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Integrative Medicine in Oncology

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Disclosure

No financial disclosures related to this presentation

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Learning Objectives

- Describe the role of Integrative Oncology
- Explain the role of weight, nutrition, and physical activity in correlation to prevention, treatment, and post survivorship of cancer patient
- Recognize the role of botanicals and dietary supplements and potential for cancer treatment interactions
- Examine an overview of Mind-Body complementary therapies
- Discuss use of Ayurvedic and Traditional Chinese Medicine complementary to cancer treatment

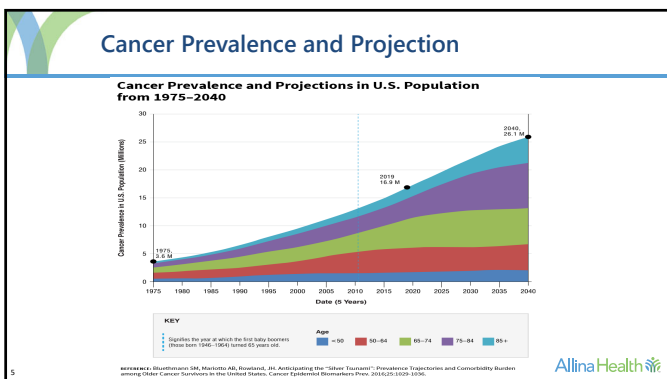
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Introduction to Integrative Oncology

- The [Society for Integrative Oncology](#) offers a comprehensive definition:

“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 care continuum and to empower people to prevent cancer and become active participants before, during, and beyond cancer treatment.” ([Witt, 2017](#))

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Use of Complementary Health Approaches for Cancer


- The number of cancer patients who are incorporating complementary modalities into their care may vary from 30% to 90% depending on the cancer diagnosis ([Greenlee, 2009](#); [Sewitch, 2010](#); [Micke, 2010](#); [Bishop, 2011](#); [Lövgren, 2011](#); [McDermott, 2012](#))
- 65% of respondents ever diagnosed with cancer had used complementary approaches. 2007 NHIS

[Cancer: In Depth | NCCIH \(nih.gov\)](#)

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Integrative Cancer Care


- Provides relationship centered care
- Holistic, Individualized and open to healing strategies
- Engages mind, body, spirit and community
- High efficacy and limited potential for harm
- Activates body's innate healing response
- Uses natural, less invasive interventions when possible
- Encourages providers to model healthy lifestyle
- Maintains healing is always possible even when cure is not

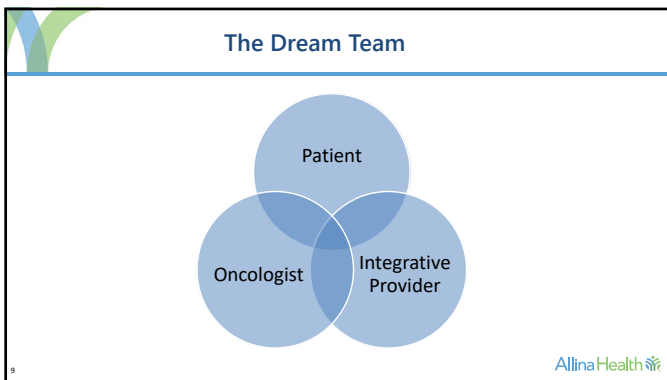
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The Tools of Healing

- NCCIH Categories of Complementary Approaches:
 - ✓ Nutritional
 - ✓ Psychological
 - ✓ Physical
 - ✓ Combinations such as psychological and physical or psychological and nutritional


[Cancer: In Depth | NCCIH \(nih.gov\)](#)

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Integrative Oncology Team


- Primary oncologist or another team member with integrative oncology training
- Integrative medicine provider, such as a traditional Chinese medicine-trained acupuncturist and herbalist

