



MAYO CLINIC
Cancer Center

Integrative Medicine in Myeloproliferative Neoplasms

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Disclosures

Academic Writing:

- American College of Physicians
- Arizona Center for Integrative Medicine,
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Objectives

- Define Integrative Medicine and modalities
- Integrative Medicine for common symptoms in myeloproliferative neoplasms:
 - Fatigue, Itching, Weight loss, Pain
- Use of Integrative Medicine for myeloproliferative neoplasms
- Mind-Body Practices
 - Resilience and stress management

Definition

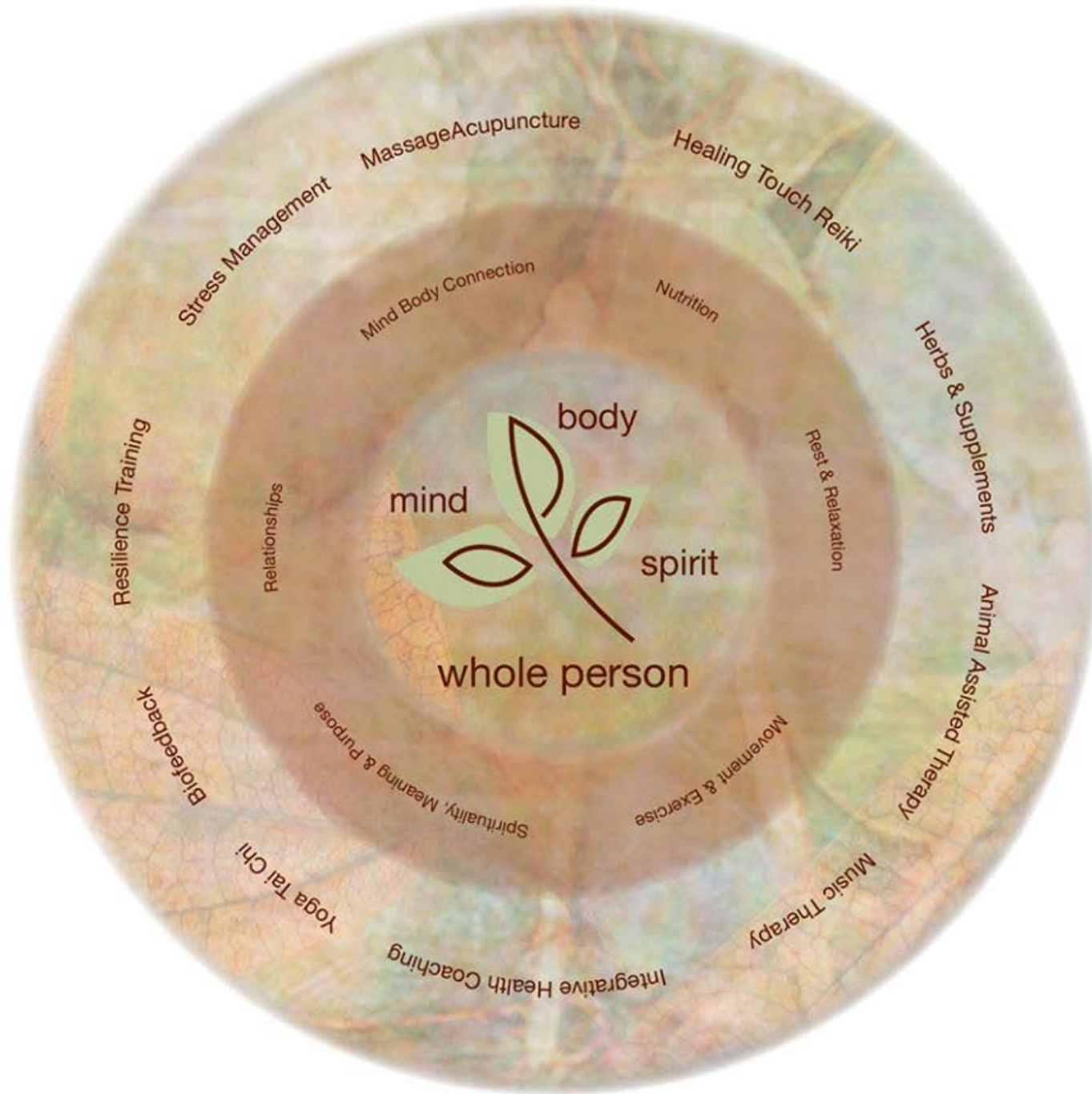
Integrative Medicine is the practice of medicine that reaffirms the importance of the relationship between practitioner and patient, focuses on the whole person, is informed by evidence, and makes use of all appropriate therapeutic approaches, healthcare professionals and disciplines to achieve optimal health and healing.

