Obesity and Cancer

A Guide for Oncology Providers

ASCO®

American Society of Clinical Oncology

ABOUT ASCO

The American Society of Clinical Oncology (ASCO) is the world's leading professional organization representing physicians of all oncology subspecialties who care for people with cancer. ASCO's more than 35,000 members from the United States and abroad set the standard for patient care worldwide and lead the fight for more effective cancer treatments, increased funding for clinical and translational research, and, ultimately, cures for the many different types of cancer that strike an estimated 12 million people worldwide each year.

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Obesity and Cancer

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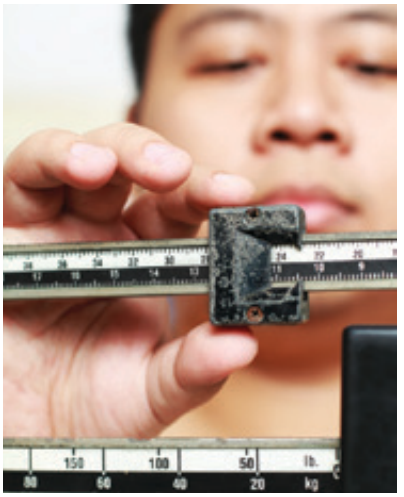
1. Background



The prevalence of obesity in the United States has increased dramatically since 1990, with more than one-third of U.S. adults (more than 72 million people) and 17% of U.S. children and adolescents categorized as obese.[1,2] Obesity is even more prevalent in some ethnic, racial and socioeconomic groups; for example, 54% of non-Hispanic Black women over the age of 20 were found to be obese in the National Health and Nutrition Examination Survey.[3]

The Centers for Disease Control and Prevention includes overweight and obesity as labels for ranges of weight that are greater than what is generally considered healthy for a given height.[4] The terms identify ranges of weight that have been shown to increase the likelihood of diseases and chronic health conditions. Obesity itself has also recently been categorized as a disease-state by the American Medical Association. For adults, overweight and obesity ranges are determined by using weight and height to calculate body mass index (BMI). BMI (kg/m^2) is used because, for most people, it correlates with their amount of body fat. Although there is increased debate on the precise definition of obesity[5] the World Health Organization categorizes overweight and obesity in adults as:

BMI	BMI Categories
Greater than or equal to 25	Overweight
30 and above	Obese

The World Health Organization estimates that more than 1.5 billion adults worldwide are overweight or obese. Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings. Researchers agree several factors are behind the overall rise in calorie intake per day, including the rising consumption of sugar-sweetened beverages and an increase in portion size. At the same time there has been a decline in physical activity, in part due to increased automation and increasing adoption of "Western" lifestyles.

Obesity increases the risk of several major non-communicable diseases, including cardiovascular disease, cancer, and diabetes, and increases rates of mortality in individuals with these diseases. Obesity contributes to two-thirds of all heart disease, and more than 80% of people with type 2 diabetes are overweight.[3,6] Obesity is quickly overtaking tobacco as the leading preventable cause of cancer. More than 40,000 cancer diagnoses each year are attributed to obesity, and overweight and obesity are implicated in 15% to 20% of all cancer-related mortality.[7] In 2008, medical costs associated with obesity were estimated at $147 billion.[8]

2. Obesity and the Link to Cancer Risk and Outcomes

Research on the relationship between obesity and cancer has increased dramatically in the last several years. Though data are still emerging and obesity is not linked to an increased risk of developing all types of cancer, research suggests that the risk of developing and dying from many common cancers is increased in obese individuals.[9,10]

Obesity is also linked to poorer cancer outcomes, including higher risk of recurrence and cancer-specific and overall mortality.[11-14] There is some suggestion that weight gain after cancer diagnosis leads to poor outcomes, although data are less consistent.[15-17] The data linking obesity to poor outcomes is strongest in breast, prostate and colorectal cancers (see table 2.1), but emerging data suggest that obesity may be a prognostic factor in other malignancies as well, including childhood leukemia.

Obesity is also a risk factor for the development of comorbid illness in cancer survivors.