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Communication is Key


- **Establish open communication between oncology team and integrative providers:**
 - ✓ Coordinate care
 - ✓ Avoid any adverse effects due to untoward interactions
 - ✓ Encourage families to feel comfortable discussing all treatments in use with all healthcare team members
 - ✓ Removes the burden of coordinating a team approach from the family or patient during a highly stressful time
 - ✓ A survey investigating training and practices of traditional Chinese medicine practitioners in the San Francisco Bay Area caring for cancer patients noted very little communication between these providers and the patients' primary oncologists ([Abrams, 2018](#))



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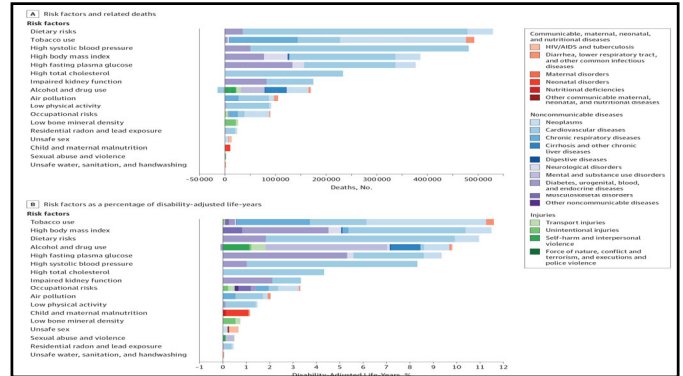
Pillars of an Integrative Treatment Approach

Control Weight	Breathing and Stress Reduction
Healthy Eating	Guided Imagery or Self-Hypnosis
Regular Physical Activity	Connect with Family and Friends
Appropriate Use of Supplements	Engage in Spirituality and Religion

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Nutrition

- Dietary risks are listed as the number one cause of morbidity and mortality in the United States today ([US Burden of Disease Collaborators, 2018](#)).
- Dietary risks surpass tobacco use and hypertension and do not include high body mass index and physical inactivity that rank 4th and 10th.
- The Center for Disease Control and Prevention now estimates that **40% of all cancer diagnosed in the United States is related to overweight and obesity (CDC, 2017)**.
- Reviews also emphasize the role of obesity in cancer causation ([Arnold, 2015](#); [Schottenfeld, 2013](#)).
- *Overnutrition* is mentioned as important in these reports, stressing the importance of wise dietary choices. It is little surprise then that the number one recommendation from both the American Cancer Society and the World Cancer Research Fund/American Institute for Cancer Research guidelines for reducing the risk of cancer is to be a healthy weight



Obesity and Cancer

<p>Convincing Evidence</p> <ul style="list-style-type: none"> • Postmenopausal breast • Pancreas • Kidney • Endometrial • Esophagus • Colorectal 	<p>Probable Evidence</p> <ul style="list-style-type: none"> • Stomach • Gallbladder • Ovary • Aggressive prostate • Mouth, pharynx, larynx <p>(WCRF/AICR, 2018)</p>
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WCRF/AICR Recommendations for Cancer Prevention

- Be a Healthy Weight
- Be Physically Active
- Plant Foods
- Limit "Fast Foods"
- Animal Foods
- Limit Sugar-Sweetened Drinks
- Limit Alcohol Consumption
- Dietary Supplements
- Breastfeeding
- Survivors

Dietary Risk

<p>Diets High In:</p> <ul style="list-style-type: none"> • Red meat • Processed meat • Sugar-sweetened beverages • Trans fatty acids • Sodium 	<p>Diets Low In:</p> <ul style="list-style-type: none"> • Fruits • Vegetables • Whole grains • Nuts and seeds • Milk • Fiber • Calcium • Seafood omega 3s • PUFA's
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Alcohol Recommendations

- WCRF/AICR has changed their prior alcohol limitation recommendation to simply state that for cancer prevention no alcohol is best
- It is now estimated that approximately 6% of all cancer deaths worldwide are alcohol-related ([LoConte, 2018](#))
- The Global Burden of Disease Alcohol Collaborators reports that for people over the age of 50, cancer accounts for the largest proportion of alcohol-associated deaths ([GBD, 2018](#))

