Improving Cancer Care by Addressing Food Insecurity

BY TRACEY F. WEISBERG, MD

Food insecurity has become an increasing concern for Americans that healthcare providers can often overlook. It is not associated with any one demographic group; anyone can become food insecure at any point in their life. The U.S. Department of Agriculture defines food insecurity as the "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."[1] In 2017 food insecurity affected 12.7 percent of the U.S. population; 15.8 percent of Maine's residents experienced food insecurity that same year.[2]

Several factors contribute to Maine's high rate of food insecurity. For example, only two-thirds of workers in Maine earn a living wage, and constraints on state benefits (e.g., the Supplemental Nutrition Assistance Program, or SNAP) prevent many people from qualifying for them.[2] Figure 1, page 38, demonstrates the average prevalence of food insecurity by state from 2016 to 2018.[3]

The terms *food insecurity* and *hunger* are often used interchangeably in everyday vernacular, but it is important to note that measuring food insecurity is not the same thing as measuring hunger. Rather, hunger is a potential consequence of food insecurity.[1] Food insecure patients can become sicker and struggle more to afford their medications. A study on food insecure patients in Kentucky found that 55 percent did not take their medication because they could not afford to do so, compared to 12 percent of their food secure peers.[4] The study also found that food insecurity is associated with a lower quality of life in the areas of physical, emotional, and functional well-being.[4]

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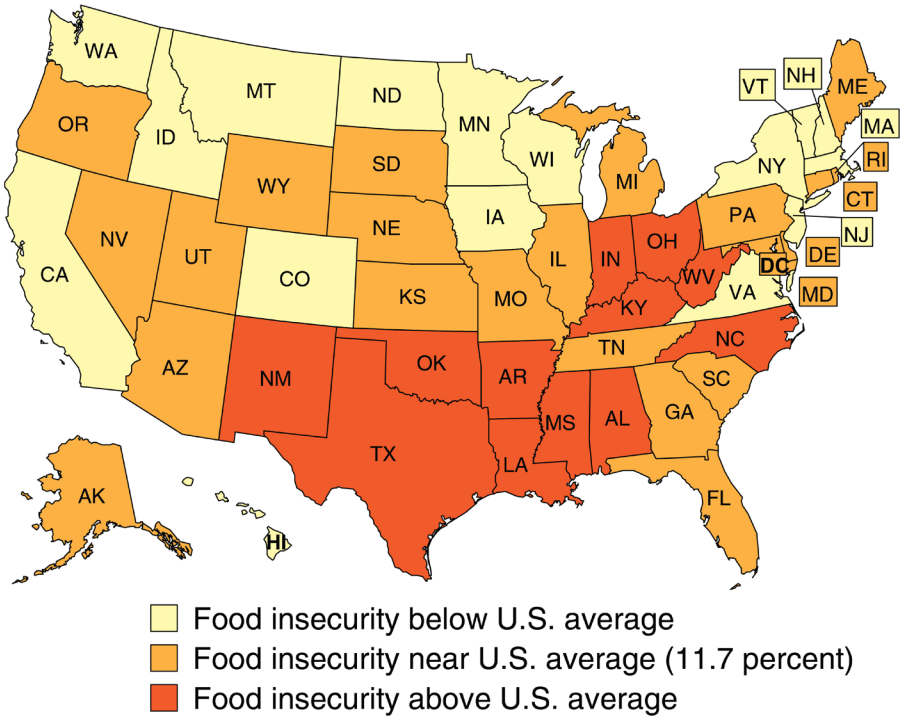
Do We Have a Problem?

New England Cancer Specialists sought to create a way to help our food insecure patients improve their health and quality of life. To do so, in 2017 we set out to determine the demographics of our patients and find out how many were food insecure. We

Figure 1. Prevalence of Food Insecurity, Average 2016-18.



Source: USDA, Economic Research Service using Current Population Survey Food Security Supplement data, U.S. Census Bureau.

received funding for our study from our state oncology society, and with the help of two students at our practice, we gathered the basic demographics of our patient population. Both students were college juniors with medical school aspirations. The students developed a patient-reported outcomes (PROs) survey for all patients that asked them to answer questions about potential food insecurity as well as several symptoms (including difficulty sleeping, fatigue, pain, mood, and appetite) based on Common Terminology Criteria for Adverse Events 4.0 guidelines.[5] We identified patients as food insecure based on their selection of either the second or third option in the survey:

1. In the last year, I have never worried about running out food.
2. I was worried about running out of food and not being able to buy more.
3. I ran out of food and was not able to buy more.

