WE CAN

Wellness Education for CAncer Nutrition

STUDY RESULTS

A Coos County cancer study to improve health outcomes for cancer patients through nutrition.

Prepared by Stephanie Polizzi, MPH, RDN, DipACLM
Primary Investigator

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OHSU
Knight Cancer Institute

Oregon State University

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Dear community partners, community members and clinicians,

As primary investigator of the Wellness Education for Cancer Nutrition (WE CAN) study, I am very pleased to present the results of the WE CAN cancer study Tiers 1 and 2. The study was funded by the OHSU Knight Cancer Institute Community Partnership Program (CPP). The CPP was established to provide grant funding to address community-identified cancer needs. WE CAN received 2 years of funding, which was extended over a 3rd year due to COVID.

The study originated through the interests of the HEAL committee (Healthy Eating Active Living), a subcommittee of the Community Health Improvement Plan, after reviewing the results of the 2018 community health assessment. Cancer was identified as the county's #1 cause of death, and poor nutrition could be playing a major role. It was suggested by the OHSU Campus for Rural Health liaison that an OHSU Knight Cancer Institute grant may be useful in helping to improve nutrition, particularly intake of fruits and vegetables. As chair of the committee, and a Registered Dietitian, I accepted the challenge.

Although good nutrition is important during all phases of life, evidence points to the increased need for plant foods, particularly fruits and vegetables, not just to prevent cancer, but also to reduce harmful effects of treatment therapies. The project goal was to link survivors with nutrition information that may improve treatment outcomes. Tier 1 began with assessing current practices in nutrition information exchange between healthcare providers and cancer survivors, identifying gaps and potential strategies to fill them. Tier 2 involved the implementation of 3 selected interventions.

I was not only primary investigator of the study, but as OSU Extension faculty, I have also been working behind the scene for more than 15 years to increase community capacity to help residents improve their dietary intake. I am committed to creating pathways for reimbursable patient referrals including hiring Registered Dietitians in all our healthcare facilities, establishing lifestyle medicine programs, and training and certifying health coaches. The tools and resources created through this research will not only benefit cancer survivors, but those suffering from other diet-related chronic diseases like heart disease and diabetes.

I am also pleased to continue to serve as chair of the Food and Nutrition Group (FNG), formerly the HEAL committee. Please feel free to contact me if you have feedback, ideas and suggestions, or you would like to work on a nutrition initiative for our county.

In good health,

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RATIONALE

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Coos County is one of the least healthy counties in the state.

The 2019 Robert Wood Johnson County Health Rankings places Coos County 35th of 35, dead last in health factors like healthy behaviors, clinical care and social and economic factors. We were ranked 34th of 35 for health behaviors (smoking, obesity, physical activity), and 30th of 35 for health outcomes (longevity, quality of life). [1]

Cancer is the number one cause of death of Coos County residents, nearly double Oregon state rates. [2]

Studies demonstrate that the intake of fruits and vegetables can improve outcomes for cancer patients by reducing incidence, severity and associated morbidity. [3-10]

According to the 2018 Coos County Community Health Assessment, less than 15% of residents consume the ***minimal*** 5 fruits and vegetables/day [2]. ***Optimal*** intake of fruits and vegetables for cancer patients should exceed the minimum 5 servings/day. [11-13]

Intake of fruits, vegetables and other plant foods (whole grains, legumes, nuts & seeds) is also ***protective*** against many forms of cancer. [14]

A landmark 1981 report on diet and cancer submitted to the Office of Technology Assessment of the U.S. Congress concluded that 35% of total cancer was attributed to diet, with estimates by some authorities being as high as 70%. [15]

Since nutrition can greatly influence prevention and recovery, it stands to reason it should be an integral component of patient treatment plans.

This recommendation extends beyond cancer survivor to all patients diagnosed with chronic or acute illness seeking help from their healthcare provider.

Providing nutrition information

Studies show that medical professionals do not feel confident in their ability to share nutrition information with patients. [16] Despite federal mandates, only 20% of US medical schools provide nutrition in their training curricula. [16-25] Likewise, nutrition is covered but not emphasized in nursing curricula. [26-28]

Registered Dietitians (RDs) have the professional education and expertise for assessing nutrition intake and making therapeutic nutrition recommendations. A major advantage in dietitians providing medical nutrition therapy (MNT) is that it is a reimbursable service.

Rural and underserved, Coos County is sorely lacking in qualified nutrition experts, namely, Registered Dietitians.

In other regions, RDs can be found working in schools, nursing homes, senior centers, private practice, even grocery stores. In Coos County, only one healthcare facility of the 10 across the region employs RDs on site.

As of the Tier 1 application, only one of those RDs was full time. Total dietetic Full Time Equivalent (FTE) for dietitians in Coos County was 4.6.

Sixteen to 24 hours of that FTE has been allocated to the cancer center. The RD time is most often spent supporting patients with extreme needs, for example, feeding tubes, severe malnutrition and wasting. Patients with lower risk are not receiving any nutrition support.

Additional disparities in our region, such as poverty and high disabilities rates, may preclude survivors and their caregivers from seeking nutrition advice beyond the range of the clinical setting, since this would be an out-of-pocket expense.

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TIERS 1 & 2 OVERVIEW

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Abstract

WE CAN represents Wellness Education for Cancer Nutrition, a study funded through Oregon Health & Science University's Knight Cancer Institute (KCI).

The goal of the study is to increase intake of fruits, vegetables and other plant foods to improve health outcomes, an initiative of the Coos County Community Health Improvement Plan. Since cancer is the number one cause of death in Coos County, WE CAN set out to determine whether cancer survivors in Coos County were receiving adequate nutrition information and guidance from their medical providers.

In Tier 1, medical professionals and staff from all 10 major healthcare sites around the county were surveyed to determine current practices for providing nutrition information to cancer patients. Cancer survivors and their caregivers participating in cancer survivorship program were also surveyed to assess the extent of their exposure to nutrition recommendations as part of their treatment plans.

The main objective of WE CAN Tier 1 was to identify gaps in current practices which would inform the development of one or more intervention strategies.

Tier 2 focused on identifying evidence-based and validated tools or resources that would fill deficits determined by the Tier 1 assessments. The study team selected 3 interventions based on results of Tier 1 surveys and focus group feedback. These interventions were pilot-tested at Bay Area Cancer Center.

All 3 interventions were evaluated by healthcare staff and patients at the Bay Area Cancer Center for feasibility and acceptability using written surveys. The process for selecting interventions and the results of participant surveys are included in this document.

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TIER 1 REVIEW

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TIER 1 GOALS

To assess current practices in the sharing of nutrition education and resources between healthcare providers and cancer patients.