Movement



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Moving for Wellness

- **American Cancer Society (ACS) Guideline for Diet and Physical Activity:**
 - Achieve and maintain a healthy body weight throughout life
 - Be physically active

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Food is Serious Business

- **Follow a healthy eating pattern at all ages**
- **A healthy eating pattern includes:**
 - Foods that are high in nutrients in amounts that help achieve and maintain a healthy body weight
 - A variety of vegetables and fruits
 - Whole grains
- **A healthy eating pattern limits or does not include:**
 - Red and processed meats
 - Sugar-sweetened beverages
 - Highly processed foods and refined grain products

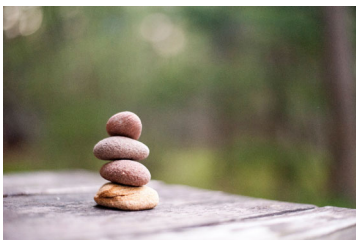
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ACS Guideline for Diet and Physical Activity

- **It is best not to drink alcohol.**
 - No more than 1 drink per day for women and 2 drinks per day for men
 - No alcohol is best
 - Approximately 6% of all cancer deaths worldwide are alcohol-related
 - The Global Burden of Disease Alcohol Collaborators reports that for people over the age of 50, cancer accounts for the largest proportion of alcohol-associated deaths

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Mind-Body Approaches



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Stress and Cancer


With all that we know about how stress aggravates cardiovascular disease, promotes viral infections, exacerbates metabolic disease, halts reproduction and regulates the normal function of virtually every cell in the body, why would cancer cells somehow be exempt?

Cole NCI Cancer Bulletin 2006

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Mind-Body Approaches


- Unique Emotional Stress of Cancer
- Chronic stress, in and of itself, is not likely to be a direct cause of cancer; however, it has been shown in animal and human studies that stress may affect the outcome and disease progression

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Mind-Body Approaches


- Support to reduce stress
- Common cancer-related symptoms such as sleep disturbance, fatigue and anxiety/fear of recurrence




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Mind-Body Approaches

- Mindful-based Stress Reduction
- Yoga
- Support Groups
- Guided Imagery
- Social Support and Spirituality
- Journaling
- Breath work
- Disclosure

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Roseto Effect



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Hypnosis Before Breast Cancer Surgery

- 200 patient scheduled for breast biopsy or lumpectomy randomly assigned to hypnosis or controlled groups
- Scripted 15 minutes hypnosis sessions within one hour of surgery by trained psychologist
- Control group spent 15 minutes with psychologist talking and receiving emotional support
- Anesthesiologist, surgeons, research assistant blinded to patient groups

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Hypnosis before Breast Cancer Surgery

Women in hypnosis group:

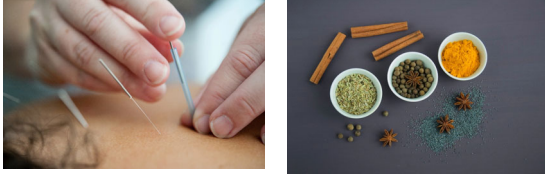
- ✓ Required less anesthesia , same post op pain meds
- ✓ Reported less pain intensity, nausea , fatigue, discomfort and emotional upset.
- ✓ Spent 10.5 minutes less in surgery, saving \$750

Montgomery GH, Bovbjerg DH, Schnur JB, David D, Goldfarb A, Weltz CR, Schechter C, Graff-Zivin J, Tatrow K, Price DD, Silverstein JH. A randomized clinical trial of a brief hypnosis intervention to control side effects in breast surgery patients. *J Natl Cancer Inst.* 2007 Sep 5;99(17):1304-12. doi: 10.1093/jnci/djm106. Epub 2007 Aug 28. PMID: 17728216.

