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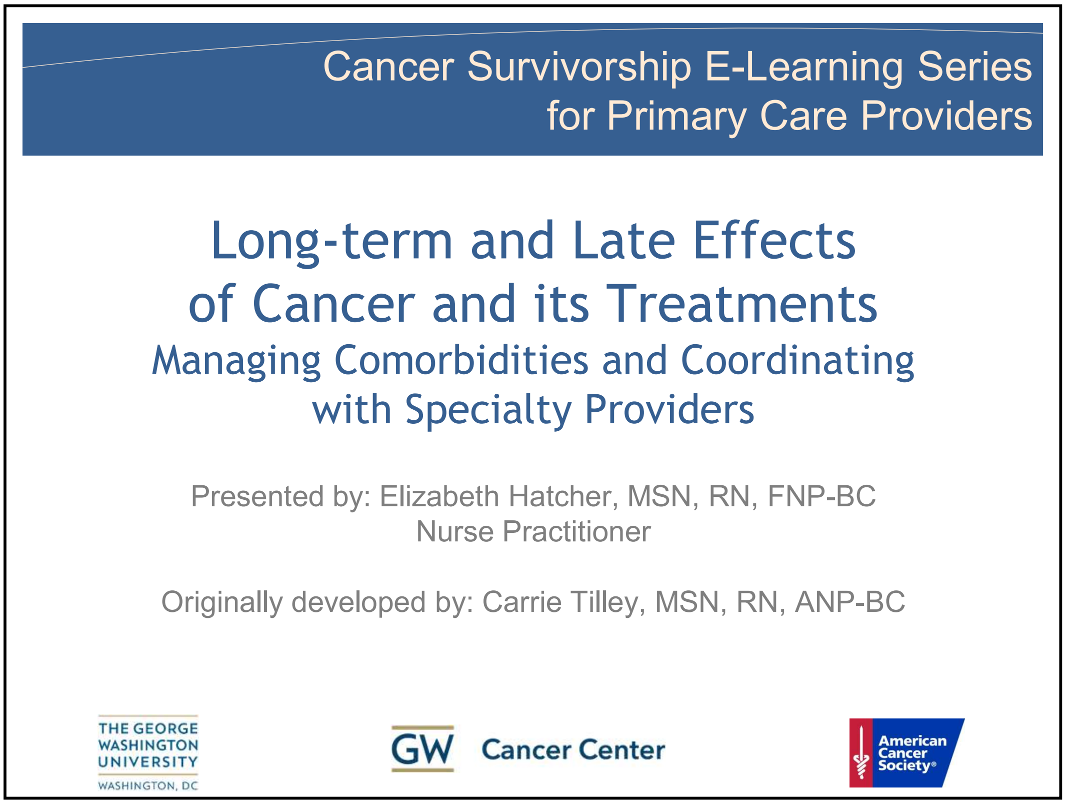

Cancer Survivorship E-Learning Series
for Primary Care Providers

Long-term and Late Effects of Cancer and its Treatments

Managing Comorbidities and Coordinating with Specialty Providers

Presented by: Elizabeth Hatcher, MSN, RN, FNP-BC
Nurse Practitioner

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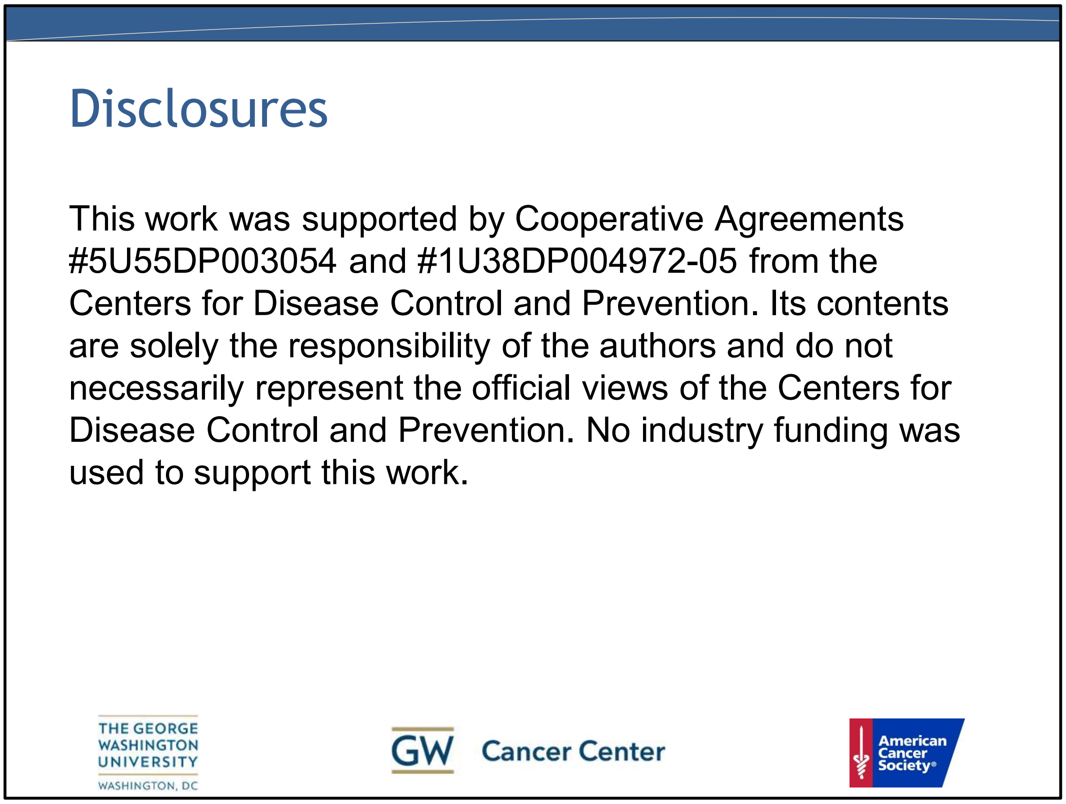
Hello and welcome to the presentation on Long-term and Late Effects of Cancer and its Treatments, Managing Comorbidities and Coordinating with Specialty Providers. I'm a nurse practitioner and I've been working in cancer survivorship clinics for the last two and half years.

We are pleased to offer this educational session through the National Cancer Survivorship Resource Center, a collaboration between the American Cancer Society and the George Washington University Cancer Center originally funded by a five year cooperative agreement from the Centers for Disease Control and Prevention.

We would like to thank and acknowledge Carrie Tilley who originally developed and presented this presentation in 2013. This presentation has primarily been updated to reflect changes in the years since.



Disclosures

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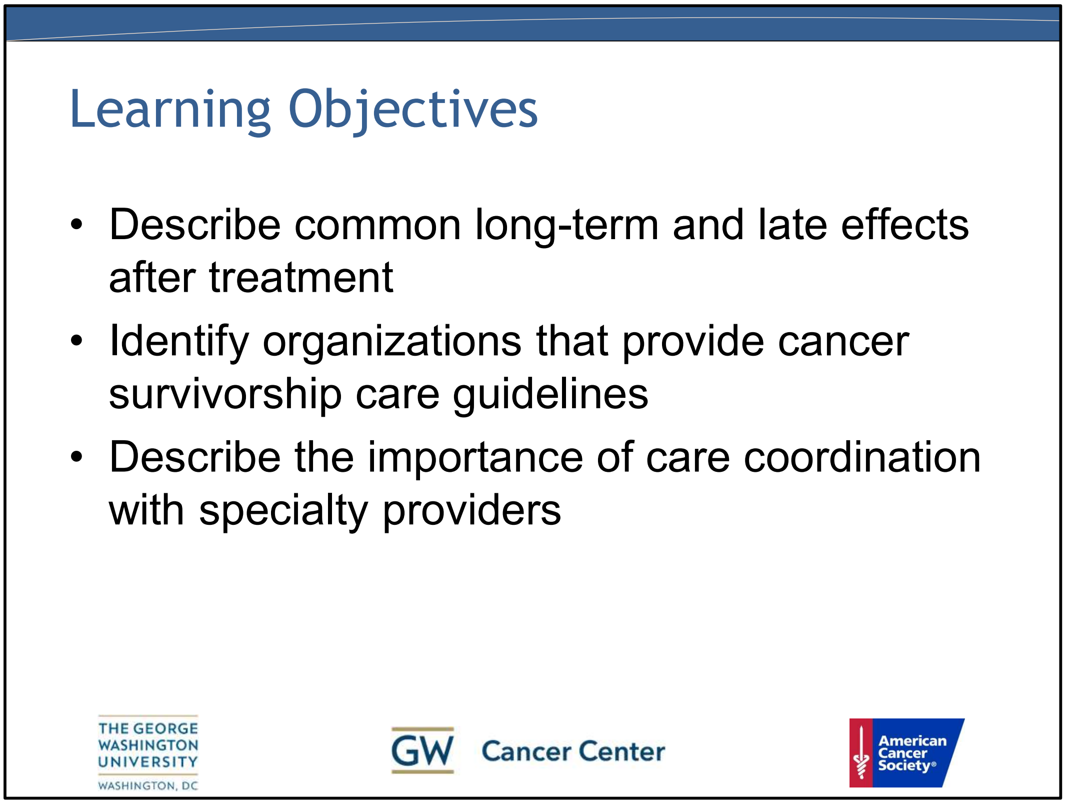

Learning Objectives

- Describe common long-term and late effects after treatment
- Identify organizations that provide cancer survivorship care guidelines
- Describe the importance of care coordination with specialty providers

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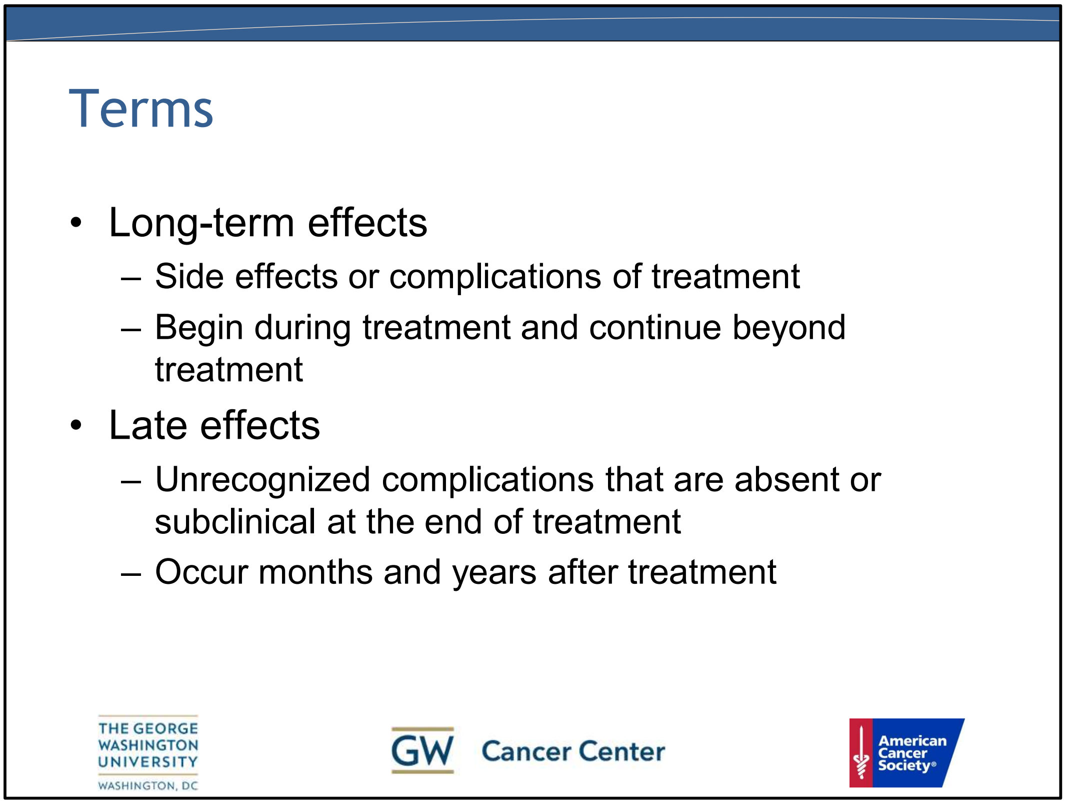
After completing this lesson, you will be able to: describe common long-term and late effects after treatment; identify organizations that provide cancer survivorship care guidelines; and describe the importance of care coordination with specialty providers.