- Obesity increases the risk of developing heart disease, cerebrovascular disease, and diabetes, among other medical issues
- Obesity places individuals at increased risk of developing second primary malignancies.[18]

TABLE 2.1: EVIDENCE SUPPORTING LINKS BETWEEN OBESITY AND PROGNOSIS IN SPECIFIC MALIGNANCIES

Cancer Type	Evidence
Breast	• Obesity at diagnosis is linked to a 33% increase in the risk of breast cancer related and overall mortality in pre- and postmenopausal women with early-stage breast cancer.[11,19,20] • Poor prognosis in obese breast cancer patients continues to be seen in individuals treated with anthracyclines and taxane-based treatment regimens and aromatase inhibitors, suggesting that the poor outcomes seen in obese individuals are independent of treatment factors.[21-24]
Colorectal	• Data regarding the relationship between weight and colon cancer outcomes have been mixed.[17,25] • A recent meta-analysis of seven adjuvant chemotherapy trials for patients with stage II and III colorectal cancer treated with fluorouracil-based therapy found men with class II and III obesity (BMI ≥35kg/m^2) and women with Class I obesity (BMI ≥30kg/m^2) had significantly worse overall survival as compared to normal weight individuals.[12]
Prostate	• Obesity is associated with the development of biologically more aggressive and advanced prostate cancer.[26] • The extent of body fatness and weight gain before/around the time of prostate cancer diagnosis is associated with an increased risk of recurrence and death.[27] • Obesity is associated with reduced response to prostate cancer treatment.[13,14]
Childhood leukemia	• Obesity may be linked to poor outcomes in children with acute leukemia.[28,29] • Being overweight/obese before hematopoietic cell transplantation is associated with lower survival and higher rates of acute graft-versus-host disease and treatment-related mortality.[30-35]

Impact of Obesity on Treatment

Obesity presents a number of practical challenges in the detection of cancer and its effect on local and systemic treatment.

- Obese patients are more likely to delay seeking medical care and less likely to participate in cancer screening programs or receive preventive testing.[36-41]
- Obesity can influence the accuracy of cancer diagnostics secondary to factors such as hemodilution of tumor biomarkers[42] and reduced imaging quality.[43,44]
- Obesity poses technical challenges in terms of both radiation therapy[45,46] and surgical management of cancer patients[47,48] and may be associated with higher rates of toxicity[49] and certain surgical complications.[50]
- Obesity is linked with an increased risk of thromboembolism in individuals receiving chemotherapy.[51]

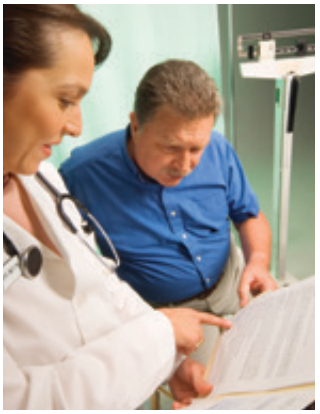
Impact of Cancer Treatment on Weight

Many cancer survivors experience weight gain after cancer diagnosis. Weight gain is most common in individuals treated with chemotherapy, especially when chemotherapy includes steroid administration or when chemotherapy results in premature menopause for a previously premenopausal woman.[52-54] Many individuals will also experience changes in body composition after cancer diagnosis. "Sarcopenic obesity" refers to a loss of muscle mass and concomitant gain of adipose tissue. This is common in individuals receiving chemotherapy and can also be seen in men treated with androgen-deprivation therapy for prostate cancer.[55,56]

Weight and Physical Activity Patterns in Cancer Survivors

Many cancer survivors are overweight or obese and do not engage in regular physical activity. More than two-thirds of survivors of breast, prostate, gynecologic and other cancers are overweight and obese, and fewer than one-third of cancer survivors meet recommended levels of physical activity.[57-59] Similarly, in pediatric and adolescent cancer survivors, studies have reported suboptimal dietary patterns and less-than-recommended levels of exercise among children with cancer[60] and among young survivors of childhood cancer.[61-68] Although these patterns are consistent with our society as a whole, these behaviors may have important consequences for cancer survivors.

3. Strategies to Promote Weight Loss and/or Prevention of Weight Gain in Cancer Survivors



Although studies have linked obesity to cancer risk and prognosis, there are currently no data from large-scale trials testing the impact of weight loss on the risk of developing or dying from cancer. However, a number of studies have tested weight loss strategies in cancer populations as well as individuals at risk of developing cancer.[69-72] Behavioral strategies, targeting calorie restriction and increased physical activity, have been tested in cancer survivors, especially in women with a history of breast cancer. Other strategies, including bariatric surgery and weight loss drugs, have been tested in non-cancer populations, but experience with these methods of weight loss are limited in cancer populations.

