
- SWOG Clinical Trial database

Treatment Toxicity Trials

Joint pain

- Acupuncture
- Glucosamine/Chondroitin
- Fish Oil

Chemo-induced peripheral neuropathy

- Acetyl-L-Carnitine
- Acupuncture

Cardiotoxicity

- CoQ10

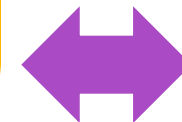
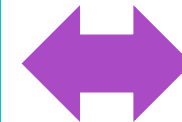
Hepatic function

- Milk Thistle

Lifestyle Modification Trials

- Survivorship care plan
- Weight loss
- Dietary change
- Diet and physical activity

Clinical Practice Guidelines

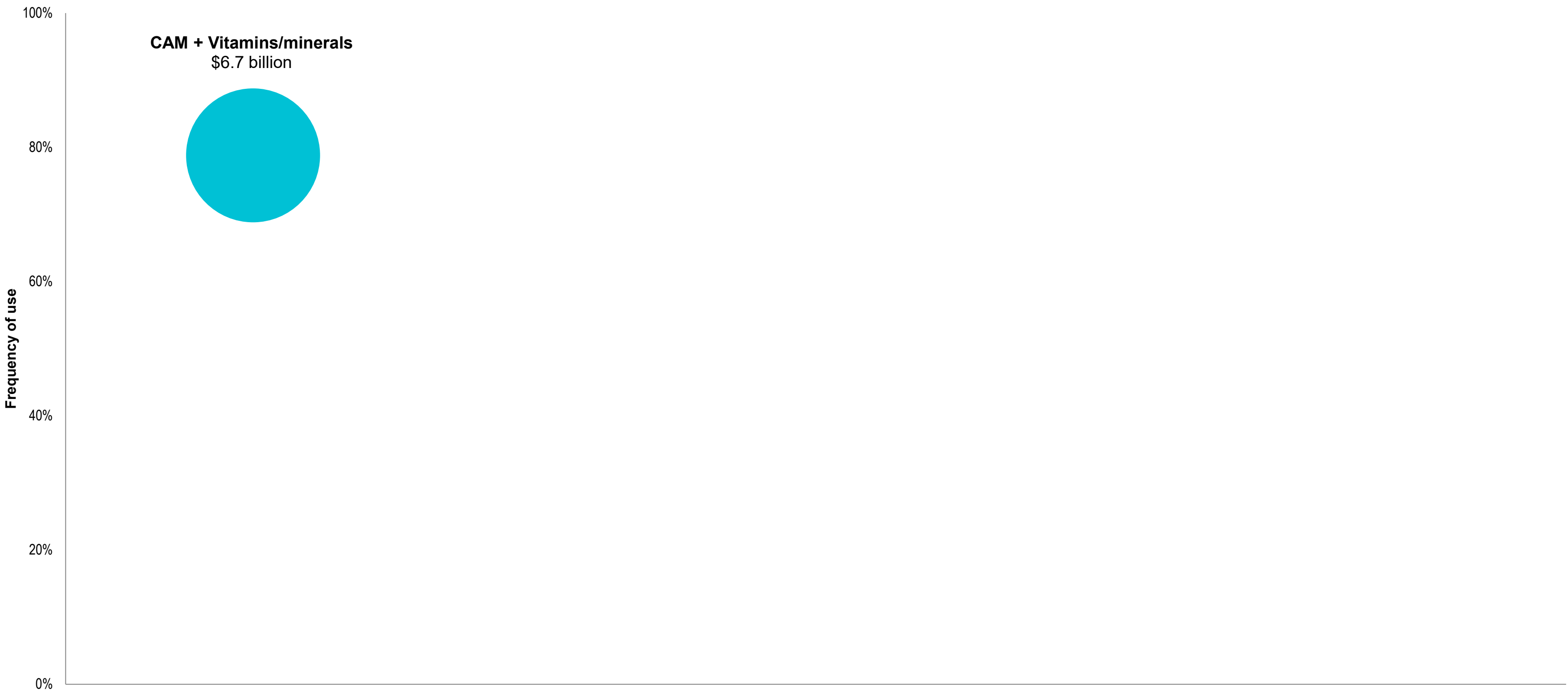


Using Cohort Studies to Examine Predictors, Patterns and Outcomes Of Use

Complementary & Alternative Medicine Use by US Cancer Survivors

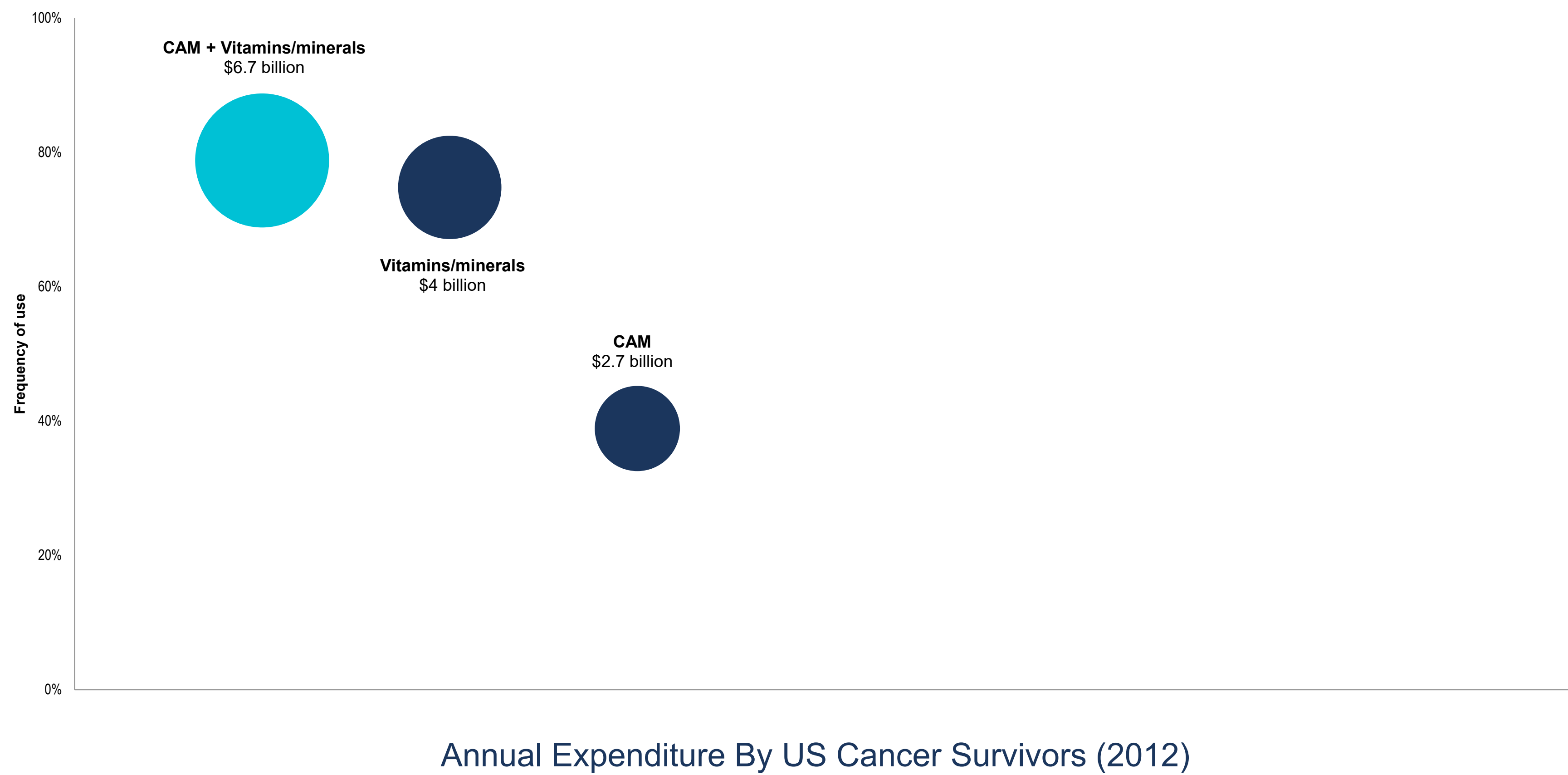
- **US National Health Interview Survey (NHIS)**
 - Annual survey by CDC
 - Questions on CAM use since 2002
- **NHIS 2012**
 - 2,977 adult cancer survivors and 30,551 non-cancer adults
 - Self-reported CAM use in past 12 months
 - **79%** of cancer survivors used ≥ 1 vitamin/mineral and/or CAM modality

Cost of CAM Use by US Cancer Survivors

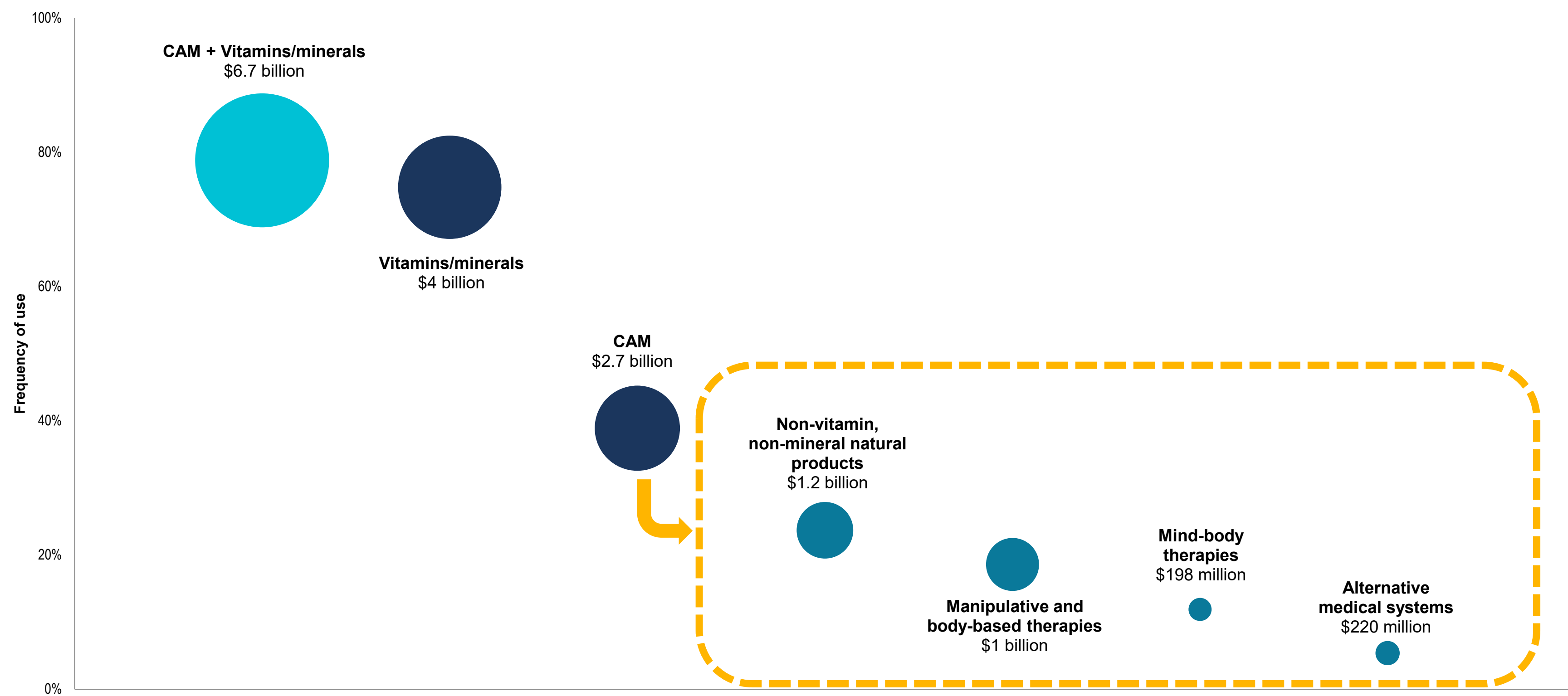


Annual Expenditure By US Cancer Survivors (2012)