Consortium of Academic Health Centers for Integrative Medicine

*Developed and Adopted by The Consortium, May 2004
Edited May 2005, May 2009 and November 2009*

Integrative Oncology

“both a science and a philosophy that focuses on the complex health of people with cancer and proposes an array of approaches to accompany the conventional therapies of surgery, chemotherapy, molecular therapeutics, and radiotherapy to facilitate health”



How would you rate your health?

- A. Excellent
- B. Very good
- C. Good
- D. Fair
- E. Poor

ANALYSIS

How should we define health?

The WHO definition of health as complete wellbeing is no longer fit for purpose given the rise of chronic disease. **Machteld Huber and colleagues** propose changing the emphasis towards the ability to adapt and self manage in the face of social, physical, and emotional challenges

Health

- “The ability to adapt and to self manage in the face of social, physical, and emotional challenges”



Resilience



a measure of coping ability, hardiness, and the ability to thrive in the face of adversity

Symptoms in MPN

- Fatigue 81%,
- Itching 52%
 - PV 68% with 15% unbearable
- Night sweats 49%
- Bone pain 44%
- Fever 14%
- Weight loss 13%
- Cough, headache, dizziness
- Impacted social functioning, physical activity, and independence in daily tasks

Fatigue

Acupuncture – systematic review

- Inconsistently shown to be effective compared to sham acupuncture

Exercise

- Cycling, resistance training, weight training, yoga, qi gong
- Consistent finding of improved QOL and fatigue at completion of program and 12 week follow-up

Fatigue

- Sleep strategies
- Budgeting energy

Pruritus

- Capsaicin
 - 0.25-0.1% cream
 - Burning
 - Requires consistent use
- Hypnosis
- Acupuncture

Pain

- Magnesium (possibly effective)
- Reflexology – short relief
- Guided imagery

AVOID

- Strontium – increased risk of blood clot!

Traditional Chinese Medicine: Acupuncture

- Reduction in cancer pain
 - Not more effective than pharmacology
 - Less discomfort with combined approach
 - May reduce use of opioids (post-surgical)

Support Cancer Care 2012; 20:1147-58

Nausea/Vomiting

- Acupuncture/pressure
 - Acupressure
 - Electroacupuncture – reduced emesis from 15 episodes to 5 with once daily treatment for 5 days (1)
- Ginger
- Hypnosis (2)

Weight loss

- Use of vitamins and supplements
 - Support cachexia and malnutrition
- Diet strategies

Integrative Medicine in MPN

Nutrition



Diet - elements



Body-based therapies

- Massage
 - For anxiety and pain
 - Performed by certified provider in oncology massage
 - In patients with advanced cancer, six 30 minute massages over 2 weeks reduced pain and improved mood (1)

Exercise

- Improves
 - QOL
 - Physical functioning
 - Emotional well-being
 - Fatigue
 - Muscle strength
 - Body composition

Exercise - Timing

- Post-diagnosis physical activity levels related to disease endpoints in some cancers
 - Survival advantage at 9-15 MET hours per week = 3-5 hours walking
- Exercise during adjuvant therapy to tolerance
- Consider resistance training
- 30 minutes moderate exercise most days