TABLE 3.1: GUIDE TO SELECTING TREATMENT*

Treatment	BMI Category				
	25-26.9	27-29.9	30-34.9	35-39.69	≥ 40
Diet, physical activity and behavioral therapy	With comorbidities	With comorbidities	+	+	+
Pharmacotherapy		With comorbidities	+	+	+
Surgery			With comorbidities		

Prevention of weight gain with lifestyle therapy is indicated in any patient with a BMI ≥ 25 kg/m^2, even without comorbidities, while weight loss is not necessarily recommended for those with a BMI of 25-29.9 kg/m^2 or a high waist circumference, unless they have two or more comorbidities.

Combined therapy with a low-calorie diet, increased physical activity, and behavioral therapy provide the most successful intervention for weight loss and weight maintenance.

Consider pharmacotherapy only if a patient has not lost 1 pound per week after 6 months of combined lifestyle therapy.

The + represents the use of indicated treatment regardless of comorbidities.

*Table 3 of The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults[73]

Lifestyle Interventions

Calorie restriction, increased physical activity and behavioral counseling are the cornerstones of weight management and should be recommended as the primary means of achieving weight loss.

A number of intervention studies have been performed in cancer populations and have demonstrated that weight loss can be achieved through lifestyle changes after cancer diagnosis.

- Lifestyle change (calorie restriction +/- exercise) generally produces weight loss of 5-7% of body weight.[69,70,74,75] Weight loss of this magnitude has been shown to reduce the incidence of other disease, such as diabetes and cardiovascular disease.[74,76]
- Weight loss programs have focused on low-calorie, low-fat, low-carbohydrate and Mediterranean pattern diets; there are currently insufficient data to support one type of diet over another.
- Physical activity alone does not typically result in significant weight loss,[71] but combining increased physical activity and calorie restriction may lead to more significant or more sustained weight loss when compared to caloric restriction alone.

Weight Loss Drugs

Historically, drugs manufactured to help individuals lose weight have been only moderately successful, and several have been pulled off the market for safety reasons. The U.S. Preventive Services Task Force (USPSTF) has concluded that because of safety problems and a lack of data showing that people can keep weight off after discontinuing diet medications, the task force cannot recommend the use of diet drugs.

There has been a recent increase in release and availability of pharmaceutical agents designed to result in weight loss, including lorcaserin, a drug that acts on serotonin receptors to induce satiety, and another that combines phentermine and topiramate. A third drug is being tested that combines bupropion with naltrexone. **While these drugs show promise, there are currently no safety data in cancer survivors.** The drugs are also notably expensive, and should only be considered to promote weight loss when lifestyle change has been unsuccessful and when patients suffer from other comorbidities that increase the risk of obesity-related mortality.

Surgery for Weight Loss

Bariatric surgery is an option for patients who are either severely obese (BMI ≥ 40) or have a BMI ≥35 with a serious comorbid condition, when diet and exercise interventions alone have failed to achieve a sustained weight loss and the patient is at high risk for obesity-related morbidity and mortality.[73] However, weight loss after surgery is not certain and still requires a commitment to change in lifestyle and dietary behaviors to achieve success. Bariatric surgery should generally only be considered after other steps to reduce weight have been attempted.

Studies suggest that bariatric surgery is an effective intervention for weight loss and for preventing comorbid conditions, including cardiovascular disease and cancer. However, the procedure is a major surgery and carries risk. Considerations regarding bariatric surgery should be coordinated with a patient's primary care provider.

4. Implementation of Weight Loss and Weight Maintenance Strategies in Cancer Survivors

Strategies for Weight Management in Cancer Survivors: Who, What, When?

Knowing how and when to initiate a conversation about weight management is an important first step to helping patients lose weight and lead healthier lives after a cancer diagnosis. A practical approach to weight management in cancer patients and survivors could include the following:

1. **ASSESS** your patients' weight by evaluating their body mass index.
2. **ADVISE** your patients to lose weight if you determine they are overweight or obese and weight loss is not contra-indicated because of disease state or treatment. Weight loss is generally not recommended for patients living with advanced disease, or for patients for whom cancer treatment may lead to inability to consume or digest sufficient calories (e.g. head and neck cancer patients). Encourage regular exercise and healthy eating at all points from diagnosis to long-term follow up in all patients, regardless of weight and discuss the possibility of weight gain when patients initiate adjuvant therapy
3. **REFER** patients to appropriate services.

