National Comprehensive Cancer Network®

2026

NCCN Guidelines for Patients®

Cancer care recommendations from leading experts at the National Comprehensive Cancer Network® (NCCN®)

# Uterine Cancer

## Endometrial Cancer

## Uterine Sarcoma



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# NCCN Guidelines for Patients®

The essential guide for people facing cancer.

Based on care recommendations from leading cancer experts.

Explains high-quality cancer care provided at state-of-the-art cancer centers.

Reviewed and revised every year.

Did you know that top cancer centers across the United States work together to improve cancer care? This alliance of leading cancer centers is called the National Comprehensive Cancer Network® (NCCN®).

Because cancer care is always evolving, NCCN develops and frequently updates evidence-based cancer care recommendations used by health care providers worldwide. These recommendations are known as the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®).

The NCCN Guidelines for Patients plainly explain these expert recommendations, so you can talk with your care team about the best care for you.

**These NCCN Guidelines for Patients are based on the NCCN Guidelines® for Uterine Neoplasms, Version 2.2026 — November 14, 2025.**

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Find an NCCN Cancer Center near you: NCCN.org/cancercenters

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# 1
# About uterine cancer


5 What is endometrial cancer?

5 What is uterine sarcoma?

6 How does uterine cancer start?

6 How is uterine cancer treated?

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Endometrial cancer is common and can often be cured with treatment. Uterine sarcoma is a rare but treatable form of uterine cancer. While both types are often diagnosed after menopause, they can occur earlier in life.

The uterus is where a baby grows and develops during pregnancy. It's about the size and shape of a pear, and is hollow in the middle. The cervix is the lower part of the uterus that connects it to the vagina.

## What is endometrial cancer?

Endometrial cancer is the most common type of uterine cancer. It starts in the inner lining of the uterus (the endometrium) and is often found before it has spread beyond the uterus.

The most common symptom is abnormal vaginal bleeding. In people who are menopausal, any vaginal bleeding is abnormal and should be investigated. Treatment for endometrial cancer is the focus of Chapter 4.

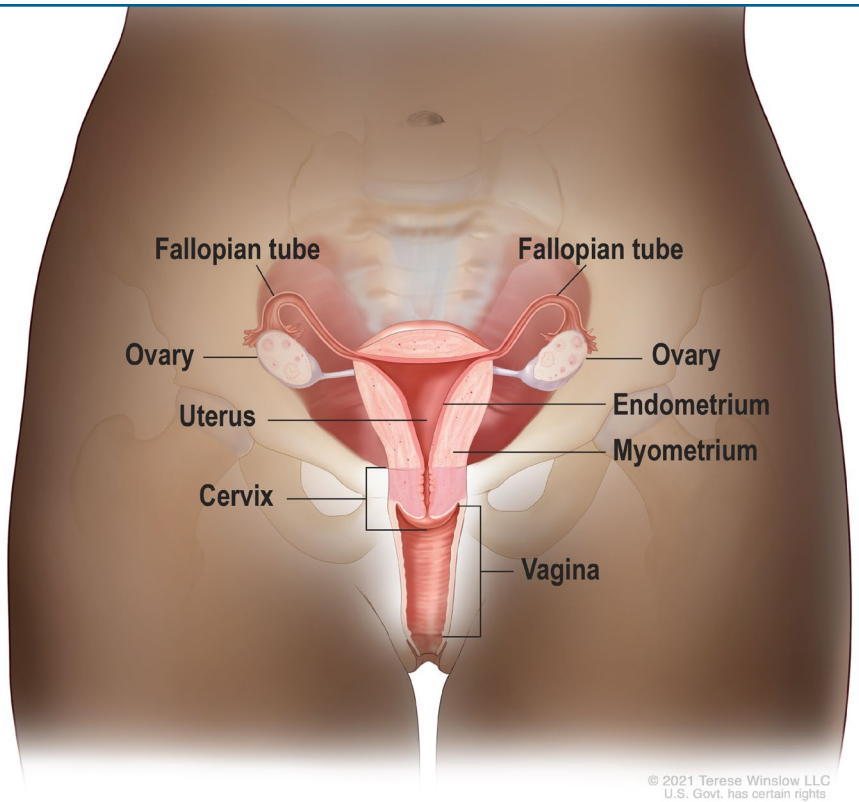
## What is uterine sarcoma?

Uterine sarcoma is an uncommon cancer that starts deeper in the uterus. It often forms in the muscle layer of the uterus wall (the

### Where uterine cancers start

**Endometrial cancer starts in the thin layer of tissue that lines the uterus (the endometrium).**

**Uterine sarcoma starts deeper, in the muscle layer of the uterus wall (the myometrium).**



myometrium) or in connective tissue cells in the endometrium.

Also known as malignant mesenchymal tumors, uterine sarcomas are rare and can be difficult to treat. Treatment for uterine sarcoma is the focus of Chapter 5.

## How does uterine cancer start?

Uterine cancer starts when microscopic cells in the uterus change in a way that makes them grow out of control. The (now abnormal) cells start constantly making copies of themselves. Over time, there are so many abnormal cells that a lump called a tumor develops.

Cancer cells can break off from the tumor and spread through your body in blood or in a bacteria-fighting fluid called lymph.

## How is uterine cancer treated?

The cancer stage is used to determine your options for treatment. The stage describes how far the cancer has (likely) spread, based on imaging and other testing.

When possible, treatment for uterine cancer involves surgery to remove the uterus and cervix (total hysterectomy). For some very small endometrial cancers, fertility-sparing treatment may be an option, if desired. If you can't have or don't want surgery, treatment with radiation therapy (external, internal, or both) is recommended.

**Rely on your team**

**Get to know your care team. Believe in their skills, knowledge, and experience. They are one of your greatest resources during cancer care.**



For certain stages and types of uterine cancer, treatment after surgery often involves chemotherapy and radiation therapy (external and internal). Seeking treatment within a clinical trial is encouraged, especially for those with rare types of uterine cancer.

## Who's on my team?

Ideally, your care team will include experts in different areas of cancer care. Lead members of a uterine cancer care team typically include:

- A gynecologic oncologist (expert in treating gynecologic cancers with surgery and chemotherapy)
- A medical oncologist (expert in treating cancer with chemotherapy)
- A radiation oncologist (expert in treating cancer with radiation therapy)

In addition to oncology nurses, other members of your team may include a genetic counselor, pharmacist, patient navigator, social worker, mental health provider, sexual health expert, and nutritionist or dietitian.

Ask for the names and contact information of your care providers to be included in the treatment plan.

## How can I get the best care?

Advocate for yourself. You have an important role to play in your care. Many people feel more satisfied when they actively take part in planning their cancer care.

The NCCN Guidelines for Patients will help you play a larger role in your care. Discuss the recommendations in this guide with your care team. Ask questions about your options and share your goals and concerns.

Don't know what to ask? You're not alone. That's why we include suggested questions to ask at the end of chapters. Keep reading to find the best care for you.

### How this guide can help you

Making decisions about cancer care is stressful. There's a lot to learn, and you don't know what the future holds.

Use this guide to get the information and support you need.

Patients, doctors, and other health care professionals trust the NCCN Guidelines for Patients. This guide uses clear, everyday language to explain current cancer care recommendations made by respected experts in the field. Their recommendations are based on the latest research and practices at leading cancer centers.

Your health is unique to you, so your cancer care should be, too. As you read this guide, you'll learn which treatments are likely to provide the best results for you. And you'll be better prepared to talk with your care team.

# 2
# Testing for uterine cancer


9 First steps

10 Biopsy

10 Imaging

12 Testing for inherited cancer risk

13 Biomarker testing

13 Hormone receptor testing

14 Key points

14 Questions to ask

Your care team will make a treatment plan just for you. First, they will do tests to learn about the cancer and your general health. This chapter describes the tests you may need.

## First steps

If uterine cancer is suspected or confirmed, your doctor will do a complete physical exam. This often includes a pelvic exam to check the size and mobility of your uterus.

Your doctor will ask about your past and current health, and about symptoms that could be related to uterine cancer. The most common symptom is abnormal vaginal bleeding.

In people who are menopausal, any vaginal bleeding is abnormal and should be investigated. In pre-menopausal people, it's not as clear-cut whether vaginal bleeding is abnormal. People who are pre-menopausal may have unusually long or heavy periods, but this isn't necessarily a cause for concern.

If you have bleeding or spotting that isn't typical for you, the testing described in this chapter is recommended. Also see **Guide 1**.

**Guide 1**
**Tests to diagnose uterine cancer and plan treatment**

| | |
|---|---|
| **Tests for diagnosis and planning your treatment** | • Endometrial biopsy (to diagnose endometrial cancer)<br>• Blood tests: Complete blood count, liver and kidney function tests, chemistry profile, CA-125<br>• Imaging: May include chest x-ray, pelvis MRI, pelvis ultrasound, CT, and PET/CT<br>• Testing the tumor for hormone receptors (recommended for advanced and recurrent endometrial cancers, and for all uterine sarcomas)<br>• Testing the tumor for biomarkers (features) that can guide care decisions<br>• Determining your risk for hereditary cancers and syndromes, and possibly genetic testing<br>• A check of your mental wellness and distress level |
| **Other care you may receive, if needed** | • Family planning and options for preserving fertility<br>• Help to quit smoking<br>• Care for any long-term health problems, such as obesity, diabetes, or hypertension |

# Biopsy

## Endometrial biopsy

If you have vaginal bleeding or other possible symptoms of endometrial cancer, an endometrial biopsy is typically performed. This can usually be done in your gynecologist's office.

Endometrial biopsy involves removing a sample of tissue from the uterine lining (the endometrium). The removed tissue is examined by a specialist called a pathologist. The pathologist determines the cancer type and subtype, when possible.

Because uterine sarcomas form deeper in the uterus and don't usually cause symptoms, they aren't typically diagnosed by biopsy.

## Cervical biopsy

If your doctor thinks that the cancer may have spread to the cervix, you will likely have a cervical biopsy. A cervical biopsy is similar to an endometrial biopsy, but the cells are taken from the cervix instead of from the endometrium.

# Imaging

## Pelvic ultrasound

Ultrasound is good at showing the size, shape, and location of the uterus. You may have one or both of the types of ultrasound described next.

In a transabdominal ultrasound, your doctor or technician will spread gel onto your abdomen, place the probe on your skin, and guide it back and forth in the gel.

In a transvaginal ultrasound, the probe is inserted into your vagina. This may provide a better view of the uterus and nearby areas. You may feel some discomfort when the probe is inserted.

## Chest x-ray

If endometrial cancer is suspected, you may have a chest x-ray to look for signs of disease in and around the chest. X-rays are painless and use a very small amount of radiation.

If any suspicious areas are found, your provider may order a computed tomography (CT) scan of your chest to get a better look.

## CT

A CT scan is a more detailed kind of x-ray. You may have a CT scan of your chest, abdomen, and pelvis to see if cancer has spread to these areas.

During the scan, you will lie face up on a table that moves through a large tunnel-like machine. To make the images clearer, a substance called contrast may be injected into your vein. You may also be asked to drink a

liquid contrast. The contrast may cause you to feel flushed or get hives.

### PET/CT scan

If your doctor suspects that the cancer has spread to areas like the liver or lungs, CT may be paired with positron emission tomography (PET).

About an hour before the scan, you will be injected with a small amount of a radioactive substance, called a tracer. The tracer causes cancer cells to appear brighter than normal cells.