Cost of CAM Use by US Cancer Survivors



Cost of CAM Use by US Cancer Survivors



Annual Expenditure By US Cancer Survivors (2012)

Breast Cancer Quality of Life (BQUAL) Study

- **Aim: Examine association of CAM use with breast cancer chemotherapy initiation**
- Setting
 - Multi-center prospective cohort study of women with early stage invasive breast cancer
 - Recruitment sites: New York (Columbia), N California (KPNC), Detroit (Henry Ford)
- Methods
 - Assessed baseline CAM use (2006-2010):
 - Dietary supplements (n=3 types): vitamin/minerals, botanicals, other products
 - Mind-body (n=2 types): mind-body based, and body/energy-based treatments
 - CAM use index: sum of CAM use (1 point for each type, range 0-5)
- Data collection on clinical characteristics and treatment received
- Used NCCN guidelines/dates to determine if clinically indicated treatment was initiated
- Analyses included women <70 years eligible to receive chemotherapy (n=685)

Results: CAM & Chemotherapy Initiation

- **CAM Use at Baseline**
 - 87% of women reported current CAM use
 - 38% reported current use of ≥ 3 modalities
- **Chemotherapy Initiation of Clinically Indicated Treatment**
 - 89% initiated chemotherapy
 - 1% did not initiate chemotherapy
- **Association Between CAM Use and Chemo Initiation**
 - Dietary supplement users less likely to initiate (**OR = 0.16, 95% CI: 0.03-0.51**)
 - High CAM index score less likely to initiate
(**OR per unit CAM index = 0.64, 95% CI: 0.46-0.87**)
 - Mind-body practices not associated with chemotherapy initiation

Antioxidant Use Since Diagnosis & Br CA Outcomes

LACE Cohort (n=1,829 Antioxidant Users)

	All Cause Death Hr (95% CI)*	Death From BC Hr (95% CI)*	BC Recurrence Hr (95% CI)*
Multivitamins			
No Use	Ref	Ref	Ref
Frequent Use	1.0 (0.7-1.4)	0.8 (0.5-1.3)	0.9 (0.6-1.3)
Vitamin C Alone			
No Use	Ref	Ref	Ref
Frequent Use	0.8 (0.6-1.1)	0.9 (0.6-1.3)	0.7 (0.6-0.9)
Vitamin E Alone			
No Use	Ref	Ref	Ref
Frequent Use	0.8 (0.6-1.0)	0.9 (0.6-1.3)	0.7 (0.6-1.0)
Combination Carotenoids			
No Use	Ref	Ref	Ref
Frequent Use	1.8 (1.1-2.7)	2.1 (1.2-3.6)	1.3 (0.8-2.2)

*Adjusted for age at diagnosis, race/ethnicity, education, stage at diagnosis, # positive lymph nodes, hormone receptor status, chemotherapy, radiation therapy, hormonal therapy, BMI, smoking, alcohol, physical activity, fruits/vegetables, and comorbidity score at enrollment.

Ongoing Research: Pathways Study

- Cohort of 4,505 women diagnosed with breast cancer within Kaiser Permanente Northern California, 2005-2013
- KPNC electronic health record data
 - Diagnosis
 - Treatment received
 - Comorbidities
 - Healthcare utilization
 - Breast cancer recurrence and survival outcomes
- Detailed data collected At baseline, 6 months, 24 months, 72 months
 - Dietary supplements
 - Diet
 - Physical activity
- Current analyses examining use of dietary supplements, potential treatment interactions, and recurrence/survival outcomes



pathways
a study of
breast cancer
survivorship

Effects of Integrative Therapies on Decreasing Treatment Toxicities

Effects of Dietary Supplements on Treatment Toxicities

Aromatase Inhibitor Induced Arthralgias in Breast Cancer Patients

- Glucosamine & Chondroitin / Phase II single arm → Null (Greenlee et al., *Support Care Cancer* 2013)
- Fish Oil / RCT SWOG S0927 → Null (Hershman *J Clin Oncol* 2015)

Chemotherapy-induced Peripheral Neuropathy in Breast Cancer Patients

- Acetyl-L-Carnitine / RCT SWOG S0715 → Harmful (Hershman et al., *J Clin Oncol* 2013)

Anthracycline-induced Cardiotoxicity in Breast Cancer Patients

- Coenzyme Q10 / Phase I dose-finding trial → Closed early (submission in process)

Hepatic Function in Liver Cancer Patients

- Milk thistle / Phase I dose-finding trial → Closed early (Siegel et al., *Integr Cancer Ther* 2014)

Effect of Acupuncture vs Sham Acupuncture or Waitlist Control on Joint Pain Related to Aromatase Inhibitors Among Women With Early-Stage Breast Cancer

A Randomized Clinical Trial

Dawn L. Hershman, MD, MS; Joseph M. Unger, PhD, MS; Heather Greenlee, ND, PhD; Jillian L. Capodice, MS, LAc; Danika L. Lew, MA; Amy K. Darke, MS; Alice T. Kengla, MD; Marianne K. Melnik, MD; Carla W. Jorgensen, MD; William H. Kreisle, MD; Lori M. Minasian, MD; Michael J. Fisch, MD; N. Lynn Henry, MD; Katherine D. Crew, MD, MS

IMPORTANCE Musculoskeletal symptoms are the most common adverse effects of aromatase inhibitors and often result in therapy discontinuation. Small studies suggest that acupuncture may decrease aromatase inhibitor-related joint symptoms.

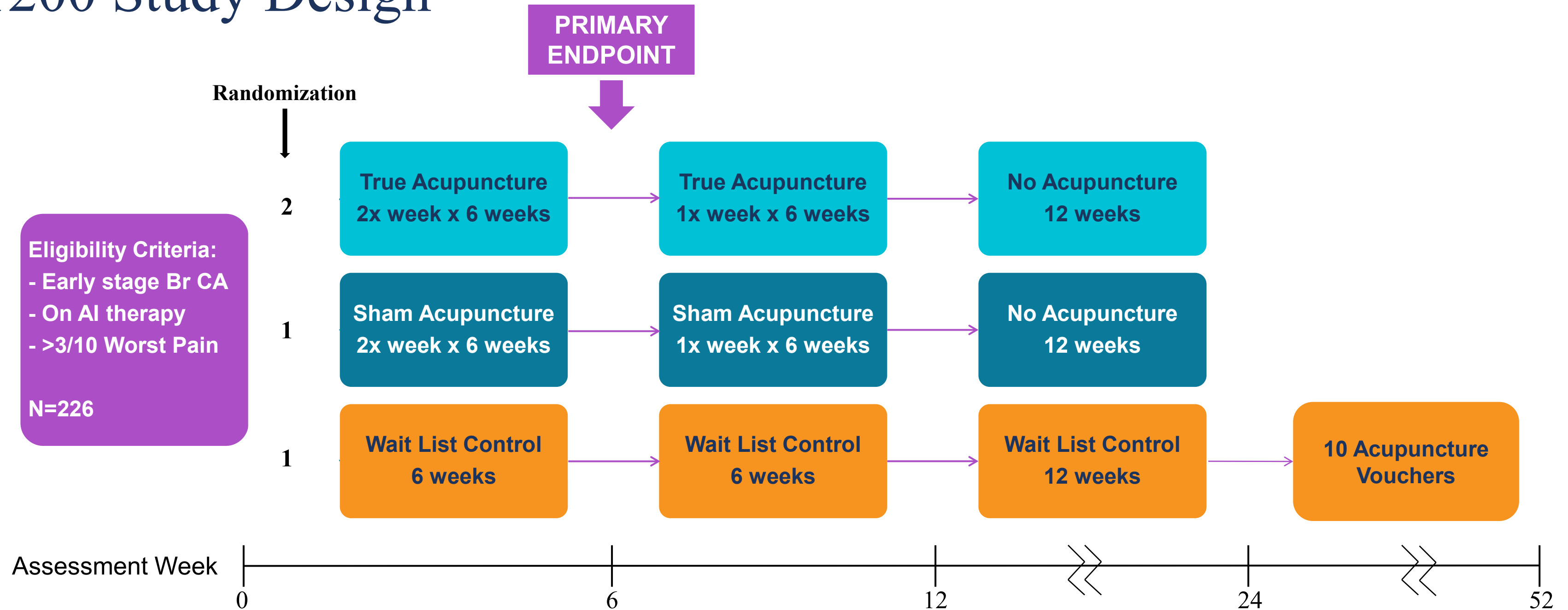
OBJECTIVE To determine the effect of acupuncture in reducing aromatase inhibitor-related joint pain.