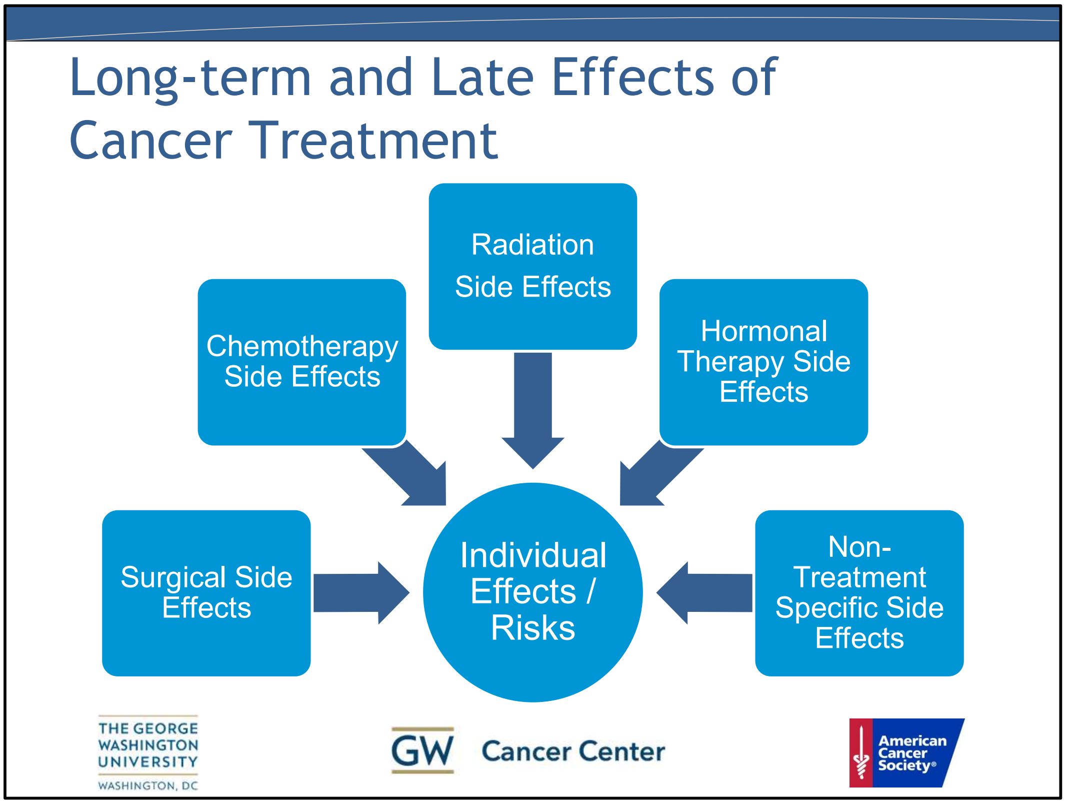
Terms

- Long-term effects
  - Side effects or complications of treatment
  - Begin during treatment and continue beyond treatment
- Late effects
  - Unrecognized complications that are absent or subclinical at the end of treatment
  - Occur months and years after treatment

Before we being let’s define long-term and late effects.

Long-term effects are side effects or complications of treatment. They generally begin during treatment and continue beyond treatment.

Late effects are unrecognized complications that are absent or subclinical at the end of treatment. They may occur months or year after treatment is completed.



Long-term and Late Effects of Cancer Treatment

Radiation Side Effects

Chemotherapy Side Effects

Hormonal Therapy Side Effects

Surgical Side Effects

Individual Effects / Risks

Non-Treatment Specific Side Effects

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There are many long-term and late effects of cancer treatment. It is important to remember that the potential side effects are very individual for each patient, and they depend on what treatment that patient received.

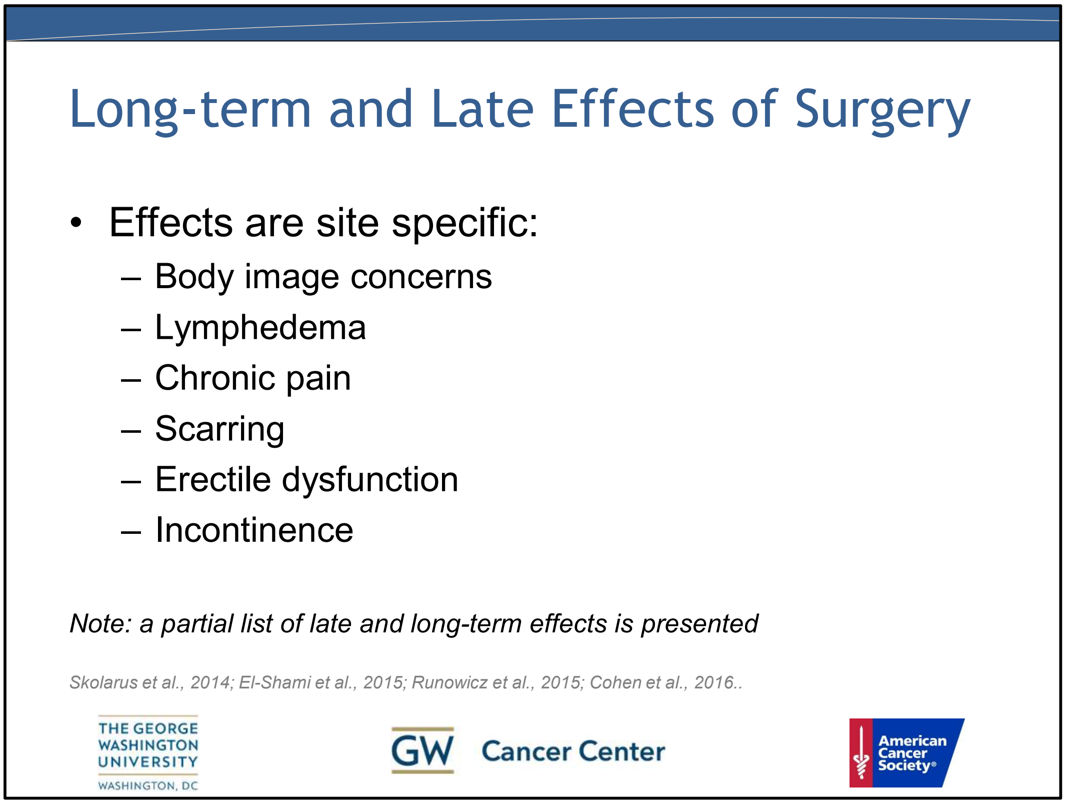
Did they have surgery? If so, the surgical site is going to be a very important factor in the effects they may be experiencing.

Did they have chemotherapy or did they undergo radiation?

Maybe they had hormone therapy as part of their treatment.

They could have had all or a combination of these therapies, but we need to consider the site, dose of treatment as well as a variety of other factors.

Side effects can come from treatments, but there can be non-treatment specific side effects as well, which we will discuss.



Long-term and Late Effects of Surgery

- Effects are site specific:
  - Body image concerns
  - Lymphedema
  - Chronic pain
  - Scarring
  - Erectile dysfunction
  - Incontinence

Note: a partial list of late and long-term effects is presented

Skolarus et al., 2014; El-Shami et al., 2015; Runowicz et al., 2015; Cohen et al., 2016..

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As noted, there can be many surgery-related effects. An individual may have an altered appearance due to surgery: for example a patient with head/neck cancer treated with surgery may have an altered appearance of their facial features at the surgical site because of damage to nerves.

I think it's always important to remember to assess for body image concerns because something that may appear to be a minor alteration to the clinician, such as a slight discrepancy in breast size after partial mastectomy, may be having a larger psychological impact on the patient and may be impacting the patient's emotional health.

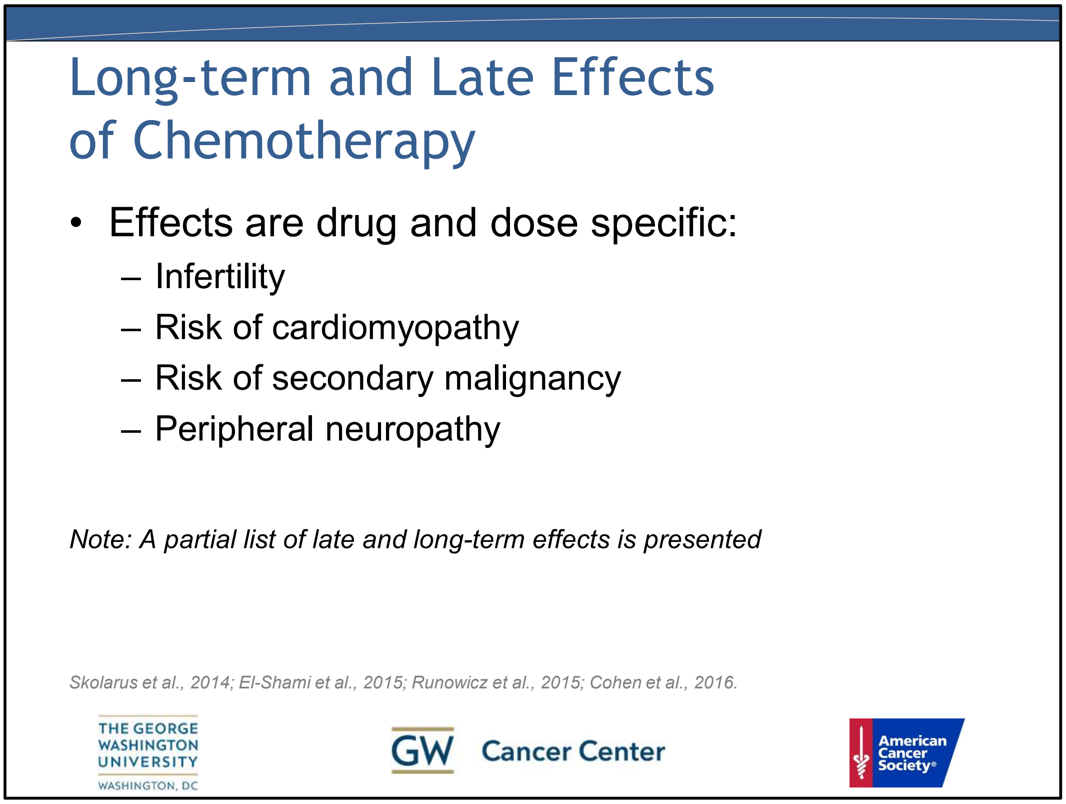
Maybe a patient has lymphedema of an arm or lower extremity after multiple lymph nodes were removed.