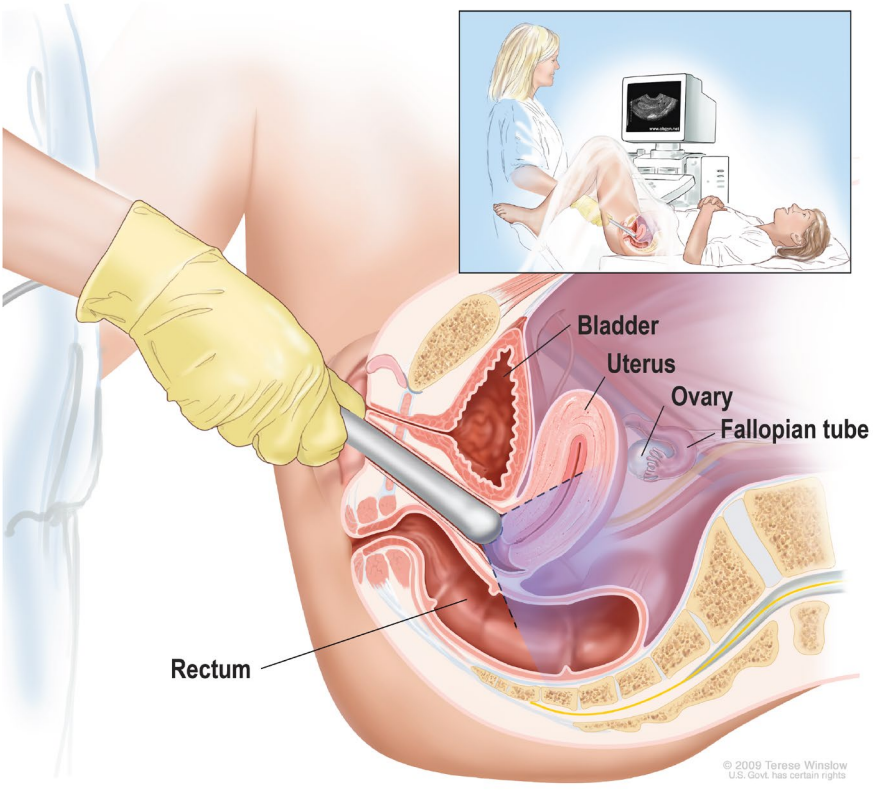
### Pelvic MRI

You may have magnetic resonance imaging (MRI) of your pelvis. An MRI shows the cancer in more detail and may show whether cancer has spread to the cervix or other nearby organs. Unlike x-rays and CT, MRI doesn't use radiation.

The MRI machine is often a smaller, tunnel-like tube that can be very loud. Tell your care provider if you get nervous in tight spaces.

### Transvaginal ultrasound

**Ultrasound uses sound waves to make pictures of the inside of the body. For a transvaginal ultrasound, a probe is inserted into the vagina. Ultrasounds are generally painless, but you may feel some discomfort when the probe is inserted.**



## Testing for inherited cancer risk

Most endometrial cancers develop for unknown reasons. While rare, some people are born with a disorder that increases their risk of uterine and other cancers. Gene differences you are born with are called **germline variants**.

For example, Lynch syndrome is the most common cause of hereditary endometrial and colon cancers. And Li-Fraumeni syndrome (LFS) is a hereditary cancer syndrome that increases the risk of developing uterine sarcoma.

If an inherited cancer or cancer syndrome is suspected, your provider will refer you to a genetic counselor. This expert can speak with you and your family about testing for syndromes related to uterine cancer.

To be tested, you must provide a sample of blood or saliva. A pathologist tests the sample for inherited gene differences that cause these syndromes. This is called genetic testing.

**If an inherited cancer or cancer syndrome is suspected, your provider will refer you to a genetic counselor. This expert can speak with you and your family about testing for syndromes related to uterine cancer.**



## Biomarker testing

Biomarkers are features of a cancer that can be targeted for treatment. Many are mutations (changes) in your genes that aren't hereditary. Non-inherited changes to DNA are called **somatic mutations**.

When possible, biomarker testing is performed on a piece of tumor tissue removed during a biopsy or surgery. If this isn't possible, a sample of your blood can be tested instead.

### Biomarkers found in some endometrial cancers

All endometrial tumors should be tested for the following biomarkers:

- POLE mutations
- p53 mutations
- Mismatch repair deficiency (dMMR) – cancers without this biomarker are described as MMR proficient (pMMR)

Some cancer centers test for microsatellite instability-high (MSI-H) instead of dMMR.

All recurrent and metastatic endometrial tumors should also be tested for:

- HER2 over-expression

Testing for many biomarkers at one time is called next-generation sequencing (NGS). NGS can find other rare biomarkers for which targeted treatments may be available, including *NTRK* fusions, *RET* fusions, and tumor mutational burden (TMB).

### Biomarkers found in some uterine sarcomas

All uterine sarcomas should be tested for the following biomarkers:

- *NTRK* gene fusions
- MSI-H
- *BRCA1/2* mutations
- *RET* gene fusions
- *ALK* mutations
- TMB

## Hormone receptor testing

Some cancer cells have proteins on their surface that hormones can attach to. Once attached, the hormones may help the cancer grow or may help slow its growth. Knowing whether the tumor cells have hormone receptors helps your care team plan the best treatment for you.

Testing involves analyzing a small piece of the tumor in a lab. If the tumor cells have hormone receptors, the cancer is called estrogen or progesterone receptor positive.

Hormone receptor testing is recommended for most uterine sarcomas and for recurrent or advanced endometrial cancers.

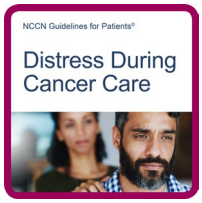
## Key points

- If uterine cancer is suspected or confirmed, your care provider will do a complete physical exam and often a pelvic exam to check the size and mobility of your uterus.
- Endometrial cancer is most often diagnosed using endometrial biopsy. This can usually be done in your gynecologist's office.
- A transabdominal or transvaginal ultrasound is often the first imaging method used to see the size, shape, and location of the uterus. Other imaging may include chest X-ray, CT, PET, or pelvis MRI.
- All endometrial cancers should be tested for certain biomarkers (features). For cancers with mismatch repair deficiency (dMMR), genetic testing for Lynch syndrome is recommended.
- Hormone receptor testing is recommended for most uterine sarcomas and for recurrent or advanced (stage 3 or 4) endometrial cancers.

### Distress

Depression, anxiety, fear, and distress are common after a cancer diagnosis. These feelings can make it harder to deal with cancer and its treatment. If you're feeling worried, overwhelmed, or hopeless, ask your care team for help.

More information about cancer and distress is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.




## Questions to ask

- I had an ultrasound. Do I need other imaging to see if the cancer has spread?
- Does the cancer have any biomarkers, such as dMMR or p53 mutations?
- Cancer runs in my family. Does this mean I need genetic testing?
- Does my cancer have hormone receptors? If so, is that good?

# 3
# Types of treatment

16 Surgery

18 Surgical staging

24 Radiation therapy

25 Systemic therapy

26 Clinical trials

28 Key points

28 Questions to ask

This chapter gives an overview of the different types of treatment you may receive. To learn which of these treatments is recommended for your cancer, see the chapters that follow.

## Surgery

When it can be performed safely, surgery to remove the uterus (hysterectomy) is preferred for treating most uterine cancers. If you want the option of carrying a pregnancy, fertility-sparing treatment may be an option if you desire it.

More information on fertility-sparing treatment is provided in Chapter 4.

### Total hysterectomy with BSO

The most commonly recommended procedure for treating uterine cancer is total hysterectomy with bilateral salpingo-oophorectomy (BSO). Total hysterectomy removes the uterus (including the cervix). BSO removes both ovaries and both fallopian tubes.

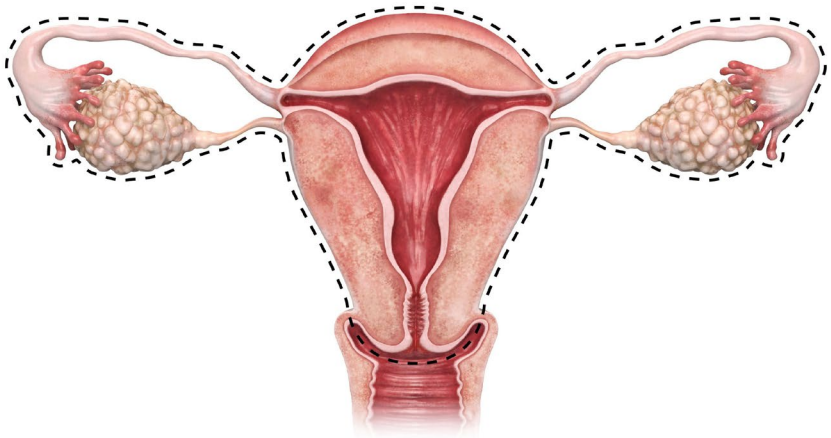
If you're premenopausal and the cancer is only in the uterus, it may be safe for you to keep your ovaries and avoid surgical menopause. See the next page for more information on this important side effect of BSO.

### Radical hysterectomy with BSO

If the cancer has grown into the cervix, you may need a radical hysterectomy. In addition to the uterus and cervix, this method also removes part of the vagina.

**Total hysterectomy with BSO**

**Total hysterectomy with BSO is the most commonly used surgery for uterine cancer. This surgery removes the uterus (including the cervix), both ovaries, and both fallopian tubes.**



BSO to remove the ovaries and fallopian tubes is also performed. Keeping the ovaries isn't recommended for cancers that have spread to the cervix. Surgical menopause, described next, will start.

## Surgical menopause

Before menopause, the ovaries make the hormones estrogen and progesterone. Removing the ovaries causes hormone levels to drop suddenly. The loss of estrogen may cause symptoms of menopause, including:

- No more periods
- Hot flashes
- Trouble sleeping
- Thinning, drying, and irritation of the lining of the vagina

Over time, the decrease in estrogen can increase your risk of heart problems and weakened bones. See *Chapter 6: Survivorship* for more information on managing symptoms of surgical menopause.

## Minimally invasive surgery

Depending on the type and extent of the cancer, minimally invasive surgery may be an option. This method involves making only a few small cuts into your body.

Compared to standard hysterectomy with BSO, a minimally invasive approach typically causes less pain and fewer scars. And the recovery time is usually shorter.

## Tumor debulking

Sometimes an endometrial tumor ends up being larger than expected or has spread to other locations. In this case, tumor debulking may be helpful.

In this procedure, your surgeon will attempt to remove all visible areas of cancer. When safe to perform, debulking is helpful. It gives other treatments a better chance of killing leftover tumor cells.

## Surgical staging

During hysterectomy with BSO or other planned surgery, your surgeon will look closely at the tissues and organs closest to the pelvis for signs of cancer and take samples of any suspicious areas for testing.

Your surgeon may put fluid in the open space of your abdomen and then remove it to see if it has cancer cells. This is called peritoneal washing. They are also likely to remove lymph nodes and check them for cancer. This may be done using a procedure called a sentinel lymph node biopsy.

The information gained firsthand during surgery is used, along with tests done before surgery, to determine the stage (extent) of the cancer. This process is called surgical staging.

The main systems for staging uterine cancer consider the following features of the cancer in order to assign its stage:

- The size or extent/depth of the tumor
- Whether any lymph nodes contain cancer
- Whether the cancer has spread to other parts of your body (metastasized)

Keep in mind that staging systems are updated every few years as new information becomes available. A revised staging system that takes into account specific biomarkers (features) of uterine cancer is in development.



### Do I need a second opinion?

Uterine cancer is a serious diagnosis. Consider having an in-person meeting with a different doctor to see if they are in agreement with your diagnosis and treatment plan.

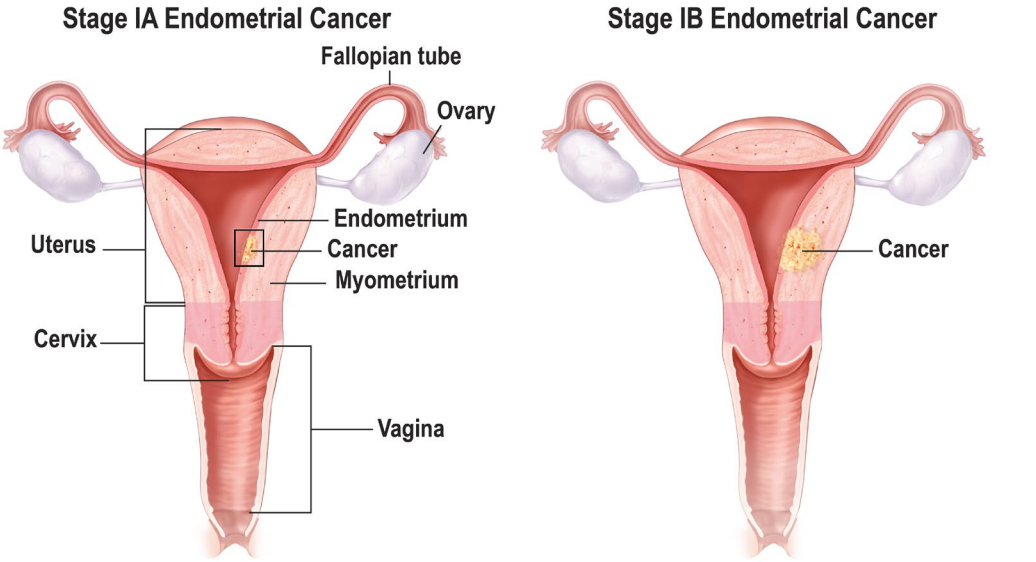
### Endometrial cancer stages

There are 4 main stages of endometrial cancer. Some are broken down further into substages that have letters and may also have a number. Examples are stage IIIB (3B) and stage IIIC2 (3C2). The stages are shown in the illustrations on the following pages.

