

TREATMENT UPDATE:

# Ovarian Cancer

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# Treatment Update: Ovarian Cancer

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*Each year, an estimated 22,000 women in the United States are diagnosed with ovarian cancer.*

Ovarian cancer affects the ovaries—glands which produce the female reproductive cells (ova). The ovaries, each about the size of an almond, are located beside the uterus on each side of the lower abdomen.

There are more than 30 types and subtypes of ovarian cancer. Most experts group ovarian cancers into three major categories, based on the type of cells from which they were formed:

- **Epithelial tumors** arise from cells that line or cover the ovaries. This is the most common category of ovarian cancer, accounting for approximately 90 percent of cases.
- **Germ cell tumors** originate from cells that are destined to form eggs within the ovaries.
- **Sex cord-stromal cell tumors** begin in the connective cells that hold the ovaries together and produce female hormones.

In recent years, the molecular analysis of tumors has led to refinements in ovarian cancer classifications, providing insights that may lead to the development of new therapies.

# Stages of Ovarian Cancer

To plan the best treatment, your doctor needs to know the stage of your cancer—whether and how much it has spread to nearby tissues and organs. Since ovarian cancer is often discovered when it has already advanced, treatment usually begins with surgery, in which the surgeon removes as much of the cancer as possible. After surgery, samples of the tumor and tissues from the pelvis and abdomen are put under a microscope to stage the cancer.

- **Stage 1:** The cancer is found only in the ovary (or ovaries).
- **Stage 2:** The cancer has spread into other parts of the pelvis, such as the bladder or lower colon.
- **Stage 3:** The cancer has spread beyond the pelvis into the lining of the abdomen or the lymph nodes, which are the small “filtering stations” that remove waste and fluids from tissues and organs and help fight infections in the body.
- **Stage 4:** The cancer has spread into more distant organs, such as the liver or lungs.



Recent research indicates that the most serious forms of ovarian cancer may arise from the fallopian tubes rather than the ovaries.

To help determine the stage of the cancer, other tests may be performed, such as:

- **CT scan**, which combines X-ray images taken from different angles with computer processing to create cross-sectional images of organs and tissues.
- **MRI**, a technique that uses a magnetic field and radio waves to create detailed images of the organs and tissues within your body.
- **PET scan**, a functional imaging test that uses a radioactive drug to detect cancer.

Before surgery, a blood test may be performed to measure your levels of CA-125, a sugar-related protein found in the blood.

Women with ovarian cancer often have high levels of this protein, but it is not the most reliable indicator that a tumor is present, as CA-125 can be absent when cancer is present, and levels can be high when no cancer exists. Still, doctors use CA-125 as a gauge, and blood tests to measure CA-125 may also be performed post-surgery and during subsequent treatment.

# Treatment Options

## Surgery

Treatment for ovarian cancer usually begins with surgery, in which the surgeon removes as much of the cancer as possible. In many cases, a total hysterectomy (removal of the uterus and ovaries) is performed. Experts recommend that the surgery be performed by a gynecologic oncologist— a specialist who has training and experience in treating and staging ovarian cancer.

Gynecologic oncologists are also more likely than general surgeons and gynecologists to optimally “debulk” the cancer. Optimal debulking means that, after surgery, no visible tumor remains, or the size of the remaining tumor is less than one centimeter (less than half an inch). Suboptimal debulking is when more than one centimeter of tumor is left behind. Some decisions about future treatment are based on whether the surgery is optimal or suboptimal, so it’s important information for you to know.

## Chemotherapy

After surgery, almost all women are treated with intravenous (IV) chemotherapy, delivered into a vein. Usually, this chemotherapy combines two or more drugs, as this seems to be more effective in stopping the growth of ovarian cancer than administering one drug alone.

The standard approach is the combination of a platinum compound, such as cisplatin or carboplatin, and a taxane (a type of drug that blocks cell growth by stopping cell division), such as paclitaxel or docetaxel. Chemotherapy may vary, depending on the amount of tumor still remaining in the body after surgery. Bevacizumab, a treatment that affects blood supply to tumors, may be added to the treatment regimen.

The typical course of chemotherapy involves three to six cycles (a cycle is a schedule of regular doses of a drug, followed by a rest period). Cycles vary depending on the drugs being used; ask your doctor about the schedule planned for your specific chemotherapy.

In addition to receiving IV chemotherapy, women whose debulking surgery was optimal may also be offered intraperitoneal (IP) chemotherapy. This treatment delivers a concentrated dose of chemotherapy through a tube into the abdomen, directly to the cancer cells. IP chemotherapy works well, but the side effects may be more severe than with regular chemotherapy.