ASSESS

Assessing a patients' BMI is easily done during an office visit and does not require special equipment. BMI can be discerned from a chart (see below) or can be calculated by dividing an individual's weight (in kilograms) by height (in meters) squared. Overweight is categorized as a BMI greater than or equal to 25; obese is categorized as a BMI greater than 30.

	NORMAL WEIGHT						OVERWEIGHT					OBESE					
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Height	**Body Weight (pounds)**																
4'10	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
4'11	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
5'0	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
5'1	100	106	111	116	122	127	132	137	143	148	153	158	164	169	174	180	185
5'2	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
5'3	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
5'4	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
5'5	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
5'6	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
5'7	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
5'8	125	131	138	144	151	158	164	171	177	184	190	197	203	210	216	223	230
5'9	128	135	142	149	155	162	169	176	182	189	196	203	209	216	223	230	236
5'10	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
5'11	136	143	150	157	165	172	179	186	193	200	206	215	222	229	236	243	250
6'0	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
6'1	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
6'2	148	155	163	171	179	186	194	202	210	216	225	233	241	249	256	264	272

ADVISE

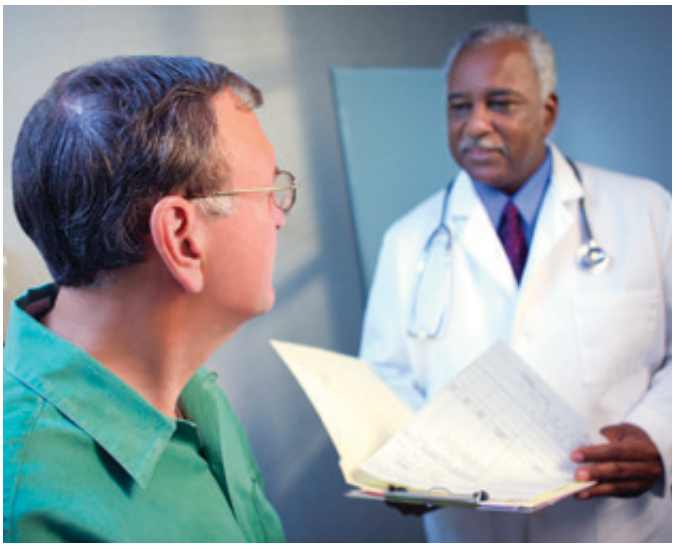
There are opportunities to address weight management with patients along the cancer trajectory. There is currently little information to provide a framework regarding the right time and best goals for individual patients, but evidence from clinical trials suggests the following:

1. Many patients will gain weight and body fat and experience associated loss of muscle mass after cancer diagnosis.
2. Exercise programs are feasible and safe for most cancer patients across the cancer trajectory. Providers should encourage patients to engage in or increase physical activity.
    a. Studies during cancer treatment demonstrate that both endurance (aerobic) and strength-training (resistance) exercise are safe and lead to a number of benefits including better quality of life and less fatigue. Some studies also suggest that exercise programs during therapy can prevent loss of lean muscle mass and gain of body fat.
    b. Regular exercise is safe in survivors following the completion of primary therapy and should be recommended in the years after active treatment.
    c. Endurance exercise is safe in the post-transplant period, but use of community gyms/ fitness centers is generally not recommended due to risk for infection.
3. Weight loss programs involving caloric restriction with or without an exercise component have been studied primarily in breast cancer survivors, where they have been shown to be feasible and effective. Overweight and obese cancer survivors should be encouraged to participate in weight loss programs after completion of adjuvant chemotherapy and radiation.
4. Weight loss or maintenance programs during chemotherapy and radiation have not been well-studied. Pilot studies suggest such programs are feasible in breast cancer patients during adjuvant chemotherapy.

HOW DO I APPROACH MY PATIENT ABOUT WEIGHT MANAGEMENT?

Although there is no "one size fits all" approach to discussing weight management with patients, below are some suggestions that may be useful in initiating a dialogue about weight:

1. Approach weight management in a neutral manner. Include weight change as part of a review of systems during survivorship visits. Tell the patient what their BMI is and show it to them on the chart.