- To identify gaps in current practices of both patients and medical professionals for including nutrition therapy in treatment plans
- To identify and prioritize strategies to bridge these gaps for both healthcare professionals and cancer survivors
- To increase options for nutrition consultations and referrals to Registered Dietitians or other certified nutrition experts
- To encourage healthcare professionals to engage in professional development and board certification in nutrition and lifestyle medicine
- To encourage community partners to provide services, resources and programs in food access and nutrition for disease prevention and reversal

WHAT WAS DONE

1 Medical professionals from 10 healthcare facilities across Coos County were surveyed to identify what resources or services currently exist for providing nutrition recommendations to cancer survivors.

They were asked to share observations or awareness of potential resources they believe would be most helpful in providing medical nutrition therapy or nutrition resources for their patients.

2 Cancer survivors and their caregivers in Coos County were surveyed to determine the extent to which their medical professionals share the importance of fruit and vegetable intake as part of their treatment plan.

They were asked to share observations or awareness of potential resources they think would be most helpful in improving the nutrition content of their diet and outcomes of their treatment.

3 An action plan was developed to identify evidence-based interventions that address the missing policies, procedures or resources necessary for providing cancer survivors with nutrition education and therapy they need.

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TIER 1 RESULTS

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Healthcare Sites

WE CAN received 96 surveys from healthcare professionals and support staff, surpassing the original goal of 50. This was accomplished by adding 3 more sites to the original 7 we enrolled.

98% of medical professionals believe nutrition should be part of a patient plan.

14% of respondents stated they use a nutrition assessment tool.

0% nutrition assessment tools used. Healthcare staff identified lab results and/or physical exam as nutrition assessment tools. These do not identify dietary patterns nor do they assess the intake of fruits and vegetables.

72% of healthcare professionals stated they had little or no nutrition education. More than half stated they have little or no confidence in their ability to counsel in nutrition.

Other comments included:

- Spend time putting out fires and not helping majority of patients
- Don't have a standardized nutrition assessment tool
- Don't have nutrition protocols to implement
- Don't have resources, counseling or coaching available
- Hard to identify who are the riskiest patients

Survivors/Caregivers

The goal of 50 surveys was surpassed. WE CAN received 87 surveys (58 from survivors, 29 from caregivers). The majority of cancer cases had been diagnosed in the last 5 years.

96/95% of survivors/caregivers believe nutrition should be part of their treatment plan.

86% of survivors stated they received no nutrition assessment. Comments indicated the patient would be more likely to listen to professional nutrition advice from their provider than that from family or friends.

Comments also indicated that survivors are using a variety of websites, books, TV programs and media to find nutrition information.

Sources may or may not be evidence-based, and could be potentially dangerous.

The #1 problem perceived by healthcare providers is the lack of options for referring patients to qualified nutrition professionals (RDs).

This was mirrored by survivor and caregiver feedback.

Probably the most telling comment regarding nutrition status:

"We are at a loss how to define this, never mind how to address it"

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TIER 1 RESULTS

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SELECTED INTERVENTIONS

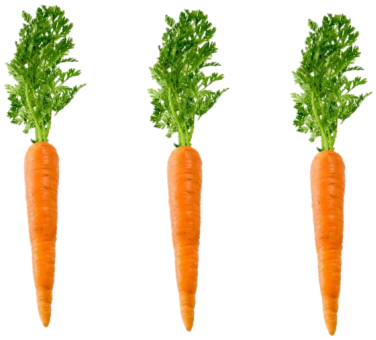
Healthcare Recommendations *(in order of importance)*

- Policies and procedures to guide the clinic process in nutrition assessment
- More options for patient referrals
- Written nutrition guidelines that could be handed to patients
- Education opportunities for health professionals and staff in Lifestyle Medicine practices
- A brochure with reputable online and community resources

Survivors/Caregivers Recommendations *(in order of importance)*

- Nutrition should be prioritized by providers
- Written nutrition guidelines
- RD referral for consultation
- List of appropriate websites
- Community cooking classes
- Spouse/caregiver included in consult
- On-going support from health coaches, classes in nutrition

Based on the recommendations from the participants in the Tier 1 questionnaires from all 3 cohorts, the study team selected 3 interventions designed to benefit healthcare staff, patients and their caregivers:



1. Provide a Nutrition Assessment Tool (NAT) that can be easily inserted into the patient intake procedures. Create accompanying keys for using the NAT for both healthcare staff and patients and procedural guidelines for staff to implement and follow-up with the NAT.
2. Provide written nutrition guidelines that can be handed to the patient and/or used for follow-up.
3. Create a resource brochure or booklet including local and online opportunities for learning, skill-building and health coaching services.

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TIER 2

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TIER 2 GOALS

To identify and implement intervention strategies that link cancer patients with plant-based nutrition resources and support.

- To provide nutrition resources at healthcare sites that demonstrate opportunities for discussion and follow-up nutrition care
- To increase healthcare staff awareness of the value of nutrition assessments for patient care
- To increase opportunity for healthcare staff to encourage patients to make healthy lifestyle changes
- To provide healthcare staff with opportunities outside of RD consults for nutrition referrals for low risk patients
- To provide educational opportunities for healthcare staff and patients in the value of Lifestyle Medicine and the plant-based dietary pattern for the prevention and treatment of primary and secondary cancers

WHAT WAS DONE

1. The study team researched evidence-based, validated tools and resources that could be used to bridge the gaps in nutrition education between healthcare staff and patients.
2. The selected nutrition assessment tool and key were modified and adapted to meet study goals and tested with both local and statewide dietitians.
3. Instructional procedure guidelines for implementing interventions were created in collaboration with staff at the pilot site.
4. Nutrition guidelines for cancer were researched to find the best resource that focused on the intake of fruits and vegetables.
5. A Nutrition Resource Guide was created that included a combination of local and online resources for reputable nutrition information.
6. All 3 interventions were implemented at the pilot site for feasibility and acceptability using surveys with healthcare staff and patients.

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NUTRITION ASSESSMENT TOOL (NAT)

The team selected the Rapid Eating Assessment for Participants or REAP and chose the shortened version or REAP-S. The REAP-S tool has undergone extensive evaluation in reliability, feasibility and cognitive assessment with medical students, practicing physicians and consumers reflecting a variety of incomes and education levels.

The REAP-S tool is short, user-friendly and correlates with Healthy Eating Index (HEI) scores, making it efficient for use in clinical settings. The WE CAN Nutrition Assessment Tool or NAT adapted the REAP-S by replacing simple bubble responses with numbers 1-3, allowing intake to be ranked. This provides healthcare staff and patients with a risk factor which can help determine follow-up.

NAT not only evaluates nutrients of concern and patient eating patterns, but provides an easy protocol or key for referral or follow-up.

The NAT has been adapted for use at this site to focus on increasing intake of plant-based foods and decreasing nutrients of concern like fat, sugar, salt and processed meats.

The NAT is a 1-page, color-coded questionnaire designed to be provided to patients as part of their packet of patient intake forms.

