

The webinar ***Nutrition and Physical Activity for Cancer Prevention and Survivorship – Food Security Toolkit Review: Overview and Opportunities*** aired on August 29, 2023. The webinar reviewed the evidence for cancer prevention and survivorship, reviewed the American Cancer Society (ACS) NUPA Guidelines for Prevention and Survivorship, and described how food insecurity impacts cancer survivors.

This document summarizes key takeaways and resources from the webinar at the following link: <https://www.youtube.com/watch?v=RrVKL5NOCSI>

The ***American Cancer Society Comprehensive Cancer Control (ACS CCC)*** team hosted the webinar. The ACS CCC team seeks to build the capacity of grant recipients in the ***Centers for Disease Control and Prevention National Comprehensive Cancer Control Program*** to implement policy, systems, and environmental change approaches and evidence-based promising practices in cancer prevention, screening, diagnostic follow-up, and survivorship.

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Nutrition and Physical Activity for Cancer Prevention and Survivorship – Food Security Toolkit Review

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The goals of the webinar were to

- Review the evidence for the role of nutrition and physical activity in cancer prevention and survivorship.
- Review the ACS NUPA Guidelines for Cancer Prevention and Survivorship.
- Discuss how food insecurity impacts cancer survivors.

Part 1 – Nutrition, Physical Activity, and Cancer Risk

About 18.2% of cancer cases and 15.8% of deaths in the United States are attributable to excess body weight, alcohol, poor diets, and lack of physical activity. About 2 million cancer diagnoses each year are attributable to these factors.

- **Obesity.** Obesity is a complex chronic disease that affects 42% of adults and 19% of children in the United States. About 5% of cancer cases in men and 11% in women can be attributed to excess body weight alone. A higher risk of many (13) different types of cancer has been linked to being overweight or obese, including (in order of decreasing incidence and deaths) uterine (60%), gallbladder, liver, kidney, esophageal, stomach, pancreatic, thyroid, breast, colorectal, and ovarian (4%) cancer (Islami F, et al. CA Cancer J Clin 2018; 68(1):31.)

Many people are unable to achieve and sustain clinically meaningful weight loss through behavioral change alone. FDA-approved anti-obesity medications have been shown to be effective in conjunction with lifestyle modifications. Although bariatric surgery is safe and effective, it is underutilized (1%) by eligible patients. Cost and lack of insurance coverage for surgery and anti-obesity medications is a major obstacle.

Reducing obesity can reduce the risk of some cancers. One large study of postmenopausal women found that reducing body weight by more than 5% was associated with a lower risk of obesity-related cancers, especially endometrial cancer. Another study of pooled data from 10 cohorts showed that sustained weight loss was associated with lower breast cancer risk among women 50 years and older.

Other studies have shown that bariatric surgery is associated with reduced risks of cancer overall, reduced risks of hormone-related cancers such as breast, endometrial, and prostate cancers, and reduced risks of obesity-related cancers, such as postmenopausal breast cancer, endometrial cancer, and colon cancer. However, the research on bariatric surgery and cancer risk reduction is inconsistent.

- **Physical Activity.** About 6% of cancers in men and women combined can be attributed to lack of physical activity. The risk of several cancers can be reduced by physical activity, including uterine, stomach, kidney, colon, female breast, bladder, and esophageal cancers.

The American Cancer Society (ACS) guidelines for physical activity recommend that adults should get about 150-300 minutes of moderate activity per week or 75-150 minutes of vigorous activity per week. Children and teenagers should get at least one hour of moderate or vigorous activity every day. The ACS also recommends that people limit their sedentary behavior, including sitting around, screen-based entertainment, and lying down.

- **Dietary Factors.** A healthy eating pattern is one that includes a colorful variety of vegetables and whole fruits, beans and peas with fiber, and whole grains. Foods that should be avoided or reduced include red meats such as beef and pork, processed meats such as bacon, sausage, hot dogs and deli meats, sugar-sweetened beverages, and other highly processed foods and refined grain products.

A 2015 report from the International Agency for Research on Cancer that was primarily based on evidence of increased risk of colorectal cancer stated that processed meats were carcinogenic to humans and red meats were probably carcinogenic to humans.