Patients can have chronic pain after surgery, and this kind of long-term nerve pain may not have been anticipated when deciding to have surgery. There can be scarring, there can be fibrosis, and patients can be at risk of cellulitis.

Providers do educate patients about how after having lymph nodes removed after surgery, they are at risk for cellulitis and lymphedema. But, like may of these effects, it still may come as a surprise to patients when it does happen, so reminders and reeducation are helpful.

It is also not uncommon for patients to have erectile dysfunction after prostatectomy. Survivors may be dealing with incontinence after prostate surgery or rectal surgery as well.

This list is not exhaustive and is meant to get you thinking about how surgery at a particular site could impact the patient long-term, even after the initial healing has gone smoothly.



Long-term and Late Effects of Chemotherapy

- Effects are drug and dose specific:
  - Infertility
  - Risk of cardiomyopathy
  - Risk of secondary malignancy
  - Peripheral neuropathy

Note: A partial list of late and long-term effects is presented

Skolarus et al., 2014; El-Shami et al., 2015; Runowicz et al., 2015; Cohen et al., 2016.

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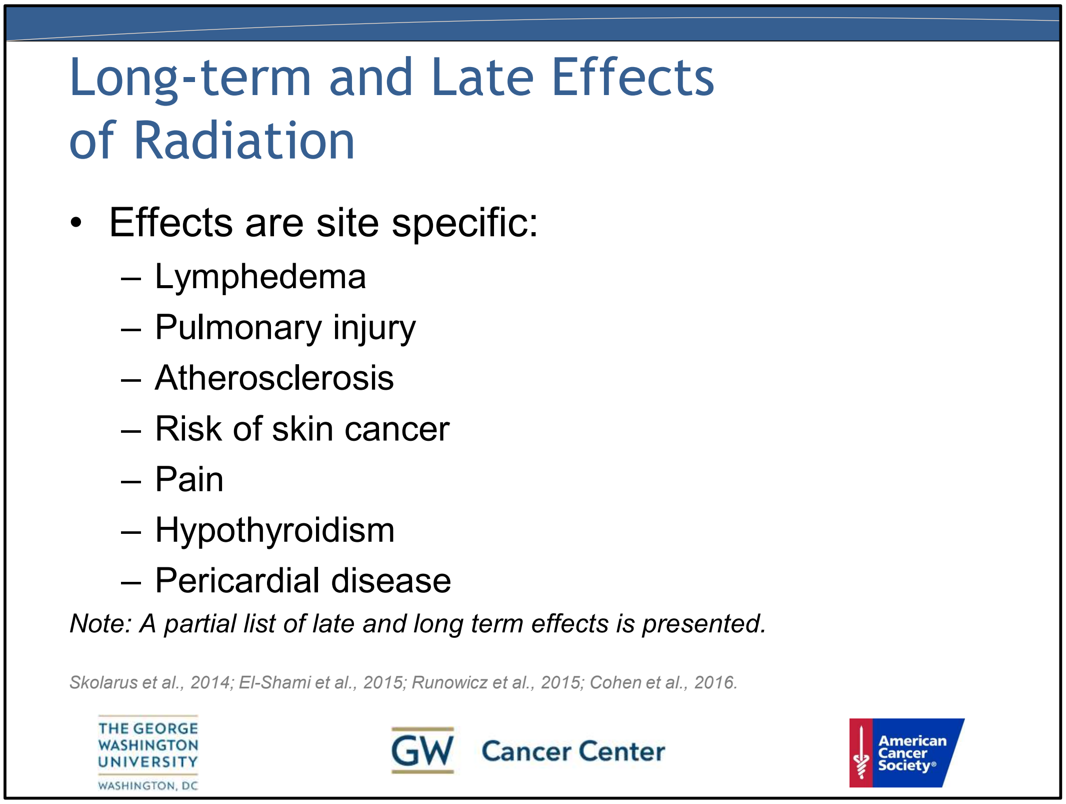
The side effects of chemotherapy are drug and dose-specific. There can be early menopause from ovarian suppression and infertility for both men and women. There can be a notable loss of libido as well. If a patient has had an anthracycline such as doxorubicin, the person can be at risk of cardiomyopathy or at increased risk of leukemia. Other chemotherapies can increase risk for bladder cancer or lung toxicity.

There are many chemotherapies that can cause peripheral neuropathy, which can resolve over time for some, but not for others. As we are trying to emphasize throughout this training, these effects can last a long time and the course can be hard to predict for each individual, which can make it frustrating for survivors.



Long-term and Late Effects of Radiation

- Effects are site specific:
  - Lymphedema
  - Pulmonary injury
  - Atherosclerosis
  - Risk of skin cancer
  - Pain
  - Hypothyroidism
  - Pericardial disease

Note: A partial list of late and long term effects is presented.

Skolarus et al., 2014; El-Shami et al., 2015; Runowicz et al., 2015; Cohen et al., 2016.

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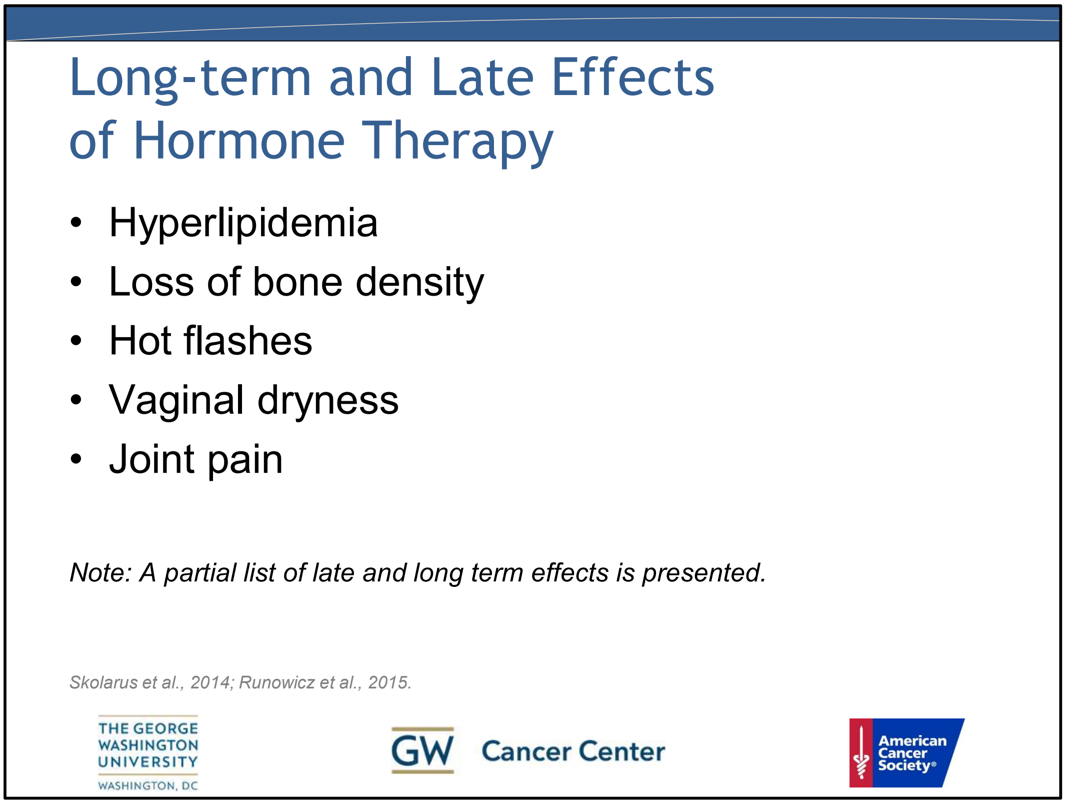
In terms of radiation, we need to think about where this person received radiation and the dose. Were they irradiated at a particular organ site? Were there other organs close by that could have received a small dose of radiation? Were lymph nodes in the field? Some side effects include lymphedema, pulmonary injury or fibrosis, or cardiovascular disease.

We do see that radiation is found to induce atherosclerosis. It may be necessary to follow patients closely for this if they are radiated to the mediastinum or the supraclavicular lymph nodes. They may need to have Doppler studies to look for atherosclerosis, like a carotid Doppler for instance.

The skin in the area that received radiation is more at risk for melanoma. A patient can be at risk for developing incontinence or erectile dysfunction or bowel problems if they received radiation to the rectum, to the prostate, or to the bladder. It’s important to address these issues to ensure good quality of life for the patients.

Radiation can also cause long-lasting pain. Hypothyroidism is another potential long-term side effect for neck and chest radiation treatment. Pericardial disease or chronic pericardial effusion is possible.



Long-term and Late Effects of Hormone Therapy

- Hyperlipidemia
- Loss of bone density
- Hot flashes
- Vaginal dryness
- Joint pain

Note: A partial list of late and long term effects is presented.

Skolarus et al., 2014; Runowicz et al., 2015.

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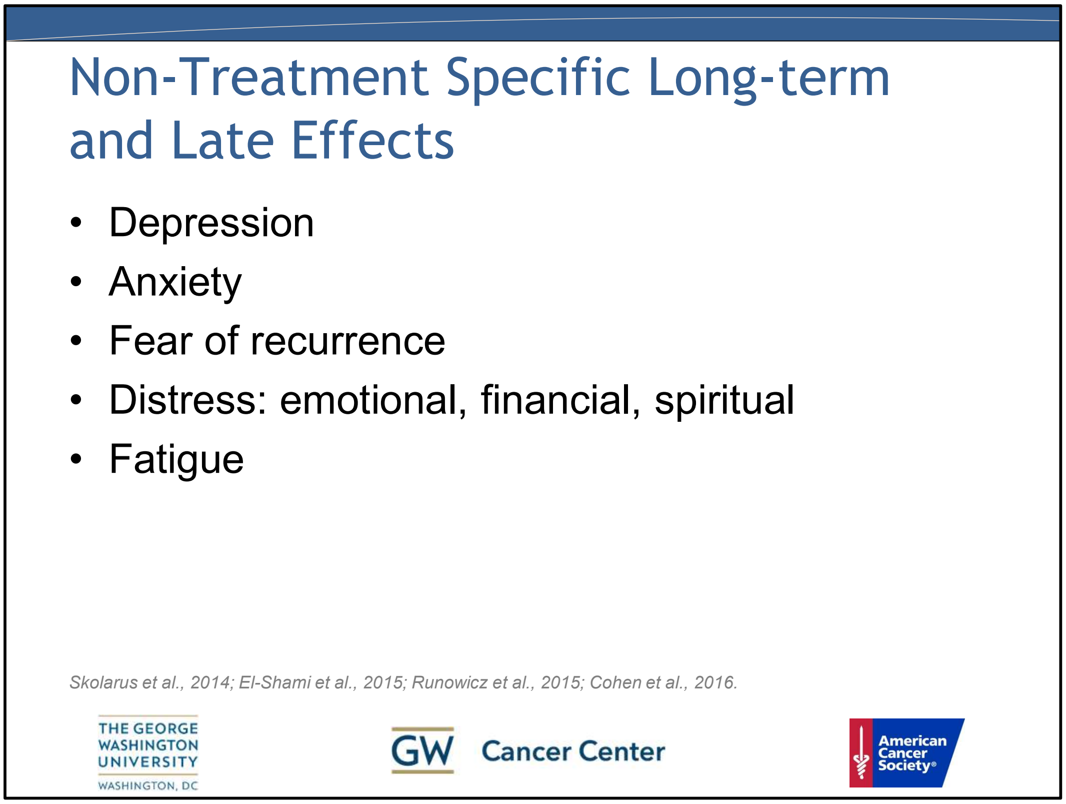
Hormone therapy can be longer term therapies that patients are generally on for 5 to 10 years and the side effects will be drug-specific.