## Stage 1 endometrial cancer

**In stage 1A, the tumor is only in the lining of the uterus, or has grown less than halfway through the muscle layer.**

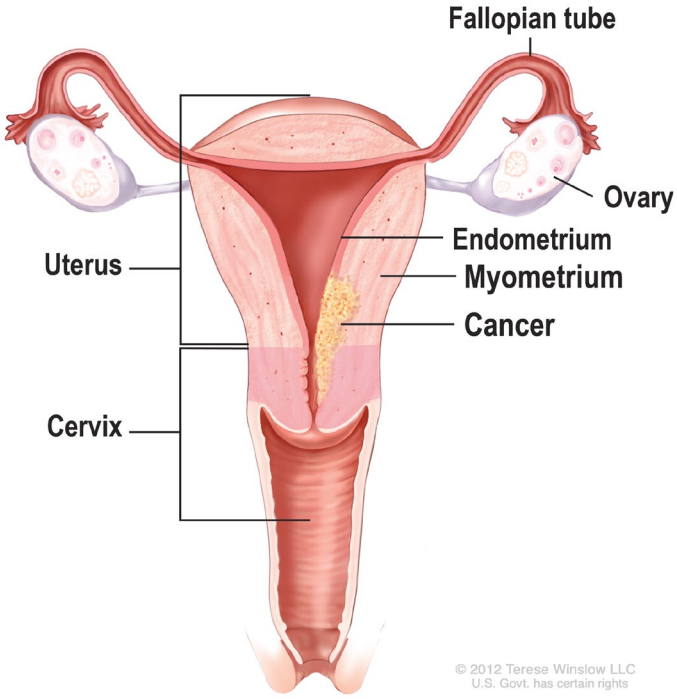
**In stage 1B, the tumor has grown more than halfway through the muscle layer.**




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## Stage 2 endometrial cancer

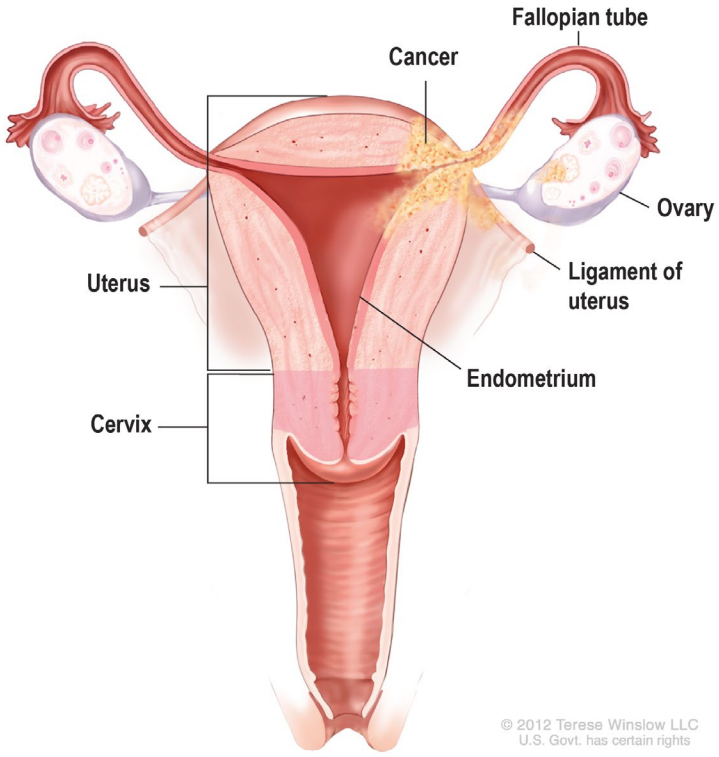
**The tumor has grown into the cervix.**




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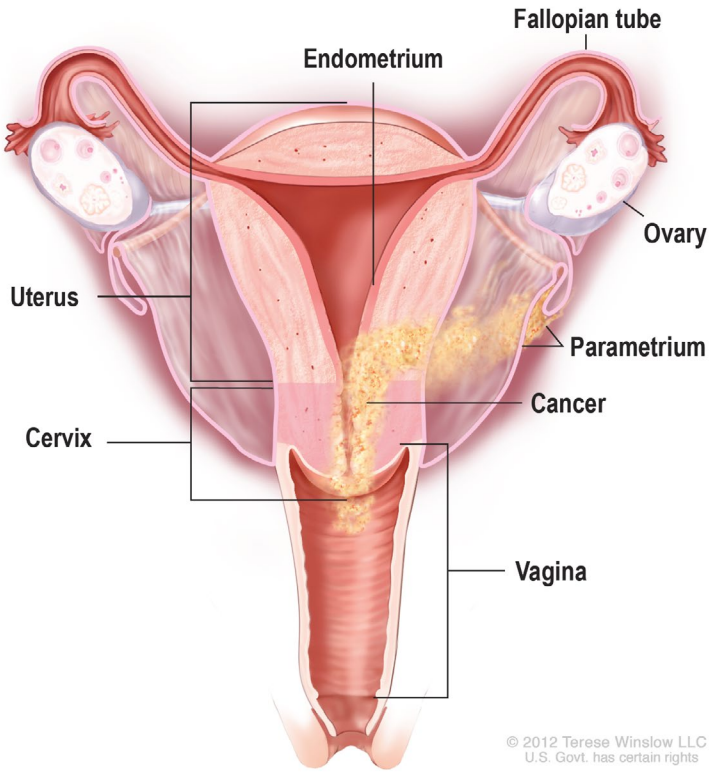
### Stage 3A endometrial cancer

**The tumor has grown into the outer layer of the uterus, the ovaries, or the fallopian tubes.**



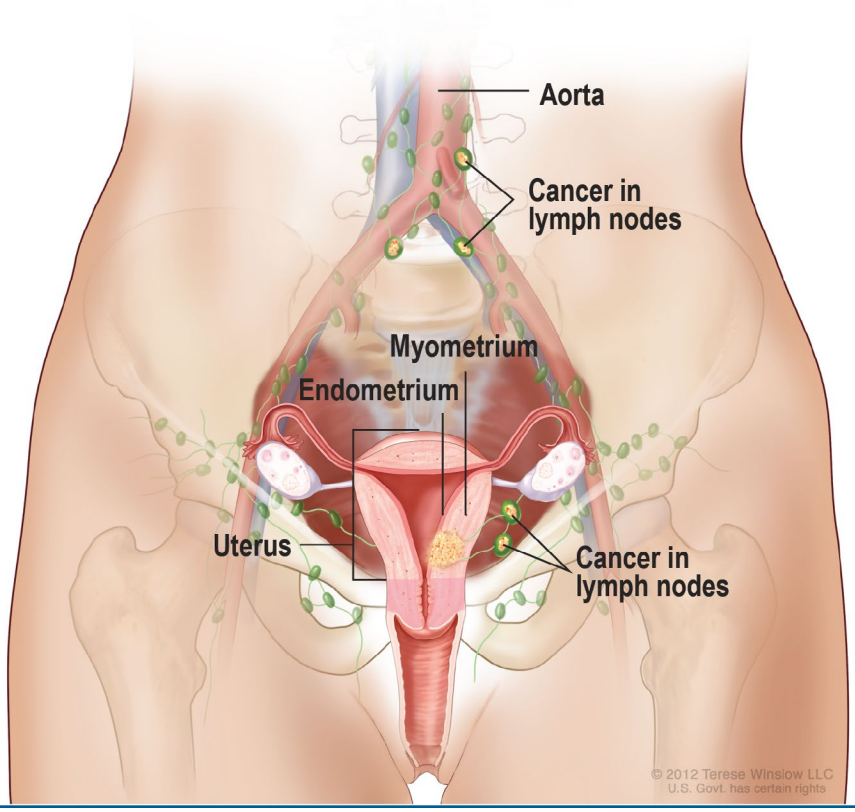

### Stage 3B endometrial cancer

**There is cancer in the vagina, or in the fat and connective tissue around the uterus.**



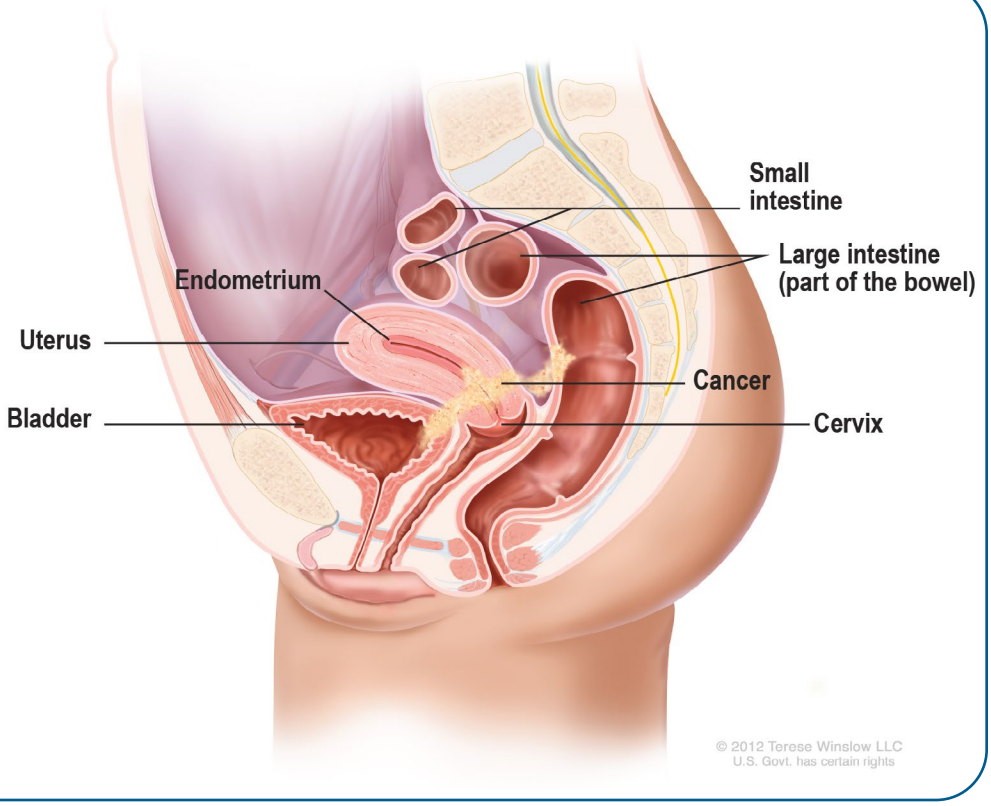
## Stage 3C endometrial cancer

**There is cancer in the lymph nodes closest to the uterus, called the pelvic lymph nodes (stage IIIC1) or in the lymph nodes near the bottom of the spine, called the para-aortic lymph nodes (stage IIIC2).**