DESIGN, SETTING, AND PATIENTS Randomized clinical trial conducted at 11 academic centers

 [Supplemental content](#)

 [Related article at
jamaoncology.com](#)

S1200 Study Design

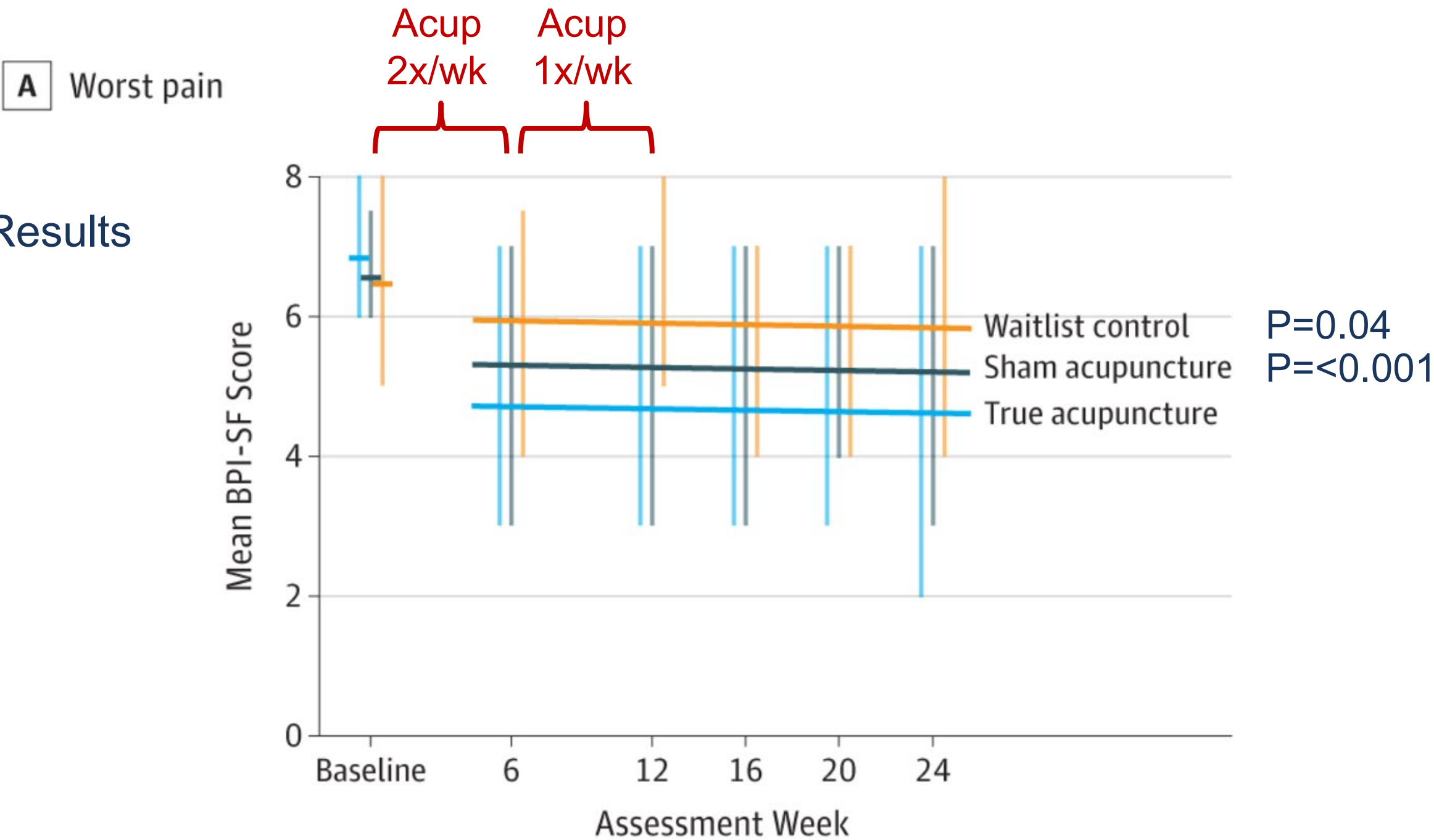


Acupuncture: Standardized protocol + tailoring to 3 of the most painful joint areas

Sham: Standardized shallow needle insertion to non-acupoints

Waitlist control: Vouchers for 10 acupuncture sessions after week 24

Randomized Blinded Sham- & Waitlist-controlled Trial of Acupuncture for Joint Symptoms Related to Aromatase Inhibitors in Women with Early Stage Breast Cancer (SWOG S1200) – MAIN OUTCOMES

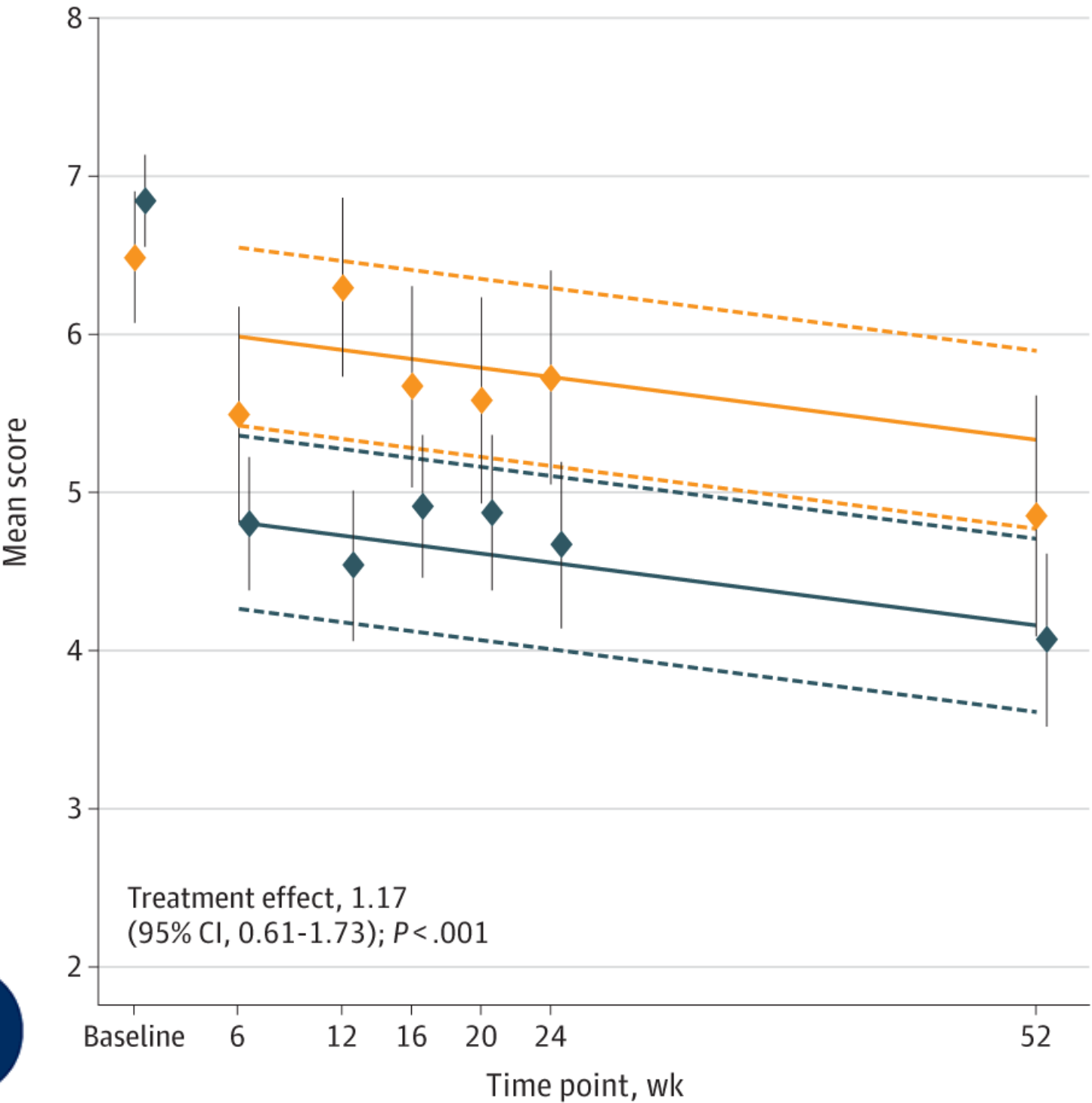


No. of patients

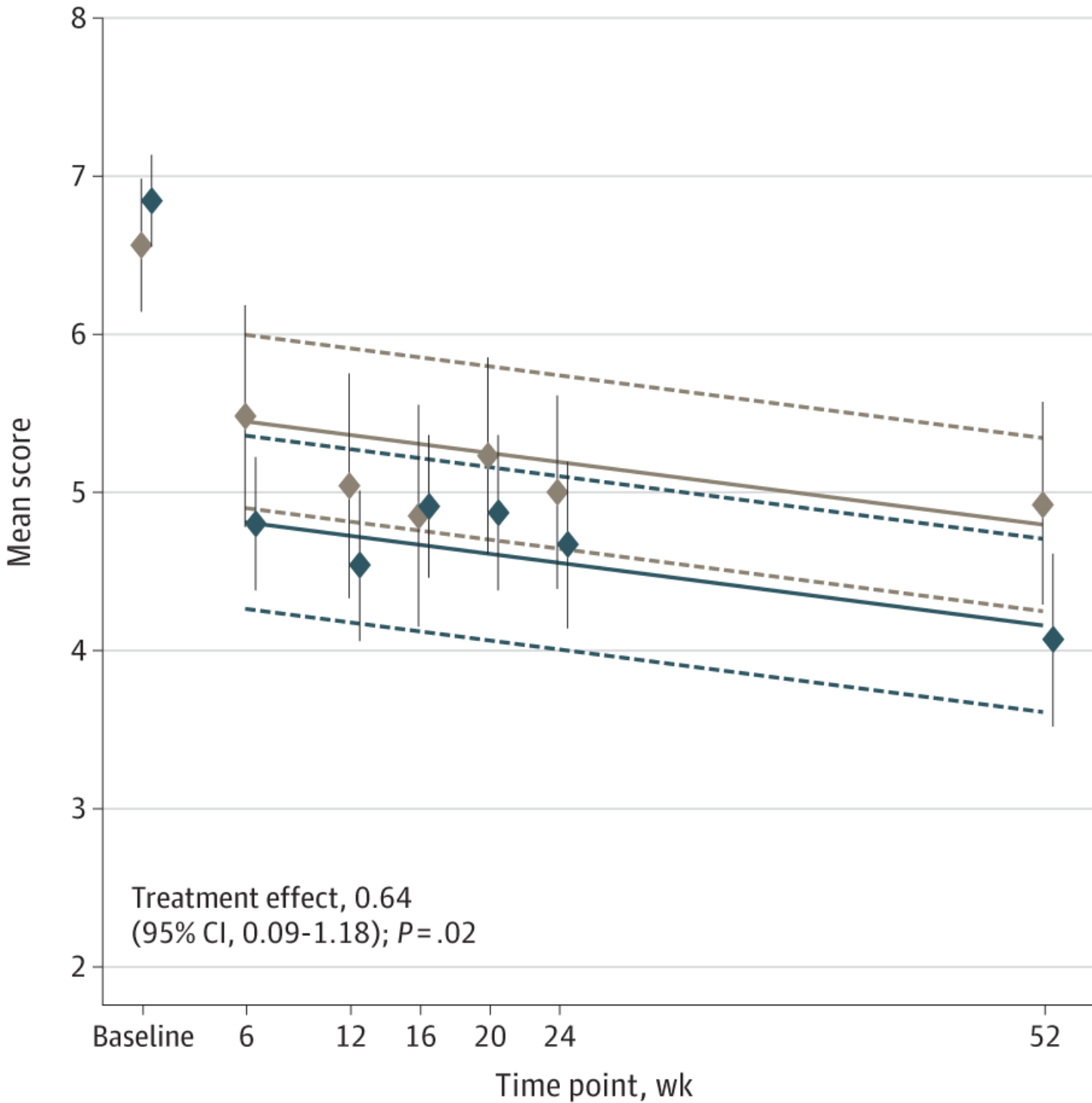
Waitlist control	56	51	51	48	45	50
Sham acupuncture	59	54	54	53	52	54
True acupuncture	109	100	101	94	97	97