We recorded results from the PROs survey to establish the prevalence of food insecurity in our practice. We also assessed whether food insecure patients had more symptoms of distress compared to food secure patients. In addition, we evaluated adherence to adjuvant therapy for patients with early stage breast cancer based upon their food insecurity.

Demographics of Food Insecurity

Our data revealed that 61 percent of our male patients and 39 percent of our female patients were food insecure. Our results also revealed that food insecurity impacted the entire age range of the patients we serve, although the highest percentage of food insecure patients were 50 to 59. We found this surprising, because we expected that our young patients and patients on Medicare without supplemental insurance would be the most food insecure. Our data showed that 94 percent of our food insecure patients have a primary care physician, and many of them reported that they had not been asked about food security before. Almost all of our patients (97 percent) have healthcare insurance.

Although we thought that our under- or uninsured patient populations would most often screen positive for food insecurity, our data show that food insecurity can affect anyone. Our data revealed that 17 percent of our patients who screened positive for food insecurity at some point in their treatment are covered under Maine Care, 39 percent have Medicare with supplemental coverage, 6 percent have Medicare only, and 34 percent have private insurance.

We wondered why this specific population (patients with healthcare insurance) were screening positive for food insecurity. Was it the big co-pays and/or deductibles, or was it caused by other issues?

Distress and Food Insecurity

We found that patients who indicated that they were food insecure reported, on average, more symptoms (difficulty sleeping, fatigue, pain, and mood) compared to their case-control matches. This finding was consistent across the board, with highly significant *t* values (see Table 1, below). Our data also show through a correlated *t* test that the difference in these scores (0-3 scale for difficulty sleeping, fatigue, and pain and a 0-4 scale for mood and appetite) was significant, with a 99 percent power for each symptom except appetite, which had an 85 percent power.

One factor to note with this study is that there are patients who are food insecure but do not screen positive for food insecurity. Patients do not admit to being food insecure for many reasons. They may fail to answer this question correctly because they fear getting social workers involved. Or they may fear that their children could be taken from them if they cannot demonstrate that they can adequately provide for them. Also, not all patients who screen positive for high levels of distress or difficulty sleeping screen positive for food insecurity. But having data on these self-reported items can give our providers an opportunity to initiate conversations with patients who may be vulnerable.

Food Insecurity and Treatment Adherence

We next sought to determine whether providing food assistance to food insecure patients with early stage breast cancer would improve their adherence to adjuvant therapy. The study took place from January 2017 to June 2019. During this time, our practice saw 42 patients who met our study criteria. We collected data from our patient-reported symptoms survey and collected information from our financial advocates regarding how many of these patients had received food assistance. We matched food secure case-controls for disease, stage, gender, and age. We then quantified adherence to adjuvant therapy by the number of months these patients received treatment.

Our results indicated that food insecure patients tended to complete fewer months of treatment than their food secure counterparts. Food insecure patients who refused assistance had the lowest number of months of completed treatment; most food insecure patients who received assistance completed more of their treatment.

It is important to recognize that we are a small practice; therefore, our sample size is small, so the statistical significance is not yet relevant. Though we concluded that receiving food assistance likely increases the likelihood of food insecure patients completing their therapy, we also recognize that socioeconomic factors can also contribute to why patients do not complete their adjuvant treatment.

Our Screening Process

We found that addressing food insecurity in our patient population is relatively simple and does not require much money. In refining our patient screening tool (Figure 2, page 40), we studied food insecurity screening tools that were already validated in the healthcare setting. We found that the "two-item hunger score" (also called the "vital signs score") that was published in 2010 and 2015 has the highest sensitivity and specificity for identifying food insecure patients.[6,7] (A one-item screening tool yields less patient sensitivity and specificity.) The tool we now use has two questions, and either one of them would yield acceptable results.[6,7] We ask our patients to answer yes or no to the following:

1. Within the past 12 months, we were worried whether our food would run out before we got money to buy more: often true, sometimes true, or never true.

Table 1. Data from Food Insecurity Screening

PRO Symptom	Food Insecurity	Food Security	*t*-values*
Difficulty sleeping	0.954	0.497	4.249
Fatigue	1.369	0.799	8.6
Pain	1.04	0.586	4.399
Mood	1.078	0.49	4.929
Appetite	0.556	0.323	2.708

*value greater than 2.358 is significant.