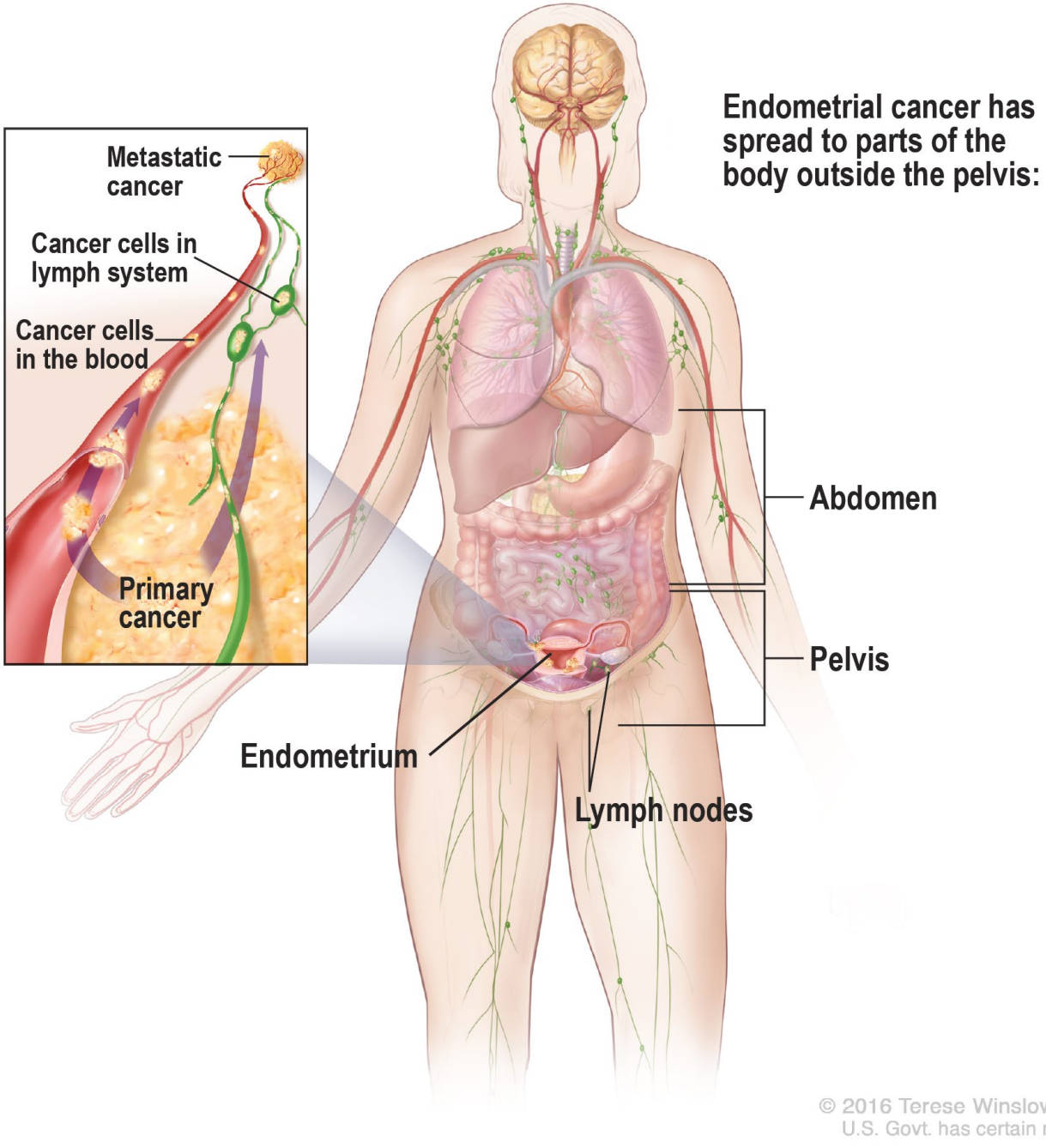

## Stage 4A endometrial cancer

**Cancer has spread to the lining of the bladder or intestines.**



### Stage 4B endometrial cancer

**Cancer has spread to areas far from the uterus, such as the abdomen, the bones, or the lungs. The abdomen includes the pancreas, stomach, intestines, liver, and gallbladder.**




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## Uterine sarcoma stages

There are 4 main stages of uterine sarcoma. All of the stages are broken down into lettered sub-stages. See **Guide 2**.

**Guide 2**
**Stages of leiomyosarcoma, endometrial stromal sarcoma, and adenosarcoma**

| | |
|---|---|
| **Stage 1 – The tumor is small and only in the uterus.** | |
| **1A** | **LMS and ESS:** The tumor is 5 centimeters (about 2 inches) or smaller.<br>**For adenosarcoma:** The tumor is only in the endometrium. |
| **1B** | **LMS and ESS:** The tumor is bigger than 5 centimeters.<br>**Adenosarcoma:** The tumor has grown less than halfway through the myometrium. |
| **1C** | **Adenosarcoma:** The tumor has grown more than halfway through the myometrium. |
| **Stage 2 – The tumor has spread beyond the uterus, but is still in the pelvis.** | |
| **2A** | The tumor has grown into the ovaries or the fallopian tubes. |
| **2B** | The tumor has also grown into other tissues in the pelvis. |
| **Stage 3 – Cancer is in the abdomen and possibly in nearby lymph nodes.** | |
| **3A** | The tumor has grown into 1 area of the abdomen. |
| **3B** | The tumor has grown into 2 areas of the abdomen. |
| **3C** | There is cancer in nearby lymph nodes. |
| **Stage 4 – Cancer is in the bladder or rectum and possibly in areas far from the uterus.** | |
| **4A** | The tumor has grown into the bladder or rectum. |
| **4B** | Cancer has spread to areas far from the uterus, such as the lungs. |

## Radiation therapy

There are several types of radiation therapy that may be recommended (in addition to surgery) for the treatment of endometrial cancer.

The 2 most common types of radiation therapy are external beam radiation therapy (EBRT) and brachytherapy.

### External beam radiation therapy

In EBRT, a large machine aims radiation (high-energy waves) at the cancer. The radiation passes through your body to reach the tumor.

To treat uterine cancer, EBRT is typically given 5 days a week for 5 to 6 weeks. One session takes about 20 minutes, and the radiation beam is on for about 2 minutes. A planning session, called simulation, is needed before treatment begins. Ask your care team what to expect.

The type(s) of EBRT you receive will depend on the area of your body being treated.

**Intensity-modulated radiation therapy** delivers a high dose of radiation to the uterine tumor while limiting the amount that reaches surrounding normal tissue and nearby organs. This helps reduce treatment-related side effects.

**Stereotactic body radiation therapy** may be used to treat metastatic endometrial cancer that has spread to the liver, lungs, or lymph nodes. This method typically requires 5 or fewer treatment sessions.

**Stereotactic radiosurgery** is a nonsurgical and highly precise type of radiation therapy used to treat small tumors in the brain or spine.

**During the 5 to 6 weeks of EBRT, it's common for the skin at the treatment site to become red and irritated. Other temporary side effects include fatigue, diarrhea, changes in urination, and nausea.**

**See *Chapter 6: Survivorship* to read about the long-term and possibly serious side effects of radiation therapy.**



### Brachytherapy

Another type of radiation therapy used for uterine cancer is called brachytherapy. This method is also described as internal radiation therapy because the radioactive material is temporarily placed inside your body, either in the tumor itself or close to it.

Hollow tubes are placed in the vagina or uterus, and a small radiation pellet travels to the region of the tumor. This may be done several times to deliver a safe dose.

## Systemic therapy

Systemic therapy is treatment with substances that travel in the bloodstream, reaching and affecting all cells in your body. Types of systemic therapy include chemotherapy, targeted therapy, immunotherapy, and endocrine therapy.

### Chemotherapy

Chemotherapy is the most commonly used systemic therapy for uterine cancer. Most chemotherapy drugs are liquids given by infusion. This means they are slowly injected into the bloodstream through a vein.

Chemotherapy is often given in cycles of treatment days followed by days of rest. This allows your body to recover before the next cycle.

### Targeted therapy and immunotherapy

Targeted therapy is most effective against cancers with specific or unique features, called biomarkers.

There are many types of targeted therapy, some of which are also considered immunotherapies. Immunotherapy uses your immune system to find and kill cancer cells.

### Endocrine therapy

Endocrine therapy is a type of systemic therapy that changes the levels of certain hormones (estrogen and progesterone) in your body. These hormones can affect the growth of cancer cells in the uterus. In people whose ovaries haven't been removed or damaged, the ovaries typically make these hormones until menopause.

Endocrine therapy can be helpful for treating cancers that grow in response to hormones. It's different from hormone therapy sometimes used to manage symptoms of menopause, called menopausal hormone therapy (MHT).

### Levels of preference

All treatments listed in this guide are recommended and appropriate. When helpful, NCCN experts also assign a level of preference to their recommendations for systemic therapies:

- **Preferred therapies** have the most evidence they may work better and be safer than other therapies.
- **Other recommended therapies** can provide effective results but may have less evidence, more side effects, or may not work quite as well as preferred therapies.
- **Therapies used in certain cases** work best for individuals with specific cancer features or health circumstances.

# Clinical trials

A clinical trial is a type of medical research study. After being developed and tested in a lab, potential new ways of fighting cancer need to be studied in people.

If found to be safe and effective in a clinical trial, a drug, device, or treatment approach may be approved by the U.S. FDA.

Everyone with cancer should carefully consider all of the treatment options available for their cancer type, including standard treatments and clinical trials. Talk to your doctor about whether a clinical trial may make sense for you.

## Phases

Most cancer clinical trials focus on treatment and are done in phases.

- **Phase 1** trials study the safety and side effects of an investigational drug or treatment approach.
- **Phase 2** trials study how well the drug or approach works against a specific type of cancer.
- **Phase 3** trials test the drug or approach against a standard treatment. If the results are good, it may be approved by the FDA.
- **Phase 4** trials study the safety and benefit of an FDA-approved treatment.

## Who can enroll?

It depends on the clinical trial's rules, called eligibility criteria. The rules may be about age, cancer type and stage, treatment history, or general health. They ensure that participants are alike in specific ways and that the trial is as safe as possible for the participants.

### Finding a clinical trial

#### In the United States

NCCN Cancer Centers
NCCN.org/cancercenters

The National Cancer Institute (NCI)
cancer.gov/about-cancer/treatment/clinical-trials/search

#### Worldwide

The U.S. National Library of Medicine (NLM)
clinicaltrials.gov

#### Need help finding a clinical trial?

NCI's Cancer Information Service (CIS)
1.800.4.CANCER (1.800.422.6237)
cancer.gov/contact

## Informed consent

Clinical trials are managed by a research team. This group of experts will review the study with you in detail, including its purpose and the risks and benefits of joining. All of this information is also provided in an informed consent form. Read the form carefully and ask questions before signing it. Take time to

discuss it with people you trust. Keep in mind that you can leave and seek treatment outside of the clinical trial at any time.

### Will I get a placebo?

Placebos (inactive versions of real medicines) are almost never used alone in cancer clinical trials. It is common to receive either a placebo with a standard treatment, or a new drug with a standard treatment. You will be informed, verbally and in writing, if a placebo is part of a clinical trial before you enroll.

### Are clinical trials free?

There is no fee to enroll in a clinical trial. The study sponsor pays for research-related costs, including the study drug. But you may need to pay for other services, like transportation or childcare, due to extra appointments. During the trial, you will continue to receive standard cancer care. This care is often covered by insurance.



**Let us know what you think!**

**Please take a moment to complete an online survey about the NCCN Guidelines for Patients.**
**NCCN.org/patients/response**

## Key points

- Total hysterectomy with bilateral salpingo-oophorectomy (BSO) is the most commonly used surgery for uterine cancer.
- The results of surgery and testing are used to stage the cancer. This is called surgical staging.
- The stage describes how much cancer is in the body and where it has spread.
- Endometrial cancer and uterine sarcoma are staged differently. Each type has 4 main stages.
- Radiation therapy uses high-energy rays to kill cancer cells or stop new cancer cells from being made.
- External beam radiation therapy (EBRT) and vaginal brachytherapy are commonly used to treat uterine cancer.
- Chemotherapy, targeted therapy, immunotherapy, and endocrine therapy are types of systemic therapy.

## Questions to ask

- What are the side effects of the systemic therapy I am going to receive?
- If the cancer spreads, does the stage change?

# 4

# Treatment for endometrial cancer


30 Fertility-sparing treatment

31 Treatment for the most common type (endometrioid)

34 Treatment for high-risk types of endometrial cancer

36 When treatment is over

37 Treatment for recurrence

40 Key points

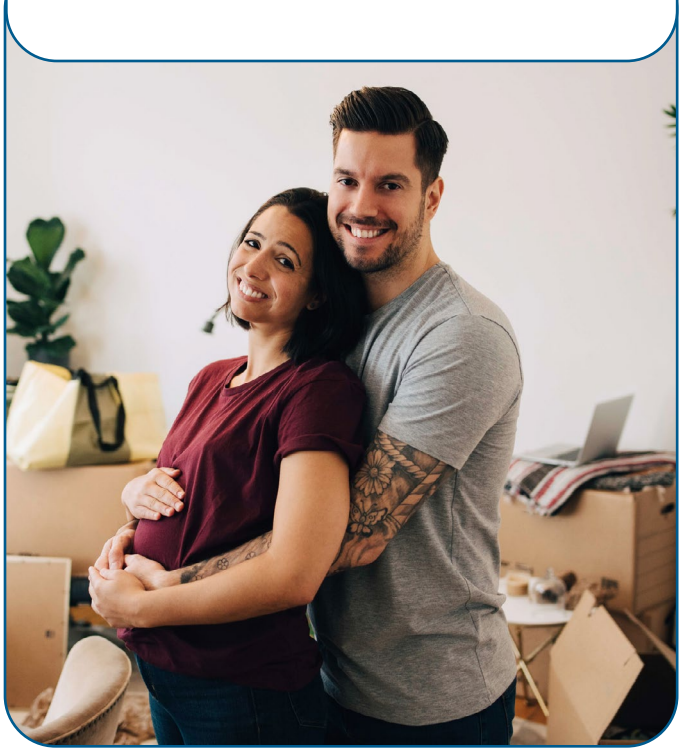
40 Questions to ask

This chapter describes recommended treatment for endometrial cancer. Endometrioid tumors are discussed first, followed by treatment for high-risk tumors.