Randomized Blinded Sham- & Waitlist-controlled Trial of Acupuncture for Joint Symptoms Related to Aromatase Inhibitors in Women with Early Stage Breast Cancer (SWOG S1200) – 1 YEAR OUTCOMES

A True Acupuncture vs Waitlist Control



B True Acupuncture vs Sham Acupuncture



Ongoing Research: Open Acupuncture Trials

- Pilot study of oral cryotherapy vs. oral cryotherapy plus acupuncture and acupressure to decrease chemotherapy-induced peripheral neuropathy from oxaliplatin-based chemotherapy for GI cancers (PI: S Cohen, Safeway Foundation)
- Acupuncture vs. Standard of Care for Induction Intravesical BCG-related Adverse Events in High-Risk Non-Muscle Invasive Bladder Cancer (PI: S Psutka, Cancer Center Support Grant)
- Opioid-sparing Pain Treatment in Myeloma and Lymphoma Patients Undergoing High-Dose Chemotherapy (OPTIMAL-HiChemo) (PI: G Deng/MSKCC, PCORI)



Identifying Effective Strategies to Improve Diet, Physical Activity & Weight Management



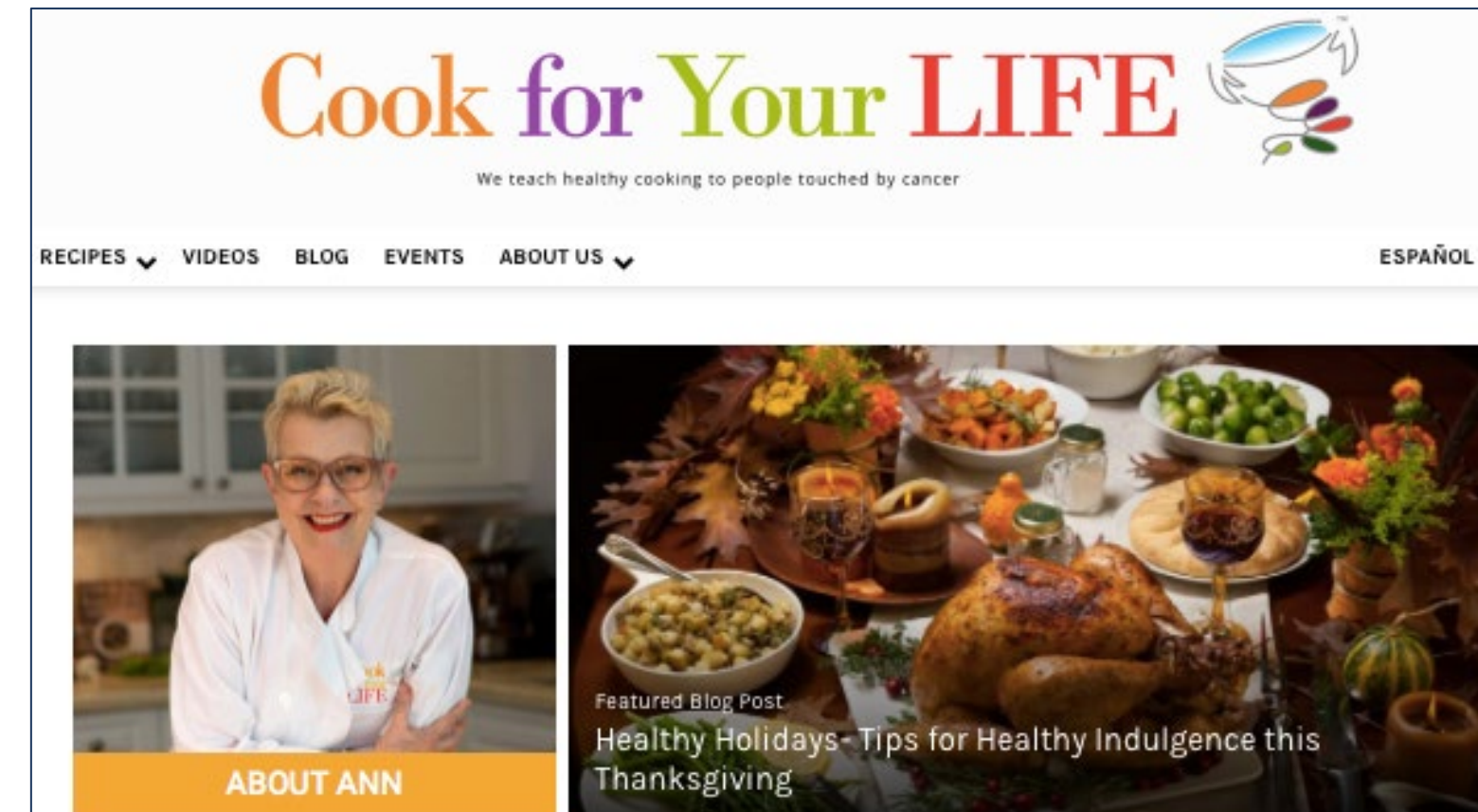
Research Questions Addressed by Greenlee Studies



- What is needed to **achieve and sustain diet, physical activity and weight loss changes** in cancer survivors?
- Are there **vulnerable populations** of cancer survivors who may benefit the most?
- How do we best support **underserved and under-resourced communities** in making these changes?
- How do we **scale interventions to reach large numbers** of cancer survivors?

CookForYourLife.org

- Cancer patient-facing website offering free nutrition information, recipes (1100+), cooking videos (200+), and cooking tips in **English** and **Spanish**
- Fills a niche not met by other cancer centers and foundations
- We received NCI R21 and R01 funding to develop and test protocols of Ann's hands-on experiential learning approach to promoting nutrition in Latina breast cancer survivors
- Ann decides to retire in 2018
- Fred Hutch takes over website in 2019
- Updated website launched in 2020





FRED HUTCH
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YOUR LIFE®**

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CANCER FIGHTER OF THE WEEK

Roasted Veggie Vegan Tacos

These tacos are stuffed with sweetly roasted, deliciously caramelized cauliflower and butternut squash on top of creamy avocado. Aromatic cilantro + a squeeze of tangy lime complete this undeniable taste...

[View Recipe](#)

We teach healthy cooking to people touched by cancer.

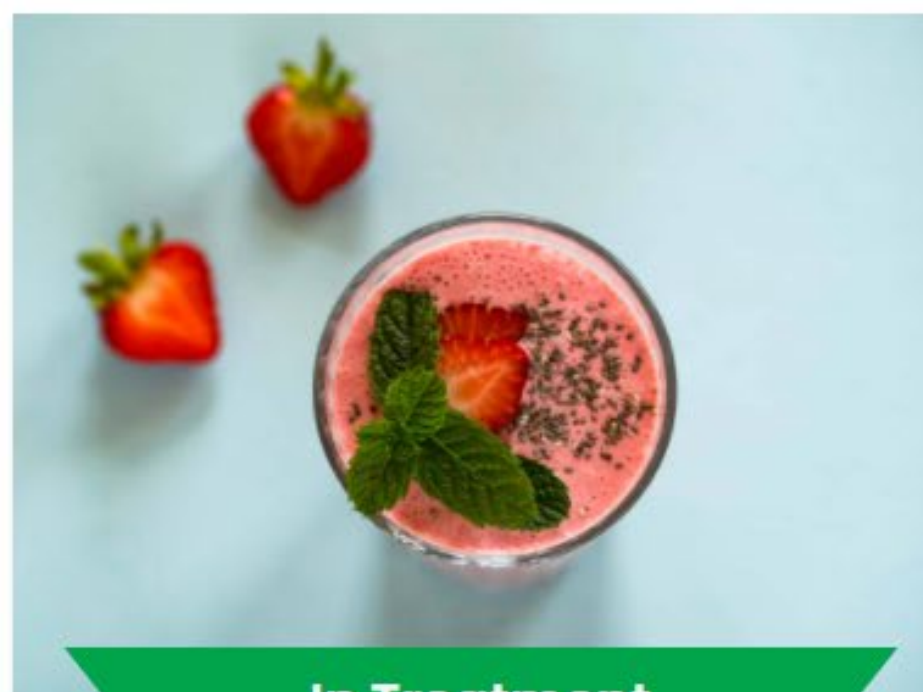
cookforyourlife.org

Through science-based, nutritionally sound recipes, articles, videos, classes, and research, we empower you to nourish yourself.



Prevention

Start here to make a game plan for improving your health and reducing your cancer risk.



In Treatment

Find simple, soothing ways to nourish yourself while managing treatment side effects.



Survivorship

Reach your goals of living a longer, more fulfilling life while reducing your risk of recurrence.



Cooking Through Chemotherapy

From one treatment trooper to another – our founder Ann Ogden Gaffney gives her tips for how to eat well and cope with familiar side effects.

[Read More](#)

Recipes for the Most Common Treatment Side Effects



Low Appetite

When your appetite isn't what it was, focus on easy, nutrient-dense, small meals.



Constipation

High fiber, warm beverages, and probiotic foods to promote a healthy gut.



Diarrhea

Manage this side effect with low-fat, low-fiber, and soluble foods.



Difficulty Swallowing

Soft-textured foods to help you nourish yourself when you're experiencing dysphagia.



Early Satiety

Focus on smaller and more frequent calorie-dense meals for when you feel full too soon.



Fatigue

Easy to prepare, comforting, and energy-dense recipes to help you manage a lack of energy.



Mouth Sores

Cold or room temperature recipes that are soft and low in acidity.



Nausea






Smaller, more frequent meals that are soothing and easy on the stomach.