2. Initiate a conversation about weight management by discussing the need to keep healthy while undergoing treatment. Ask patients if they are exercising and use this as an introduction to discussing diet and weight issues.
3. Listen to what your patients are saying; many will bring up their frustration with weight gain or changes in body habitus without prompting.
4. Patients concerns about persistent side effects such as fatigue can provide an opportunity to bring up the effects of increased exercise and weight loss in improving ongoing side effects of cancer therapy.
5. Discuss the possibility of weight change as a potential side effect of chemotherapy and other cancer treatments. Ask patients about changes in weight during treatment visits to establish this as a "norm" and facilitate patient communication about their concerns regarding weight change.
6. If a patient is not receptive to a discussion about weight management, stop the conversation and consider approaching this topic in a different way on a subsequent visit. It may take multiple attempts to ready patients to change their lifestyle behaviors. Even if a patient is not receptive to the message, it is still helpful for the oncology provider to provide the information.

INDIVIDUALIZING THE APPROACH: RESPONDING TO WEIGHT LOSS CHALLENGES

Although many patients seek out weight loss and ways to make lifestyle changes after cancer diagnosis, some patients may articulate reasons why they are not ready to make changes in behavior in order to achieve a healthy weight, or they may not understand that there are steps they can take to lose weight while still undergoing active treatment.

TABLE 4.1: CHALLENGES TO WEIGHT LOSS ARTICULATED BY PATIENTS AND SAMPLE PROVIDER RESPONSES

Challenge	Provider Responses
"I've tried everything and just can't lose weight."	Losing weight can definitely be challenging. Let's talk about what you have tried before. Many people find weight loss easier if they take part in a structured weight loss program, or if they work with a dietitian rather than trying to do things on their own. Let's talk about trying something different this time if your attempts before have not been successful.

Challenge	Provider Responses
"I don't really want to exercise."	Starting an exercise program can seem daunting, and sometimes cancer treatments can leave patients feeling tired and unmotivated. Some patients may also have physical impediments to exercise as a result of their cancer or cancer treatment. However, research shows that the best way to get your energy back is to start exercising. There are ways to begin an exercise program that make it easier, both mentally and physically. Pick an exercise you enjoy, and start slowly. If you have been very inactive, start with only 10 minutes a day and increase the time gradually. Enlist the support of friends and family to help you get moving. If you have physical limitations that make exercise difficult, working with a rehabilitation specialist or a physical therapist can be a helpful way to start being more physically active.
"I'm already stressed about dealing with my cancer."	Dealing with cancer definitely can put a person under a lot of stress. Part of this is because there are many aspects of cancer and cancer treatment that you can't control. Studies have shown that exercise can help alleviate stress and help with depression, so increasing exercise in the months and years after cancer diagnosis can be a way to reduce stress. Focusing on losing weight and exercising can also help people feel more in control of their lives after being diagnosed with cancer, because these are things that you can control and that will help you feel better and be healthier.
"The harm has already been done."	Many studies have shown that things that people do after their cancer diagnosis—the amount of exercise they do, the food they eat—are linked to the risk of cancer returning. While it is true that living a healthier life after being diagnosed with cancer won't erase the fact that the cancer happened in the first place, it may make it less likely that you will have to deal with cancer again in the future. A healthy lifestyle after cancer diagnosis can also prevent other medical problems like diabetes and heart disease, which are common in cancer survivors and may pose a greater threat to overall health than cancer recurrence in many malignancies.
"I enjoy eating and don't want to change my diet."	You still can enjoy the foods you love. The goal is to cut your calories and help you eat a healthier diet. Working with a dietitian can help you to lose weight while eating the foods that you want to.
"Now is not a good time to talk about my weight and physical activity level."	Weight and physical activity are important for cancer survivors, but I recognize that you have a lot to think about right now. I am going to continue to remind you how important these things can be when I see you. If you decide before our next visit that you would like some more information about ways to live a healthier life after being diagnosed with cancer, please call my office. I am happy to talk to you about this any time.

In addition to the barriers articulated by patients outlined above, some patients face socioeconomic disparities that limit their access to healthy food and physical activity opportunities.[77] Income level and geographic location can have a substantial impact on individuals' ability to make healthier choices and should be considered when discussing weight loss options with patients. Ongoing research will help inform best practices for developing tailored programs to help patients of diverse backgrounds make healthy lifestyle changes after cancer diagnosis. Until this information is available, making patients aware of the links between obesity and cancer and helping them to identify local resources to help initiate lifestyle change after cancer diagnosis is recommended.

Providers themselves may experience barriers to addressing weight with their patients. Table 4.2 identifies provider challenges and offers solutions.