Treatment for the most common type of endometrial cancer (endometrioid) is based on whether the cancer has spread beyond the uterus and, if so, how far.

**Fertility-sparing treatment**

**When possible, treatment for endometrial cancer involves removing the uterus. If you want the option of carrying a pregnancy in the future, you may be a candidate for fertility-sparing treatment. See the next page for more information.**



## Fertility-sparing treatment

If you have a small endometrioid tumor and want the option of carrying a pregnancy, ask your oncologist if you can receive fertility-sparing treatment. This approach involves delaying hysterectomy and treating the cancer with endocrine therapy first.

Progestin-based endocrine therapy is recommended for fertility-sparing therapy. A levonorgestrel intrauterine device (IUD), like Mirena, is preferred. Progestin pills are also a recommended option, alone or paired with a levonorgestrel IUD.

To learn if endocrine therapy is working, a sample of your endometrial cells will be removed and tested every 3 to 6 months. If no cancer is found, you can stop endocrine therapy and begin trying to get pregnant. Testing of your endometrium will continue.

On the other hand, if cancer remains after 6 months of progestin therapy, your doctor may consider adding a second type of progestin (if you're only on one). If cancer remains at 12 months, total hysterectomy with BSO is recommended. Ask your doctor about keeping your ovaries to prevent early menopause.

Maintaining a healthy weight and lifestyle during fertility-sparing therapy may lead to better treatment outcomes. Expect your care provider to ask about the types of foods you eat, how active you are, and other habits that may affect treatment.

## Treatment for the most common type (endometrioid)

When it can be performed safely, total hysterectomy with bilateral salpingo-oophorectomy (BSO) is preferred for treating most endometrioid cancers. If you can't have surgery (or choose not to), see the next page for treatment options.

If you're premenopausal and the cancer is only in the uterus, it may be safe for you to keep your ovaries and avoid surgical (early) menopause. Ask your oncologist if this is an option for you.

When possible, minimally invasive surgery is preferred for endometrioid cancer that hasn't spread at all (not even to the cervix). Ask your surgeon if you're a candidate.

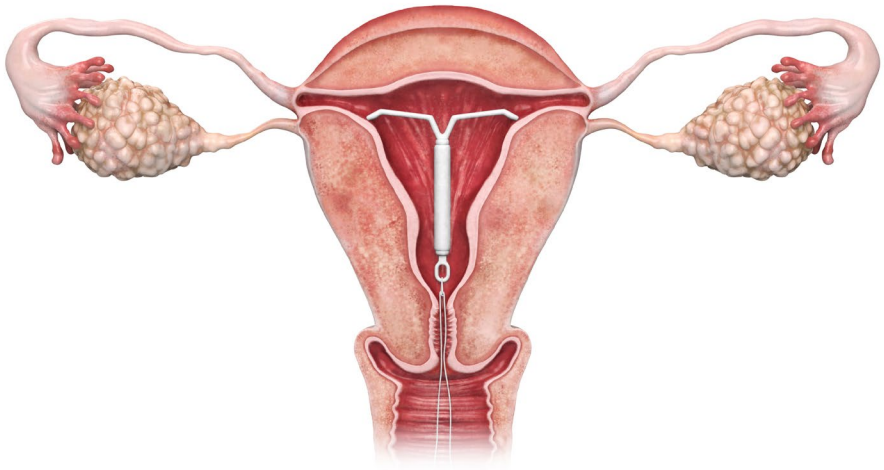
For endometrioid cancer that has **grown into the cervix**, a radical (instead of total) hysterectomy may be needed. This method removes part of the vagina (in addition to the uterus and cervix). Sometimes EBRT and brachytherapy are used first to shrink the cancer before surgery.

If the cancer has **spread beyond the uterus** (but not outside the pelvis or abdomen), you might have chemotherapy before surgery to try to shrink the tumor.

The results of surgery and testing are used to stage the cancer. More treatment is needed for stage 2, 3, and 4 cancers. See **Guide 3** on the next page for information.

### Intrauterine device (IUD)

**An IUD that releases levonorgestrel is a preferred option for fertility-sparing therapy. Progestin pills are also a recommended option.**



## If you need or want to avoid surgery

If you can't have surgery or choose not to, treatment with one or more of the following is recommended, depending on the cancer stage:

- External beam radiation therapy (EBRT)
- Brachytherapy
- Chemotherapy

Another non-surgical option for small endometrioid tumors is progestin-based endocrine therapy. A levonorgestrel IUD, like Mirena, is preferred. Progestin pills are also a recommended option, either alone or paired with an levonorgestrel IUD..

**Guide 3**
**Treatment after surgery for endometrioid cancer**

| | |
|---|---|
| **Stage 1** | • Your oncologist will consider the cancer grade and other features to determine if more treatment may lower the risk of recurrence.<br>• They may recommend vaginal brachytherapy, EBRT, or both after surgery. |
| **Stage 2** | • EBRT is **preferred** after surgery for all stage 2 endometrial cancers.<br>• Vaginal brachytherapy (may be given alone or with EBRT)<br>• Treatments that may be given in addition to EBRT or brachytherapy:<br>  • Chemotherapy<br>  • Hormone therapy (only for small or slow-growing tumors) |
| **Stages 3 and 4** | • The main treatment after surgery for stage 3 and 4 endometrioid cancer is systemic therapy. Either chemotherapy or hormone therapy may be used.<br>• Hormone therapy is typically only considered for small or slow-growing endometrioid tumors.<br>• In addition to systemic therapy, you may also have EBRT, vaginal brachytherapy, or both. |

## Metastatic cancer

Uterine cancer that has spread to the liver or lungs is metastatic. Treatment with systemic therapy (anti-cancer medicines) is recommended. For stage 3 and 4 cancers, chemotherapy paired with immunotherapy or targeted therapy is preferred. See **Guide 4**.

Your cancer care provider may suggest palliative hysterectomy with BSO. The goal of palliative surgery is to relieve symptoms caused by the cancer and limit its spread. If surgery is planned, stereotactic body radiation therapy (SBRT) may be used to destroy small metastatic tumors.

If the approach you and your team agree on works well, surgery may become possible.

If treatment with immunotherapy is planned, see *NCCN Guidelines for Patients: Immunotherapy Side Effects – Immune Checkpoint Inhibitors*, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.




**Guide 4**
**Systemic therapies for endometrial cancer**

| | |
|---|---|
| **Preferred therapies** | **Preferred for all stages:**<br>• Carboplatin, Paclitaxel<br>**Preferred for stage 3 and 4 tumors:**<br>• Carboplatin, Paclitaxel plus Dostarlimab-gxly (Jemperli)<br>• Carboplatin, Paclitaxel plus Pembrolizumab (Keytruda) – except for carcinosarcoma<br>• Carboplatin, Paclitaxel plus Durvalumab (Imfinzi) – for dMMR tumors only<br>• Carboplatin, Paclitaxel plus Trastuzumab (Herceptin) – for HER2-positive serous carcinoma or carcinosarcoma<br>• Carboplatin, Paclitaxel plus Bevacizumab (Avastin) |
| **Other recommended therapies** | **For stage 3 and 4 pMMR tumors:**<br>• Carboplatin, Paclitaxel, Durvalumab (Imfinzi) plus Durvalumab, Olaparib (Lynparza) |

# Treatment for high-risk types of endometrial cancer

High-risk endometrial cancers include:

- Serous carcinoma
- Clear cell carcinoma
- Carcinosarcoma
- Un-differentiated/de-differentiated carcinoma

Carcinosarcomas are also known as malignant mixed mesodermal tumors or malignant mixed Müllerian tumors (MMMTs). While they have features of both endometrial carcinoma and uterine sarcoma, they are typically treated more like carcinomas than like sarcomas.

Like endometrioid tumors, the first sign of high-risk endometrial tumors is vaginal bleeding. However, these kinds of endometrial cancers can also cause the following signs and symptoms:

- Lumps in the pelvis area
- Abnormal Pap smear results
- Fluid buildup or swelling in the abdomen (also known as ascites)

## Testing

Testing can help determine if the cancer has spread beyond the uterus. If you haven't had imaging tests, expect to have them before treatment. Your doctor may also order a cancer antigen 125 (CA-125) blood test. A high level of CA-125 may mean that the cancer has spread beyond the uterus. If it has, the level may also be checked during treatment.

For advanced or metastatic serous carcinoma or carcinosarcoma tumors, HER2 testing is also recommended.

## Treatment

The most effective treatment for high-risk endometrial cancers is surgery. A total hysterectomy with BSO is recommended. When possible, minimally invasive surgery is preferred. Ask your doctor if it's an option for you.

Fertility-sparing therapy isn't recommended for high-risk endometrial cancers. If you aren't a candidate for surgery, see page 36.

Surgical staging will be performed to learn the extent of the cancer and assign a stage. After surgery, more treatment is almost always needed for high-risk endometrial cancers. Recommended treatment after surgery is described next, based on the tumor type.

If chemotherapy is planned, the preferred regimen is carboplatin and paclitaxel. For certain tumors, a targeted therapy called trastuzumab may be given with chemotherapy.

## After surgery: serous and clear cell carcinoma

For recommended treatment after surgery according to the cancer stage, see **Guide 5**.

For noninvasive stage 1A disease, the results of peritoneal washing (washings) can help guide care decisions. In this technique, the surgeon puts fluid in the open space of the abdomen, removes it, and then tests it for cancer cells.

### After surgery: carcinosarcoma

For stage 1 carcinosarcoma, both chemotherapy and vaginal brachytherapy are recommended after surgery.

For stages 2, 3, and 4, chemotherapy is recommended after surgery. Treatment with EBRT, vaginal brachytherapy, or both may be added.

Regardless of stage, chemotherapy may be started as early as 3 to 6 weeks after surgery. Brachytherapy can be added to chemotherapy starting at 6 weeks after surgery.

### After surgery: Un-differentiated/ de-differentiated carcinoma

Chemotherapy is recommended after surgery for carcinomas that don't fit into any specific tumor category. EBRT, vaginal brachytherapy, or both may be given in addition to chemotherapy.

### If surgery isn't planned first

If surgery will not be your first treatment, one recommended option is EBRT. Vaginal brachytherapy, chemotherapy, or both may be given in addition to EBRT.

The second option is systemic therapy (usually chemotherapy). The goal is to shrink the tumor enough to be removed using surgery.

**Guide 5**
**Serous and clear cell carcinoma: treatment options after surgery**

| | |
|---|---|
| **Noninvasive stage 1A** | The results of peritoneal washing help your provider decide which of the following options is recommended for you:<br>• Observation<br>• Chemotherapy (vaginal brachytherapy may also be given)<br>• Vaginal brachytherapy |
| • **Invasive stage 1A**<br>• **Stage 1B**<br>• **Stage 2** | **Option 1: Chemotherapy**<br>Treatment with EBRT, brachytherapy, or both may be added<br>**Option 2: External radiation therapy**<br>Treatment with brachytherapy may be added |
| **Stages 3 and 4** | Chemotherapy is recommended. Treatment with EBRT, brachytherapy, or both may be added. |

## When treatment is over

Surveillance begins when there are no signs of cancer after treatment. Surveillance looks for early signs that cancer has returned.

### Physical exams

Physical exams are recommended on a regular basis for at least the first 5 years after treatment.

In the first 2 to 3 years after treatment, an exam is recommended every 3 to 6 months. They are needed less frequently (every 6 to 12 months) in the fourth and fifth year after treatment.

After the fifth year of surveillance, one physical exam is recommended per year.

### Other surveillance testing

If your CA-125 level was high before treatment, it may be monitored after treatment. Other testing, including imaging, isn't recommended on a regular basis.

### Other care

In addition to surveillance testing, a range of other care is important for uterine cancer survivors. This includes learning how to spot symptoms of recurrence. See *Chapter 6: Survivorship* for more information.