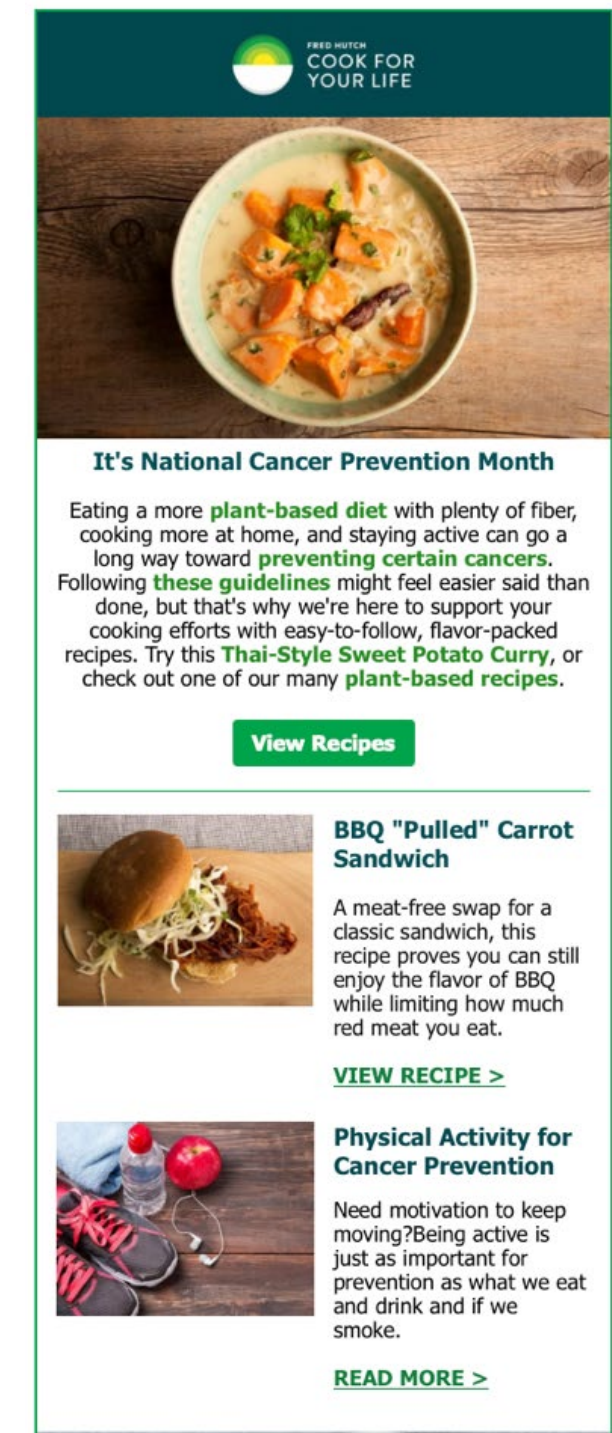


Taste Changes

Recipes that are rich in umami, acid, sweet, and spice to reenergize your palate.

Cook For Your Life by the Numbers

- Website (past year)
 - 2.7 million new visitors to the website
 - 4.2 million pages across English and Spanish websites
 - 43.3% English views: United States, United Kingdom, Canada
 - 52.85% Spanish views: Argentina, Mexico, Spain
- Newsletter
 - 22,977 total newsletter subscribers
 - Spanish newsletter ~6K subscribers
 - English newsletter ~17K subscribers
- Social media     
 - 32,505 followers across Pinterest, Instagram, Facebook, Twitter, YouTube
 - ~75K average monthly impressions across all social channels
- Partnerships: AICR, Cancer Health, Obliteride, Red Door Community, Susan G. Komen, Leukemia & Lymphoma Society



¡Mi Vida Saludable! / My Healthy Life!

Latina Breast Cancer Survivors (n=167)



		In-person Diet & Physical Activity	
		Yes	No
Motivational E-communication	Yes	Arm A: In-person classes + Motivational e-communication	Arm B: Motivational e-communication
	No	Arm C: In-person classes	Arm D: Control

1° Endpoints: Change in fruit/veg intake and energy density

2° Endpoints:

Physical activity

Cognitive / executive function

Biomarkers of inflammation and oxidative stress

Analyses ongoing

PI: Greenlee H, R01CA186080



cookforyourlife.org



Testing *¡Mi Vida Saludable!* in a Rural Population

Lower Yakima Valley: Fred Hutch's Center for Community Health Promotion



Latinos are majority population (69%)

- Lower SES
- Medically underserved



Design: Single arm (n=20) feasibility study

Population: Spanish-speaking adults with chronic disease

Intervention:

- 6 online culinary and physical activity sessions
- Delivered groceries

Primary Aim: Feasibility

Secondary Aims:

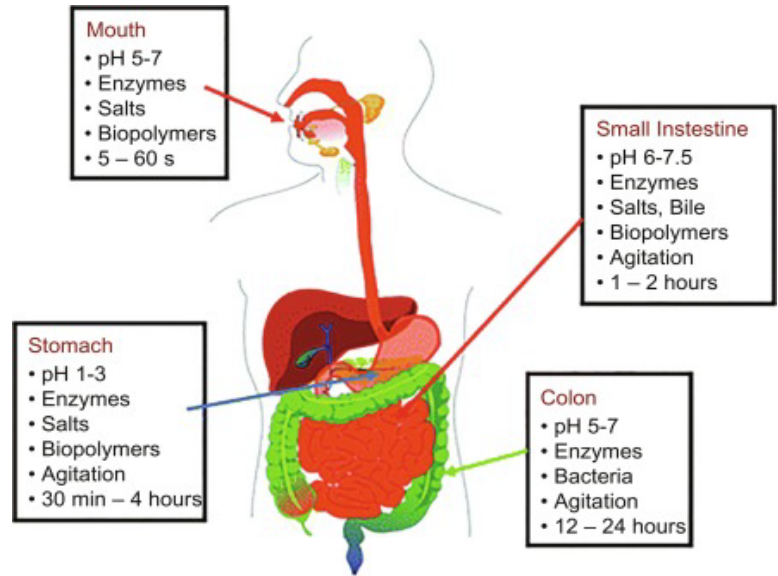
- Change in daily fruit/veg intake
- Change in minutes/week of MVPA

Analyses ongoing

Sources of Culinary Traditions

“Kitchen to Lab to Table” Model

Our research approach changes the relationship between researchers and the community



Identification of traditional and westernized recipes



- Community-based participatory research
- Build and engage community partners in the research process

Preparation of traditional and westernized recipes



- Prepare recipes at Fred Hutch Human Nutrition Lab
- 3 versions of each of 4 recipe
 - Traditional
 - Westernized
 - Healthy hybrid
- Ship to NMSU Guzman lab

Chemical analysis of cancer preventative compounds



- Digest food samples using an *in vitro* human digestion model
- Measure carotenoid, provitamin A, chlorophylls, tocopherols in pre- and post-Digested samples

Translation of study results back to community



- Present results during La Semilla Cooking classes that take place in underserved communities in southern New Mexico
- Disseminate results and recipes on Cook for Your Life website in Spanish & English

Developing Integrative Oncology Clinical Practice Guidelines

SIO 20TH ANNIVERSARY

SAVE THE DATE FOR SIO 2023

September 14 - 16, 2023 in Banff, Canada



20th ANNIVERSARY
SEPTEMBER 2023
BANFF, ALBERTA | CANADA



About SIO

SIO is the premier multi-disciplinary professional organization for integrative oncology.

[Learn More](#)



Patients, Care Partners, & Patient Advocates

SIO welcomes the voices of patients in the field of integrative oncology.

[Learn More](#)



Guidelines and Publications

[Learn More](#)

Latest News

- ▶ MD Anderson Cancer Center's Integrative Medicine Program Virtual Workshop: May 18 & 19
- ▶ Open Access: Exploring the Roles of Patient Advocates in Integrative Oncology
- ▶ Cyprus 2023: Research and Training as Tools for enhancing and strengthening Integrative Oncology in Cyprus and other European Union Countries

On Twitter



Written on Monday, 06 March 2023

Happening this week! The 2023 Online BSIO Annual Conference on March 11th, 2023, don't forget to register now. bit.ly/3lqS5s9

Written on Monday, 06 March 2023

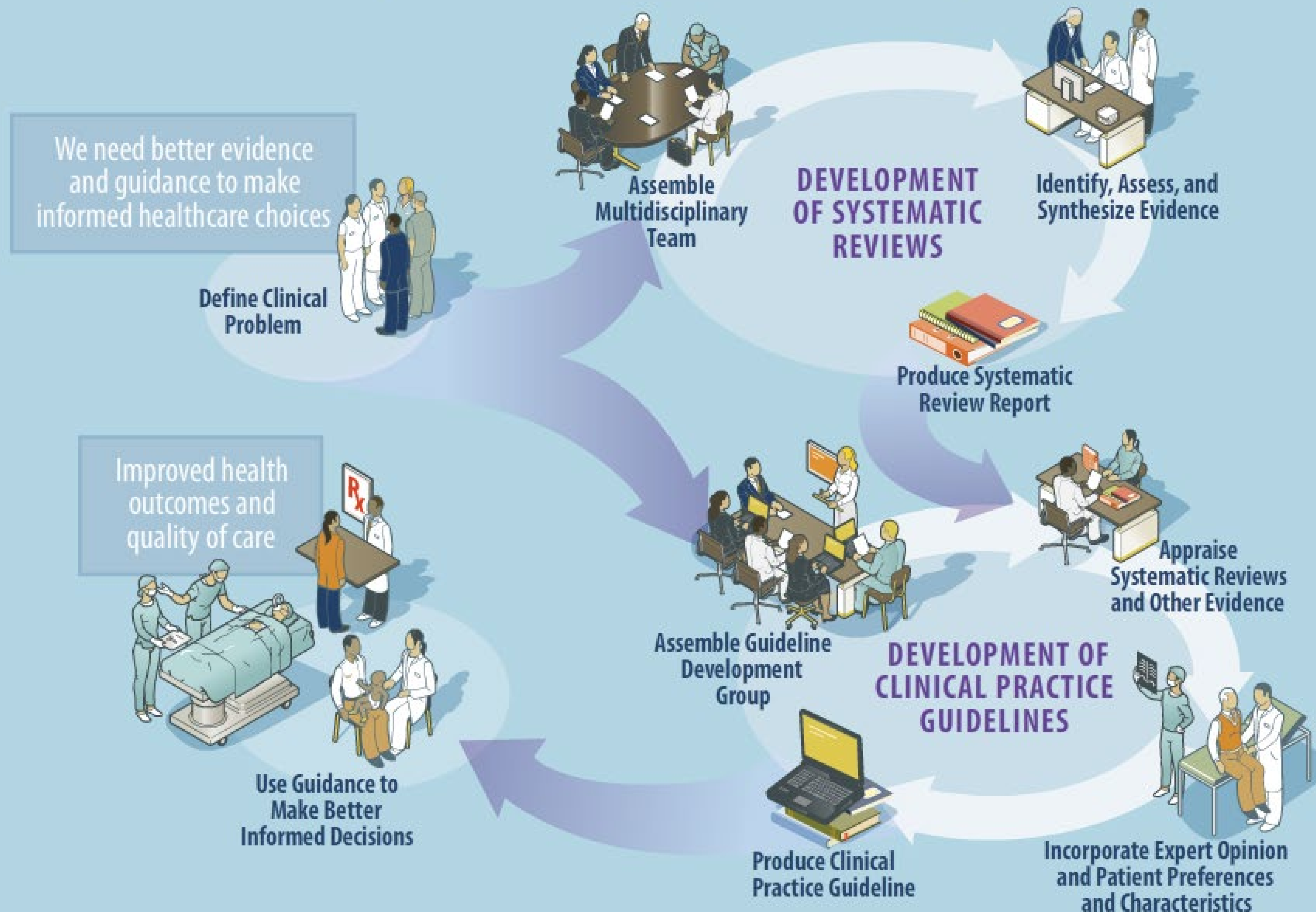
Welcome to Integrative Oncology Talk, where we explore the most current scientific research and expert opinions in the field of [#integrativeonc](#). Listen on Apple Podcasts | apple.co/3kYnJl6 Watch on Youtube | bit.ly/39W53fF [#IntegrativeOncologyTalk](#)