There are 19 total questions including questions addressing intake of 7 food categories (fruits and vegetables, legumes, grains, meat and dairy, fats, sweets and snack foods).

There are two questions about meal pattern and two questions referencing potential food insecurity issues.

By including the 2 food insecurity questions, this form can be used in place of the food insecurity screening questions, improving dietary information collected for each patient.

Patient Name _____ Date of Birth _____ Date _____

Nutrition Assessment Tool (NAT)

Please respond to all 17 questions. Circle the number that represents your typical day.

	In an average day how often do you:	Usually Often	Some-times	Rarely Never	Score
Fruits & Veggies	1. Eat less than 3 servings of whole fruit? Serving = 1/2 cup cut or 1 medium whole fruit. *Do not* include juice.	3	2	1	
	2. Eat less than 5 servings of fresh or frozen vegetables like broccoli, green beans, cabbage, cauliflower, asparagus, sweet potato, squash, zucchini, carrot, cucumber, raw lettuce (spinach, kale, Romaine). Serving = 1/2 cup cooked or 1 cup raw	3	2	1	
Legumes	3. Eat less than 3 servings of beans (black, pinto, lima, garbanzo, etc), lentils, split peas or soy beans? Serving = 1/2 cup cooked	3	2	1	
Grains	4. Eat more than 3 servings of bread, pasta, rice, pizza dough or other foods made from refined (white) grain products? Serving = 1 slice bread, 1/2 bagel, 1/2 cup rice or pasta, 1 3"slice pizza	3	2	1	
Meat	5. Eat more than 3 ounces of meat (beef, chicken, fish, game meat)? Serving = approximately size of a deck of cards	3	2	1	
	6. Eat more than 3 eggs *per week*?	3	2	1	
	7. Eat lunchmeats (ham, salami, roast beef, corned beef, turkey, liverwurst), hot dogs, sausage, pepperoni or bacon?	3	2	1	
Dairy	8. Consume milk, cream, yogurt, ice cream or cheese?	3	2	1	
Fats	9. Add butter, margarine or oil to bread, potatoes, vegetables or rice before serving?	3	2	1	
	10. Eat fried foods such as burgers, pan or deep fried chicken, fried fish, pan fried noodles, French fries or tater tots?	3	2	1	
Sweets & Snacks	11. Eat sweets like cake, cookies, pastries, donuts, muffins, chocolate or other candy?	3	2	1	
	12. Eat snack foods like chips, crackers, popcorn, or nuts?	3	2	1	
	13. Drink juice, soda, fruit drink, sweet tea, punch, Kool-Aid, energy drinks or sports drinks (regular or sugar-free)?	3	2	1	
Meal Pattern	14. Purchase food from restaurants, take out, fast foods or convenience stores?	3	2	1	
	15. Follow a special diet, eat or limit certain foods for health or other reasons?	3	2	1	
Food Insecurity	16. Have trouble shopping for, or preparing food?	3	2	1	
	17. Worry if your food will run out before you have money to buy more?	3	2	1	
				Total Score	

Gans, K. M., Risica, P.M., Wylie-Rosett, J., Ross, E. M., Stolla, L. O., McMurray, J., & Eaton, C. B. (2006). Development and Evaluation of the Nutrition Component of the Rapid Eating and Activity Assessment for Patients (REAP): A New Tool for Primary Care Providers. *Journal Nutrition Education and Behavior*, *38*(5), 286-292. https://www.sciencedirect.com/science/article/pii/S1499404605000436?via%3Dihub

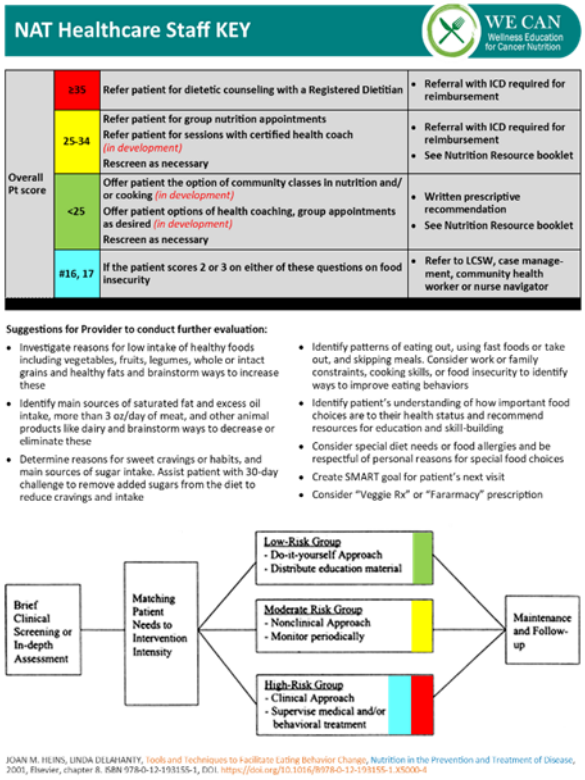
TIER 2 INTERVENTIONS

NAT KEYS

The healthcare staff key was designed to assist with identifying dietary patterns that may be putting patients at risk. It is color-coded to match categories on NAT and includes potential referral suggestions.

It also includes recommendations for providers to use when considering referrals, follow-up or nutrition consultation.

The staff key is one page.



NAT Healthcare Staff KEY

Overall Pt score	≥35	Refer patient for dietetic counseling with a Registered Dietitian	• Referral with ICD required for reimbursement
	25-34	Refer patient for group nutrition appointments Refer patient for sessions with certified health coach *(in development)* Rescreen as necessary	• Referral with ICD required for reimbursement • See Nutrition Resource booklet
	<25	Offer patient the option of community classes in nutrition and/or cooking *(in development)* Offer patient options of health coaching, group appointments as desired *(in development)* Rescreen as necessary	• Written prescriptive recommendation • See Nutrition Resource booklet
	#16, 17	If the patient scores 2 or 3 on either of these questions on food insecurity	• Refer to LCSW, case management, community health worker or nurse navigator

Suggestions for Provider to conduct further evaluation:

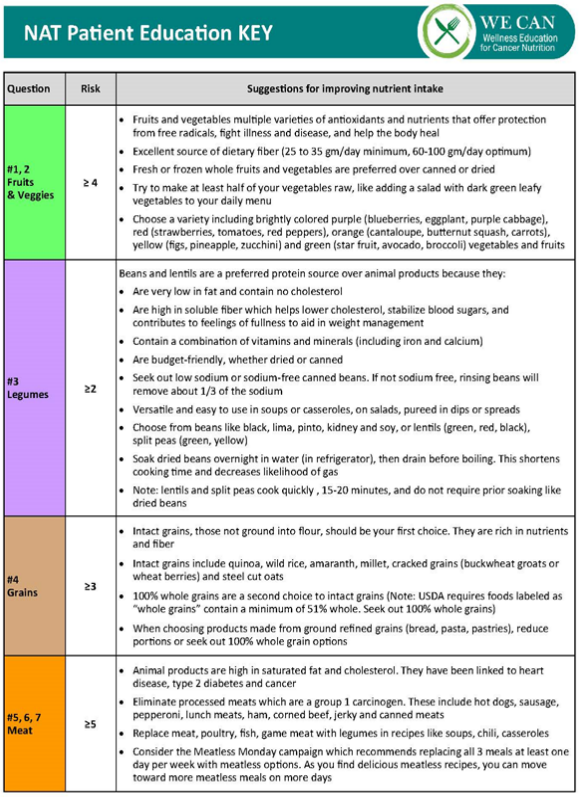
- Investigate reasons for low intake of healthy foods including vegetables, fruits, legumes, whole or intact grains and healthy fats and brainstorm ways to increase these
- Identify main sources of saturated fat and excess oil intake, more than 3 oz/day of meat, and other animal products like dairy and brainstorm ways to decrease or eliminate these
- Determine reasons for sweet cravings or habits, and main sources of sugar intake. Assist patient with 30-day challenge to remove added sugars from the diet to reduce cravings and intake
- Identify patterns of eating out, using fast foods or take out, and skipping meals. Consider work or family constraints, cooking skills, or food insecurity to identify ways to improve eating behaviors
- Identify patient's understanding of how important food choices are to their health status and recommend resources for education and skill-building
- Consider special diet needs or food allergies and be respectful of personal reasons for special food choices
- Create SMART goal for patient's next visit
- Consider "Veggie Rx" or "Fararmacy" prescription

JOAN M. HEINS, LINDA DELAHANTY, Tools and Techniques to Facilitate Eating Behavior Change, Nutrition in the Prevention and Treatment of Disease, 2001, Elsevier, chapter 8. ISBN 978-0-12-193155-1, DOI. https://doi.org/10.1016/B978-0-12-193155-1.X5000-4

The patient key is color-coded to match the food categories on the NAT. The patient (and provider) can compare the score from his/her NAT with the recommendations on the key to determine potential lifestyle adjustments.

The patient key provides suggestions for increasing plant foods and decreasing foods that contain nutrients of concern that contribute to poor health outcomes like fats, added sugars, salt and processed foods.

The patient key is 3 pages and includes helpful web links to address food insecurity questions.



NAT Patient Education KEY

Question	Risk	Suggestions for improving nutrient intake
#1, 2 Fruits & Veggies	≥ 4	• Fruits and vegetables multiple varieties of antioxidants and nutrients that offer protection from free radicals, fight illness and disease, and help the body heal • Excellent source of dietary fiber (25 to 35 gm/day minimum, 60-100 gm/day optimum) • Fresh or frozen whole fruits and vegetables are preferred over canned or dried • Try to make at least half of your vegetables raw, like adding a salad with dark green leafy vegetables to your daily menu • Choose a variety including brightly colored purple (blueberries, eggplant, purple cabbage), red (strawberries, tomatoes, red peppers), orange (cantaloupe, butternut squash, carrots), yellow (figs, pineapple, zucchini) and green (star fruit, avocado, broccoli) vegetables and fruits
#3 Legumes	≥2	Beans and lentils are a preferred protein source over animal products because they: • Are very low in fat and contain no cholesterol • Are high in soluble fiber which helps lower cholesterol, stabilize blood sugars, and contributes to feelings of fullness to aid in weight management • Contain a combination of vitamins and minerals (including iron and calcium) • Are budget-friendly, whether dried or canned • Seek out low sodium or sodium-free canned beans. If not sodium free, rinsing beans will remove about 1/3 of the sodium • Versatile and easy to use in soups or casseroles, on salads, pureed in dips or spreads • Choose from beans like black, lima, pinto, kidney and soy, or lentils (green, red, black), split peas (green, yellow) • Soak dried beans overnight in water (in refrigerator), then drain before boiling. This shortens cooking time and decreases likelihood of gas • Note: lentils and split peas cook quickly , 15-20 minutes, and do not require prior soaking like dried beans
#4 Grains	≥3	• Intact grains, those not ground into flour, should be your first choice. They are rich in nutrients and fiber • Intact grains include quinoa, wild rice, amaranth, millet, cracked grains (buckwheat groats or wheat berries) and steel cut oats • 100% whole grains are a second choice to intact grains (Note: USDA requires foods labeled as "whole grains" contain a minimum of 51% whole. Seek out 100% whole grains) • When choosing products made from ground refined grains (bread, pasta, pastries), reduce portions or seek out 100% whole grain options
#5, 6, 7 Meat	≥5	• Animal products are high in saturated fat and cholesterol. They have been linked to heart disease, type 2 diabetes and cancer • Eliminate processed meats which are a group 1 carcinogen. These include hot dogs, sausage, pepperoni, lunch meats, ham, corned beef, jerky and canned meats • Replace meat, poultry, fish, game meat with legumes in recipes like soups, chili, casseroles • Consider the Meatless Monday campaign which recommends replacing all 3 meals at least one day per week with meatless options. As you find delicious meatless recipes, you can move toward more meatless meals on more days

The adapted NAT and keys were reviewed by Registered Dietitians (RDs) from Bay Area Hospital and around the state. RD comments were used to make edits to the tools before implementation.

TIER 2 INTERVENTIONS

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NAT CLINICAL PROCEDURES

In order to aid in implementing the NAT in the clinical setting, the study team worked closely with the pilot site to create procedures for delivering the NAT, keys and written resource materials that aligned with current procedures.

The procedures are listed on a 1-page document and include 6 steps with check boxes for staff to monitor the completion of the steps.

NUTRITION GUIDELINES

The study team selected ***HEAL Well A Cancer Nutrition Guide*** from the American Institute for Cancer Research. HEAL is an acronym for Healthy Eating and Activity for Living. This guide provides general nutrition information and addresses common questions about diet, nutrition and physical activity.

The HEAL Well guide was selected for several reasons.