### If recurrence is suspected

If you develop symptoms of a possible recurrence or if your doctor notices possible signs, they will order imaging (scans). If recurrence is confirmed, see the next section for information.

**Ideally, your care team will include experts from different specialties. The treatment that you and your care team agree on should be noted in the treatment plan, along with possible side effects.**

**Keep in mind that your plan may change based on new test results, new side effects, and your preferences.**



# Treatment for recurrence

The return of cancer is called a recurrence or a relapse. Endometrial cancer may return to the vagina (most common), to other areas in the pelvis, or to the abdomen.

If not already performed, recurrent cancer should be tested for mutations and other biomarkers (features) that can help guide your care. See *Chapter 2: Testing for uterine cancer* for more information on biomarker testing.

Everyone with recurrent uterine cancer is encouraged to enroll in a clinical trial for treatment, when possible.

## Recurrence in the vagina or nearby

If the new cancer growth is in an area that **hasn't been treated** with external radiation, EBRT is a recommended option. EBRT may be paired with brachytherapy, systemic therapy, or both.

A second recommended option is exploratory surgery. This involves opening the abdomen to learn how far the cancer has spread and to remove all cancer that your surgeon can see. Depending on the findings, after surgery your oncologist may recommend treatment with EBRT, chemotherapy, or both.

If the new cancer growth is in an area that **has been treated** with EBRT, treatment options may include:

- Exploratory surgery
- Systemic therapy
- Lower-dose EBRT for symptom relief
- Brachytherapy

## Recurrence in the liver or lungs

If endometrial cancer returns after initial treatment and is found in areas such as the liver or lungs, the cancer is metastatic.

If there are only a few small areas of cancer, it may be possible to remove or destroy the tumors using one or more of the following:

- Surgery
- EBRT
- Stereotactic body radiation therapy (SBRT)

If there are more than a few new areas of cancer growth, systemic therapy is recommended. Platinum chemotherapy—alone or with immunotherapy—is preferred for most people. See **Guide 6** on the next page.

Radiation therapy may also be given with the goal of relieving symptoms. This is known as palliative radiation therapy.

If the cancer doesn't respond or stops responding to first-line systemic therapy, there are second- and third-line options.

If treatment with immunotherapy is planned, see *NCCN Guidelines for Patients: Immunotherapy Side Effects – Immune Checkpoint Inhibitors*, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



## Supportive care

Supportive care is an important part of cancer care. The goal is to improve your quality of life during and after cancer treatment. Supportive care is for everyone with cancer and their families, not just for those at the end of life.

Supportive care includes a wide range of services. Supportive care prevents or manages the symptoms of cancer and the side effects of cancer treatment, like pain and cancer-related fatigue. It also addresses the mental, social, emotional, and spiritual concerns faced by people with cancer. Supportive care provides help with additional needs, such as:

- Making treatment decisions
- Coordinating your care
- Paying for care
- Planning for advance care and end of life

### Guide 6
### Recurrent endometrial cancer: First-line systemic therapies

| | |
|---|---|
| **Preferred therapies** | • Carboplatin, Paclitaxel plus Pembrolizumab (except for carcinosarcoma)<br>• Carboplatin, Paclitaxel plus Dostarlimab-gxly<br>• Carboplatin, Paclitaxel plus Durvalumab (for dMMR only)<br>• Carboplatin, Paclitaxel plus Trastuzumab (for HER2-positive uterine serous carcinoma or carcinosarcoma)<br>• Carboplatin, Paclitaxel |
| **Other recommended therapies** | • Carboplatin, Docetaxel<br>• Carboplatin, Paclitaxel plus Bevacizumab |
| **Therapies used in certain circumstances** | **Tumors without the mismatch repair biomarker (pMMR tumors):**<br>• Carboplatin, Paclitaxel, Durvalumab plus Durvalumab, Olaparib<br>**Biomarker-directed therapy (after platinum chemotherapy):**<br>**pMMR tumors:**<br>• Lenvatinib plus Pembrolizumab<br>**TMB-high (TMB-H) tumors:**<br>• Pembrolizumab<br>**MSI-H/dMMR tumors:**<br>• Pembrolizumab<br>• Dostarlimab-gxly |

Read more about the types of support you may receive in *NCCN Guidelines for Patients: Palliative Care*, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.




**Supportive care is available for everyone with cancer. It isn't meant to treat the cancer, but rather to help with symptoms and make you more comfortable.**

## Key points

- Surgery is the preferred first treatment for most endometrial cancers when possible.
- If you're premenopausal and have an endometrioid tumor, fertility-sparing therapy may be an option. It involves delaying surgery and having treatment with endocrine therapy first.
- Treatment is recommended after surgery for all stage 2, 3, and 4 endometrioid tumors. Some people with a stage 1 endometrioid tumor may benefit from treatment after surgery.
- High-risk types of endometrial cancer include serous carcinoma, clear cell carcinoma, un-differentiated/ de-differentiated carcinoma, and carcinosarcoma.
- Follow-up care involves having regular physical exams and staying alert for symptoms of recurrence.
- Treatment for recurrent endometrial cancer depends on the location(s) of the new cancer growth and your treatment history.

## Questions to ask

- I want the option of pregnancy after treatment. Am I a candidate for fertility-sparing surgery?
- I am willing and able to have surgery. Am I a candidate for a minimally invasive approach?

# 5
# Treatment for uterine sarcoma


42 First steps

43 Treatment

46 Surveillance

46 Recurrence

49 Key points

49 Questions to ask

This chapter explains recommended testing and treatment for a rare type of uterine cancer called uterine sarcoma.

Uterine sarcoma starts deeper in the uterus than endometrial cancer. It often forms in the muscle layer of the uterus wall (the myometrium) or in supporting connective tissues in the endometrium.

Because they form deeper in the uterus, uterine sarcomas are often found after a hysterectomy performed for another reason. They are also sometimes found during surgery to remove fibroids (benign uterine tumors that cause symptoms).

This guide discusses the following types of uterine sarcoma:

- Endometrial stromal sarcoma (ESS)
- Adenosarcoma
- Leiomyosarcoma (LMS)
- Un-differentiated uterine sarcoma (UUS)
- Peri-vascular epithelioid cell tumor (PEComa)
- Inflammatory myofibroblastic tumor (IMT)

## First steps

### Imaging

Imaging tests are needed before starting treatment. A computed tomography (CT) scan of your chest, abdomen, and pelvis (with contrast) is recommended. You may also have magnetic resonance imaging (MRI) of your pelvis, abdomen, or both.

Other imaging tests that may be used to evaluate the spread of cancer include a combined positron emission tomography (PET)/CT scan of your neck, chest, abdomen, pelvis, and groin.

Whether you need other imaging tests depends on your symptoms and whether your doctor thinks the cancer has spread (metastasized).

### Hormone receptor testing

Until menopause, the ovaries make hormones. If the sarcoma has hormone receptors, hormones made by your ovaries may cause the cancer to grow.

To help decide whether removing your ovaries would be effective against the cancer, a sample of the tumor (from a biopsy or surgery) may be tested for hormone receptors.

Hormone receptor testing is most often considered for the following types of uterine sarcoma:

- ESS
- LMS
- Adenosarcoma

# Treatment

In people with a uterus, total hysterectomy (possibly with bilateral salpingo-oophorectomy) is the most effective way to treat a uterine sarcoma. If the cancer can't be removed with surgery, treatment options include radiation therapy and systemic therapy.

## Sarcoma found during prior hysterectomy

If the cancer was found after a partial or total hysterectomy, treatment will depend on the results of the original hysterectomy and whether the ovaries and fallopian tubes were removed.

If the tumor wasn't removed in one piece or if the cervix was not removed, you may have another surgery to remove the cancer and the remaining cervix. If you still have one or both ovaries and fallopian tubes, they may also be removed during the surgery. This may be the best choice for low-grade ESS tumors, adenosarcomas, and estrogen receptor-positive tumors.

## Sarcoma found by biopsy or fibroid removal

Total hysterectomy is recommended for sarcomas that haven't spread beyond the uterus. When possible, total hysterectomy is also recommended for cancers that have spread beyond the uterus.

If you're menopausal, surgery to remove the ovaries and fallopian tubes (bilateral salpingo-oophorectomy, or BSO) is also recommended. If you're able to become pregnant, you and your doctor will decide together whether to perform BSO. Removal is typically recommended for cancers with hormone receptors.

If you don't want or can't have surgery, treatment with systemic therapy, palliative external beam radiation therapy (EBRT), or both is recommended. Brachytherapy may be used in addition to these treatments.

Recommended first-line systemic therapies for inoperable sarcomas are listed in **Guide 7**. Talk to your medical oncologist about which is best for you.

## After surgery: Low-grade ESS or low-risk adenocarcinoma

If you still have your ovaries and fallopian tubes, surgery to remove them (a BSO) is recommended for stage 1 tumors. If you've already had a BSO, observation is recommended.

A BSO is also recommended for stage 2, 3, and 4 low-grade ESS tumors and low-risk adenosarcomas. In addition to surgery, one or both of the following treatments may be given:

- Anti-estrogen hormone therapy
- EBRT
- Palliative EBRT to help with symptoms (for stage 4B cancers)

Aromatase inhibitors are the preferred anti-estrogen therapy for low-grade ESS and low-risk adenosarcomas. Preferred therapies have the most evidence they may work better and be safer than other therapies.

All of the recommended options for anti-estrogen therapy are listed in **Guide 8**.

### After surgery: High-risk adenosarcoma

If you still have your ovaries and fallopian tubes, surgery to remove them (a BSO) is recommended for stage 1 high-risk adenosarcomas. If you've already had a BSO or if you're menopausal, observation is recommended.

A BSO is also recommended for stage 2, 3, and 4 high-risk adenosarcomas. After this surgery, your doctor may recommend treatment with chemotherapy or targeted therapy. Or, if the cancer is hormone receptor-positive, anti-estrogen therapy may be an option.

**Guide 7**
**First-line systemic therapies for uterine sarcoma**

| | |
|---|---|
| **Preferred therapies** | • Docetaxel, Gemcitabine<br>• Doxorubicin<br>• Doxorubicin, Ifosfamide<br>• Doxorubicin, Trabectedin (for LMS)<br>• Doxorubicin, Dacarbazine (for LMS or those who can't have ifosfamide) |
| **Therapies used in certain circumstances** | **TKI therapy for *NTRK* gene fusion-positive tumors:**<br>• Larotrectinib (Vitrakvi)<br>• Entrectinib (Rozlytrek)<br>• Repotrectinib (Augtyro)<br>**TKI therapy for inflammatory myofibroblastic tumors with *ALK* translocation:**<br>• Crizotinib (Xalkori)<br>• Ceritinib (Zykadia)<br>• Brigatinib (Alunbrig)<br>• Lorlatinib (Lorbrena)<br>• Alectinib (Alecensa)<br>**TKI therapy for *RET* fusion-positive tumors:**<br>• Selpercatinib (Retevmo)<br>**mTOR inhibitor thearpy for PEComas:**<br>• Albumin-bound sirolimus (Fyarro) |

## After surgery: Other tumor types

The information that follows applies to the following types of uterine sarcoma:

- High-grade endometrial stromal sarcoma
- Undifferentiated uterine sarcoma
- Leiomyosarcoma
- Other sarcomas, such as PEComa
- Inflammatory myofibroblastic tumor (IMT)

No further treatment is needed after surgery for **stage 1** cancers.

For **stage 2 and 3** cancers, if the results of surgery are very good, observation may be an option. Otherwise, your provider may recommend systemic therapy, EBRT, or both.

For **stage 4A** cancers, treatment with systemic therapy, EBRT, or both is recommended.

Systemic therapy is recommended for **stage 4B** sarcomas. Lower-dose EBRT may also be used to relieve symptoms caused by the tumor.

If systemic therapy is planned, preferred first-line chemotherapy and targeted therapy options are listed in **Guide 7**. Or, if the cancer is hormone receptor-positive, your doctor may recommend anti-estrogen therapy.

**Guide 8**
**Anti-estrogen therapy for low-grade ESS and low-risk adenosarcoma**

| | |
|---|---|
| **Preferred therapies** | • Aromatase inhibitor therapy:<br>  • Anastrozole (Arimidex)<br>  • Letrozole (Femara)<br>  • Exemestane (Aromasin)<br>• An aromatase inhibitor (above) paired with a gonadotropin-releasing hormone (GnRH) analog (below). This preferred option is for premenopausal people who aren't candidates for BSO surgery:<br>  • Goserelin acetate (Zoladex)<br>  • Leuprolide acetate<br>  • Triptorelin pamoate (Trelstar) |
| **Other recommended therapies** | • Fulvestrant (Faslodex)<br>• Megestrol acetate<br>• Medroxyprogesterone acetate (Provera) |

## Surveillance

Surveillance begins when there are no signs of cancer after treatment. The goal of surveillance is to find early signs that the cancer has returned. Physical exams and imaging tests are used to monitor for the return of uterine sarcomas. See **Guide 9**.