JNCI 2007

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Whole System



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Whole System Medicine

- Whole systems of medicine are complete systems that have evolved in parallel to biomedicine and have their own unique systems of diagnosis and treatment
 - Traditional Chinese Medicine
 - Herbal medicines, mind-body medicine (e.g., qi gong), diet, manual medicine, and acupuncture
 - Acupuncture that is best studied for its effects in an oncology setting
 - Ayurvedic Medicine
 - Diet, yoga, massage

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Whole System Medicine

- An [NIH consensus conference](#) in 1997 concluded that there was clear evidence that acupuncture was efficacious for the treatment of chemotherapy-related nausea and vomiting ([NIH, 1998](#)).
- A subsequent review in 2006 concluded that acupuncture produces a biologic effect in the treatment of nausea associated with chemotherapy ([Ezzo, 2006](#)).
- Several large studies done after the 2006 review have shown mixed results.
- The Society for Integrative Oncology expert panel issued clinical practice guidelines based on the evidence-based use of complementary therapies during and after breast cancer treatment that have subsequently been endorsed by the American Society of Clinical Oncology ([Greenlee, 2017](#); [Lyman, 2018](#)).
- The guidelines recommend both acupuncture and acupressure for reducing chemotherapy-induced nausea and vomiting.

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Supplements



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Supplements-No Magic Pill

- The WCRF/AICR Recommendation on dietary supplements states:
- "Do not use supplements for cancer prevention" and "aim to meet nutritional needs through diet alone"
 - "There is strong evidence from randomized controlled trials that high-dose beta-carotene supplements may increase the risk of lung cancer in some people."
 - "For most people, consumption of the right food and drink is more likely to protect against cancer than dietary supplements"

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Drug-Supplement Interaction

- There are two major issues in recommending botanicals and supplements to patients undergoing active cancer treatment with cytotoxic chemotherapy, targeted therapies or radiation:
- Potential for drug interactions ([Sparreboom, 2014](#); [Seely, 2007](#))
 - Oxidant-Antioxidant debate

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Botanical-Pharmaceutical Interactions

Predicting botanical-drug interactions on the basis of *in vitro* studies is inherently limited due to factors including:

- Poor bioavailability
- Multi-component nature of botanicals ([Markowitz, 2012](#)).
- A review of herb-drug interaction studies demonstrated that in a number of cases (e.g., Milk Thistle and Panax ginseng), although *in vitro* studies predicted interactions, clinical testing for such interactions failed to demonstrate them ([Goey, 2013](#)).

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CYP450 Modulated Interactions

Botanicals known or thought to induce CYP3A4, and hence potentially decrease the concentration and efficacy of the cancer treatment, include:

- St. John's Wort
- Echinacea (controversial, may induce or inhibit)
- Grape Seed
- Kava
- Garlic (possibly)

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St John's Wort



- St. John's Wort has been the most widely studied of the botanicals for its potential interactions.
- It is the only botanical that is known to have clinically significant effects on the pharmacokinetics of anti-neoplastic drugs ([Goey, 2014](#))

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Resveratrol



- Resveratrol, an enzyme found in grapes, is gaining popularity as an anti-aging agent and antioxidant and is being used by increasing numbers of cancer patients.
- In a human study, 1000 mg per day of resveratrol taken orally for four weeks was shown to have a strong inhibition of CYP2D9 and CYP2C9.
- This is significant, considering that tamoxifen is metabolized through the former and warfarin the latter ([Chow, 2010](#))

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Common Supplements in Cancer Care

- Vitamin D
- Melatonin
- Ginseng
- Astragalus
- Medicinal Mushrooms
- Turmeric
- Medical Cannabis

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Medicinal Cannabis

- Treatment of chemotherapy-induced nausea and vomiting based on the results of a number of randomized clinical trials ([Smith, 2015](#))
- Relief of pain, often as adjuncts to, or substitutes for, opioids

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Vitamin D

- Open to recruitment in 2010, the multi-center VITAL (Vitamin D and Omega-3 Trial) study
- 25,871 healthy U.S. men 50 years and older women 55 years and older
- **Receive one of the following for a period of five years:**
 1. Vitamin D3 (2000 IU/day) with placebo or fish oil
 2. Fish oil (1 gram/day) with Vitamin D or Placebo
 3. Two placebos ([Manson, 2019](#))
- **Primary endpoints**
 - Invasive cancer of any type and major cardiovascular events (a composite of myocardial infarction, stroke, or death from cardiovascular causes)
- **Secondary endpoints**
 - Site-specific cancers and death from cancer