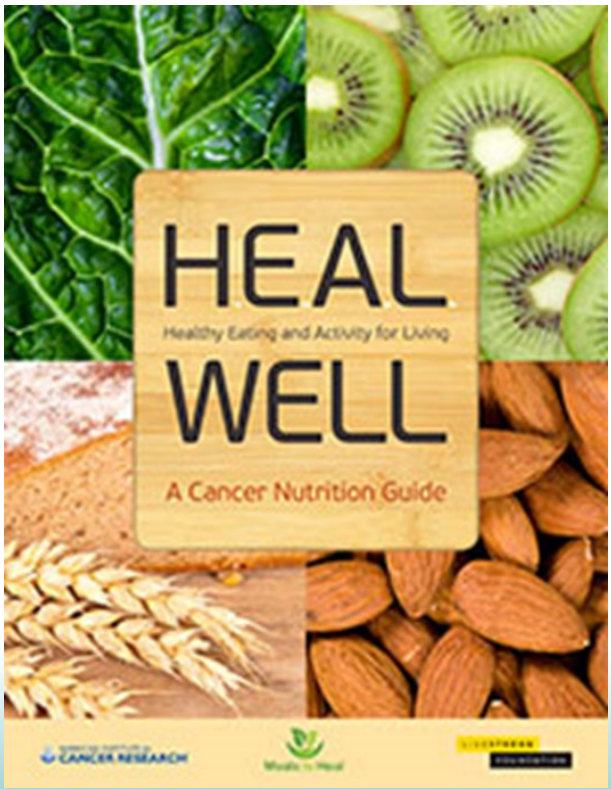
- The focus is mainly on increasing intake of whole plant foods for antioxidants and other phytonutrients.
- There are only 26 pages making it cost-effective for the study team to print multiple copies for the pilot site.
- The short format also makes it more sustainable for sites to print at their own locations.

The disadvantage is that it does not include recipes or "how to" instructions for adopting a plant-based or plant-centered dietary pattern.

Another disadvantage of the HEAL Well nutrition guidelines is that AICR is no longer updating this publication. Instead, they are using *Cancer Resource: Living with Cancer.*

This revised publication is comparable in content although longer, 44 pages.

Supplemental nutrition resources from AICR include *AICR's Guide to a Plant-Based Diet* and *The Cancer Fighters in Your Food* as well as brochures about fiber, weight loss and label-reading.



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NUTRITION RESOURCES GUIDE BOOKLET

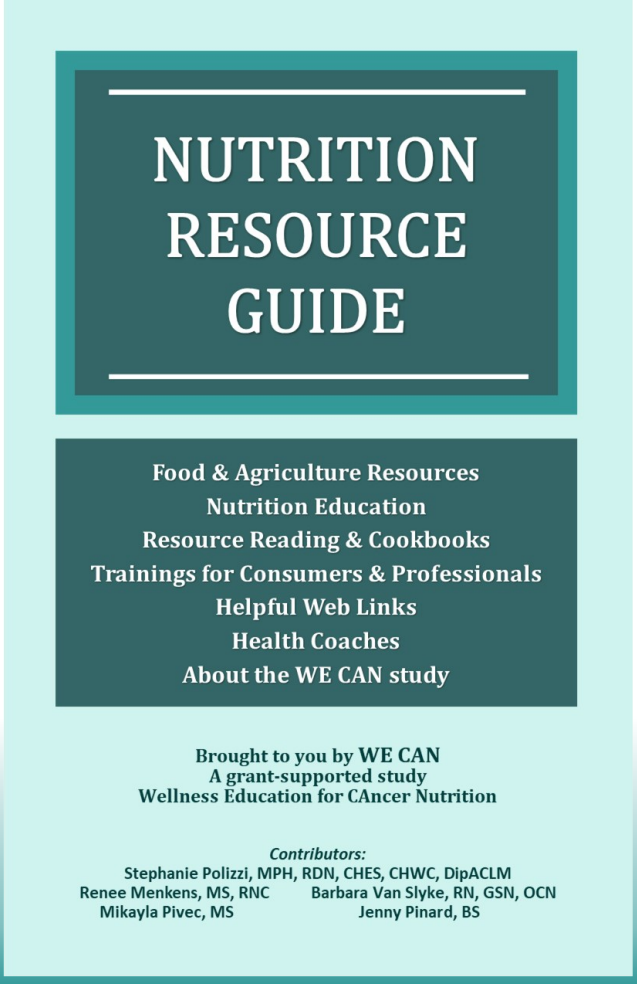
To make it simple for healthcare staff to assist patients with finding local resources, the study team created the Nutrition Resource Guide.

The guide was created in collaboration with Coos and Curry agencies and organizations, members of the Food & Nutrition Group, students and local residents.

The booklet contains 52 half-pages filled with resources like where to find farmers' markets, SNAP benefits and free or low cost meals, access to CSAs or resources for how to grow food through Extension's Master Gardener volunteer program.

Other resources include Nutrition Education classes or services, local support groups for diabetes and cancer, books and cookbooks, links to nutrition trainings, resource reading and reputable websites to gain evidence-based nutrition advice. The booklet also includes resources for health professionals to earn CMEs or board certification in nutrition or Lifestyle Medicine.

The booklet lists ways to get started with a plant based dietary pattern and contact information for local Certified Health and Wellness Coaches.


NUTRITION RESOURCE GUIDE

Food & Agriculture Resources
Nutrition Education
Resource Reading & Cookbooks
Trainings for Consumers & Professionals
Helpful Web Links
Health Coaches
About the WE CAN study

Brought to you by WE CAN
A grant-supported study
Wellness Education for CAncer Nutrition

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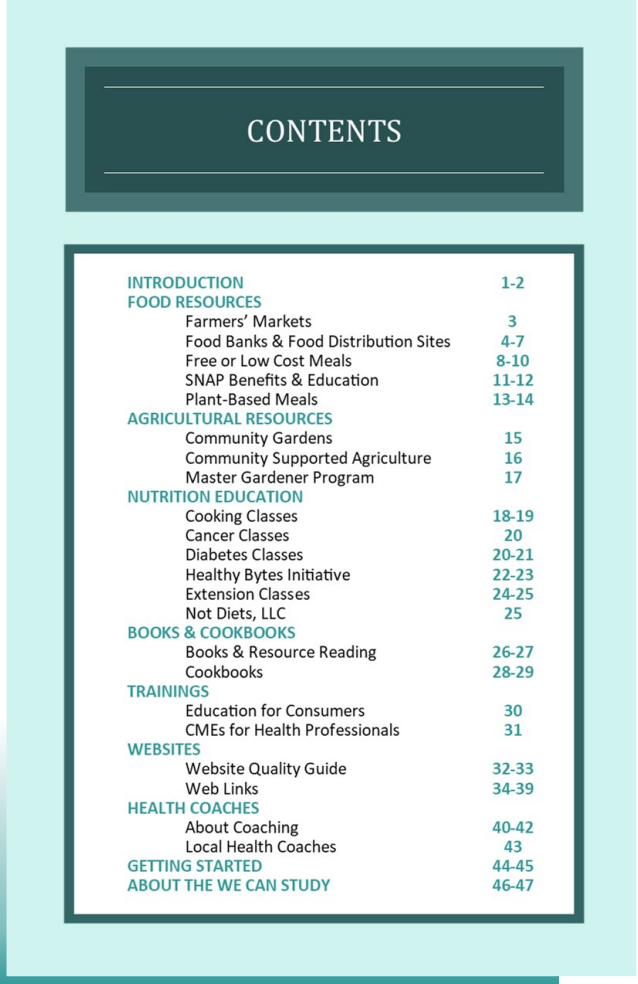
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TIER 2 IMPLEMENTATION

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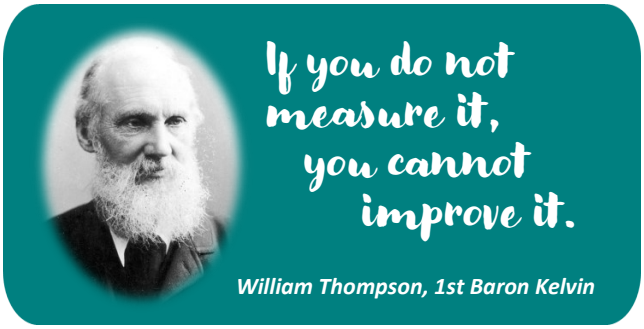

Tier 2 interventions were identified and adapted for use at Bay Area Cancer Center in spring and summer 2020. Implementation and evaluation of the interventions were scheduled to begin Oct 2020.