In addition to surveillance testing, a range of other care is important for cancer survivors. This includes staying alert for cancer symptoms. See *Chapter 6: Survivorship* for more information.

During surveillance, if you develop symptoms or your provider suspects recurrence for other reasons, imaging is recommended.

## Recurrence

The return of cancer after being cancer-free is called recurrence. After surgery to remove the uterus, ovaries, and fallopian tubes, cancer may return to the vagina, to areas near the vagina, or to areas far from the pelvis.

If recurrence is suspected, you will likely have imaging tests. If the cancer is suspected to have spread to areas far from the pelvis (metastasized), imaging may include a PET/CT scan of your neck, chest, abdomen, pelvis, and groin.

Treating a recurrence depends on the location of the new cancer growth and on whether you've had EBRT. EBRT generally isn't used to treat the same area more than once.

**Guide 9**
**Monitoring for the return of uterine sarcoma**

| | |
|---|---|
| **Physical exams** | • **First 2 to 3 years:** Every 3 to 4 months<br>• **After that:** Once or twice a year |
| **Recommended:**<br>**CT scan of chest, abdomen, and pelvis with contrast**<br>**Optional:**<br>**MRI of abdomen and pelvis and chest CT without contrast** | • **First 3 years:** Every 3 to 6 months<br>• **Years 4 and 5:** Every 6 to 12 months<br>You may have imaging every 1 to 2 years for up to 5 more years. Your doctor will decide whether imaging should continue based on the features of your cancer (tumor type, stage, grade). |

## Recurrence in the vagina or pelvis

If **you have received** prior treatment with EBRT, one of the following approaches may be used to treat cancer that returns to the vagina or pelvis:

- Surgery, with or without systemic therapy
- Systemic therapy
- Careful re-treatment of selected areas using EBRT
- Brachytherapy, with or without EBRT of selected areas

If systemic therapy is planned (alone or in addition to surgery), anti-estrogen hormone therapy is preferred for low-grade ESS and low-risk adenosarcoma.

If you **haven't received** EBRT, options include surgery and EBRT. If surgery is planned, you may have EBRT with or without systemic therapy first to try to shrink the tumor.

If treatment with EBRT is planned instead of surgery, brachytherapy, systemic therapy, or both may also be given. For low-grade ESS and low-risk adenosarcoma, anti-estrogen hormone therapy is preferred for systemic therapy.

## Recurrence in the liver or lungs

If uterine sarcoma returns and is found in the liver, lungs, or other areas, it's known as a distant recurrence. The cancer is metastatic.

If not already performed, recurrent cancer should be tested for mutations and other biomarkers (features) that can help guide your care. Testing should include the following biomarkers, but will ideally include many more:

- Microsatellite instability (MSI)
- *BRCA* mutations
- *NTRK* fusions
- *RET* fusions
- *ALK* rearrangement
- Tumor mutational burden (TMB)

If there aren't many metastatic tumors, removing them with surgery or destroying them with other local therapies may be an option. Local therapies include:

- Image-guided ablation
- EBRT
- Stereotactic body radiation therapy (SBRT)

Ablation destroys cancer cells using heat, cold, or light-activated drugs. SBRT is a highly specialized type of external radiation, requiring 5 or fewer treatment sessions.

If surgery is possible, systemic therapy, EBRT, or both may be given before or after surgery.

### Many metastatic tumors

If the new cancer growth outside of the pelvis is widespread, systemic therapy is recommended. Most people receive chemotherapy. Or, if the cancer has specific biomarkers, targeted therapy may be a better choice than chemotherapy. See **Guide 7**.

Palliative EBRT may be used in addition to systemic therapy. The goal is to shrink the tumor(s) to relieve or prevent symptoms.

You can also have supportive care, with or without other treatment. Because the cancer can't be cured, the goal of supportive care is to

make you more comfortable and to help keep the cancer under control. Supportive care may also help you live longer, improve your eating, and help you feel better overall.

Enrolling in a clinical trial may also be an option. Ask your treatment team if there's an open clinical trial you can join. Clinical trials are discussed in more detail at the end of *Chapter 3: Types of treatment*.

If the cancer doesn't respond or stops responding to first-line systemic therapy, options for second-line therapy are listed in **Guide 10**.

**Guide 10**
**Second-line chemotherapy and targeted therapy regimens**

| | | |
|---|---|---|
| **Preferred therapy for leiomyosarcomas** | Trabectedin (Yondelis) – for leiomyosarcomas | |
| **Recommended therapies for all other tumor types** | • Gemcitabine, Dacarbazine<br>• Gemcitabine, Vinorelbine<br>• Dacarbazine<br>• Gemcitabine<br>• Epirubicin | • Ifosfamide<br>• Liposomal doxorubicin<br>• Pazopanib (Votrient)<br>• Temozolomide (Temodar)<br>• Regorafenib (Stivarga)<br>• Eribulin (Halaven) |
| **Therapies that may be used in certain circumstances** | **Immunotherapy (for TMB-~~H~~ tumors):**<br>• Pembrolizumab (Keytruda)<br>• Ipilimumab (Yervoy) plus Nivolumab (Opdivo)<br>**PARP inhibitor therapy (for leiomyosarcomas with *BRCA* mutations):**<br>• Olaparib (Lynparza)<br>• Rucaparib (Rubraca)<br>• Niraparib (Zejula) | **mTor inhibitor therapy (for PEComas):**<br>• Sirolimus (Rapamune)<br>• Everolimus (Afinitor)<br>• Temsirolimus (Torisel)<br>**CDK4 inhibitor therapy (for *CDK4* amplification):**<br>• Palbociclib (Ibrance) |

## Key points

- Uterine sarcomas are uncommon tumors that start in the wall or muscles of the uterus. Because they form deeper in the uterus, they are often discovered during hysterectomy performed for other reasons.
- A CT scan of your chest, abdomen, and pelvis with contrast is recommended before you start treatment. You may also have an MRI of your pelvis, abdomen, or both.
- If these tests are unclear, a PET/CT scan may be ordered. Other imaging is individualized.
- For ESS, LMS, and adenosarcomas, hormone receptor testing can help decide whether the ovaries should be removed in those of childbearing age.
- For a sarcoma found by biopsy or fibroid removal, total hysterectomy is recommended when possible. The decision to remove the ovaries and fallopian tubes is individualized for pre-menopausal people. BSO surgery is often recommended if the cancer is hormone receptor positive.
- If you don’t want or can't have surgery, treatment with systemic therapy, external beam radiation therapy (EBRT), or both is recommended.

## Questions to ask

- Does the cancer have hormone receptors? If so, is that good or bad?
- Who can help me manage the symptoms of surgical menopause?
- What are the most common side effects of endocrine therapy?

# 6 Survivorship


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Survivorship focuses on the physical, emotional, and financial issues unique to cancer survivors. Survivorship begins at diagnosis and continues throughout your lifetime.

During and after cancer treatment, your primary care provider and your oncologist will work together to make sure you receive recommended care.

Ask your oncologist for a written survivorship care plan that includes:

- A summary of your cancer treatment history
- A description of possible short-term, late, and long-term side effects
- Recommendations on monitoring for the return of cancer
- Clear roles and responsibilities for all of your health care providers
- Recommendations on your overall health and well-being

## Staying alert for recurrence or spread

Some kinds of cancer can return without giving your body any hints. If uterine cancer does come back, it often affects your body in ways that you can feel or notice (symptoms).

Your doctor will teach you about the symptoms that may mean uterine cancer has returned or spread. They include:

- Vaginal bleeding
- Blood in your urine or stool
- Loss of appetite
- Weight loss
- Pain in your stomach, midsection, hip, or back
- Cough
- Shortness of breath
- Swelling in your stomach area or legs

**If you notice any of these symptoms, contact your doctor right away. Don't wait until your next scheduled visit.**

## Early menopause

If you're pre-menopausal, surgically removing the ovaries or damaging them with radiation will cause menopause to start. It results from the sudden drop in estrogen in your body. You may have symptoms, such as:

- Hot flashes
- Sleeping problems
- Night sweats
- Weight gain
- Changes in mood
- Thinning, drying, and irritation of the vaginal lining (vaginal atrophy)

When caused by surgery, the symptoms of menopause may be sudden and more severe. There are also long-term risks of not having enough estrogen. They include heart or blood vessel problems (cardiovascular disease) and bone loss (osteoporosis).

### Menopausal hormone therapy

Menopausal hormone therapy is the use of estrogen to replace hormones lost during menopause. This approach generally isn't recommended for tumors that grow in response to estrogen. The concern is that estrogen will increase the risk of the cancer returning.

If your symptoms are mainly related to changes in the vaginal lining, a vaginal estrogen cream may be an option, especially if non-hormonal vaginal moisturizers aren't helping.

Discussion with a specialized menopausal symptom team may be helpful to determine whether menopausal hormone therapy is right for you.

**Early menopause**

**If you are premenopausal, surgically removing the ovaries or exposing them to radiation can cause symptoms of menopause, including trouble sleeping. Consulting with a menopause specialist is recommended.**



## Bowel and bladder changes

After surgery or radiation therapy for uterine cancer, it may be harder to hold urine in your bladder. This is called urinary incontinence. You may also experience urgency—a sudden and strong need to urinate.

Watery and/or frequent bowel movements (diarrhea) are also possible. Pelvic floor physical therapy, described next, can help with bowel and bladder changes.

### Pelvic floor physical therapy

The pelvic floor is a group of muscles that supports the organs of the pelvis. These muscles play a key role in bowel and bladder control as well as sexual function and arousal.

There are ways to strengthen these muscles before and after treatment. This is known as pelvic floor physical therapy, and there are health care professionals who specialize in it. Pelvic floor therapy can include at-home exercises to tighten and release the vaginal and anal muscles (Kegel exercises) as well as hands-on techniques by a physical therapist.

Ask your care team for help finding a pelvic floor specialist in your area.

## Sexual and vaginal wellness

You may have sexual side effects after uterine cancer treatment, including:

- Reduced sex drive (libido)
- Vaginal dryness
- Pain during sex
- Narrowing and shortening of the vagina (vaginal stenosis)

### Vaginal moisturizers

Older age, menopause, and some uterine cancer treatments can cause the vagina to become dry and less stretchy. To offset this side effect, use of water-based vaginal moisturizers is encouraged. Vaginal moisturizers restore moisture to the vagina and help to keep the vaginal tissue healthy. They can be used daily, and many come with applicators to make using them easier.

### Vaginal dilator therapy

Radiation to the pelvic area can also cause the vagina to become shorter and narrower. This can make it uncomfortable or even painful to have sex or to have vaginal exams by a doctor.

Using a device called a vaginal dilator during and after radiation therapy can help gradually stretch and widen the vagina. The size of the dilator can be increased over time as the vagina lengthens and widens.

### Sexual health therapists

While it may be uncomfortable to talk about sexual health, keep in mind that these side effects are common and can often be managed or lessened. Consider seeing a sexual health therapist. These health care

professionals specialize in helping cancer survivors and others overcome and manage the sexual side effects of cancer treatment.

Many cancer treatment centers have programs focused solely on sexual health after cancer treatment. Ask your doctor about resources available through your cancer center that can help minimize the impact of cancer treatment on your sexual health.

## Mental health and wellness

The effects of uterine cancer and its treatment can be difficult to cope with. Many survivors report an overall lower quality of life after cancer treatment. Depression, anxiety, fear of recurrence, and trouble adjusting to changes in the body are possible.

**Survivorship begins at diagnosis. It focuses on your health and well-being during and after cancer treatment.**

**Support from family members, friends, and caregivers is an important part of survivorship.**



Many people also have financial stressors, such as concerns or hesitation about returning to work and insurance coverage issues. Personal relationships, sexuality, and intimacy may also be affected by a cancer diagnosis or cancer treatment.

If you're anxious, distressed, depressed, or are just having trouble coping with life after cancer, you're not alone. Tell your treatment team about these symptoms. Expect your care team to ask about your mental health. If they don't, speak up. There are resources that can help.