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Vital Study

Vitamin D supplementation:

- Did not reduce risk of cancer
- Did not reduce risk of major cardiovascular events (heart attack, stroke, or cardiovascular death considered together)
- Appeared to reduce risk of cancer-related death

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Drug-Supplement Interaction

- **Resources:**
 - Natural Medicines Database
 - The Memorial Sloan-Kettering Cancer Center's About Herbs
 - Provides interaction information focused on cancer therapies
 - The Oncology Association of Naturopathic Physicians KNOW Database

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What to Advise Patients Insisting on Supplements

- Use of supplemental antioxidants should probably be postponed until active therapy has been completed.
- Supplement an antioxidant-rich diet during radiation or chemotherapy.

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Choices for Patients

- Vitamin E:
 - Sunflower seeds, wheat germ oil, almonds
- Vitamin A:
 - Sweet potatoes, butternut squash, oily fish
- Vitamin C:
 - Citrus fruits, berries, bell peppers
- Antioxidants
 - Fresh berries and spices

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Why People Seek Complementary Therapies

- Personally heard a story of someone helped by the intervention
- Recommendation of family and friends

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Why Complementary Therapies

- Men with cancer: is their use of complementary and alternative medicine a response to needs unmet by conventional care?

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Why Complementary Therapies

- A small study in the UK of 34 men with prostate cancer revealed that the choice of particular therapies was based on forms of "evidence" that were personally meaningful, in the following order ([Evans, 2007](#)):
 1. Personal stories of people helped by complementary or alternative medicine
 2. A long history and enduring popularity of the therapy
 3. The plausibility of the mechanism of action
 4. A belief or trust in individual therapies or their providers
 5. Scientific evidence

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Why Complementary Therapies

- Providers must acknowledge
- Prepared to discuss the different standards of evidence used by patients and clinicians to evaluate the benefits of CAM therapies

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Alternative Cancer Care

- "Alternative" in reference to treatments used *instead* of conventional
- Evidence of efficacy may mean that the treatment has not been adequately tested
- Testing has been carried out, and the treatment has proved unhelpful
- Unproven therapy could be considered alternative if used as the sole treatment for cancer

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Concerns: Partial Understanding

- Alkaline Diet
- Raw foods diets with juicing (Gerson Diet)
- Intravenous (IV) vitamin therapies
- Hyperbaric oxygen (Warburg)
- Hyperthermia
- Gonzalez Regimen

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Approach to Patients Who Choose Unproven Cancer Treatment

- Listen with empathy why the patient would give up a chance at a cure
- Encourage the patient to explore these fears with you
- If the fears are well-founded, address them truthfully
- Address the possible outcome of an inadequately treated cancer
- Advise the patient of the research regarding the efficacy

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Approach to Patients Who Choose Unproven Cancer Treatment