TABLE 4.2: PROVIDER CHALLENGES TO ENGAGING IN WEIGHT LOSS DISCUSSIONS WITH PATIENTS

Challenge	Solution
Physicians or nurses who themselves are overweight or do not engage in regular physical activity may feel hypocritical discussing weight or lifestyle issues with a patient.[78]	Everyone struggles with lifestyle issues to some degree. Discussing the evidence linking weight and other lifestyle factors to cancer does not necessarily mean that a provider has mastered those behaviors in his or her own life. By sharing one's own experiences in managing weight and working to fit in exercise and consume a healthy diet, a provider can foster an environment of understanding and support for the patient that may help facilitate behavior change.
Providers are facing ever-increasing demands on the time allotted for each patient visit and discussing weight may not be a priority.	As evidence grows both regarding the links between obesity and cancer and the power of lifestyle change to mitigate toxicities of therapy and improve quality of life in cancer survivors, the need to address lifestyle factors during oncology clinic visits becomes more pressing. Tools to help facilitate meaningful interactions around weight and other lifestyle factors can help providers efficiently underscore the need for lifestyle change in cancer survivors and help guide patients to the resources they need to address these issues. Oncology providers do not need to try to deliver weight management counseling, but alerting patients to the link between obesity and cancer outcomes and referring them to the proper services can be instrumental in helping patients lose weight after cancer diagnosis.
Male providers may feel uncomfortable discussing weight with female patients.	Weight can be a sensitive topic, as can many other topics faced by providers and cancer patients. By broaching the subject of weight management in a neutral way, listening to the patient's own concerns regarding these issues and creating a non-judgmental environment to discuss these topics, providers can help overcome the stigma of excess weight for their patients.

Challenge	Solution
Due to a perception of inadequate training in this area, providers may not feel well-equipped to counsel patients on diet and exercise.[78]	Providers need not provide on-going counseling to patients regarding lifestyle changes, but rather identify the issue and help guide the patient to appropriate resources to assist the patient in achieving weight loss. A referral back to the patient's primary care physician, to a weight loss program or to a dietician with expertise in weight loss counseling could be a good start.

Optimizing the "Teachable Moment" and Defining the Role of the Oncologist and the Oncology Team

Although behavior change is never easy, a cancer diagnosis may serve as a "teachable moment," a term used by behavioral scientists to describe naturally occurring life transitions or health events that have the potential to motivate individuals to adopt risk-reducing or health-protective behaviors. However, while research shows that the impact of a cancer diagnosis can last years after the event,[3,79,80] for others the emotional impetus needed to spur behavior change dissipates rapidly. This means that the oncologist, the provider with whom a patient has the closest relationship in the critical period after a cancer diagnosis, may be in a unique position to help patients lose weight and make other healthy lifestyle changes. Additionally, the oncology team as a whole can play a valuable role in supporting this process.

KAREN ELSHOUT PHOTOGRAPH

BILL WIPPERT

It is critical to enlist the whole treatment team in assessing weight and helping patients to initiate lifestyle change after cancer diagnosis. It also is important to recognize that long-lasting behavior change will require partnerships between oncologists and other specialties. By introducing these topics at a time when patients may be looking to lead healthier lives and providing regular reinforcement during follow up visits, oncology providers may be able to help patients use their cancer diagnoses as an impetus to make long-lasting behavioral changes.

REFER

It is not expected that oncology providers will have the resources or expertise to provide weight loss counseling or services within their practice. Knowing what is available, both locally and online, will assist providers in being able to refer patients to appropriate services in order to help them achieve a healthy lifestyle.

Identifying Local Resources

Primary care practices in your area may be able to offer counseling services for obesity. Though these services generally are covered when provided in the primary care setting, not all practices will be equipped to do so; it is therefore best to develop relationships within your local medical community to know which services are available and where.

A referral to a dietitian is also a good first step in helping patients develop a weight loss program. Dietitians who are appropriately trained in oncology nutrition can prescribe dietary regimens that balance the need for weight management with other nutritional concerns. Dietitians who are members of the oncology nutrition dietetic practice group of the American Academy of Nutrition and Dietetics can be located by searching under oncology/cancer, city, state and zip code using the following link: http://www.eatright.org/programs/rdfinder/. Those who have successfully undergone advanced training are designed as certified specialists in oncology nutrition (CSO).

Medline Plus (http://www.nlm.nih.gov/medlineplus/directories.html), a service offered through the U.S. National Library of Medicine and National Institutes of Health, provides links to a number of searchable directories to assist in locating healthcare professionals specializing in various aspects of the field of obesity. Additionally, Medline Plus can assist in locating services and treatment facilities.