Most women who have had debulking surgery followed by six cycles of chemotherapy go into complete remission. This is when the cancer seems to have disappeared from the body and no test currently available can detect any lingering cancer. For women in complete remission, treatment may be stopped, or may be continued as consolidation (maintenance) therapy, which is treatment given after the cancer has disappeared following the initial therapy. The goal of consolidation therapy is to maintain the remission, and delay or prevent a relapse. The chemotherapy bevacizumab or targeted treatments, such as PARP inhibitors or pazopanib, may be used as consolidation therapies.

Women whose ovarian cancer does not go into remission or whose cancer returns less than six months after the first full course of chemotherapy are usually treated with other drugs, such as pegylated liposomal doxorubicin (PLD), topotecan, gemcitabine, and taxanes.

If ovarian cancer returns more than six months after the first full course of chemotherapy, a woman may be retreated with carboplatin in combination with another drug such as paclitaxel, gemcitabine, or PLD.



## Targeted Treatments

Targeted treatments are designed to target the specific cell mechanisms that are important for the growth and survival of tumor cells. The following targeted treatments have been approved by the United States Food and Drug Administration (FDA) for the treatment of ovarian cancer.

- **Bevacizumab (Avastin).** Bevacizumab works by preventing the growth of new blood vessels that feed tumors. Administered via intravenous infusion, bevacizumab is intended to be used in combination with chemotherapy for women who have advanced ovarian cancer that has recurred (come back) after previous treatment. As previously noted, it may also be given as consolidation or maintenance therapy.



- **PARP inhibitors:**

- **Olaparib (Lynparza).** Olaparib is an oral drug treatment (pill) for women with previously treated, advanced ovarian cancer associated with defective BRCA genes, as detected by an FDA-approved test. Olaparib is a poly ADP-ribose polymerase (PARP) inhibitor that blocks enzymes involved in repairing damaged DNA.
- **Rucaparib (Rubraca).** The poly ADP-ribose polymerase (PARP) inhibitor rucaparib was approved by the FDA in December 2016 to treat women with advanced ovarian cancer who have been treated with two or more chemotherapies and have a specific gene mutation called “deleterious BRCA.”
- **Niraparib (Zejula).** In March 2017, niraparib was approved for the treatment of recurrent (returned) epithelial ovarian cancer for patients whose tumors have completely or partially shrunk in response to platinum-based chemotherapy. Like olaparib, niraparib is a poly ADP-ribose polymerase (PARP) inhibitor.



# Treatment Approaches Being Studied

There are many new approaches currently being tested for the treatment of ovarian cancer, including:

- **Overcoming platinum resistance.** When the drugs cisplatin and carboplatin stop working, the cancer is said to be “platinum resistant.” Researchers are looking for ways to make the cancer sensitive to these drugs again. Fosbretabulin, a vascular disrupting agent, has been approved for “fast track” status in platinum resistant ovarian cancer.
- **Targeted therapy.** Bevacizumab (Avastin), olaparib (Lynparza), rucaparib (Rubraca), and niraparib (Zejula) have been approved by the FDA for treatment of ovarian cancer in certain defined circumstances. Other targeted therapies being studied include pazopanib, vintafolide, and additional drugs that inhibit PARPs (enzymes recently recognized as key regulators of cell survival and cell death).
- **Immunotherapy.** Immunotherapy is a treatment approach that uses certain parts of the immune system to fight illnesses such as cancer. In clinical trials, immunotherapy has shown promising results in the treatment of ovarian cancer.

# The Importance of Clinical Trials

**Clinical trials are the standard by which we measure the worth of new treatments and the quality of life of patients as they receive those treatments. For this reason, doctors and researchers urge people with cancer to take part in clinical trials.**

Your doctor can guide you in making a decision about whether a clinical trial is right for you. Here are a few things that you should know:

- Often, people who take part in clinical trials gain access to and benefit from new treatments.
- Before you participate in a clinical trial, you will be fully informed as to the risks and benefits of the trial, including any possible side effects.
- Most clinical trials are designed to test a new treatment against a standard treatment to find out whether the new treatment has any added benefit.
- You can stop taking part in a clinical trial at any time for any reason.

# Treatment Side Effects

All cancer treatments can cause side effects. It's important that you report any side effects that you experience to your health care team so they can help you manage them. Report them right away—don't wait for your next appointment. Doing so will improve your quality of life and allow you to stick with your treatment plan. It's important to remember that not all patients experience all side effects, and patients may experience side effects not listed here.