Navigating Natural Products

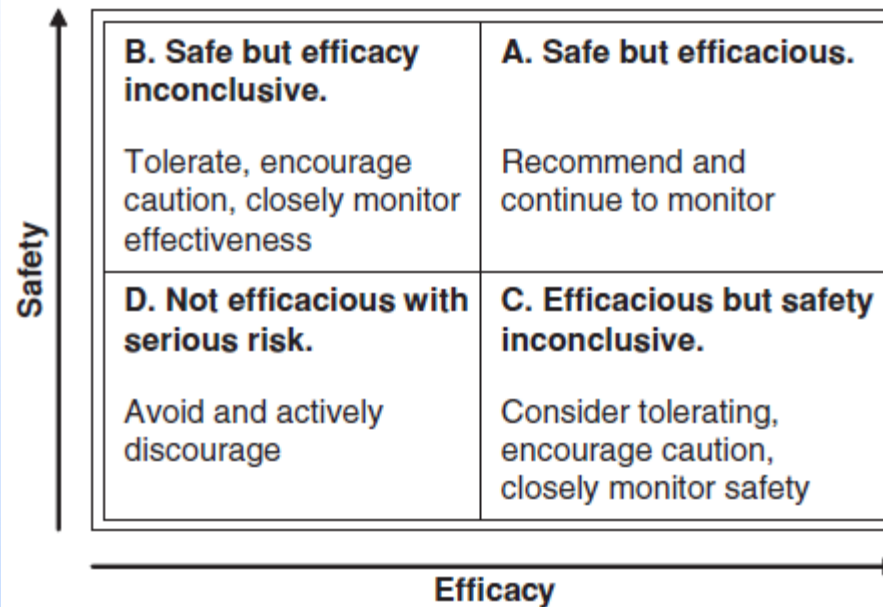


Figure 1. Clinical decision making based on risk versus efficacy. Adapted from Cohen MH and Eisenberg DM.³⁸

Assessing a Multivitamin

- Check serving size
- Review dosing:
 - Vitamin A – mostly beta-carotene (except smokers), <2500 IU preformed
 - Folic acid – minimum 400mcg
 - Vitamin E – 30-200IU, mixed tocopherols
 - Zinc: Copper 15:1 ratio
 - Iron?
- Additives and preservatives
- Botanical additives?

Anti-oxidants supplements

- Safe and beneficial in food, especially carotenoids
- Avoid in supplement form
 - Narrow therapeutic window
 - Increased mortality
 - Vitamins A, C, E, selenium

Vitamin C

- Actions
 - Anti-oxidant
 - Enzyme cofactor
 - Synthesis of collagen, carnitine, neurotransmitters, neuropeptides
 - Wound healing, metabolism, nervous system
- IV therapy lacks safety and efficacy data
 - Oral dosing levels is tightly controlled
 - Supra-physiologic levels only achieved with parenteral therapy





Medicinal Mushrooms

- Anti-inflammatory and immune enhancing
- Maitake, shitake, reishi
 - High doses shitake associated with eosinophilia
- Turkey tail = *Coriolus versicolor*
 - Cell data that targets cancer stem cells



[PLoS One](#). 2011;6(5):e19804

Garlic

- Anti-platelet effects
 - Associated with bleeding
 - Avoid in conjunction with other medications that may cause bleeding

Ginger

- Useful in treatment of nausea
 - Start early – dose appropriately
 - Associated increase transit – avoid in diarrhea
- Theoretical concern for increase bleeding risk

Turmeric (curcuminoids)



- Actions (cell and animal data)
 - Signal transduction – cell growth/ apoptosis, NF- κ B and angiogenesis inhibition
 - Increased intracellular glutathione
- Low bioavailability
 - Enhanced systemic absorption (154%) paired with pepper (piperine, bioperine)

Natural Products - Avoid

- Aortic acid
- Boron
- Grape seed
- Pycnogenol (pine)
- Rutin
- Seaweed
- Shea butter
- Vitamin E
- Yohimbe