Figure 2. Patient Screening Tool

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Name_____ Date_____

Please circle all symptoms /side effects that apply since your last visit.

Do you have any of the following?	Living Will Yes No	Durable Power of Attorney Yes No	Do Not Resuscitate order (DNR) Yes No		
Pain Choose number	None 0 1	Mild 2 3	Moderate 4 5	Severe 6 7	Very Severe 8 9	Unbearable 10
Fever/Chills	None	Mild sensation of cold	Moderate: shaking, chills	Severe and prolonged	
Fatigue Choose number	None 0 1	A little: relieved by rest 2 3 4	Quite a bit: limits activity 5 6 7 8	Very much: limits self care 9 10	
Nausea/Vomiting/ Food Intake	None	1-2 episodes/day-less than normal intake	3-5 episodes/day-occasional intake	6-10 episodes/day-no intake	11 or more episodes/day - no intake
Diarrhea	None	2-3 loose stools/day some cramps	4-6 loose stools/day moderate cramps	7-9 loose stools/ day severe cramps	10 or more loose stools/day, bloody stools
Constipation	None	1 stool every 2-3 days	1 stool per week	No stool for more than 1 week	No stool & severe abdominal pain
Mouth sores	None	Mild mouth soreness	Painful ulcers but can eat	Painful ulcers, cannot eat	Need to be fed by a tube
Hot flashes	None	Occasional	Mild – 1 per day	Moderate – up to 10 times per day	Severe – more than 10 per day
Numbness/ Tingling	None	Mild	Moderate	Severe	Loss of use of extremity
Shortness of breath	None	With moderate activity	With minimal activity	Shortness of breath at rest	
Irregular heartbeat	None	Occasional	Several times per week	Daily	Requiring medical attention
Skin rash	None	Minimal – no itching	Moderate – some itching	Extensive – severe	Skin blistering or loss of skin
Urinary symptoms	None	Frequency/urgency	Mild pain or difficulty voiding	Moderate pain or difficulty voiding	Extreme pain or cannot void

Please check one of the three **Food Security** questions listed below that applies to you or your family:

___ Within the last 12 months, I have had no concerns about having enough food.

___ Within the last 12 months, I have worried about whether our food would run out before we could get money to buy more.

___ Within the last 12 months, the food we bought didn't last and we did not have money to buy more.

Do you need any **medication refills** today?	Yes	No
Have you been **admitted to the hospital or seen in the Emergency Department** since your last visit?	Yes	No

2. Within the past 12 months, the food that we bought just did not last and we did not have enough money to get more: often true, sometimes true, or never true.

At each office visit, our patients are given the paper patient screening tool to fill out while in the waiting room. (Our goal is to ultimately have patients take the survey on iPads.) By now, our patients are familiar with our survey process. The food insecurity questions are located at the bottom of the form, and there is nothing about our screening process that singles anyone out. After patients complete the form, they are greeted and brought into an exam room by the medical assistant, who then manually enters patients' responses into our electronic health record. This is done in the exam room, so the information remains private. If a patient screens positive for food insecurity, the medical assistant will alert the physician or nurse navigator, who will ask one of our financial advocates to begin assisting the patient.

Leveraging Community Resources

Our financial advocates first help patients determine whether they are eligible for the SNAP program. This federal program gives monthly benefits to those who are eligible, enabling them to purchase food at grocery stores, farmers' markets, and retail outlets. The benefits are loaded onto debit-like card that recipients can use when shopping. Unfortunately, SNAP does not provide much money. According to 2015 data, SNAP covered on average $1.86 per meal in the United States, whereas an average meal costs $2.36.[8]

Fortunately, the University of Southern Maine, just six miles from our Scarborough location, has a phenomenal program called "SNAP-Ed." It is a nutritional education program for anyone; participants do not have to be enrolled in the SNAP program. The program teaches participants how to make shopping lists, how to buy food on a limited budget, how to determine what is healthy food, and how to best prepare good meals. Our practice found this information to be invaluable, so we created a handout for our patients based on the program called "Finding Savings in Every Grocery Aisle" (see Figure 3, page 42).

The handout gives patients helpful quick tips for eating better, even on a budget. We have found that the combination of the SNAP and SNAP-Ed program can help people who are food insecure put food on the dinner table while also making healthy nutritional choices.