Due to COVID-19 and other delays, the study was granted two extensions. Implementation began in May 2021 and the study was closed in Dec 2021.

PROTOCOLS

- Only patients not receiving active treatment were eligible to participate.
- Patients and healthcare staff were enrolled in the study by the nurse navigator on site.
- Staff were asked to provide the NAT to enrolled patients and make copies for the patient chart.
- Completed NAT was given to the provider in the patient chart.
- Provider rooms had laminated copies of both the provider key and the patient key to facilitate discussion.
- After the appointment, the patient received his/her original NAT along with a packet of resource materials.
- Packets included the 3-page patient key, HEAL Well nutrition guidelines and the Nutrition Resource Guide booklet.
- Also included in the patient packet was an evaluation survey and a self-addressed stamped envelope.
- Patients were asked to evaluate the materials at home and mail their evaluation sheets to the cancer center using the self-addressed stamped envelope.
- The nurse navigator kept all records of the enrolled patients and monitored return of the evaluations.
- In accordance with HIPAA requirements, evaluations were de-identified by the nurse navigator before sharing with study team.

EVALUATIONS

Healthcare staff were asked to evaluate:

- All protocols and procedures
- NAT and both KEYS
- HEAL WELL nutrition guidelines
- Nutrition Resource Guide booklet

Patients were asked to provide feedback on:

- Use of the NAT and patient KEY
- HEAL Well nutrition guidelines
- Nutrition Resource Guide booklet

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TIER 2 IMPLEMENTATION

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BARRIERS

Several barriers in implementing and attaining results were noted by the site's nurse navigator.

- COVID-19 slowed recruitment of patients since many who would normally be seen in the clinic were instead seen via telehealth or phone.
- Several key employees of the cancer center left, retired or were out sick during the implementation, slowing process.
- It is estimated that 20-25% of eligible patients declined participation in the study because they did not want to read the 1-page consent form required by IRB.
- Neither patients nor staff tallied the points on the NAT which resulted in at-risk patients not being referred to dietary consults.
- Due to HIPAA and other restrictions, the only study team member assigned to implement was the nurse navigator. COVID delayed implementation and the nurse navigator retired, leaving no full-time study team member on site during the implementation phase of Tier 2.
- The cancer center research coordinator agreed to take on the completion of the study but was overwhelmed with COVID and other center issues and could not meet the study requirements.
- As a result, only 29 of the minimum 320 surveys promised were collected.
- Office staff at BACC found the process of implementation "wearisome" whereas providers "seemed fine with it."
- It was noted in the procedures that patients would receive their packet on their exit from their appointment. However, it was learned that patients often exit to different areas like radiation, or case management, instead of exiting via the checkout desk.
- During WE CAN Tier 2, BACC began the transition to use of EPIC, a new electronic medical records system, which is challenging and time-consuming for staff.
- Use of the NAT and other procedures are not yet included in the electronic medical records system which would facilitate use and sustainability.

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TIER 2 RESULTS

WE CAN Wellness Education for Cancer Nutrition

HEALTHCARE STAFF (n=7)

For every question, healthcare staff were asked to describe why or why not. There was also room after each set of questions for additional feedback, suggestions or resources.

Evaluation of NAT:

92% 1. Procedures for implementing the NAT process are suitable for our site.
100% 2. NAT is an important addition to the patient care plan
77% 3. NAT is an appropriate length.
100% 4. Use of the NAT is an easy process.
77% 5. I am willing to utilize the NAT as part of my patient evaluation process.
100% 6. NAT helps me communicate with patients about their diet and nutrition.
100% 7. I am satisfied with the overall usability of the NAT.

Evaluation of Healthcare staff KEY:

100% 1. HCS KEY is helpful in assessing patient dietary intake.
100% 2. I am willing to utilize the HCS KEY as part of my patient evaluation process.
100% 3. I am satisfied with the overall usability of the HCS KEY.
100% 4. Suggestions for provider or staff to conduct further evaluation (bullet points) are helpful.

Evaluation of Patient KEY:

100% 1. Patient KEY is an important addition to the patient care plan.
100% 2. Patient KEY is an appropriate length.
100% 3. Patient KEY is prepared at an appropriate reading level.
100% 4. Patient KEY is convenient to hand to patients.
100% 5. Patient KEY helps identify ways to increase intake of healthy foods.
100% 6. Patient KEY is helpful to providers to communicate with patients about dietary intake.
100% 7. Patient KEY provides a focus for ongoing follow-up with patients about dietary intake.
100% 8. I would be comfortable using the Patient KEY with patients.

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TIER 2 RESULTS

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HEALTHCARE STAFF

Responses from categories of "agree" and "strongly agree" were merged for these percentages.

Evaluation of HEAL Well Nutrition Guidelines:

92% 1. The HEAL Well book is convenient to hand to patients.

100% 2. The resources in this book will be helpful to my patients.

Evaluation of the Nutrition Resource Guide booklet:

77% 1. The resource booklet is comprehensive.

100% 2. The booklet is a valuable resource for my patients.

Comments:

- Full of good, useful information
- Answering questions is easy
- The patient key tells you what you need to do next
- Helps me refer them to appropriate staff
- Helpful in educating the patient
- Lots of conversation topics to discuss
- Packed full of great ideas/helps
- Hard to get buy–in with staff
- The only complaint I received is it is more paperwork to fill out. Other than that, some patients love it.

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TIER 2 RESULTS

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SURVIVOR/CAREGIVER (n=22)

Responses from categories of "agree" and "strongly agree" were merged for these percentages.

92%	1.	The Nutrition Assessment Tool (NAT) is easy to read
100%	2.	The patient key is helpful for identifying food intake to improve.
77%	3.	NAT and patient KEY helps open conversation with my provider.
100%	4.	HEAL Well guidelines help make decisions about nutrition.
77%	5.	The Nutrition Resource Guide booklet is a valuable resource.