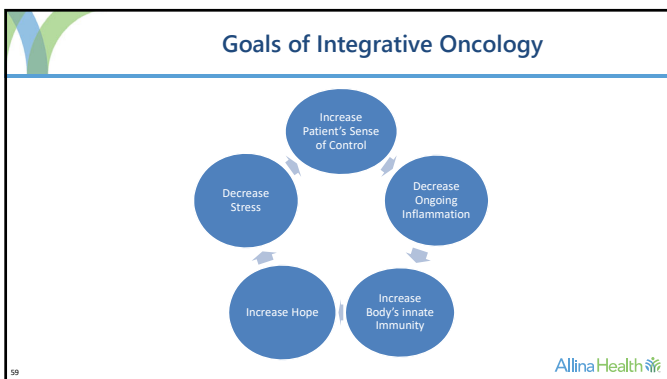
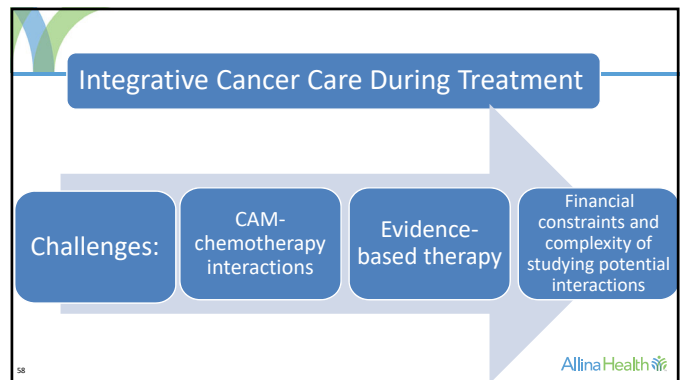
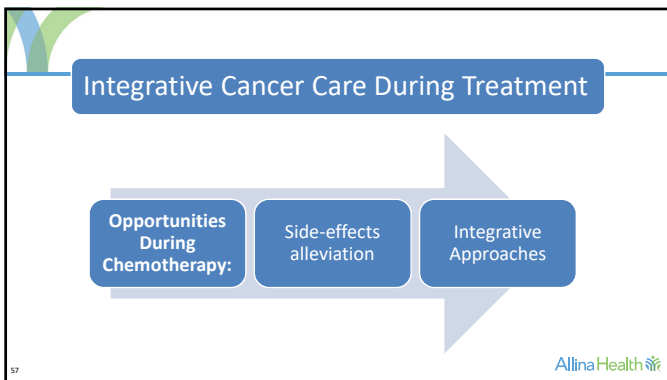
- Delaying proven treatments
- Engage the patient in a discussion of the costs of the alternative therapies
- Maintain a non-judgmental tone

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Difficult Questions


- Best available evidence to make informed recommendations
- Risk-stratification approach

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Approach to Patients Who Choose Unproven Cancer Treatment

- Advocate for an integrative approach that could incorporate diet, mind-body therapies
- Encourage the patient to work within the medical system for ongoing surveillance exams and imaging, even if they choose to pursue alternative therapies
- Emphasize a team approach

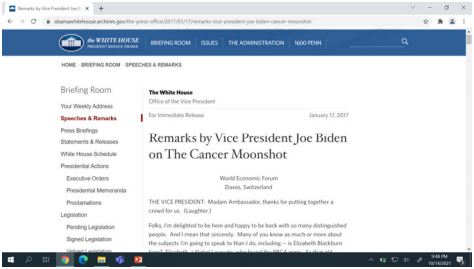
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Post treatment Healing Support or From Survivor to Thriver

- Mind-Body therapies can address stress and heal from trauma
- Guidance on optimal diet
- Dietary supplements
- Address symptoms such as fatigue or disordered sleep
- Learning from cancer
- An integrative approach encourages the patient to regain some of that lost control, an important element of healing.
- Help manage symptoms post treatment

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The Cancer Moonshot




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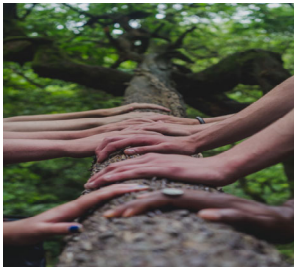
President Biden's Speech Declaration


Here's why it matters: by some estimates, at least 50 percent of the cancers can be prevented, and that prevention falls into three major categories:


- One: Personal actions on the part of the individual, such as living a healthier lifestyle, avoiding cancer risk behaviors, like smoking.
- The second way of prevention is the responsibilities of government and industry to reduce carcinogens and toxins in the air we breathe, the water we drink, the soil we grow our food in.
- And the third is to make available existing diagnostic tools to all communities -- because we know the earlier cancer is detected, the better prospect for an outcome that's good.

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We Are Stronger Together




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“For there is always light. If only we're brave enough to see it. If only we're brave enough to be it”

- Amanda Gorman

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