Our practice understands that food insecurity can impact the entire family, including children. If the parent does not qualify for a federal program, there may be other programs his or her children can receive help from. This can then help alleviate some of the food security issues for the entire family.

How Our Practice Helps

Though this country spends a lot of money on complex medical treatments, very few resources are dedicated to helping people maintain adequate nutrition. Our practice has taken the initiative to help our patients by providing relief bags full of food to those who need them. These are meant to provide temporary, 24-hour relief to patients in emergency situations. The bags are filled with nonperishable items that are not meant to meet a patient's entire nutritional needs but rather to help if their cupboard is temporarily empty. Originally, our practice provided this assistance in brown paper bags (like the food assistance programs in many grocery stores), but we switched to using bags with the practice's logo to enhance patient privacy. Because every patient treated in our practice receives one of our bags, there is no distinguishable difference between the bags that contain food. For patients who need additional resources, our financial advocates help connect them to local food banks.

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To fund this program, our practice has implemented a "jeans day" every Friday. Staff who want to wear jeans donate $2 to our food security program. To date, our staff has collected over $5,000 through this activity—all of which has gone to buy food cards so that patients can buy groceries.

Our most recent initiative is the "Give and Take Table" set up in our waiting room, where people can leave and take healthy food items as needed. (Our financial advocates put together a list of acceptable items to leave on the table, such as non-perishable items and healthy options.) Patients can choose to take food regardless of their income level and without judgment. This has helped us create a space to help reduce food insecurity and promote healthy eating habits. This initiative led our practice to also offer healthy snacks in the treatment room for our patients, including yogurt, fruit, and string cheese. These are projects that most practices can fund, and though they may not address everyone who is food insecure, they have helped and are most appreciated by our patients.

To help on a larger scale, our practice has created two foundations: the Snell Foundation and the Dean Snell Cancer Foundation. Our financial advocates help patients apply to these foundations for assistance with food insecurity and other needs, such as financial assistance with mortgages, rent, utilities, or medical services on an as-needed basis.

(continued on page 45)

Figure 3. Finding Savings in Every Grocery Aisle

Beverages

- Tap water is free. Don't bother to buy bottled water. Be sure your tap water is safe—get your free water testing kit here: wellwater.maine.gov.
- Don't own a water bottle? Many organizations give out free water bottles at local fairs and events.
- Choose low-fat or fat-free dairy options. For dairy alternatives, be sure to pick a variety that does not have added sugar or is labeled "unsweetened."
- Skip the sugar-sweetened beverages (soda, juice drinks, energy drinks, sports drinks). They offer you and your family nothing for nutrition that cannot be found in more healthful options.
- Coffee and teas can be a source of added sugars. Skip the pre-made drinks and brew your own at home. It is cheaper and you can control how much creamer and sweetener you put in.
- Do you have a beverage habit? Try to cut by using this tip: Mix half your regular beverage option such as soda or juice with seltzer, club soda, or plain water. Over time, mix less soda and more seltzer/water into your beverages.

Bread

- Choose breads that are made with 100 percent whole grains or 100 percent whole wheat.
- Brown and multi-grain breads don't necessarily contain whole grains.
- Switching to whole-grain breads can be difficult. Help your family make the switch by choosing bread options that are made with "whole-grain white flour."

Cereal

- Choose cereals made with whole grains, such as whole wheat or whole oats (should be the first ingredient listed).
- Check the serving size—is ¾ cup really how much you would eat?
- Look for cereals with less than 7 grams of sugar per serving, 3 or more grams of fiber.
- Great options include oatmeal, bran flakes, and corn flakes (unfrosted).
- Remember, you can always add sweetener, such as a tablespoon of dried fruit or a teaspoon of honey or maple syrup drizzled over the cereal.
- If you are having a hard time switching to a whole-grain cereal, make a mixture. Start by adding a small amount of whole-grain cereal and add more as the week goes on.

Produce

- Buy what is in season. Not sure? Check out this great chart for Maine: getrealmaine.com.
- Looking for the freshest? Check out your local farmers' markets: mainefarmersmarkets.org/market; check to see if your farmers' markets accept EBT (electronic benefit transfer).
- Don't be afraid to break up the bunch. Just because bananas come attached together doesn't mean you have to buy the whole bunch. Only buy what you need. If you are buying grapes or cherries, don't be shy; only take what you want rather than the whole pre-packaged bag.

Canned Fruits

- Choose fruits that are packed in water or 100 percent fruit juice. Be sure to drain the fruit well and discard the liquid.