Social workers at your treatment center can help connect you with mental health and financial resources.

## Other possible side effects

### Nerve damage

Chemotherapy can damage the sensory nerves. This is known as neuropathy. The damage can result in pain, numbness, tingling, swelling, or muscle weakness in different parts of the body. It often begins in the hands or feet and gets worse over time. Neuropathic pain is often described as shooting or burning.

### Lower body swelling

Treatment for uterine cancer often involves removing lymph nodes during surgery. Lymph may not drain properly after lymph node removal and can result in lymphedema. Lymphedema is swelling caused by a buildup of lymph fluid in tissues. It most often occurs in the lower body for uterine cancer survivors.

Ask your treatment team for a complete list of possible late and long-term side effects.

# Healthy habits for cancer survivors



Follow your primary care provider's recommendations for screening for other cancers based on your age, sex, and risk level



Get other recommended health care such as blood pressure checks, hepatitis C screening, and immunizations (like the flu shot)



Eat a diet rich in plant-based foods. Limit red meat and processed foods.



Alcohol can increase the risk of some cancers. Drink little to no alcohol.



Move more, rest less. Try to exercise at a moderate intensity for at least 150 minutes per week.



Maintain a healthy weight. Tracking your weight, diet, calories, and activity levels may help you meet your goals.



Stop using tobacco. Ask your care team about options to help you quit. Counseling and medication are often options.

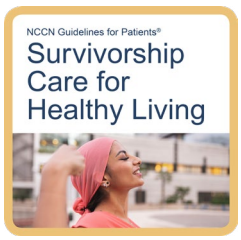


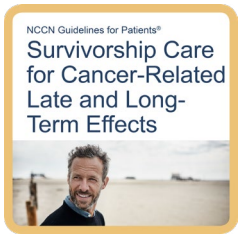
Continue receiving care for long-term health problems, such as obesity, diabetes, or hypertension.

## More information

For more information on cancer survivorship, the following are available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app:

- *Survivorship Care for Healthy Living*
- *Survivorship Care for Cancer-Related Late and Long-Term Effects*




## Key points

- Survivorship focuses on the physical, emotional, and financial issues unique to cancer survivors.
- A survivorship care plan is helpful in transitioning your care to your primary care doctor.
- If you have concerns about paying for your cancer care, financial help may be available.
- Keeping up with healthy habits can help prevent second cancers and other health problems.
- Continue receiving care for any long-term health problems, such as obesity, diabetes, or hypertension.

## Questions to ask

- Can you give me a survivorship care plan? How will you provide it?
- Does this treatment center have a survivorship care program?
- What can I expect during a survivorship care visit?

# 7
# Other resources

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58 Where to get help

Want to learn more? Here's how you can get additional help.

## What else to know

This guide helps you know your options so you can make informed decisions and improve your cancer care. But it's not the only resource that you have.

Ask for as much information and help as you need. Many people are interested in learning more about:

- Managing side effects
- Genetic testing for hereditary cancers and syndromes
- Building a support system
- Lifestyle changes after cancer
- Coping with other health problems

## What else to do

Your health care center can help you with next steps. It often has on-site resources to help meet your needs and find answers to your questions. Health care centers can also inform you of resources in your community.

In addition to help from your providers, the resources listed in the next section provide support for many people like yourself.

## Where to get help

Look through the list below and visit the provided websites to learn more about these organizations.

**Bag It Cancer**
bagitcancer.org

**Bone Marrow & Cancer Foundation**
bonemarrow.org

**Cancer*Care***
cancercare.org

**Cancer Hope Network**
cancerhopenetwork.org

**Endometrial Cancer Action Network for African-Americans**
ecanawomen.org

**FORCE: Facing Our Risk of Cancer Empowered**
facingourrisk.org

**GRACE**
cancergrace.org

**Imerman Angels**
imermanangels.org

**Leiomyosarcoma Support and Direct Research Foundation**
lmsdr.org

**My Faulty Gene**
myfaultygene.org

**National LeioMyoSarcoma Foundation**
nlmsf.org

**Ovarian Cancer Research Alliance (OCRA)**
ocrahope.org

**Triage Cancer**
triagecancer.org

## Questions to ask

- Who can I talk to about help with housing, food, and other basic needs?
- What help is available for transportation, childcare, and home care?
- Are there other services available to me and my caregivers?




**Take our survey and help make the NCCN Guidelines for Patients better for everyone!**

NCCN.org/patients/comments



# Words to know

**abdomen**
The body area between the chest and pelvis.

**adenocarcinoma**
Cancer of cells that line organs and make fluids. Most endometrial cancers are adenocarcinomas.

**bilateral salpingo-oophorectomy (BSO)**
Surgery to remove both ovaries and both fallopian tubes.

**brachytherapy**
A type of radiation therapy in which radioactive material, sealed in needles, seeds, wires, cylinders, or catheters, is placed directly into or near a tumor. Also called internal radiation therapy.

**cancer antigen 125 (CA-125)**
A high level of this substance in blood may mean that endometrial cancer has spread beyond the uterus.

**cancer grade**
A rating of how abnormal cancer cells look when viewed under a microscope.

**cancer stage**
A rating of the outlook of a cancer based on its growth and spread.

**carcinosarcoma**
A high-risk type of endometrial cancer. Also known as malignant mixed Müllerian tumor (MMMT).

**cervix**
The lower part of the uterus that connects to the vagina (birth canal).

**clear cell carcinoma**
A high-risk type of endometrial cancer.

**clinical trial**
A type of research involving people that assesses investigational tests or drugs.

**debulking**
Surgery to remove as much cancer as possible. Also called cytoreductive surgery.

**early menopause**
The forced start of menopause caused by surgery to remove the ovaries or damage to the ovaries caused by radiation therapy. Results from the drop in estrogen in the body.

**endocrine therapy**
Treatment that stops the making or action of hormones in the body. Also called hormone therapy.

**endometrioid cancer**
The most common type of endometrial cancer.

**endometrium**
The layer of tissue that lines the uterus. Where endometrial cancer starts.

**external beam radiation therapy (EBRT)**
A cancer treatment with radiation received from a machine outside of the body.

**fallopian tube**
A thin tube through which an egg travels from the ovary to the uterus.

**genetic counseling**
A discussion with a health expert about the risk for a disease caused by changes in genes.

**genetic counselor**
A health expert who has special training to help people understand changes in genes that are related to disease.

**genetic testing**
Testing of the blood, saliva, or other samples for germline (inherited) gene variants that cause cancer.

**germline variant**
A difference in a gene that's passed from a parent to their biological child(ren). The difference may be helpful, harmful, or have no (known) effect on your health.

**gynecologic oncologist**
A surgeon who is an expert in cancers that start in the female reproductive organs. Many gynecologic oncologists are also medical oncologists.

**HER2**
A protein involved in normal cell growth. May be made in larger than normal amounts by some types of cancer cells. This may cause the cancer to grow more quickly.

**lymph nodes**
Small groups of special disease-fighting cells located throughout the body.

**Lynch syndrome**
A hereditary cancer syndrome that increases the risk of developing colorectal, endometrial, ovarian, and other cancers.

**medical oncologist**
A doctor who is an expert in treating cancer with drugs such as chemotherapy. Many medical oncologists specialize in specific cancers, such as gynecologic cancers or sarcomas.

**menopausal hormone therapy (MHT)**
The use of hormones to lessen side effects of menopause. This approach used to be called hormone replacement therapy (HRT).

**metastasis**
The spread of cancer cells within the body in blood or lymph

**microscopic metastases**
Cancer cells that have spread from the first tumor to another body part and are too small to be seen with the naked eye.

**neuropathy**
A nerve problem that causes pain, tingling, and numbness in the hands and feet.

**next-generation sequencing (NGS)**
Testing a sample for many gene variants at one time. Also called a multi-gene panel.

**observation**
A period of watching and waiting for cancer growth or recurrence.

**ovaries**
A pair of glands that, until menopause, release eggs for reproduction and make the hormones estrogen and progesterone.

**pathologist**
A doctor who is an expert in evaluating cells and tissues to diagnose disease.

**pelvic exam**
A physical exam of the vagina, cervix, uterus, fallopian tubes, and ovaries.

**pelvis**
The body area between the hip bones.

**peritoneal washing**
A method of checking for cancer spread in the abdomen. A surgeon puts fluid in the open space of the abdomen, removes it, and tests it for cancer cells.

**peritoneum**
The layer of tissue that lines the inside of the belly (abdomen) and pelvis and covers most organs in this space.

**platinum chemotherapy**
Treatment with 2 or more chemotherapy drugs, one of which is made with platinum (e.g., carboplatin).

**positron emission tomography (PET) scan**
An imaging test in which cancer cells appear brighter than normal cells because of a substance put into your body beforehand.

**radiation oncologist**
A doctor who specializes in using radiation to treat cancer.

**radiologist**
A doctor who is an expert in interpreting imaging tests.

**recurrence**
The return of cancer after treatment. Also called relapse.

**serous carcinoma**
A high-risk type of endometrial cancer.

**somatic mutation**
A non-hereditary change in your DNA that occurred sometime after you were conceived. Also called acquired mutation or tumor mutation.

**supportive care**
Care given to improve the quality of life of people with cancer. Helps prevent or relieve symptoms caused by the cancer or cancer treatment.

**surgical staging**
The process of determining the extent of the cancer during surgery to remove the cancer.

**targeted therapy**
A type of systemic therapy that targets specific or unique features of cancer cells, called biomarkers.

**total hysterectomy**
Surgery to remove the uterus (including the cervix).

**un-differentiated carcinoma**
A high-risk type of endometrial cancer. Also called de-differentiated carcinoma.

**uterus**
The organ where a fetus grows and develops during pregnancy. Also called the womb.



## We want your feedback!

**Our goal is to provide helpful and easy-to-understand information on cancer. Take our survey to let us know what we got right and what we could do better.**
**NCCN.org/patients/feedback**

# NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Uterine Neoplasms, Version 2.2026. It was adapted, reviewed, and published with help from the following people:

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# NCCN Cancer Centers

For contact information, visit NCCN.org/cancercenters.

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*Philadelphia, Pennsylvania*

Case Comprehensive Cancer Center/
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Cleveland Clinic Taussig Cancer Institute
*Cleveland, Ohio*

City of Hope National Medical Center
*Duarte, California*

Dana-Farber/Brigham and Women's Cancer Center |
Mass General Cancer Center
*Boston, Massachusetts*

Duke Cancer Institute
*Durham, North Carolina*

Fox Chase Cancer Center
*Philadelphia, Pennsylvania*

Fred & Pamela Buffett Cancer Center
*Omaha, Nebraska*

Fred Hutchinson Cancer Center
*Seattle, Washington*

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*Baltimore, Maryland*

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*Jacksonville, Florida*
*Rochester, Minnesota*

Memorial Sloan Kettering Cancer Center
*New York, New York*

Moffitt Cancer Center
*Tampa, Florida*

O'Neal Comprehensive Cancer Center at UAB
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Robert H. Lurie Comprehensive Cancer Center
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Roswell Park Comprehensive Cancer Center
*Buffalo, New York*

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*St. Louis, Missouri*

St. Jude Children's Research Hospital/
The University of Tennessee Health Science Center
*Memphis, Tennessee*

Stanford Cancer Institute
*Stanford, California*

The Ohio State University Comprehensive Cancer Center -
James Cancer Hospital and Solove Research Institute
*Columbus, Ohio*

The UChicago Medicine Comprehensive Cancer Center
*Chicago, Illinois*

The University of Texas MD Anderson Cancer Center
*Houston, Texas*

UC Davis Comprehensive Cancer Center
*Sacramento, California*

UC San Diego Moores Cancer Center
*La Jolla, California*

UCLA Jonsson Comprehensive Cancer Center
*Los Angeles, California*

UCSF Helen Diller Family Comprehensive Cancer Center
*San Francisco, California*

University of Colorado Cancer Center
*Aurora, Colorado*

University of Michigan Rogel Cancer Center
*Ann Arbor, Michigan*

University of Wisconsin Carbone Cancer Center
*Madison, Wisconsin*

UT Southwestern Simmons
Comprehensive Cancer Center
*Dallas, Texas*

Vanderbilt-Ingram Cancer Center
*Nashville, Tennessee*

Yale Cancer Center/Smilow Cancer Hospital
*New Haven, Connecticut*

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**tumor mutational burden (TMB)** 13, 38, 47–48

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# Uterine Cancer

## Endometrial Cancer
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