Written on Saturday, 04 March 2023

RT @LaceyJudith: The multimodal approach and holistic medical/ nursing assessment to managing [#aromataseinhibitor](#) related [#arthralgia](#) and

Systematic Reviews and Clinical Practice Guidelines Improve Healthcare Decision Making

Click on any text
for more information



Past SIO Clinical Practice Guidelines



CHEST

Supplement

DIAGNOSIS AND MANAGEMENT OF LUNG CANCER, 3RD ED: ACCP GUIDELINES

Complementary Therapies and Integrative Medicine in Lung Cancer

Diagnosis and Management of Lung Cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

Gary E. Deng, MD, PhD; Sarah M. Rausch, PhD; Lee W. Jones, PhD; Amitabh Gulati, MD; Nagi B. Kumar, PhD, RD; Heather Greenlee, ND, PhD; M. Catherine Pietanza, MD; and Barrie R. Cassileth, PhD, FCCP

Background: Physicians are often asked about complementary therapies by patients with cancer, and data show that the interest in and use of these therapies among patients with cancer is common. Therefore, it is important to assess the current evidence base on the benefits and risks of complementary therapies (modalities not historically used in modern Western medicine). Methods: A systematic literature review was carried out and recommendations were made according to the American College of Chest Physicians Evidence-Based Clinical Practice Guidelines development methodology. Results: A large number of randomized controlled trials, systematic reviews, and meta-analyses, as well as observational studies, were identified. The results of these studies are summarized in this guideline. The results of these studies are summarized in this guideline. The results of these studies are summarized in this guideline.

Clinical Practice Guidelines on the Use of Integrative Therapies as Supportive Care in Patients Treated for Breast Cancer

Heather Greenlee, Lynda G. Balneaves, Linda E. Carlson, Misha Cohen, Gary Deng, Dawn Hershman, Matthew Mumber, Jane Perlmutter, Dugald Seely, Ananda Sen, Suzanna M. Zick, Debu Tripathy; for the Society for Integrative Oncology Guidelines Working Group

Correspondence to: Heather Greenlee, ND, PhD, MPH, Department of Epidemiology, Mailman School of Public Health, Columbia University, 722W. 168th Street, 7th Floor, New York, NY 10032 (e-mail: hg2120@columbia.edu).

Background

The majority of breast cancer patients use complementary and/or integrative therapies during and beyond cancer treatment to manage symptoms, prevent toxicities, and improve quality of life. Practice guidelines are needed to inform clinicians and patients about safe and effective therapies.

Methods

Following the Institute of Medicine's guideline development process, a systematic review identified randomized controlled trials testing the use of integrative therapies for supportive care in patients receiving breast cancer treatment. Trials were included if the majority of participants had breast cancer and/or breast cancer patient results were reported separately, and outcomes were clinically relevant. Recommendations were organized by outcome and graded based upon a modified version of the US Preventive Services Task Force grading system.

Results

The search (January 1, 1990–December 31, 2013) identified 4900 articles, of which 203 were eligible for analysis. Meditation, yoga, and relaxation with imagery are recommended for routine use for common conditions, including anxiety and mood disorders (Grade A). Stress management, yoga, massage, music therapy, energy conservation, and meditation are recommended for stress reduction, anxiety, depression, fatigue, and quality of life (Grade B). Many interventions ($n = 32$) had weaker evidence of benefit (Grade C). Some interventions ($n = 7$) were deemed unlikely to provide any benefit (Grade D). Notably, only one intervention, acetyl-L-carnitine for the prevention of taxane-induced neuropathy, was identified as likely harmful (Grade H) as it was found to increase neuropathy. The majority of intervention/modality combinations ($n = 138$) did not have sufficient evidence to form specific recommendations (Grade I).

Conclusions

Specific integrative therapies can be recommended as evidence-based supportive care options during breast cancer treatment. Most integrative therapies require further investigation via well-designed controlled trials with meaningful outcomes.

2013

Complementary Therapies and Integrative Medicine in Lung Cancer: Diagnosis and Management of Lung Cancer, 3rd ed: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines

- Chair: Gary Deng
- Journal: **Chest**
 - 111 citations
 - 105 downloads
 - 415 bookmarks

2014

Clinical Practice Guidelines on the Use of Integrative Therapies as Supportive Care in Patients Treated for Breast Cancer

- Co-Chairs: Heather Greenlee and Debu Tripathy
- Journal: **JNCI Monographs**
 - 192 citations
 - 16,553 downloads
 - 6 news outlets
 - Top 5% Altmetric research outputs
 - Used to inform **Manual for Breast Cancer Services** by the Publications Office of the European Union

Past SIO Clinical Practice Guidelines

Clinical Practice Guidelines on the Evidence-Based Use of Integrative Therapies During and After Breast Cancer Treatment

Heather Greenlee, ND, PhD, MPH^{1,2}; Melissa J. DuPont-Reyes, MPH, MPhil³; Lynda G. Balneaves, RN, PhD⁴; Linda E. Carlson, PhD⁵; Misha R. Cohen, OMD, LAc^{6,7}; Gary Deng, MD, PhD⁸; Jillian A. Johnson, PhD⁹; Matthew Mumber, MD¹⁰; Dugald Seely, ND, MSc^{11,12}; Suzanna M. Zick, ND, MPH^{13,14}; Lindsay M. Boyce, MLIS¹⁵; Debu Tripathy, MD¹⁶

CME

CNE

¹Assistant Professor, Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY; ²Member, Herbert Irving Comprehensive Cancer Center, Columbia University, New York, NY; ³Doctoral Fellow, Department of Epidemiology, Mailman School of Public Health, Columbia University, New York, NY; ⁴Associate Professor, College of Nursing, Rady Faculty of Health Sciences, Winnipeg, MB, Canada; ⁵Professor, Department of Oncology, University of Calgary, Calgary, AB, Canada; ⁶Adjunct Professor, American College of Traditional Chinese Medicine at California Institute of Integral Studies, San Francisco, CA; ⁷Clinic Director, Chicken Soup Chinese Medicine, San Francisco, CA; ⁸Medical Director, Integrative Oncology, Memorial Sloan Kettering Cancer Center, New York, NY; ⁹Post-Doctoral Scholar, Department of Biobehavioral Health, The Pennsylvania State University, University Park, PA; ¹⁰Radiation Oncologist, Harbin Clinic, Rome, GA; ¹¹Executive Director, Ottawa Integrative Cancer Center, Ottawa, ON, Canada; ¹²Executive Director of Research, Integrative Cancer Center, Ottawa, ON, Canada; ¹³Professor, Department of Integrative Oncology, University of California, San Francisco, CA; ¹⁴Professor, Department of Integrative Oncology, University of California, San Francisco, CA; ¹⁵Research Librarian, University of California, San Francisco, CA; ¹⁶Professor, Department of Integrative Oncology, University of California, San Francisco, CA

JOURNAL OF CLINICAL ONCOLOGY

ASCO SPECIAL ARTICLE

Integrative Therapies During and After Breast Cancer Treatment: ASCO Endorsement of the SIO Clinical Practice Guideline

Gary H. Lyman, Heather Greenlee, Kari Bohlke, Ting Bao, Angela M. DeMichele, Gary E. Deng, Judith M. Fouladkhsh, Brigitte Gil, Dawn L. Hershman, Sami Mansfield, Dawn M. Mussallem, Karen M. Mustian, Erin Price, Susan Rafie, and Lorenzo Cohen

ABSTRACT

Purpose
The Society for Integrative Oncology (SIO) produced an evidence-based guideline on use of integrative therapies during and after breast cancer treatment that was determined to be relevant to the American Society of Clinical Oncology (ASCO) membership. ASCO considered the guideline for endorsement.

Methods
The SIO guideline addressed the use of integrative therapies for the management of symptoms and adverse effects, such as anxiety and stress, mood disorders, fatigue, quality of life, chemotherapy-induced nausea and vomiting, lymphedema, chemotherapy-induced peripheral neuropathy, pain, and sleep disturbance. Interventions of interest included mind and body practices, natural products, and lifestyle modifications. SIO systematic reviews focused on randomized controlled trials that were published from 1990 through 2015. The SIO guideline was reviewed by ASCO content experts for clinical accuracy and by ASCO methodologists for developmental rigor. On favorable review, an ASCO Expert Panel was convened to review the guideline contents and recommendations.

Results

Author affiliations and support information (if applicable) appear at the end of this article.
Published at jco.org on June 11, 2018.
G.H.L. and L.C. were Expert Panel co-chairs.
Clinical Practice Guideline Committee Approved: March 8, 2018.
Editor's note: This American Society of Clinical Oncology (ASCO) Clinical Practice Guideline provides recommendations, with comprehensive review and analyses of the relevant literature for each recommendation. Additional information, including a Data Supplement with additional evidence tables, a Methodology Supplement, slide sets, clinical tools and resources, and links to patient information at www.cancer.net, is available at www.cancer.net.