Although the evidence is inconsistent that sugary drinks directly impact cancer risk, they have been shown to contribute to weight gain, which directly impacts cancer risk. In addition, sugary drinks have been linked to cardiovascular disease, type II diabetes, hypertension, and tooth decay.

Several organizations have published guidelines that recommend limiting or excluding sugary drinks from the diets of adults and children. The 2015-2020 Dietary Guidelines for Americans recommend that sugars account for no more than 10% of total calories. The WHO recommended that added sugar be less than 5% of calories consumed. The American Heart Association recommended that children over two years of age should have less than 8 ounces of sugary drinks per week, and sugary drinks should not be in the diet of children under two years of age.

- **Alcohol.** About 5% of cancers in men and 6% in women can be attributed to alcohol. Alcoholic drinks include beers, wines, spirits, fermented kinds of milk, mead, and cider. Alcohol has been

linked to higher risks of cancer of the mouth, pharynx and larynx, esophagus, liver, colon and rectum, and postmenopausal breast cancer. There is evidence that alcohol probably increases the risks for stomach and premenopausal breast cancer. The evidence for different cancers was based on different thresholds of consumption for different cancers. About 21 studies of alcohol and cancer between 1993 and 2015 were shown in one of the slides in the webinar.

The ACS recommends that it is best not to drink alcohol. But if alcohol is consumed, it is best to drink no more than one drink per day for women and two drinks a day for men. One drink of alcohol is defined as 12 ounces of beer, 5 ounces of wine, or 1.5 ounces of 80-proof liquor.

ACS Diet and Physical Activity Recommendations for Cancer Prevention

For individuals, the ACS recommends that people

- Achieve and maintain a healthy body weight throughout life.
- Be physically active.
- Follow a healthy eating pattern at all ages.
- Do not drink alcohol.

For communities, the ACS recommends that public, private, and community organizations work together to increase access to affordable, healthy foods and provide safe, enjoyable, and accessible opportunities for physical activity.

Nutrition and Physical Activity for Cancer Survivors

As of 2022, more than 18 million Americans have a history of cancer. By 2030, the number is expected to increase to more than 20 million Americans. The ACS, in partnership with subject matter experts, reviewed the evidence for nutrition and physical activity for cancer survivors, updated the ACS guidelines, and published the *American Cancer Society nutrition and physical activity guideline for cancer survivors* in the *CA Cancer* journal (*CA Cancer J Clin* 2022; 72:230-262 May/June).

The evidence was most substantial for breast cancer survivors and indicated that a healthy dietary pattern (fruits, vegetables, etc.) was associated with improved overall survival. In contrast, a typical Western dietary pattern that was high in red and processed meat, high-fat dairy, and refined grains was associated with a higher risk of death from all causes. There was limited data that indicated eating soy foods after diagnosis might be associated with a lower risk of recurrence. The evidence was inconsistent for a link between alcohol intake after diagnosis and risk of recurrence or survival.

In contrast, the evidence strongly indicated that physical activity was linked to a lower risk of death from breast cancer and other causes. Decreasing physical activity after diagnosis of breast cancer was linked with a higher risk of death from any cause. Thus, the evidence shows that it is important to stay as active as possible after a diagnosis of breast cancer.

For breast cancer survivors, obesity (BMI 30 or higher) after a diagnosis was associated with a higher risk of recurrence and a higher risk of dying from breast cancer and other causes. It is not known how intentional weight loss (excluding unintentional weight loss from cancer) affects survival after a diagnosis of breast cancer.

The following graphic shows the post-diagnostic risks of recurrence and mortality for various risk factors and cancer types. Red boxes mean higher risk, and green boxes mean lower risk. For example, in the breast cancer row 1 in the table, a healthy dietary pattern is green and reduces risk, whereas a Western diet is red and indicates a higher risk of recurrence or mortality. CSM = cancer-specific mortality, and ACM = all-cause mortality.