For example, Tamoxifen is a common long-term hormonal therapy after initial breast cancer treatment and may be used for breast cancer prevention in high risk populations. It is associated with an increased risk for blood clots, stroke, and cataract formation. So, it’s important to remind patients to take extra precautions to prevent DVTs, such as when they are going on a long flight or might have other long periods of immobility, particularly if they have other risk factors for blood clots. And, it’s another reason to remind these patients to have yearly eye exams with an ophthalmologist to catch any early signs of cataracts. Another impact of Tamoxifen therapy is increased risk for uterine cancer. Any unusual vaginal bleeding should be worked up.

With the Aromatase inhibitors or AIs such as anastrozole, there is increased risk for osteoporosis. The current guidelines, as of 2018, indicate that there should be a baseline Dexa scan at the start of AI therapy. Then it should be repeated every 2 years. AIs may be associated with joint pain. If a patient is experiencing joint pain, often oncologists will work with the patient to switch to a different AI in order to keep the patient on one of the AIs.

Other possible side effects of hormone therapy, for many patients, include high cholesterol, loss of bone density, hot flashes and loss of libido. Some patients report fatigue as well. Hot flashes are common for both men and women who have had breast cancer or prostate cancer and are on hormone therapy. Although hot flashes may seem like a minor concern after having had cancer, if they are severe, they can potentially impact sleep, which of course impacts healing and quality of life, so intervention with medications or integrative therapies might be necessary.

It is important for primary care providers to be aware of these effects because as patients get years out from diagnosis they may be seeing their oncology provider less frequently. It’s important for primary care providers to be on the look out for these effects to be able to refer to other providers and address patients’ concerns.



Non-Treatment Specific Long-term and Late Effects

- Depression
- Anxiety
- Fear of recurrence
- Distress: emotional, financial, spiritual
- Fatigue

Skolarus et al., 2014; El-Shami et al., 2015; Runowicz et al., 2015; Cohen et al., 2016.

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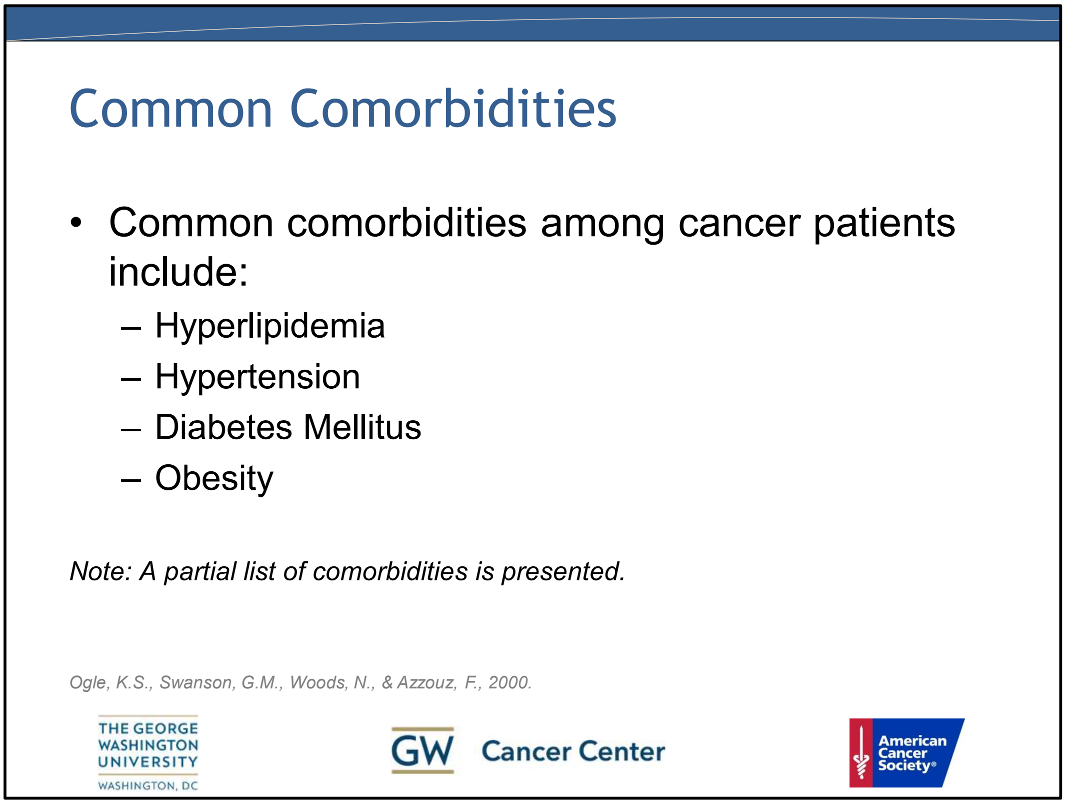
Some of the non-treatment side effects include the psychosocial impacts of cancer and cancer treatments; such as depression, anxiety, fear of recurrence, distress, and fatigue. Many patients can experience emotional, financial and spiritual distress. The fear of recurrence of cancer can be very overwhelming so we need to make sure our patients are taken care of both physically and emotionally, and we are addressing these concerns with them.

Fatigue is the most common long-term impact of any cancer type and is not treatment dependent. Generally, we expect energy levels to improve over time, but many patients plateau and may never feel like they get back to their baseline energy level.



Common Comorbidities

- Common comorbidities among cancer patients include:
  - Hyperlipidemia
  - Hypertension
  - Diabetes Mellitus
  - Obesity

Note: A partial list of comorbidities is presented.

Ogle, K.S., Swanson, G.M., Woods, N., & Azzouz, F., 2000.

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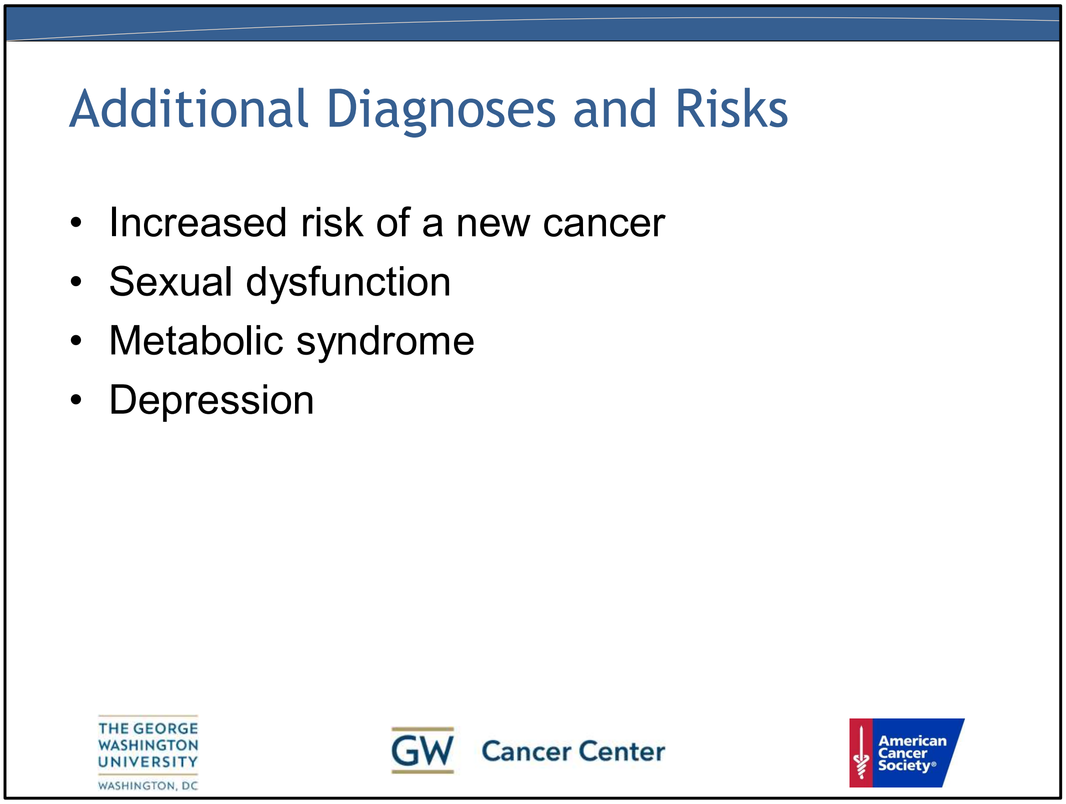
Some common comorbidities among cancer patients include hyperlipidemia, hypertension, diabetes, and obesity. Cancer and heart disease are diseases of aging individuals and have similar risk factors. One in 4 deaths in the United States is due to heart disease. It is the leading cause of death for men and women. More than likely, the things that cancer survivors can do to keep their heart healthy may also help to prevent cancer from recurring. It is important to educate, empower, and refer cancer survivors to programs as needed to help them exercise and eat well.