Canned Vegetables

- Choose low-sodium or "no-salt added" canned vegetables when available. Drain and rinse well.
- Add flavor by using herbs and spices. Look for low-cost herbs and spices at discount dollar stores.

Canned Beans

- Canned beans are a great option to keep on hand for a quick way to add protein.
- Choose low-sodium or "no-salt added" canned beans when available. Drain and rinse well.

Milk

- Choose low-fat (1%) or skim milk.
- Looking for ways to switch to low-fat milk? Try this schedule:
  - Week #1: Mix whole milk with 1% milk
  - Week #2: Mix whole milk with skim milk
  - Week #3: Buy only 1% milk
  - Week #4: Mix 1% with skim milk
  - Week #5: Buy only skim milk

Yogurt

- Choose low-fat or fat-free yogurt with no added sugars (check the ingredient list).
- Tip: Pick up plain yogurt and add your own toppings like a teaspoon of your favorite jam, a drizzle of honey, or some frozen fruit!
- Tip: Buy a large container of yogurt and make your own single serving. It is cheaper! Skip the smaller packaged yogurts and opt for the large container. It only takes a few seconds to scoop out a serving of yogurt, and you'll save money too! Figure 4, page 44, is an illustration of a unit price comparison.

Cheese and Other Dairy Products

- Choose low-fat cheese or use half as much regular cheese in recipes.
- When buying sour cream or cream cheese, look for low-fat or fat-free options.
- Dry milk is great because you don't need to refrigerate it. Keep it on hand for when you run out of milk for cereal; add it to hot cereal or smoothies for added protein. It can be expensive because you must buy so much all at once. One box has 32 servings in it, for roughly $0.30 per serving. You can split a box with a friend and split the cost. This is also an alternative to stopping at the local convenience store to purchase milk where you might pay up to $1 more per gallon than at the grocery store.

Frozen Produce

- Buy the biggest container of frozen whole fruit with no added sugar or toppings and frozen vegetables with no added sauces. This will be your cheapest option because frozen produce lasts up to six months.