Post-dx exposures and risk of recurrence or mortality ■ = lower risk ■ = higher risk

Cancer	Adiposity	Physical Activity	Diet		Alcohol
Breast	Recurrence, CSM, ACM	CSM, ACM	Healthy pattern ACM	Western ACM	<i>inconsistent</i>
Colorectal	ACM	CSM, ACM	Western: CSM, ACM, recurrence		
Upper digestive/liver	ACM				H&N, liver: ACM
Pancreatic	ACM				
Bladder	Recurrence, Progr				
Kidney					
Prostate		CSM, ACM	Mediterranean : ACM	Western: CSM, ACM	
Endometrial	ACM	ACM			
Ovarian		ACM			
Lung	ACM	CSM, ACM			
Hematological					

CSM=cancer specific mortality; ACM=all cause mortality

Note that the green boxes in the physical activity column show that physical activity reduces the risk for many cancer types. Other studies have also shown that physical activity improves the quality of life of cancer survivors, including reducing fatigue, improving sleep, improving symptoms of

depression and anxiety, improving and maintaining physical function (including muscle strength and range of motion), and improving appetite and the immune system.

ACS Recommendations for All Cancer Survivors

Nutritional assessment and counseling should begin as soon as possible after diagnosis to help prevent nutritional deficiencies, preserve muscle mass, and manage treatment side effects.

Physical activity assessment and counseling should begin as soon as possible after diagnosis to help patients prepare for treatments, tolerate and respond to treatments, and manage cancer-related symptoms and treatment-related side effects.

The ACS guidelines also made several recommendations to improve the long-term health of cancer survivors and increase the likelihood of their survival, including avoiding obesity, increasing muscle mass, getting regular physical activity, following a healthy eating pattern, and following the general advice of the [American Cancer Society Guideline for Diet and Physical Activity](#) on the Cancer.org website or in the article *American Cancer Society nutrition and physical activity guideline for cancer survivors* published in the *CA Cancer* journal (CA Cancer J Clin 2022; 72:230-262 May/June).

Food Insecurity and Cancer Survivors

Food insecurity is defined as the lack of consistent access to enough food for an active, healthy life because of limited financial resources at the household level. In 2021, the USDA Economic Research Service stated that about 10.2% of American households were classified as food insecure – the lowest level on record. It is estimated that 33.8 million people experienced food insecurity in 2021. The highest areas of food insecurity were in the South of the United States. Single women with children and Hispanic and non-Hispanic Black households experienced the highest levels of food insecurity in 2021.

Among cancer survivors who have likely experienced the burdens of financial hardship and loss of employment, the food insecurity rate is likely higher than the national average of 10.2%. A recent ACS study found that cancer survivors in different age groups reported moderate-to-severe food insecurity (18-39, 27%; 40-64, 14.8%; and 65+, 6.3%). In addition, the BRFSS 2015 data showed a food insecurity rate of 22.7% in cancer survivors (n>10,000).

Food insecurity affects the daily lives of those with a cancer diagnosis because households without sufficient financial resources are forced to make trade-offs between food, housing, transportation, and healthcare. A cancer diagnosis can significantly increase personal stress because of food

insecurity, coping strategies, chronic disease, healthcare expenditures, difficulty in finding work, and insufficient household income.

People undergoing cancer treatment are vulnerable to risks associated with food insecurity and inadequate nutrition. For example, they can experience immunosuppression, infections, and impaired postoperative healing effects. Food insecurity is also associated with poor health-related quality of life and poorer health outcomes because of lower treatment adherence, care delays, cost-related medication underuse, and overweight/obesity, which increases cancer risk.

A Current Randomized Controlled Trial on Food Insecurity

A recent NCI-funded RCT trial, *Food to Overcome Outcomes Disparities: A Randomized Controlled Trial of Food Insecurity and Interventions to Improve Cancer Outcomes* (Gany et al., 2022), investigated the effectiveness of three interventions to improve food insecurity. The interventions included a food pantry in the hospital cancer clinic where patients received treatment, a food voucher for off-site groceries plus the clinic food pantry, and home grocery delivery plus the pantry.

The treatment completion rates were 94.6% (voucher plus pantry), 82.5% (grocery delivery plus pantry), and 77.5% (pantry alone). The results showed that food security scores improved significantly in all arms of the trial. The authors concluded that all patients with cancer should be screened for food insecurity and provided with evidence-based food security interventions.