Many hospitals are taking an active role in improving the health of their local populations. Your community hospital may offer resources for your patients including free or reduced-cost nutrition courses, weight loss programs, and even access to fresh fruits and vegetables. Some exercise facilities and hospitals offer low cost exercise programs for cancer survivors such as the LIVE**STRONG** at YMCA program. Further, because it is a major issue not only for individuals but also for communities, local health departments provide a key role in addressing obesity, and often offer programs and resources to influence behavior change. These departments may be able to assist in locating local farmer's markets and safe opportunities for physical activity. As well, local park and recreation agencies have trail maps and often offer low-cost recreation center memberships.

Rehabilitation Services for Cancer Patients

An increasing number of hospitals are offering programs to provide cancer patients with comprehensive rehabilitation services, to help address a variety of treatment-related conditions and symptoms such as pain, weakness, fatigue, lymphedema, and chemotherapy-induced peripheral neuropathy. These services may be covered by Medicare and private insurance when performed by rehabilitative medicine specialists including physiatrists, rehabilitation nurses, and physical, occupational, and speech therapists. It is important to note that these services are still not available for many cancer patients and are only available in a limited number of practices. Additionally, unlike cardiac rehabilitative services, which include exercise and nutrition counseling, the cancer rehabilitation model is not geared toward obesity prevention or reduction. These services can be helpful, however, for patients who are experiencing significant toxicities from cancer therapy that may make it difficult to initiate a weight management program.

Additional Resources for Patients and Families

A variety of free or low-cost resources are available nationally to assist patients and their families with losing weight and improving their health.

TABLE 4.3: LINKS TO NATIONALLY AVAILABLE RESOURCES

Resource	Cost	Link
USDA: ChooseMyPlate This USDA website offers a variety of resources, from tips on weight management and calorie tracking to tracking tools that allow a user to record daily physical activity and diet.	Free	http://www.choosemyplate.gov
LIVESTRONG at the YMCA LIVESTRONG at the YMCA is a twelve-week, small group program designed to help adult cancer survivors become more physically active after cancer diagnosis	Free at most locations; check with local YMCA	http://www.livestrong.org/What-We-Do/Our-Actions/Programs-Partnerships/LIVESTRONG-at-the-YMCA/LIVESTRONG-at-the-YMCA-Locations
Obesity Action Coalition (OAC) The OAC offers a wide variety of brochures and guides on obesity and related topics.	Free	http://www.obesityaction.org/educational-resources/brochures-and-guides
We Can! A website run by the National Heart, Lung and Blood Institute (NIDDK) offering a variety of resources on healthy and active lifestyles.	Free	http://www.nhlbi.nih.gov/health/public/heart/obesity/wecan
Fit Day This website offers articles on nutrition and fitness, as well as provides tools to help participants create an online journal to count calories and track eating habits	Free	http://www.fitday.com
American Academy of Nutrition and Dietetics A referral to oncology care nutritionists.	Cost dependent on medical insurance	http://www.eatright.org/programs/rdfinder
Weight-control Information Network (WIN) An information resource offered by NIDDK; includes links to online publications grouped by Public, Providers, Groups and Communities, and those available in Spanish.	Free	http://win.niddk.nih.gov/publications/index.htm
Cómo Alimentarse y Mantenerse Activo Durante Toda La Vida A Spanish-language website offered through WIN.	Free	http://win.niddk.nih.gov/publications/para_adultos.htm

5. Clinical Practice Guidelines

American Cancer Society (ACS) Guidelines

The American Cancer Society Guidelines for Nutrition and Physical Activity serve as a foundation for the group's communication, policy, and community strategies around nutrition and physical activity as a means to prevent cancer. These guidelines reflect the most current scientific evidence related to dietary and activity patterns and cancer risk.
http://www.cancer.org/healthy/eathealthygetactive/acsguidelinesonnutritionphysicalactivityforcancerprevention/acs-guidelines-on-nutrition-and-physical-activity-for-cancer-prevention-intro

The ACS also offers guidelines specifically for survivors and caregivers on the role of nutrition and physical activity after a cancer diagnosis.
http://onlinelibrary.wiley.com/doi/10.3322/caac.21142/full