Additional Diagnoses and Risks

- Increased risk of a new cancer
- Sexual dysfunction
- Metabolic syndrome
- Depression

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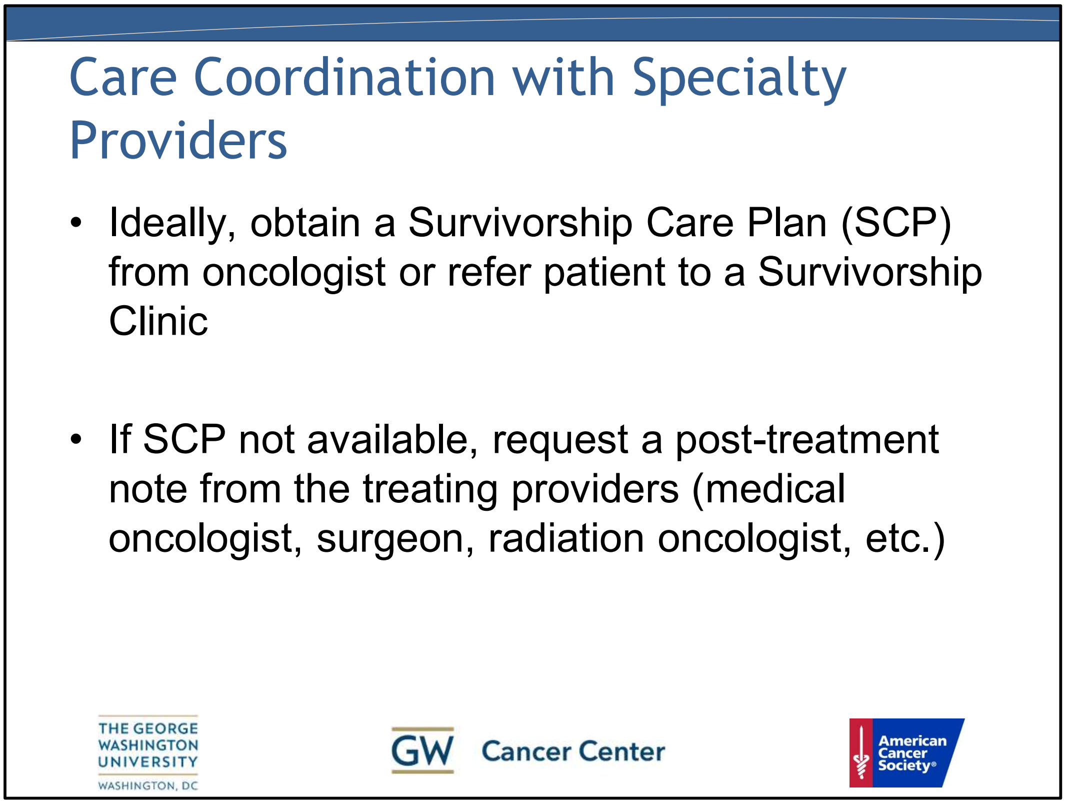
When a cancer survivor comes into internal medicine, we need to think about other things that the oncologists and surgeons might not be focusing on quite as much.

We need to think about if they are at increased risk of a new cancer (and what cancer that might be and how is it screened for), sexual dysfunction they may be experiencing, which may have pre-dated the cancer diagnosis, but now treatment has worsened symptoms. Survivors of childhood cancers may be particularly at risk for metabolic syndrome (which can lead to heart disease, stroke, type 2 diabetes, and kidney disease).

Survivors are also at increased risk for depression, so depression screening is something we need to do for all our cancer survivors. In practice, you see many others who, although they may not fit the diagnostic criteria of depression, are dealing with distress, anxiety, fear of recurrence, and sleep disturbances.



Care Coordination with Specialty Providers

- Ideally, obtain a Survivorship Care Plan (SCP) from oncologist or refer patient to a Survivorship Clinic
- If SCP not available, request a post-treatment note from the treating providers (medical oncologist, surgeon, radiation oncologist, etc.)

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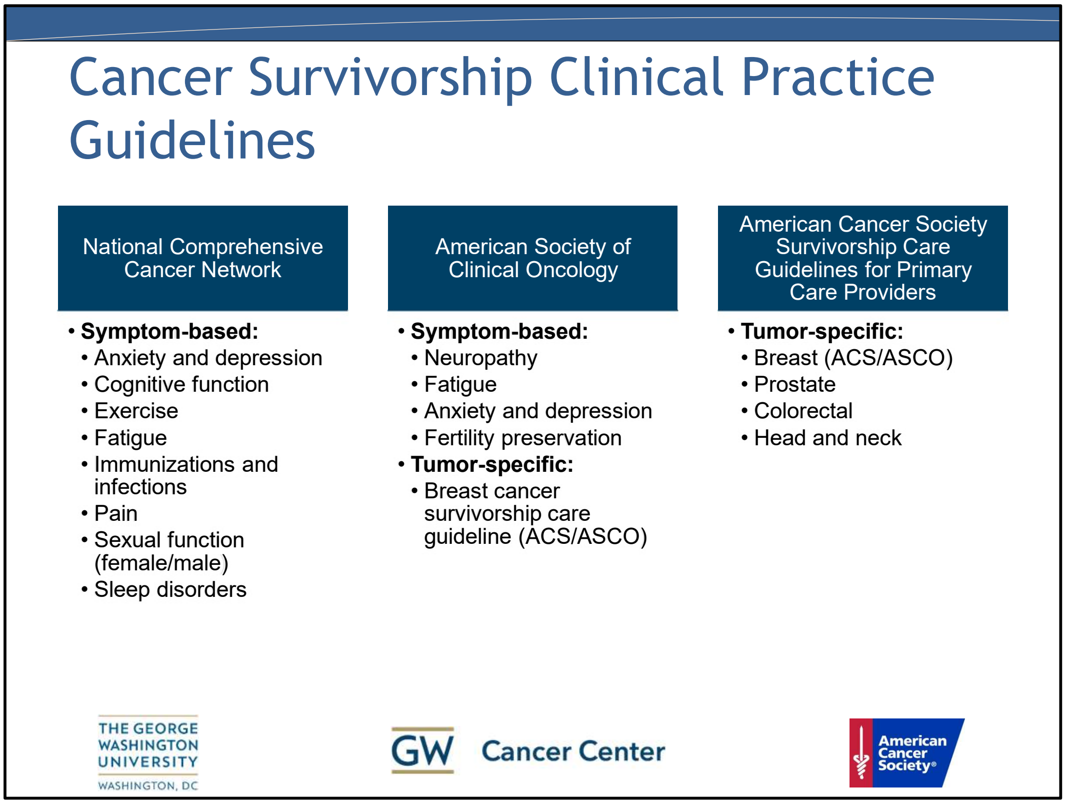
As you can see, given the variety of long-term and late effects that cancer survivors face, in addition to other comorbidities common among all patients, it important to have a coordinated care plan with the patients’ specialty providers.

The first step would be to ask your patient for their survivorship care plan (SCP), if their provider has given them one. If they do not have one, contact the oncologist to request the survivorship care plan.

If there is no SCP then recent notes from the oncology providers would be helpful to review. Noting the plan for who is ordering necessary follow up testing is critical: who will be ordering mammograms, MRIs, CTs- if indicated? Who is checking a yearly CBC if the chemotherapy puts a patient at increased risk for leukemia for the next decade? Who is ordering the echo if an anthracycline was used? Who is ordering the Dexa scans? The digital rectal exams? The PSAs?

Obviously, not all of these are indicated for every patient, but the primary care provider can be the essential hub of the wheel to help insure that the patient is monitored appropriately.



Cancer Survivorship Clinical Practice Guidelines

National Comprehensive Cancer Network

- **Symptom-based:**
  - Anxiety and depression
  - Cognitive function
  - Exercise
  - Fatigue
  - Immunizations and infections
  - Pain
  - Sexual function (female/male)
  - Sleep disorders

American Society of Clinical Oncology

- **Symptom-based:**
  - Neuropathy
  - Fatigue
  - Anxiety and depression
  - Fertility preservation
- **Tumor-specific:**
  - Breast cancer survivorship care guideline (ACS/ASCO)

American Cancer Society Survivorship Care Guidelines for Primary Care Providers

- **Tumor-specific:**
  - Breast (ACS/ASCO)
  - Prostate
  - Colorectal
  - Head and neck

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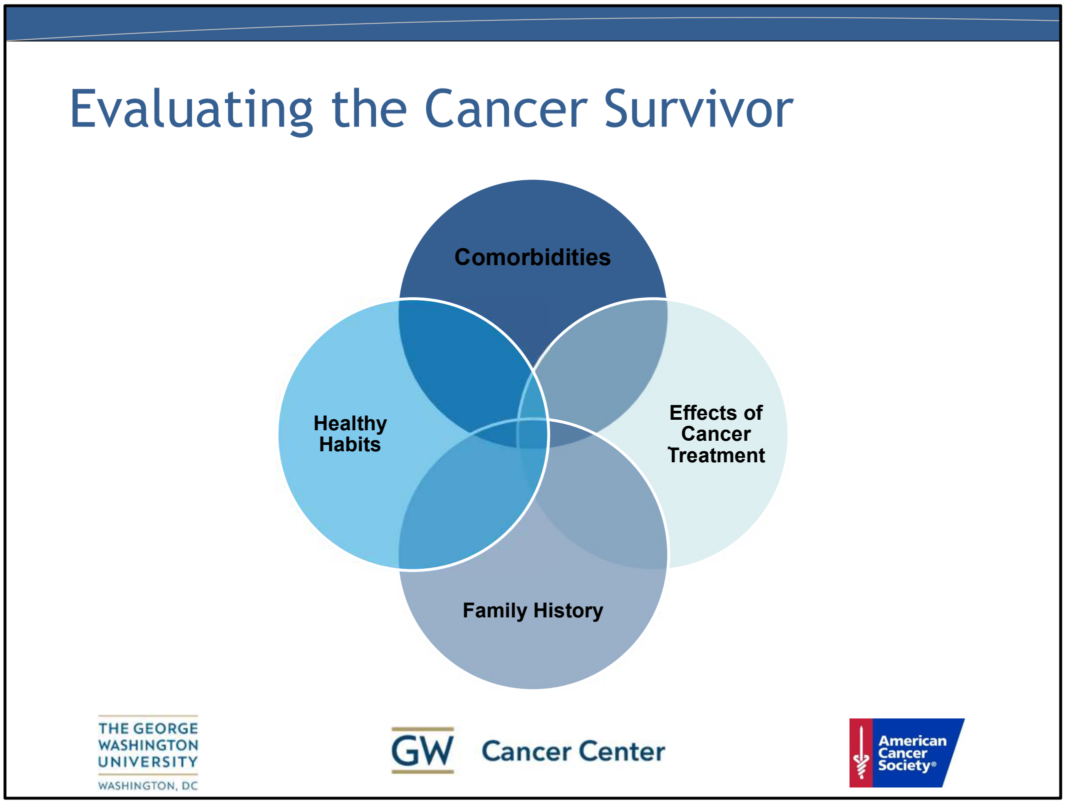
In addition to a survivorship care plan, guidelines are available to providers. The National Comprehensive Cancer Network has symptom-based guidelines for survivors that cover anxiety and depression, cognitive function, exercise, fatigue, immunizations and infections, pain, sexual function, and sleep disorders.

Their site specific guidelines also include recommendations for monitoring, such as frequency of visits and appropriate tests. These guidelines are reviewed and updated regularly.

The American Society of Clinical Oncology (ASCO) has limited disease-specific guidelines as well as symptom-based guidelines covering neuropathy, fatigue, anxiety and depression, and fertility preservation.

The American Cancer Society (ACS) released tumor-specific guidelines including breast (in partnership with ASCO), prostate, colorectal, and head and neck guidelines. These guidelines are covered in the later modules of the E-Learning Series.