Part 1 – Conclusions

- A healthy diet and adequate physical activity are important to reduce the risk of cancer and improve outcomes for cancer survivors.
- Adequate nutrition is crucial for patients with cancer in active treatment and posttreatment who may have enhanced nutrition needs and who are vulnerable to nutrition-related risks and side effects.
- Food insecurity among cancer survivors is high and has been shown to impact treatment adherence and quality of life.
- Patients with cancer should be screened for food insecurity and referred to food assistance programs as necessary.

Part 2 – Food Security Toolkit

Gayle (Bagley) Parenteau, Director, Comprehensive Cancer Control, American Cancer Society

The objectives of part two of the webinar were to

- Create awareness for the new *Food Security Toolkit* created for Comprehensive Cancer Control coalitions. The toolkit can also be modified for use in non-CCC coalition settings.
- Share some food security strategies that can be used in different settings.
- Share examples of food security work in healthcare systems.

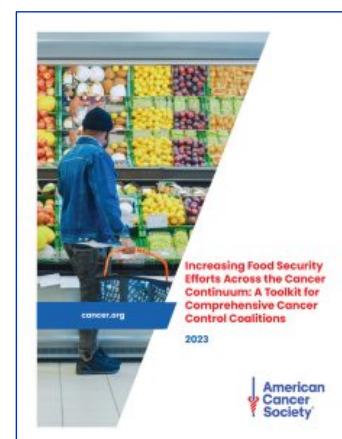
The title of the new toolkit is *Increasing Food Security Efforts Across the Cancer Continuum: A Toolkit for Comprehensive Cancer Control*. The strategies in the toolkit are aligned with the strategies described in the September 2022 *White House Conference on Hunger, Nutrition, and Health*.

The main strategies included the need for improved food access and affordability, the importance of integrating nutrition into disease management, furthering research to enhance knowledge, and the promotion of best practices around these topics.

The new toolkit was based on the previous 2021 toolkit, [Increasing Healthy Nutrition and Physical Activity Across the Cancer Continuum through Policy, Systems, and Environmental Change: A Resource for Comprehensive Cancer Control Coalitions](#). In addition, the new toolkit was based on input that included an online survey of 68 CCC coalitions and partners that suggested evidence-based, action-oriented strategies to improve food security and cancer survivors, helpful partnerships and funding opportunities, and data and evaluation strategies.

The toolkit is organized into four main areas: taking action, food security strategies, data and evaluation, and funding. It emphasizes that food security is a key determinant of health to consider when addressing disease management and health outcomes.

Taking Action. The toolkit recommends that coalitions consider their available partners, resources, and their desired roles before selecting a food security strategy to implement. Because traditional



partners may be new to food security work, it is best to choose partners that have diverse experience with food security and that are in a strategic position to put cancer control activities in place.

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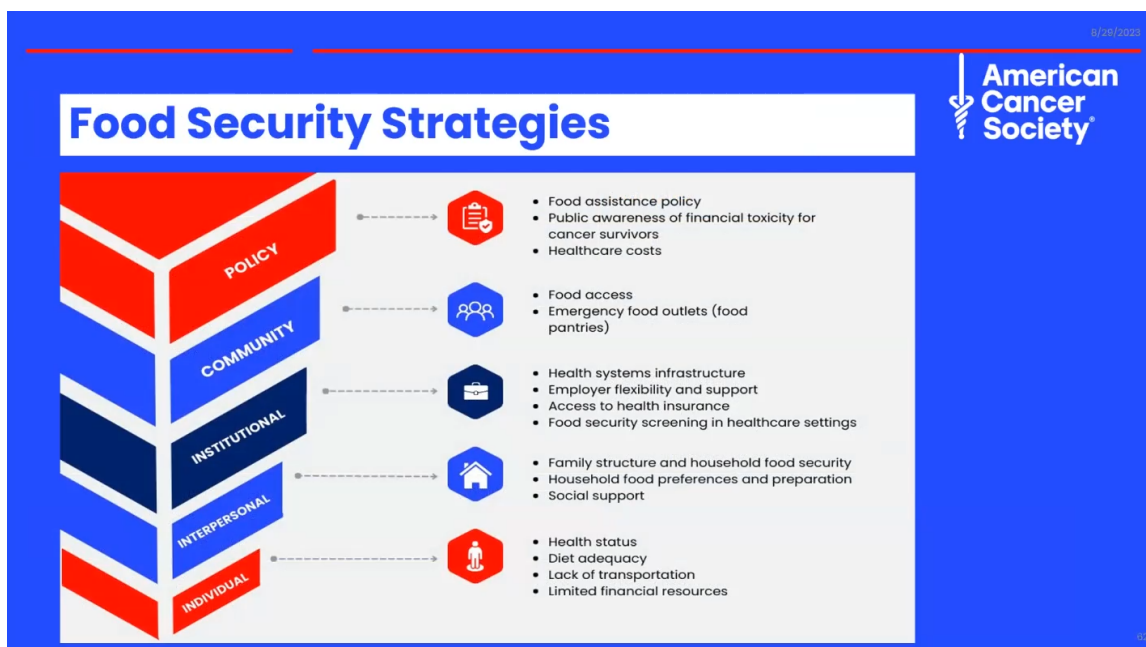
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TAKING ACTION