American College of Sports Medicine Exercise Guidelines for Cancer Survivors

This report details the important role that exercise plays in cancer control and survivorship, and provides a framework for providers interested in implementing physical activity programs for cancer survivors both during and after completion of active cancer treatment.
http://journals.lww.com/acsm-msse/Fulltext/2010/07000/American_College_of_Sports_Medicine_Roundtable_on.23.aspx

National Heart, Lung and Blood Institute (NHLBI) Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults

The NHLBI, in cooperation with the National Institutes of Health released the first federal guidelines on the identification, evaluation, and treatment of overweight and obesity.
http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm
http://www.nhlbi.nih.gov/guidelines/obesity/prctgd_c.pdf

Centers for Disease Control and Prevention (CDC) Obesity Prevention Strategies

To reverse the obesity epidemic, the CDC has developed numerous recommended strategies to prevent obesity including guides to increase physical activity and the consumption of fruits and vegetables. http://www.cdc.gov/obesity/resources/recommendations.html#Obesity

CDC guidelines for pediatric cancer survivors encourage parents to limit their child's media time to 1-2 hours quality programming per day, avoid foods with added sugars, fat and salt, encourage fruits and vegetable intake, and substitute water for drinks with added sugar (http://www.cdc.gov/obesity/childhood/solutions.html). The CDC guidelines also recommend that children participate in one or more hours per day of physical activity.

6. Coverage & Reimbursement

Medicare

INTENSIVE BEHAVIORAL COUNSELING

In 2012, CMS added intensive behavioral counseling for adult obesity, a grade B recommendation of the USPSTF, as a covered service **only when provided by a primary care physician or practitioner in a primary care setting.** CMS defines a primary care setting as one where services are provided by clinicians "who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community". CMS defines a primary care practitioner as one who has a primary specialty designation of family medicine, internal medicine, geriatric medicine, obstetrics/gynecology, or pediatric medicine or is a nurse practitioner, clinical nurse specialist, or physician assistant.

MEDICAL NUTRITION THERAPY

CMS also provides coverage for Medical Nutrition Therapy (MNT) **only to individuals with kidney disease or diabetes.** MNT is defined as a specifically tailored dietary plan developed and monitored by a registered dietitian or nutrition provider who meets certain requirements as defined by CMS. This service is covered when delivered by a registered dietitian or nutrition professional according to nutrition practice guidelines.

BARIATRIC SURGERY

To qualify for coverage, individuals must meet the following criteria:

- Have a BMI of 35 or greater
- Have at least one weight-related problem (diabetes, heart disease or sleep apnea)
- Have documented evidence of repeated failure to lose weight in medically supervised weight loss programs (diet, exercise programs/counseling or drug therapy)

Additionally, bariatric surgery will only be covered if:

- Individuals undergo psychological evaluation
- All other medical treatments have been ruled out
- The surgery is performed at a Medicare-approved "Center of Excellence"
- The specific procedure used is approved by Medicare

OTHER TREATMENTS

Medicare does not cover the services of an exercise therapist or trainer, or physical exercise classes. And, as yet, Medicare Part D does not cover drugs for the treatment of obesity.

Medicaid & State Insurance Coverage of Obesity-Related Services

A recent study found that very few states ensure coverage of recommended treatments for adult and pediatric obesity through Medicaid or private insurance.[81]

- Only eight state Medicaid programs appear to cover all recommended obesity treatment modalities for adults.
- Eligible children under Medicaid have coverage for comprehensive obesity services through the Early and Periodic Screening, Diagnostic, and Treatment program; however is not clear whether states are actually covering necessary services.

To learn more about your state's Medicaid plan and to find your state's Medicaid agency information, visit: http://www.medicaid.gov/Medicaid-CHIP-Program-Information/By-State/By-State.html.

Obesity-Related Provisions in the Affordable Care Act

OBESITY SCREENING WITH NO CO-PAY

As part of the preventive services benefit, the ACA requires CMS and most private insurance to provide coverage for screening for obesity and counseling services that are evidence-based and have a rating of "A" or "B" in the current USPSTF recommendations, without co-pay to members. An "A" or "B" letter grade indicates that the Task Force finds there is high certainty that the services have a substantial or moderate net benefit. However, this service is only covered when provided by primary care practitioners.

OBESITY TREATMENT AS AN ESSENTIAL HEALTH BENEFIT

The Affordable Care Act establishes ten categories of essential health benefits, one of which is "preventive and wellness services and chronic disease management." However, this category is not well defined and does not address obesity specifically. The impact of the ACA on access to obesity treatment services is unclear at this time.

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