Evaluating the Cancer Survivor

Comorbidities

Healthy Habits

Effects of Cancer Treatment

Family History

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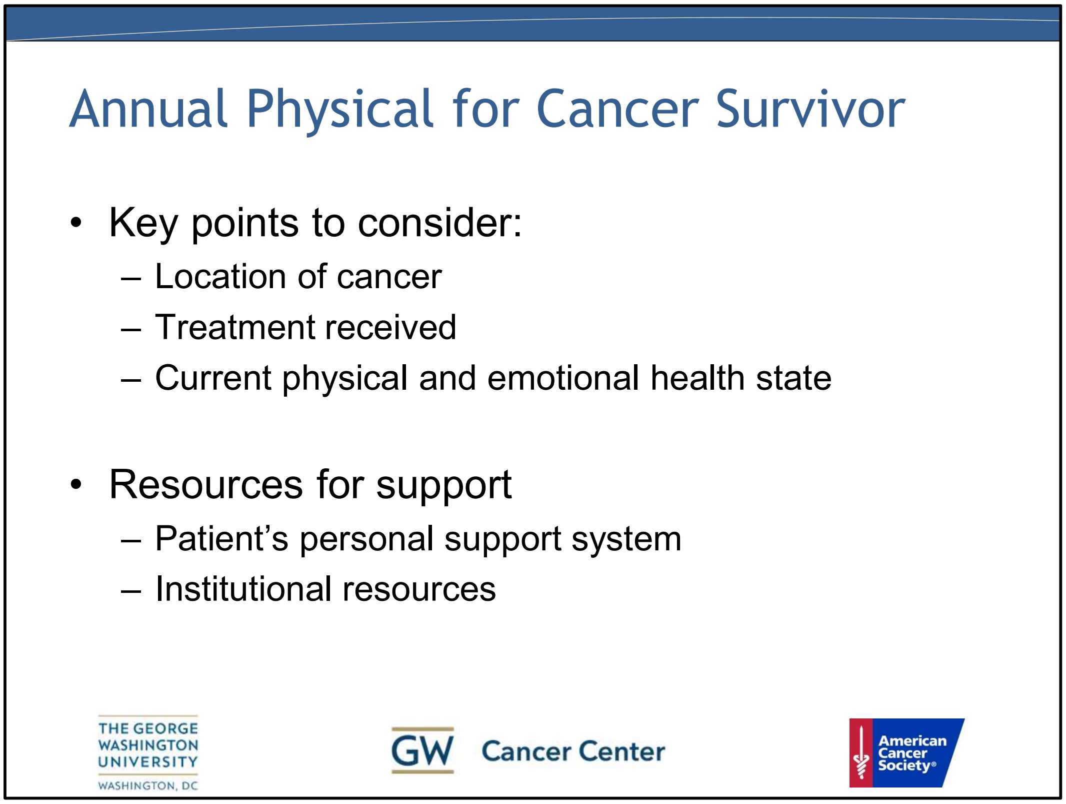
When evaluating a cancer survivor in the survivorship clinic, I review treatment history as well as other comorbidities. Then I consider their habits and health maintenance. Are they active? Are they eating a healthy diet? Are they up-to-date with all their screenings for other cancers, not just the one they were diagnosed with? We also want to think about their family histories.

Sometimes they may not think to report cancers in the family that are not the same one that they had, but as we are learning more about genetic mutations and hereditary cancer syndromes, information about other cancers may be a red flag that someone may need genetic counseling. Or maybe they don't have a history of cancer, but they do have a history of heart disease or osteoporosis in the family, which might cause us to emphasize one area of the survivorship care plan more.

Then, of course, assessing what symptoms they are experiencing now that are related to their specific cancer type and treatment. How severe are the symptoms? Have they been referred to specialty providers already?



Annual Physical for Cancer Survivor

- Key points to consider:
  - Location of cancer
  - Treatment received
  - Current physical and emotional health state
- Resources for support
  - Patient's personal support system
  - Institutional resources

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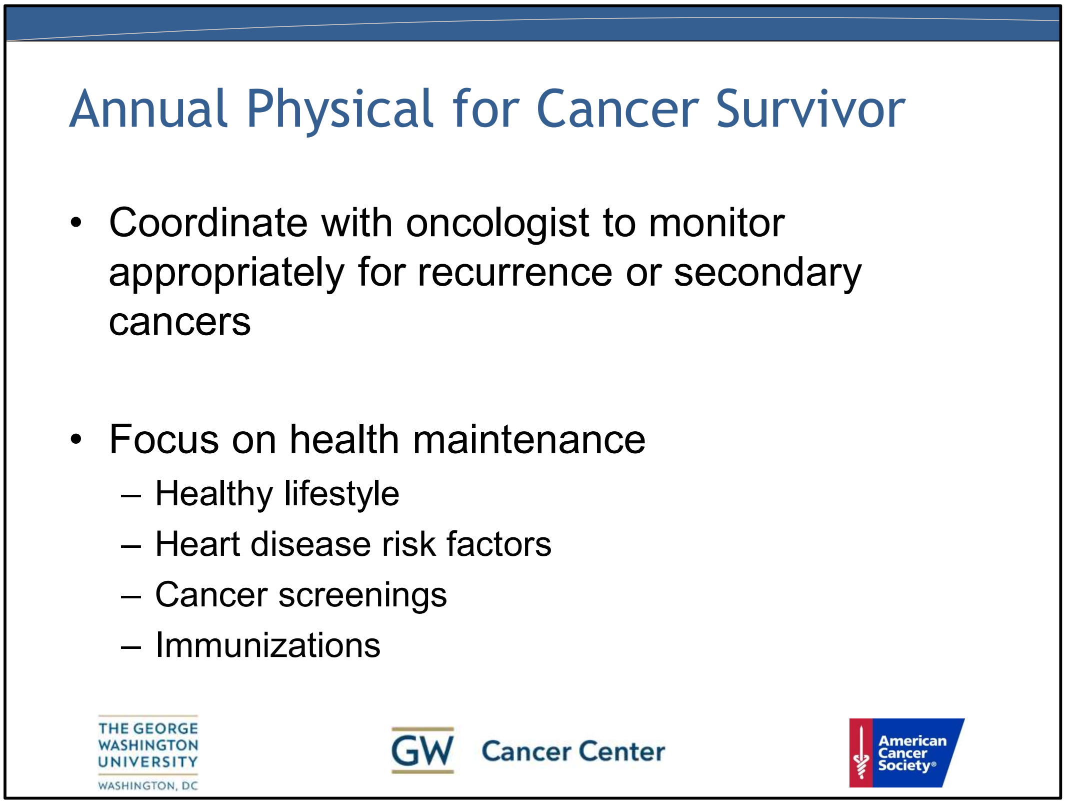
When a survivor comes in for an annual exam, keep in mind the location of the cancer and the type of treatment they had at that location, and assess for their adherence to follow-up. Have they seen their oncologist recently? Did they have labs or scans for you to review?

How the patient is feeling emotionally as well as physically post-diagnosis is important to discuss for the reasons previously mentioned and also because if a patient is feeling overwhelmed by fears of recurrence, or anxiety or depression, they may be more likely to avoid recommended follow-up visits with their oncologist or delay scans or testing.

It is helpful to assess the available resources for support for cancer survivors, both for the individual- do they have a supportive partner or family?- and resources for support at your institution, in the community and nationally.



Annual Physical for Cancer Survivor

- Coordinate with oncologist to monitor appropriately for recurrence or secondary cancers
- Focus on health maintenance
  - Healthy lifestyle
  - Heart disease risk factors
  - Cancer screenings
  - Immunizations

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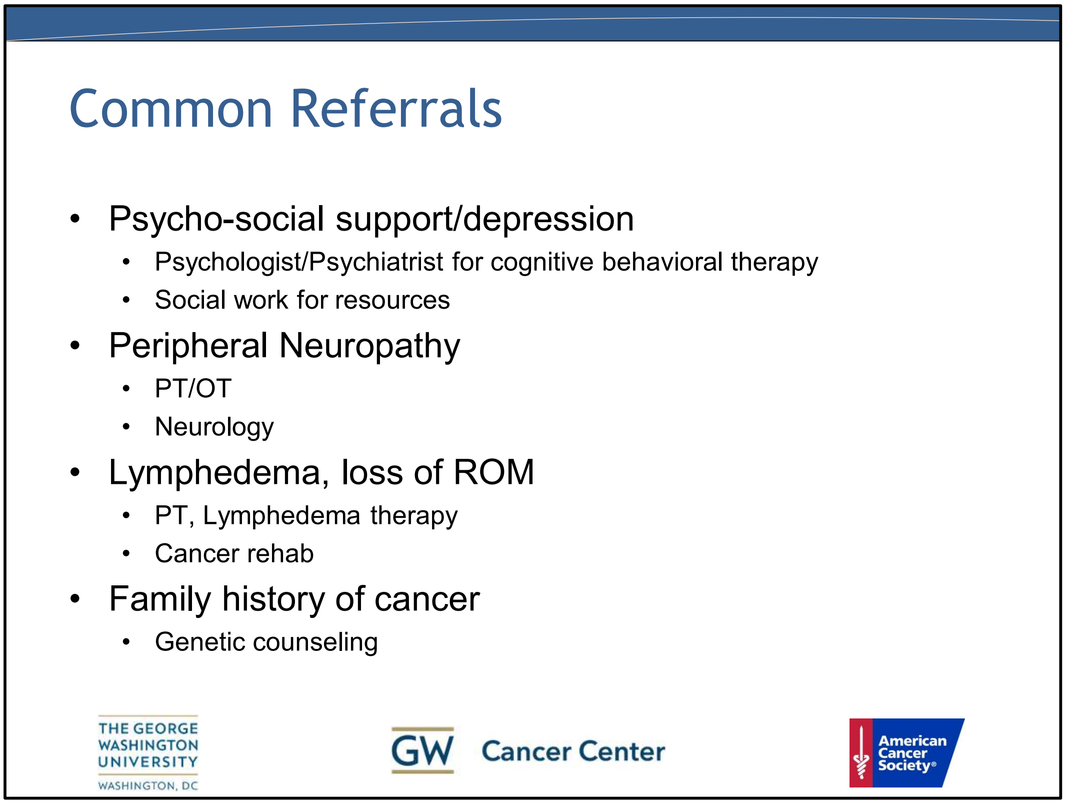
As we have said, coordination with the oncology providers is crucial to avoid duplicate testing or gaps in care. Because effects can be so wide ranging, referencing the guidelines for assessment and monitoring recommendations is critical.

As it would be for any patient at their annual exam, it's appropriate to focus on health maintenance, keeping in mind the increased risks these patients face as cancer survivors. For example, their treatment or just status as a cancer survivor is going to put them at increased risk for heart disease as we've discussed throughout this presentation.