Energy based therapies

- Work with “bio-fields” or “bio-energy”
 - Reiki, Healing Touch, Therapeutic Touch, qi gong
 - Safe, ?effective
 - May improve QOL, sense of control and hope

Mind Body

Mind-Body Therapies

- Reduce anxiety
- Improve mood
- Decrease pain
 - Low back, headache
- Increase quality of life
- Meditation
- Guided Imagery
- Relaxation techniques
- Breathing exercises
- Hypnosis
- Cognitive behavioral therapy (CBT)

Hypnosis

- Bone Marrow transplant patients randomized to hypnosis, CBT, therapy, and usual care reduced oral pain with mucositis
- Reduced cancer related pain and anticipatory nausea
- Avoid if history of psychosis and personality disorder

Relaxation therapies

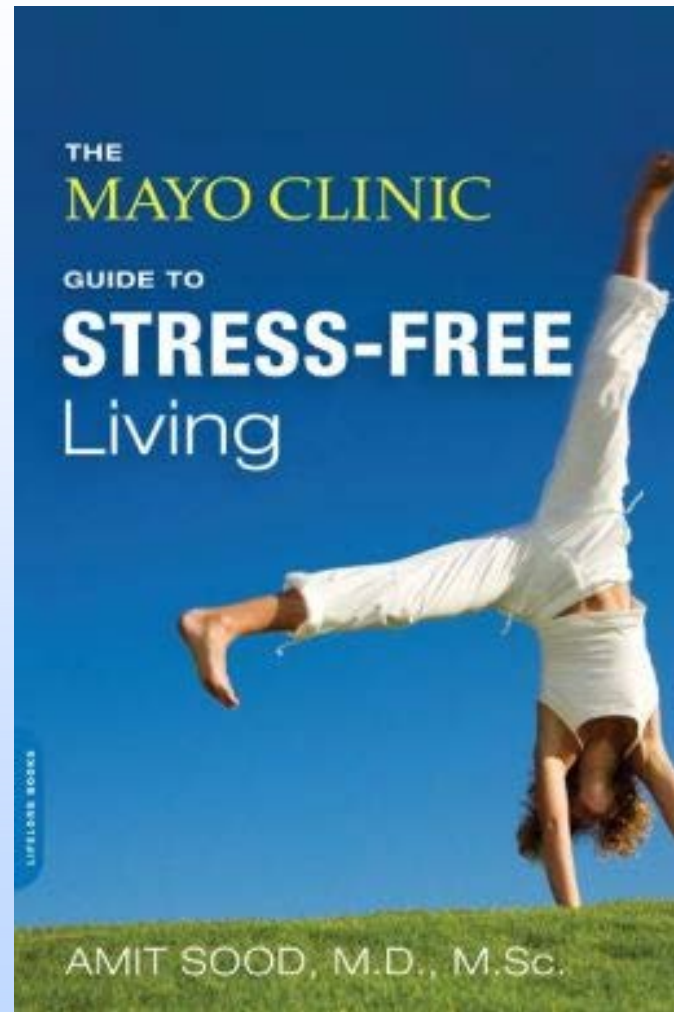
- Reduced tension, depression, anger, and fatigue
- Improved sleep induction and sleep quality
- Regular relaxation training: decrease stress, improved immune function, decreases pain and side effects of treatment