2017 Clinical Practice Guidelines on the Evidence-based Use of Integrative Therapies During and After Breast Cancer Treatment

- Co-Chairs: Heather Greenlee and Debu Tripathy
- Journal: **CA Cancer J Clin**
 - 346 citations
 - 67,378 downloads
 - 26 news outlets
 - Top 5% Altmetric research outputs
 - Used to inform **Manual for Breast Cancer Services** by the Publications Office of the European Union

2018 Integrative Therapies During and After Breast Cancer Treatment: ASCO Endorsement of the SIO Clinical Practice Guideline

- Co-Chairs: Gary Lyman and Lorenzo Cohen
- Journal: **J Clin Oncol**
 - 199 citations
 - 37,370 downloads
 - 22 news outlets
 - Top 5% Altmetric research outputs

Project History

- 2019 - Received 5-year grant from the Samueli Foundation
 - Awarded at \$100,000 per year
- Goals:
 - Develop 5 joint SIO-ASCO clinical practice guidelines over 5 years
 - Publish in Journal of Clinical Oncology (JCO)
- Independent scientific endeavor

2022 Clinical Practice Guideline

September 19, 2022

An Integrative Approach to Cancer-related Pain Management

- Co-Chairs: Jun Mao and Eduardo Bruera
- Journal: *J Clin Oncol*
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abstract

Integrative Medicine for Pain Management in Oncology: Society for Integrative Oncology–ASCO Guideline

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PURPOSE The aim of this joint guideline is to provide evidence-based recommendations to practicing physicians and other health care providers on integrative approaches to managing pain in patients with cancer.

METHODS The Society for Integrative Oncology and ASCO convened an expert panel of integrative oncology, medical oncology, radiation oncology, surgical oncology, palliative oncology, social sciences, mind-body medicine, nursing, and patient advocacy representatives. The literature search included systematic reviews, meta-analyses, and randomized controlled trials published from 1990 through 2021. Outcomes of interest included pain intensity, symptom relief, and adverse events. Expert panel members used this evidence and informal consensus to develop evidence-based guideline recommendations.

RESULTS The literature search identified 227 relevant studies to inform the evidence base for this guideline.

RECOMMENDATIONS Among adult patients, acupuncture should be recommended for aromatase inhibitor–related joint pain. Acupuncture or reflexology or acupressure may be recommended for general cancer pain or musculoskeletal pain. Hypnosis may be recommended to patients who experience procedural pain. Massage may be recommended to patients experiencing pain during palliative or hospice care. These recommendations are based on an intermediate level of evidence, benefit outweighing risk, and with moderate strength of recommendation. The quality of evidence for other mind-body interventions or natural products for pain is either low or inconclusive. There is insufficient or inconclusive evidence to make recommendations for pediatric patients. More research is needed to better characterize the role of integrative medicine interventions in the care of patients with cancer.

Additional information is available at <https://integrativeonc.org/practice-guidelines/guidelines> and www.asco.org/survivorship-guidelines.

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ASSOCIATED CONTENT

Appendix

Data Supplement

Author affiliations and support information (if applicable) appear at the end of this article.

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Integrative Medicine for Pain Management in Oncology: SIO–ASCO Guideline

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guideline summaries

Integrative Medicine for Pain Management in Oncology: Society for Integrative Oncology-ASCO Guideline Summary and Q&A

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People with cancer now live longer, thanks to improved diagnosis and treatments; however, many experience pain related to their disease and ongoing or past oncological treatment. Pain not only negatively affects quality of life and daily functioning¹ but also leads to treatment nonadherence that may compromise overall survival.² Therefore, effective pain management is critical throughout the cancer care trajectory. In 2016, the Centers for Disease Control and Prevention began emphasizing the importance of incorporating non-pharmacological approaches to pain management.³ This Society for Integrative Oncology (SIO)-ASCO joint guideline⁴ builds on the existing ASCO guideline Management of Chronic Pain in Survivors of Adult Cancers⁵ and was developed by an international multidisciplinary group of experts to provide evidence-based recommendations on integrative approaches to managing pain in people living with cancer. The evidence base comprises systematic reviews, meta-analyses, and randomized controlled trials published from 1990 through 2021 that involved adults and pediatric patients experiencing pain during any stage of their cancer care. The panel also identified critical gaps in knowledge, evidence, and implementation, including those fueled by health care inequities and barriers to trial participation and offers guidance on advancing the field of precision integrative pain management so that the right patient receives the right treatment to improve pain and related outcomes.

In this summary, we specifically highlight the four strongest recommendations from the guideline that are minimally based on intermediate-level evidence, benefit outweighing risk, and with moderate strength of recommendation (Fig 1). The guideline makes a total of 13 recommendations. Please refer to the guideline for recommendations with lower levels of evidence and their evidence review discussions.⁴

QUESTION: WHAT ARE THE KEY TAKEAWAYS FOR CLINICIANS ON INTEGRATIVE THERAPIES FOR MANAGING PAIN EXPERIENCED BY PEOPLE WITH CANCER?

Acupuncture should be offered to breast cancer survivors on aromatase inhibitors (AIs) who have arthralgias.⁶ Studies show that joint pain results in AI

nonadherence,^{7,8} which can lead to increased recurrence and mortality for women living with breast cancer.⁹ In a large multicenter randomized controlled trial, true acupuncture was more effective than sham acupuncture and usual care control with a greater proportion of individuals experiencing a clinically meaningful response, defined as a two-point reduction in pain on a 0-10 scale.⁶

Acupuncture may also be offered to patients experiencing general or musculoskeletal pain from cancer. A large effect size after 10 weeks of treatment was demonstrated with minimal toxicities and durable treatment effects at 6 months after random assignment.⁴

Massage therapy can also be recommended, particularly for patients experiencing pain during palliative and hospice care.¹⁰ The immediate beneficial effect on pain was clinically significant in patients with advanced cancers who had moderate-to-severe pain, with no side effects observed; however, the long-term effects of massage are unknown.

Mind-body therapies such as yoga are generally safe but have more robust evidence for managing psychological distress and fatigue.¹¹ There is insufficient or inconclusive evidence to make recommendations for pediatric patients.

QUESTION: WHAT SPECIFIC FINDINGS CAN I SHARE WITH PATIENTS FOR ACUPUNCTURE OR MASSAGE THERAPIES TO IMPROVE CANCER PAIN?

The decision to use acupuncture with other treatments for AI-related or musculoskeletal pain needs to be based on patient preference, an assessment of benefit versus risk, and access to acupuncture. Patients should seek acupuncture from providers who are licensed and have experience working with patients with cancer. Patients should be aware that treatment may require 6-10 weekly sessions to achieve durable effects.^{4,9} Acupuncture is covered by Medicare for chronic low back pain,¹² but insurance coverage for other pain conditions is mixed depending on the insurance plan. Many patients will need to pay out of pocket for acupuncture services.

Therapeutic massage can provide more immediate benefit, particularly for patients with advanced cancer

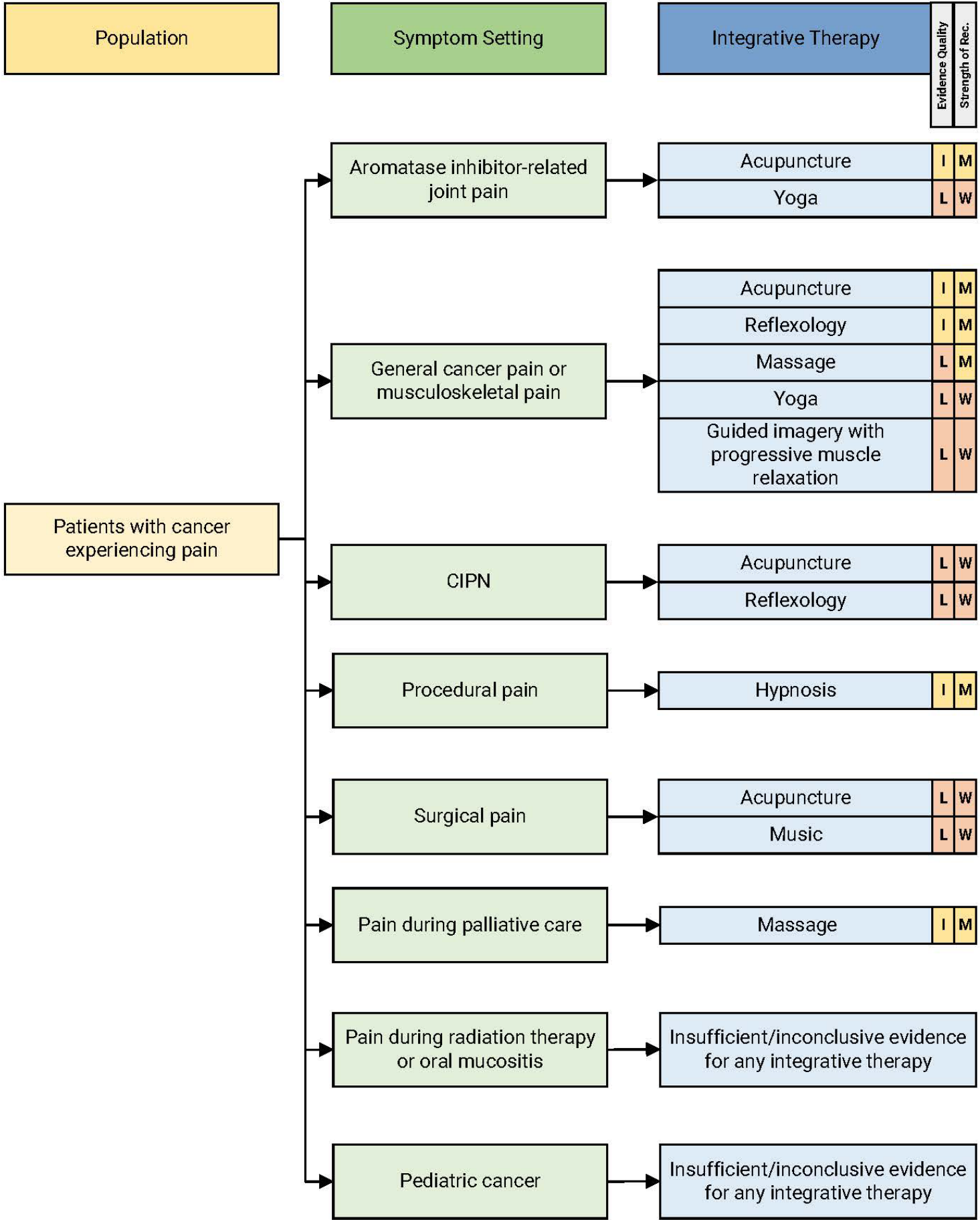
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JCO® Oncology Practice