Common Referrals

- Psycho-social support/depression
  - Psychologist/Psychiatrist for cognitive behavioral therapy
  - Social work for resources
- Peripheral Neuropathy
  - PT/OT
  - Neurology
- Lymphedema, loss of ROM
  - PT, Lymphedema therapy
  - Cancer rehab
- Family history of cancer
  - Genetic counseling

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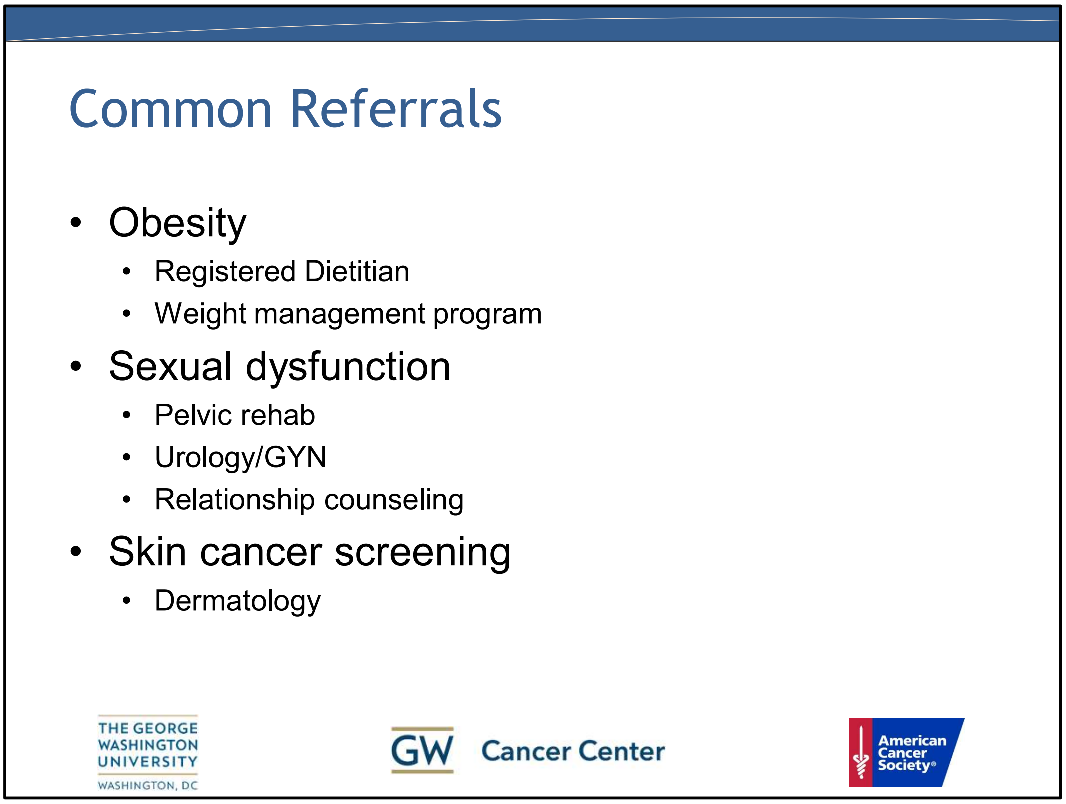
When providing care for cancer survivors, there are many referrals that might be necessary. Here are a couple of examples of what might be helpful. Survivors may need to be referred to neurology because they have chemo brain or cognitive impairment or maybe their neuropathy from their chemotherapy is really impairing their day to day activities. They may need to go to physical or occupational therapy because of the neuropathy.

You can see other common referrals listed here.



Common Referrals

- Obesity
  - Registered Dietitian
  - Weight management program
- Sexual dysfunction
  - Pelvic rehab
  - Urology/GYN
  - Relationship counseling
- Skin cancer screening
  - Dermatology

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For many cancers, excess weight is a risk factor, so for an overweight or obese cancer survivor, it is that much more important to refer them to providers and resources that can support weight loss.

Referrals to specialty providers to address sexual dysfunction are often necessary because the causes of dysfunction are so multi-factorial for these patients.

A thorough yearly skin cancer screening with a dermatologist is going to be important for all survivors, particularly those who have had radiation therapy.

Case Study

56 year-old female with history of early stage Invasive Left Breast Cancer

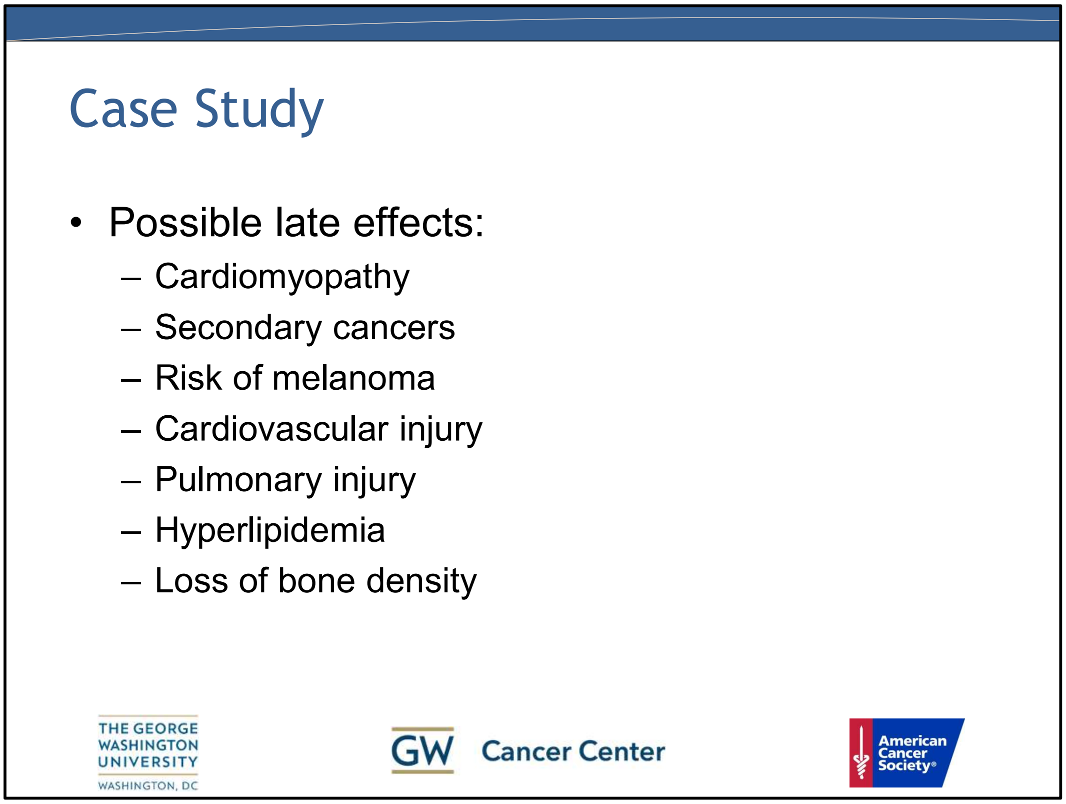
- Treated with: Dose dense AC + T, Radiation, (AI) Anastrozole. Now with decreased ROM of left UE, depressed.
- Comorbidities: Overweight, HTN, hyperlipidemia.
- Family History: Cardiovascular Disease
- Health Maintenance: No pap smear x 5 years, no baseline colonoscopy, eating well balanced diet but not exercising since treatment.

Now that we’ve provided an overview of long-term and late effects, comorbidities and referrals, let’s go over a case study together.

You are seeing a 56 year-old female with a history of early stage Invasive Left Breast Cancer. She was treated with dose dense AC + T, which is adriamycin plus cyclophosphamide followed by taxol, she had radiation, and was put on hormone therapy, an aromatase inhibitor called Anastrozole. Now she has decreased range of motion after her surgery, and is feeling depressed. Her comorbidities are that she is overweight, has hypertension, and high cholesterol.

She also has a family history of cardiovascular disease

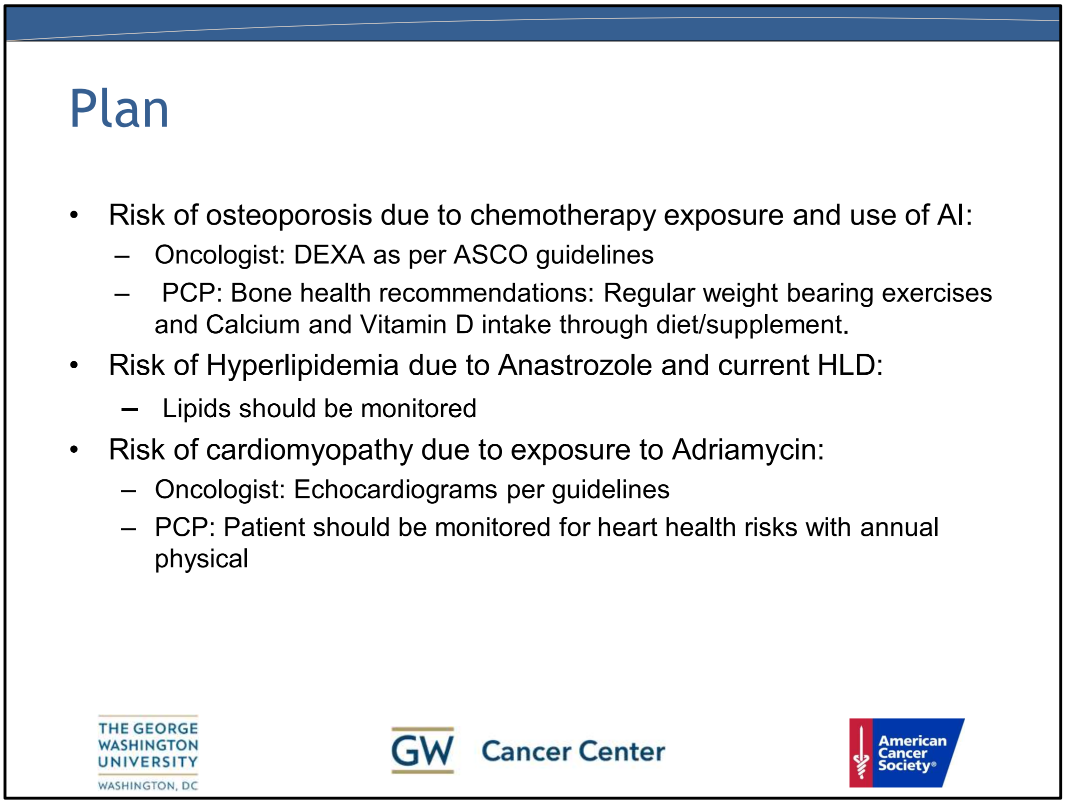
In terms of health maintenance, she’s behind on pap smears, and she has not had a colonoscopy. She is eating a balanced diet, but she has not been exercising since treatment, and she’s looking forward to getting back to it.



Case Study

- Possible late effects:
  - Cardiomyopathy
  - Secondary cancers
  - Risk of melanoma
  - Cardiovascular injury
  - Pulmonary injury
  - Hyperlipidemia
  - Loss of bone density

As you can see, there are quite a few late effects that she might be at risk for given this treatment history. We will assume in this case study that she is getting excellent care from her oncology team, so we will focus on what is most relevant as a primary care provider. Module 9 will review the specific ACS/ASCO cancer survivorship guidelines in detail if you would like more information.