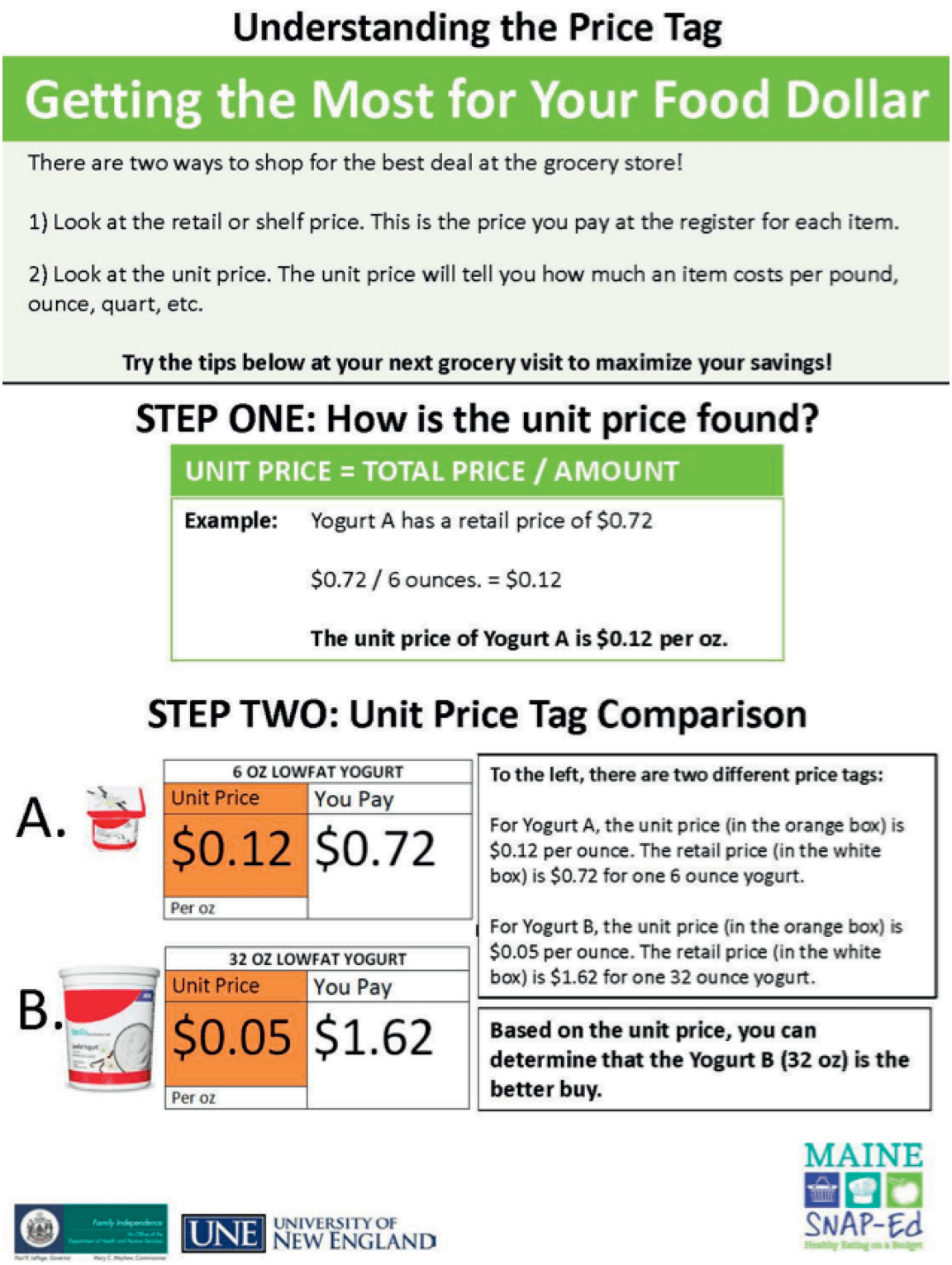
Meat- and Seafood-Based Proteins

- Choose lower fat red meat options like 93 percent ground beef or cuts called "loin" or "round."
- Cut back on portion sizes. Remember, a serving size of meat is only the size of a deck of cards. Eating less meat will save you more money.
- Skip the prepackaged lunch meat. You might have to wait in line at the deli, but you'll skip the cost of the pre-package convenience and only be buying what you need.

Plant-Based Proteins

- Lentils. There are so many varieties of lentils, but the most common are green and red lentils. Lentils are great because they will last a long time in your pantry—just don't forget about them. You can find lentils in the same aisle as dried and canned beans. A serving of beef can be as much as $1.49, whereas a serving of lentils is $0.10.
- Beans. If you're looking for a way to stretch your budget and improve your family's nutrition, consider adding more beans to your menu. They're convenient and versatile and lend themselves to many tasty dishes. Beans are a rich source of protein, fiber, vitamins, and minerals. Beans can be added to casseroles or soups to add flavor, texture, and more nutrients.

Figure 4. A Unit Price Comparison



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Takeaways

It takes a community to identify food insecurity and come up with effective strategies to help. For cancer practices or programs interested in implementing a similar food assistance program, we offer these takeaways:

- Understand why food security is important and how it affects your patients and their families.
- Educate and train your physician leaders and key staff about food insecurity.
- Understand why it is important to do universal screening for food insecurity and identify the best way to screen in your setting. This should be incorporated into your institutional workflow so that it is sustainable and confidential.
- Show sensitivity when screening for food insecurity; inform patients that your practice is screening all patients. Normalize the screening procedure so that patients do not feel singled out.
- Research federal, state, and local resources available to help with people experiencing food insecurity.

A food insecure patient is not always the one you would expect. He or she may come from a middle-class family or have private insurance. Understand that if patients cannot maintain proper nourishment, they will likely be unable to battle cancer and manage treatment toxicities. OI

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Patient Case Study

A 28-year-old self-employed male has a history of defuse large cell lymphoma and is being treated with CHOP chemotherapy. In the middle of his treatment, his advanced practice provider starts to notice that the patient is losing weight. The physician recognizes that weight loss is not common for patients receiving CHOP treatment. When researching the issue, we noted that this patient had not otherwise been ill. But he reported some fatigue and said he was not eating well. We discovered through our screening process that the patient did not have enough money to buy groceries for himself and his family. He fed his kids and wife but was not getting adequate food himself. At this time, the family had lost their insurance and could now qualify for state assistance. We immediately got our financial advocates involved. They were able to help the patient obtain a leukemia and lymphoma grant, which allowed for enough funds to supplement his income and establish food security for the family. Our practice also helped the patient during his treatment by providing multiple grocery cards out of our own funds. In the end, the patient completed his treatment, and now he is in remission, back to work, and no longer food insecure.