Art Therapy

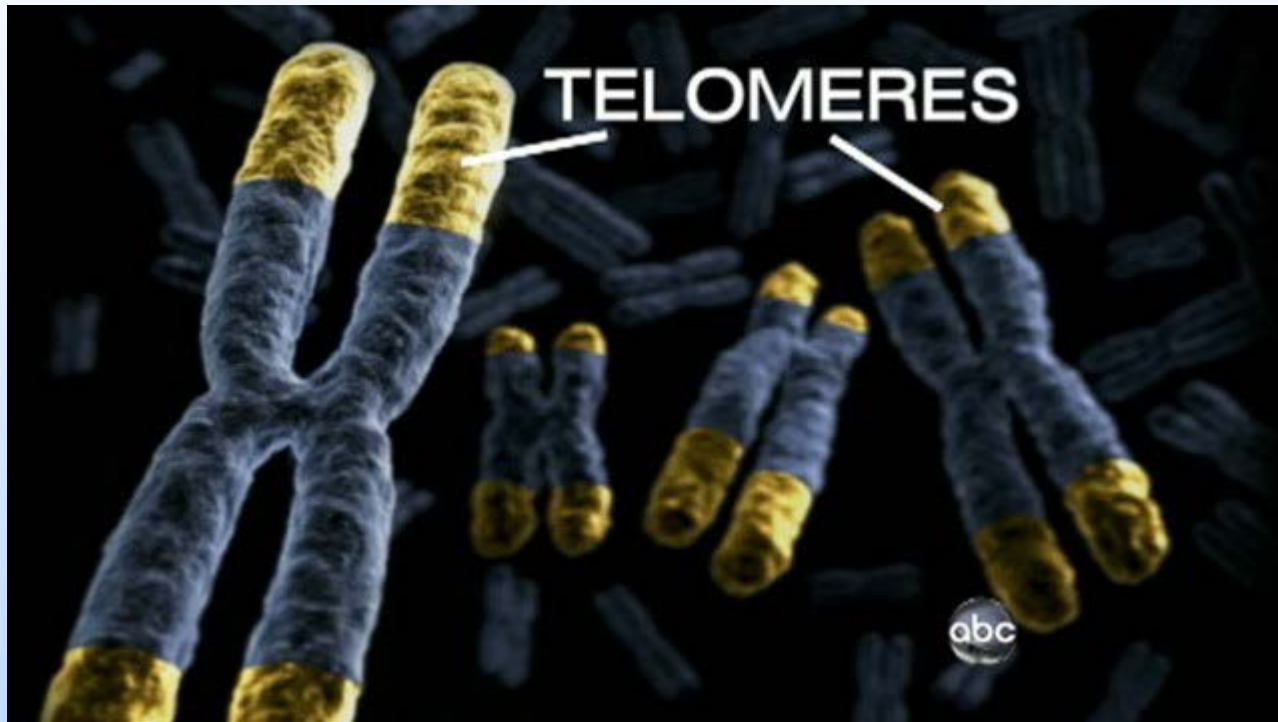
- Used at all stages of cancer journey
 - More often by women
- Key outcome: empowerment
- Improved quality of life and coping