Integrative Pain Management Algorithm



Abbreviation	Meaning
I	Intermediate
M	Moderate
L	Low
W	Weak

SIO-ASCO Guidelines in Process

- **Integrative Oncology Care of Anxiety and Depressive Symptoms in Adults with Cancer**
 - Co-Chairs: Linda Carlson (SIO) & Julia Rowland (ASCO)
 - Number of panelists: 17
 - Status: *Under final review by SIO and ASCO*
- **Screening, Assessment, and Management of Fatigue in Adult Survivors of Cancer**
 - Co-Chairs: Julianne Bower (ASCO) & Karen Mustian (ASCO)
 - Number of panelists: 17
 - Status: *Systematic review/data extraction in process*
- **An Integrative Approach to Cancer-related Sleep Management**
 - Co-Chairs: TBD
 - Number of panelists: TBD
 - Status: *Identifying Co-Chairs*

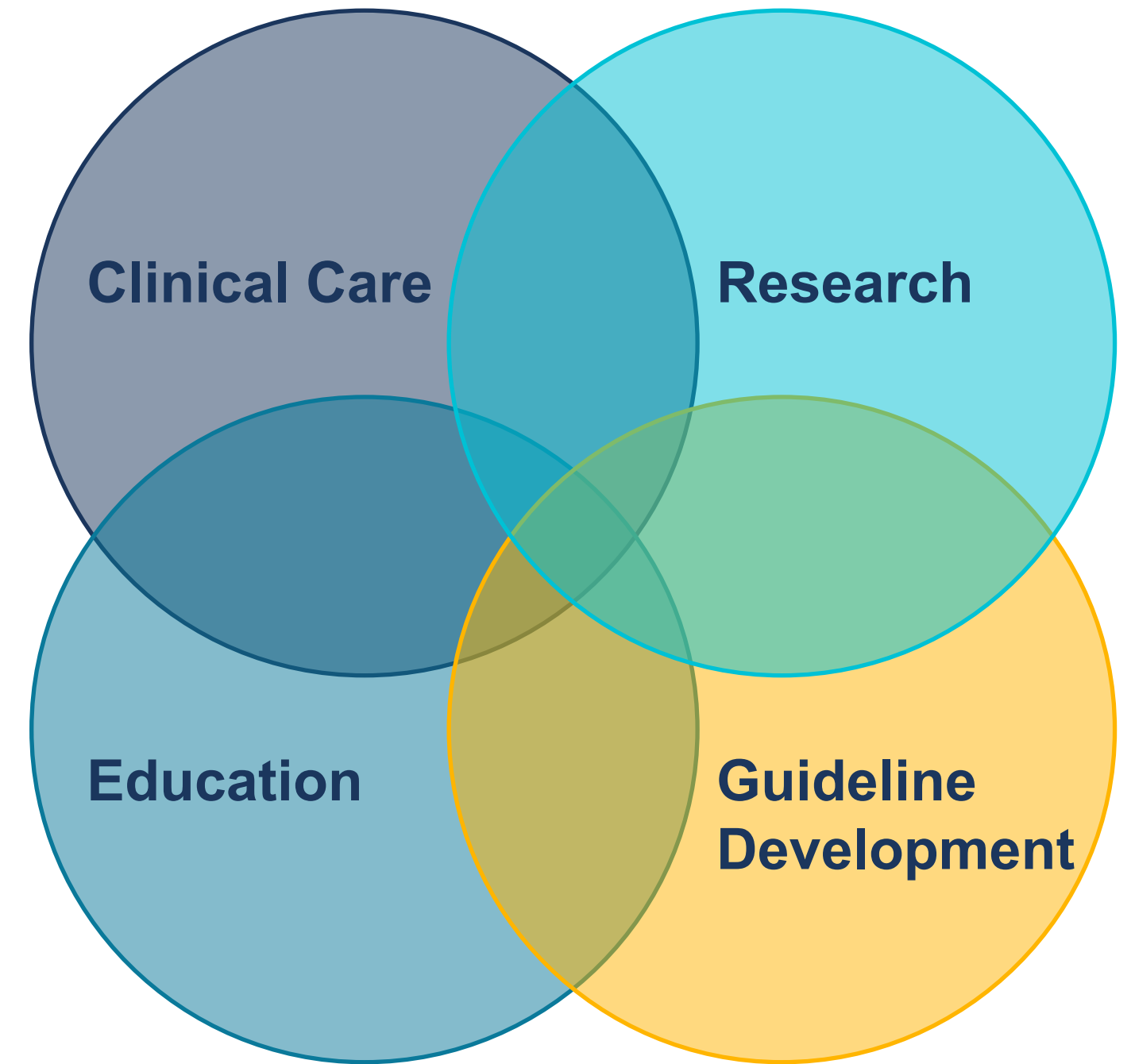
Conclusions on Clinical Practice Guidelines

- Clinical practice guidelines provide an aid to making complex clinical decisions
- Body of evidence supports routine use of selected integrative therapies in the oncology setting in specific circumstances
- Recommended clinical practice regarding use of integrative therapies:
 - Use needs to be discussed upfront and monitored
 - Patients need to be advised about evidence
- Guidelines improve the ability for patients and clinicians to make healthcare decisions
- SIO aims to be the leader in developing trustworthy guidelines focused on integrative oncology

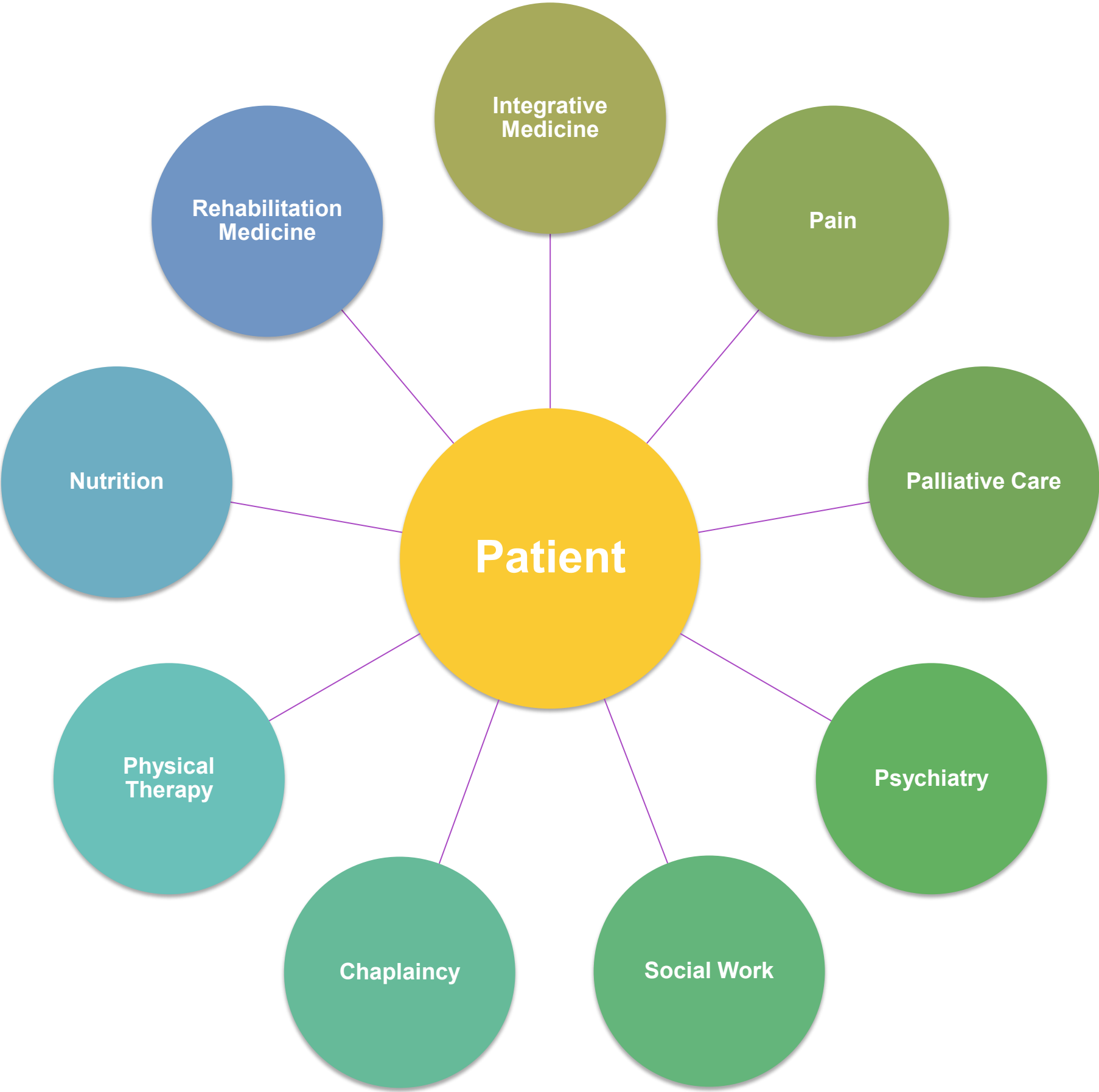
Integrative Medicine at Fred Hutch Cancer Center

Fred Hutch Integrative Medicine Vision

- Effective Integrative Medicine therapies will be integrated into all aspects of cancer care and will become standard of care
- The practice of Integrative Medicine is highly interdisciplinary and set within the Supportive Care framework
- Focus is on improving quality of life and increasing resiliency from the time of diagnosis, through treatment, survivorship and end of life
- Emphasis on acupuncture, mind-body therapies, lifestyle behaviors, and dietary supplement counseling



Interdisciplinary Supportive Care at Fred Hutch



Integrative Medicine at Fred Hutch

- New Fred Hutch service – launched in January 2018
- Interdisciplinary team of clinicians (in order of practice roll-out)
 - Integrative Nurse Practitioner
 - Naturopathic physicians
 - Acupuncturists
 - Integrative nurse
 - MD/DO (Open faculty position in Integrative Medicine/Oncology at Fred Hutch & UW)
- Financial model
 - Fully billable services
 - ARNP and MD/DO are able to bill all services
 - 1996 WA State mandates coverage of ND, LAc, DC, and MT services for private payors
 - WA State Medicaid covers ND services
 - Out of pocket and financial assistance options for patients
 - Not reliant on philanthropic funding
- Shared electronic health record
- Co-located with Fred Hutch outpatient oncology clinics
- Research platform

The Future of Integrative Oncology Research

- Integrative oncology is highly interdisciplinary
- Growing body of evidence supporting select use of integrative therapies for oncology symptom management and improved survivorship
- Further need for clinical practice guidelines
- Patients are simultaneously using multiple therapies, need to understand combined use
- Need for observational studies and clinical trials with recurrence and survival endpoints
- Clinical programs and cooperative groups can provide excellent infrastructure to conduct cutting-edge research



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Integrative
Oncology as
Standard of
Care: The
Time is Now

**September 14-16, 2023
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Thank you

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