Plan

- Risk of osteoporosis due to chemotherapy exposure and use of AI:
  - Oncologist: DEXA as per ASCO guidelines
  - PCP: Bone health recommendations: Regular weight bearing exercises and Calcium and Vitamin D intake through diet/supplement.
- Risk of Hyperlipidemia due to Anastrozole and current HLD:
  - Lipids should be monitored
- Risk of cardiomyopathy due to exposure to Adriamycin:
  - Oncologist: Echocardiograms per guidelines
  - PCP: Patient should be monitored for heart health risks with annual physical

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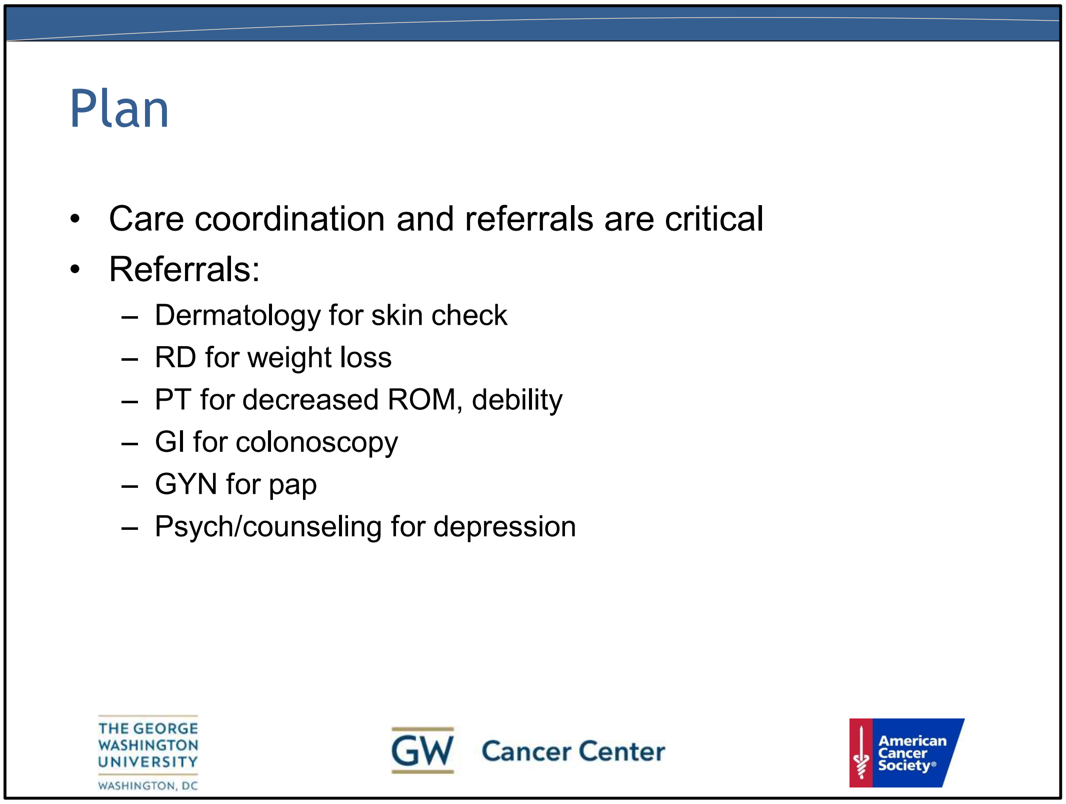
Here we will look at the PCP’s role in monitoring for a few of these late effects. She has a risk of loss of bone density after the chemotherapy exposure and from the aromatase inhibitors, so her oncologist should be following the ASCO guidelines for frequency of DEXA scans. As a PCP, your focus would be be on encouraging regular, weight bearing exercise, and calcium and vitamin D in her diet.

She is at risk for high cholesterol because of the hormone therapy, so checking her lipids annually is helpful. And, in general for heart health risks, the oncologist will take the lead on ordering echocardiograms per the guidelines. As a primary care provider, you would assess the patient’s overall heart health risks as part of routine follow-up and treat these. In this case, you’d focus on her pre-existing hypertension and high cholesterol.



Plan

- Care coordination and referrals are critical
- Referrals:
  - Dermatology for skin check
  - RD for weight loss
  - PT for decreased ROM, debility
  - GI for colonoscopy
  - GYN for pap
  - Psych/counseling for depression

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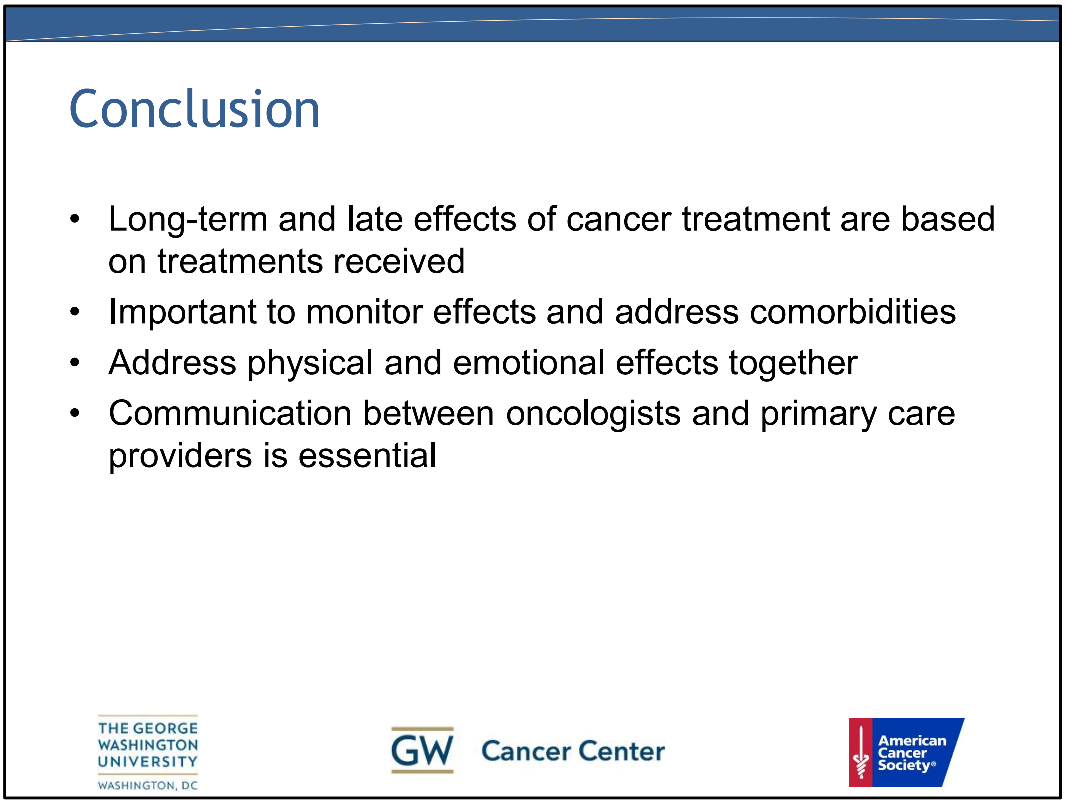
Since we are assuming here that the oncology team is on top of her late effects monitoring, including imaging and labs, it’s another reason why the PCP should be sure to ask the patient if she is keeping up with her scheduled visits with the surgeon, medical oncologist, and radiation oncologist. NCCN guidelines indicate how often those visits should be occurring. Patients are sometimes surprised at how frequently they are supposed to keep seeing providers, particularly during the first 5 years after diagnosis.

So, to ensure the patient is getting the best care possible, we have listed some of the relevant referrals to make. It is recommended that she see a dermatologist for annual skin checks due to radiation exposure. She should be referred to a knowledgeable provider for counseling on weight loss, such as a registered dietitian. Physical therapy will be needed to address the decreased range of motion in her arm, and also would be helpful for increasing her overall strength since she has not been exercising. She should also be encouraged to catch up on her screenings for other cancers and so referred to GI for colonoscopy and GYN for pap.

She could also be referred to a support group or a counselor, or other mental health provider to help address her depression, along with following up with you as her internal medicine provider.



Conclusion

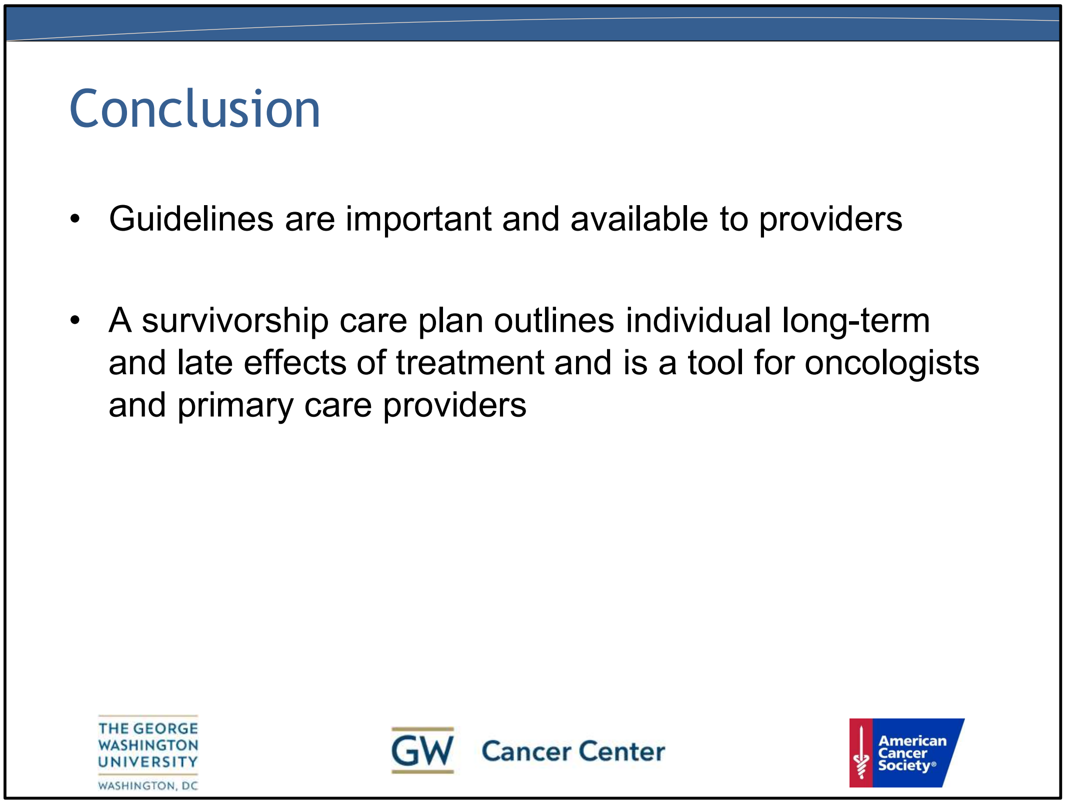
- Long-term and late effects of cancer treatment are based on treatments received
- Important to monitor effects and address comorbidities
- Address physical and emotional effects together
- Communication between oncologists and primary care providers is essential

In conclusion, the numerous potential long-term and late effects of cancer treatment are based on the individual treatment that the patient had.

We need to monitor the effects and keep in mind that comorbidities are adding additional burden.

We also want to keep in mind physical and emotional side effects of the cancer treatment, as they impact each other and the quality of life of the survivor.

Good communication is essential, but not necessarily seamless at all institutions.



Conclusion

- Guidelines are important and available to providers
- A survivorship care plan outlines individual long-term and late effects of treatment and is a tool for oncologists and primary care providers

Guidelines are important to reference as more research is done on how to best care for cancer survivors.

Having a survivorship care plan can improve communication among providers, can educate the patient, and can be very useful for internists to help provide quality of care for this patient population.

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This concludes the presentation, please continue to explore the remaining sections of the cancer survivorship e-learning series for primary care providers.