Type of Partnership	Examples
State and local agencies that can provide an opportunity to leverage existing resources, such as food access plans	Health departments, Cooperative Extension programs within land grant universities, local SNAP or WIC agencies
Organizations at the state and local level that are part of other CDC- funded programs working on food nutrition and security	Grantees in the Division of Nutrition, Physical Activity, and Obesity (DNPAO) and recipients of awards under the following programs: Racial and Ethnic Approaches to Community Health (REACH), High Obesity Program and State Physical Activity and Nutrition (SPAN)
Relevant state and local business associations working on food security initiatives, such as nutrition incentives at farmers markets and retail settings	Farmers Market Associations and Grocer's Associations
Health-focused partners and community initiatives that have built strong memberships and community presence	State/local cancer programs, healthy eating active living (HEAL) initiatives, and other chronic disease partners

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Food Security Strategies. Food security issues can be addressed at multiple levels. For example, strategies can work at the individual, interpersonal, institutional, community, and policy levels.



CCC coalitions might consider focusing on the three strategic areas in the toolkit: Information and Education Strategies, Healthcare-Focused Strategies, and Food Access Strategies.

Some examples of food security strategies in the Information and Education category include food security awareness, SNAP enrollment, financial education and initiatives, cooking-based nutrition education, and food outlet food navigation.

The webinar discussed an example program by the New England Cancer Specialists. Their program was named *Improving Cancer Care by Addressing Food Insecurity*.



Some examples of food security strategies in the Healthcare-Focused area include healthcare food security screening, prescriptions for produce, and medically tailored meals.

The webinar discussed an example program by the Memorial Sloan-Kettering Cancer Center. Their program was named *FOOD (Food to Overcome Outcomes Disparities)*.



Some examples of food security strategies in the Food Access area include community gardens, facilities partnerships, healthy options at food pantries, nutrition incentive programs, mobile food delivery, and transportation initiatives.

The webinar discussed an example program by the Disability Access Center that sponsored a project for community gardens in West Virginia.



Data and Evaluation. The toolkit recommends that coalitions implement data and evaluation strategies by following a four-step process: Assess, Plan, Implement, and Evaluate. The Assess step identifies priority health issues; the Plan step creates a strategic plan; the Implement step monitors and revises the plan during implementation; and the Evaluate step uses collected data to make program decisions and share results with others.

Funding. Funding sources for coalitions can include federal grants from the National Institutes of Health (NIH) and the United States Department of Agriculture (USDA). Both organizations fund research and implementation grants to address various topics and areas related to food security. If funding is available, coalitions might consider hiring a grant writer to improve the quality of the grant applications and increase their chances of receiving funding.

Other Resources. The CDC provides resources for food security, such as the Healthy Neighbourhood Market Network. The ACS created a training simulation to help clinicians have effective and sensitive discussions with cancer survivors about healthy eating, physical activity, and body weight. The simulation is called [Let's Talk: Nutrition, Physical Activity, and Cancer Survivorship](#).

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