Comments:

- Unless patient is highly motivated or in crisis, I don't perceive patient as bringing it up. Doctors don't bring up the topic. A disconnect!
- I haven't had any discussion with my provider at this point.
- Nice to see resource guide available.

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IMPACTS

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Despite the challenges and barriers to conducting the WE CAN study in Coos County during the COVID-19 pandemic, we have seen numerous positive impacts.

- Bay Area Cancer Center requested an increase of FTE for the Registered Dietitian from 0.4 to 0.8 from Bay Area Hospital dietetic pool. This increased RD time from 2 to 4 days/week to see patients at the cancer center. Sadly, the hospital did not increase overall RD FTE.
- Some of the staff at the cancer center have initiated discussions with collaborating clinics encouraging them to hire Registered Dietitians.
- The cancer center requested their annual CME requirement be met with a presentation of *Foods That Fight Cancer* through OSU Extension Family & Community Health.
- The study engaged 2 students from Oregon State University as well as several committee members from the Food and Nutrition Group in community research.
- Advanced Health (CCO) provided additional funding for printing the Nutrition Resource Guide booklets for distribution to government and healthcare sites across Coos County. Digital versions were also distributed across Coos and Curry Counties.
- A Health Coach Certification Training was offered locally in Sep-Oct 2020. This 32-hour, 8-week training was held virtually (due to COVID) through Real Balance Global Wellness, Inc. Six community partners sponsored their employees resulting in the enrollment of 30 students in the training. OSU Extension was able to offer the training at half the standard price.

- A community presentation was offered in Jun 2021 to present preliminary WE CAN Tier 2 results. Due to COVID, this presentation was held virtually. Those who participated received a $15 gift card from their choice of either groceries at Coos Head Food Co-op or lunch at The Tin Thistle restaurant featuring plant-based menu items.
- Written and digital copies of this final report will be shared with community partners, government officials and healthcare agencies.
- Results of the WE CAN study have been presented at the American Institute for Cancer Research, OSU Annual Extension Conference, the Annual Knight Cancer Institute Network Symposium, and for dietitians with the American College of Lifestyle Medicine.

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IMPACTS

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- During Tier 1, an OSU undergraduate in nutrition, Jenny Pinard, received the Moore Family Center Fellowship to Coos County. She joined WE CAN in the summer of 2019 and worked delivering and collecting healthcare and patient surveys. She helped draft follow-up survey questions and conducted focus groups with healthcare staff and patients.

  After graduation from OSU with her Bachelor's degree, Jenny continued to volunteer with WE CAN 2020-21, assisting with researching evidence-based tools and contributing to a plant based cookbook.

  In the summer of 2021, Jenny was successful in pursuing a career in research when she was hired as a clinical research coordinator for OHSU.

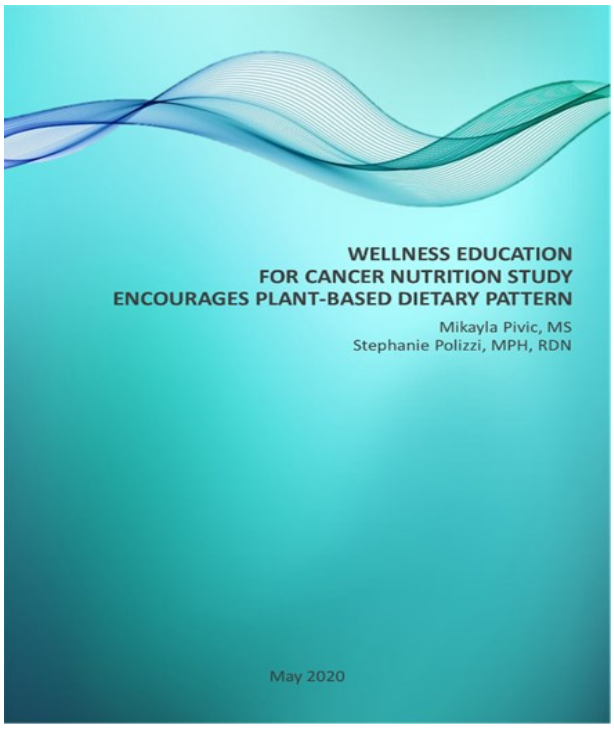
  Here's what Jenny had to say about her experience with WE CAN:

  People may want help but don't know where to look. So it's important to make sure information is provided in many different forms. Awareness is the first step to change. People will be engaged if you share information through stories.

  My advice to future fellows: Don't be afraid to say, "I don't understand." Always back up your data. Keep organized. Being pushed outside your comfort zone is terrifying but the best opportunity for learning.

- Joining WE CAN at the end of Tier 1, Mikayla Pivec, pursuing a double Master's in chemistry and biophysics from OSU, centered her thesis on the WE CAN study and plant-based nutrition. Her comprehensive paper highlights the benefits of plant-based diets to prevent, arrest and reverse chronic disease.

  Mikayla's paper can be found here:
  https://extension.oregonstate.edu/coos/healthy-families-communities.



Here is what Mikayla Pivec had to say about her experience with WE CAN:

While conducting research on cancer and cancer prevention, I was most surprised by how little doctors actually know about nutrition. Growing up, I looked to my doctor for information on healthy eating and nutrition is not their specialty.

Curricula in medical schools lack nutrition education and that is reflected in how little nutrition is incorporated into the treatment process.

Cancer, among other health issues, can be reversed and prevented through proper nutrition. It's time for the medical system to catch up with what the scientific community has already unearthed and discovered.

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CONCLUSIONS

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Here are a few things we learned from conducting this study.

- Although healthcare providers and staff recognize that nutrition is an important aspect of patient health, they are not using nutrition assessments in their practices.
- Healthcare staff and patients desire options for referrals to qualified experts in nutrition (Registered Dietitians). Yet healthcare facilities are not prioritizing funds to hire RDs.
- Nearly 4 years after initiating this study, not a single healthcare site has hired a Registered Dietitian. In addition, the FTE at the one hospital with dietitians has not increased.
- There is a gap in communication about nutrition between provider and patient. This greatly impacts the quality of care patients received.
- If nutrition is not addressed by the provider, it is unlikely the patient will initiate the conversation.
- Access to the NAT, keys and written nutrition resources created for the WE CAN study are not specific to cancer.
- These tools can be used broadly for prevention and reversal of multiple diet-related chronic diseases at primary care sites, with WIC or DHS clients, church groups or even as an individual.
- Resources are available on the Coos County FCH website
  https://extension.oregonstate.edu/coos/healthy-families-communities
- Or by contacting the PI directly
  Stephanie.polizzi@oregonstate.edu
  541-572-5263 Ext 25291

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RECOMMENDATIONS

WE CAN
Wellness Education for Cancer Nutrition

- **EMR** Adding the NAT to the electronic medical records will ensure sustainability of use.
- **RDs** Healthcare administrators must recognize the need for nutrition assessment and counseling from qualified nutrition experts. Hiring Registered Dietitians is not a luxury but a requirement and should be prioritized.