Meditation - Mindfulness



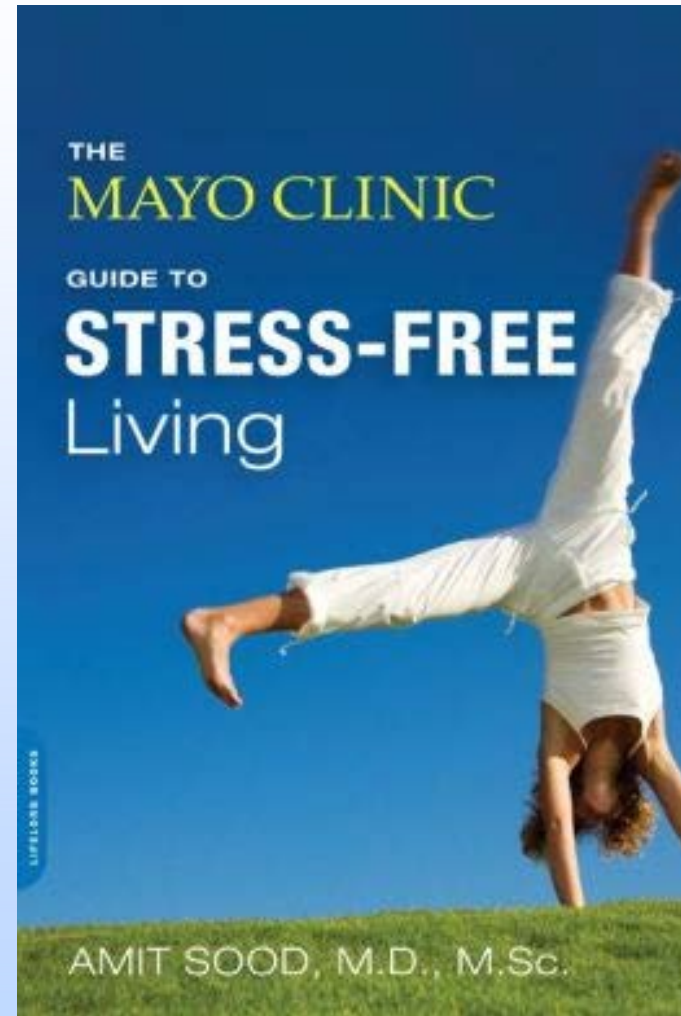


Stress and Telomeres



Mayo Clinic Stress-Free Living

- Gratitude
- Compassion
- Acceptance
- Higher meaning
 - Love
 - Service
- Forgiveness





Integrative Medicine at Mayo Clinic in Arizona

- Consults with Physicians
- Psychiatry/Psychology
 - Biofeedback, Mindfulness
- Nutrition
- Physical Medicine and Rehab
 - Physical Therapy, Acupuncture
- Preventive Cardiology

Integrative Medicine at Mayo



Larry Bergstrom, MD



Denise Millstine, MD

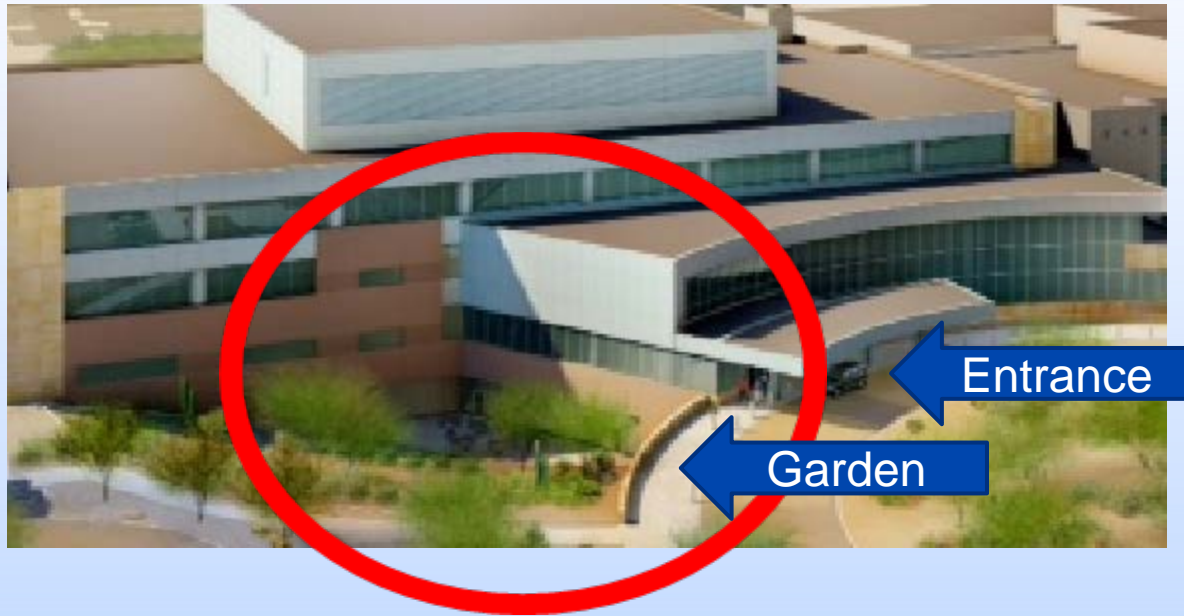


Luciana Funtowicz, MD



Paul Snyder, MD

Integrative Medicine facility - Orientation



Conclusions

- More information needed on Integrative Medicine in MPN
- Focus:
 - Exercise
 - Nutrition
 - Mind-Body Health



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