♦ **Group Medical Appointments** Holding group appointments for diet-related conditions like high cholesterol or type 2 diabetes can help meet the nutrition education needs of the patient without taking provider time. These appointments are medically reimbursable.

♦ **Certified Heath Coaches** Coaches can help patients meet their health goals set by the client based on provider recommendations.

♦ **Lifestyle Medicine Programs** Community-based programs help participants learn and adopt new lifestyles at their own pace with peer support. Suggested programs include the Complete Health Improvement Program* or the CDC's Diabetes Prevention Program**.

♦ **Food Access or Farmacy Sites** Healthcare and government sites could consider establishing a VeggieRx or Farmacy program where they provide food and nutrition services to their clients. The site would provide access to fresh produce and other healthy food options. This could be either onsite or by providing vouchers in collaboration with farmers' markets or grocery stores.

♦ Healthcare providers and staff could consider becoming board certified in Lifestyle Medicine.

♦ According to the American College of Lifestyle Medicine:

Lifestyle Medicine is an evidence-based approach to preventing, treating and even reversing diseases by replacing unhealthy behaviors with positive ones such as eating healthfully, being physically active, managing stress, avoiding risky substance abuse, adequate sleep and having a strong support system.

♦ Lifestyle Medicine is a highly satisfying healthcare career path because it provides opportunity to address the cause of chronic disease instead of merely treating symptoms.

♦ Healthcare professionals can become board certified in Lifestyle Medicine through the American College of Lifestyle Medicine (ACLM). www.lifestylemedicine.org

* www.chiphealth.com
** www.cdc.gov/diabetes/prevention/index.html

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NEXT STEPS

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As more sites adopt the NAT, keys and written resources, patients will require a variety of referral options. These may include referrals to:

- Registered Dietitians (RDs) or Certified Health and Wellness Coaches (CHWC)
- **Cooking Classes** Coos Head Food Co-op holds monthly virtual cooking classes.*** Others can be found online like those on the Food Hero website.****
- **Nutrition Education Seminars** Classes in nutrition and disease prevention are presented by a Registered Dietitian, conducted virtually and archived on the OSU Extension website.
- **Community and School Gardens** These projects help increase access and intake of healthy produce and create positive lifelong dietary patterns. OSU Extension Master Gardener certified volunteers can assist in creating a home or planter garden.
- **Food Preservation Classes** OSU Extension Master Food Preserver certified volunteers hold classes in the safe preservation of produce and meats.

*** www.coosheadfood.coop
**** www.foodhero.org

To create community capacity in nutrition resources and referral options

- The Food and Nutrition Group continues work to improve access to and consumption of fruits, vegetables and other plant foods.
- The FNG 2021-22 goal is to provide multiple digital nutrition education and outreach resources like infographics, short videos and food demos.
- To date, this initiative has engaged a total of 28 dietetic, medical and pharmacy students through collaborative programs.

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ACKNOWLEDGEMENTS

WE CAN
Wellness Education for Cancer Nutrition

As primary investigator, I would like to thank the community partners, healthcare professionals and staff, survivors and their caregivers for participating in this local cancer study.

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Research coordinator, Renee' Menkens
Pilot site liaison, Barb Van Slyke
OSU Undergraduate student, Jenny Pinard
OSU Master's student, Mikayla Pivec

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Thank you to the members of the HEAL/FNG committees for their support, advisement and assistance in the WE CAN study.

The WE CAN study team would like express our appreciation to our participating Coos County healthcare sites

Advanced Health
Bay Area Hospital, Bay Area Cancer Center
Bay Clinic
Coast Community Health Center
Coos Health and Wellness
Coquille Indian Tribe Health Center
Coquille Valley Hospital and Health Center
North Bend Medical Center
Southern Coos Hospital and Health Center
Waterfall Health Center

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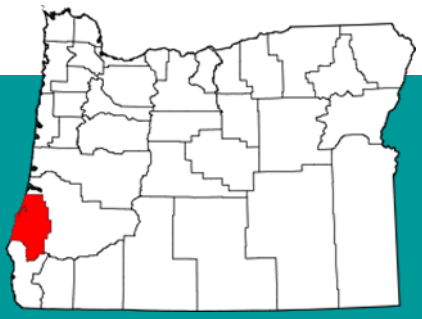
WE CAN
Wellness Education for Cancer Nutrition

Wellness Education for Cancer Nutrition
Tier 1 Study Summary



Cancer is the #1 killer of Coos County residents

Studies demonstrate that the intake of fruits and vegetables can improve outcomes for cancer survivors by reducing incidence, severity and associated morbidity.

Less than 15% of Coos County residents consume the minimum 5 fruits & vegetables/day.

Methods

Surveys conducted with medical professionals, survivors, and caregivers.

Then, focus groups discussed barriers and potential solutions.

Results

98%

healthcare professionals believe nutrition should be part of the patient treatment plan

86%

survivors stated they received no nutrition assessment

Next Steps

- Create nutrition assessments that identify intake of fruits and vegetables
- Implement policies and procedures that allow for inserting assessments
- Identify/design written nutrition resources to be shared with patients
- Create listing of local food resources referral options
- Provide CMEs regarding reimbursement options for nutrition

OHSU Knight Cancer Institute

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Wellness Education for Cancer Nutrition Tier 2 Study Summary

98% of healthcare professionals believe that nutrition should be part of a patient care

62% of the Standard American Diet comes from processed foods, oils and refined grains

Only 12.5% of the SAD diet contains unrefined plant foods that provide protection against cancer and other chronic diseases

If you can't measure it, you can't manage it.
~William Thompson

Interventions

- ☑ Insert nutrition assessments (NAT) into clinical settings
- ☑ Provide written nutrition guidelines to patients
- ☑ Create a resource guide with local nutrition resources

Results

- Healthcare staff found the Nutrition Assessment Tool (NAT) & resources helpful for counseling patients in nutrition.
- Patients found the assessment and keys valuable but they did not open discussions with their providers as anticipated.
- Written & digital versions of the Nutrition Resource Guides were circulated across Coos and Curry Counties.
- Healthcare sites should prioritize funding for the hiring of Registered Dietitians.
- Adding NAT to electronic medical records may help with sustainability.

Next Steps

- Expand the use of NAT and nutrition education materials across multiple sites.
- Create options for patient referrals to nutrition services (RDs, health coaches, group medical appointments).
- Establish regular lifestyle medicine programs like CHIP or DDP.
- Work with community partners and coalitions to increase outreach programs like cooking classes, grocery tours and Healthy Bytes Initiative.
- Assist with expansion of food access points like VeggieRx or Farmacies.

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WE CAN
STUDY RESULTS

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