Ovarian cancer treatments can lead to early menopause, changes in sex drive (libido), and altered body image. As part of your treatment discussions with your doctor, ask about the issues that are of concern to you and how your surgery or medications may affect you. Concerns about fertility should be discussed before you start treatment for ovarian cancer. Your doctor can help you seek fertility counseling and planning.

## Side Effects of Chemotherapy

The side effects of chemotherapy depend on the type and dose of drugs given and the length of time they are used, and can include:

- Hair loss
- Increased risk of infection (from having too few white blood cells)
- Easy bruising or bleeding
- Changes in memory or thinking
- Peripheral neuropathy (numbness or tingling in hands and feet)

Mouth sores are also a side effect of chemotherapy. Your doctor may recommend treatments such as:

- **Coating agents.** These medications coat the entire lining of your mouth, forming a film to protect the sores and minimize pain.
- **Topical painkillers.** These are medications that can be applied directly to your mouth sores.
- **Over-the-counter treatments.** These include rinsing with baking soda or salt water, or “magic mouthwash,” a term given to a solution to treat mouth sores. Magic mouthwash usually contains at least three of these ingredients: an antibiotic, an antihistamine or local anesthetic, an antifungal, a corticosteroid, and/or an antacid.

## Side Effects of Targeted Therapy

Targeted therapy drugs don't have the same effect on the body as do chemotherapy drugs, but they can still cause side effects. Common side effects of targeted therapy include diarrhea, liver problems (such as hepatitis and elevated liver enzymes), proteinuria (high levels of protein in the urine), problems with blood clotting and wound healing, and high blood pressure.

## Digestive Tract Symptoms

### *Nausea and vomiting*

- Avoid food with strong odors, as well as overly sweet, greasy, fried, or highly seasoned food.
- Nibble on dry crackers or toast. These bland foods are easy on the stomach.
- Having something in your stomach when you take medication may help ease nausea.

## Diarrhea

- Drink plenty of water. Ask your doctor about using drinks such as Gatorade which provide electrolytes as well as liquid. Electrolytes are body salts that must stay in balance for cells to work properly.
- Over-the-counter medicines such as loperamide (Imodium A-D and others) and prescription drugs are available for diarrhea but should be used only if necessary and approved by your health care provider. If the diarrhea is bad enough that you need medicine, discuss it with your doctor or nurse.
- Choose foods that contain soluble fiber—for example beans, oat cereals, oranges, and flaxseeds. High-pectin foods such as peaches, apples, oranges, grapefruit, bananas, and apricots can also help to avoid diarrhea.

## Loss of appetite

- To help maintain your weight, eat small meals throughout the day. That's an easy way to take in more protein and calories. Try to include protein in every meal.
- To keep from feeling full early, avoid liquids with meals or take only small sips (unless you need liquids to help swallow). Drink most of your liquids between meals.
- Keep high-calorie, high-protein snacks on hand such as hard-boiled eggs, peanut butter, cheese, ice cream, granola bars, liquid nutritional supplements, puddings, nuts, canned tuna, or trail mix.
- If you are struggling to maintain your appetite, talk to your health care team about whether appetite-building medication could be right for you.

## Managing Fatigue

Fatigue (extreme tiredness not helped by sleep) is one of the most common side effects of many cancer treatments. If you are taking a medication, your doctor may lower the dose of the drug, as long as it does not make the treatment less effective. If you are experiencing fatigue, talk to your doctor about whether taking a smaller dose is right for you.

There are a number of other tips for reducing fatigue:

- Take several short naps or breaks.
- Take short walks or do some light exercise, if possible.
- Try easier or shorter versions of the activities you enjoy.
- Ask your family or friends to help you with tasks you find difficult or tiring.

There are also prescription medications that may help, such as modafinil. Your health care team can provide guidance on whether medication is the right approach for your individual circumstances.

## Managing Pain

There are a number of options for pain relief, including prescription and over-the-counter medications. It's important to talk to a member of your health care team before taking any over-the-counter medication, to determine if they are safe and will not interfere with your treatments.



# Communicating With Your Health Care Team

As you manage your cancer, it's important to remember that you are a consumer of health care. The best way to make decisions about health care is to educate yourself about your diagnosis and get to know the members of your health care team, including doctors, nurses, dietitians, social workers and patient navigators.

Here are some tips for improving communication with your health care team:

**Start a health care journal.** Having a health care journal or notebook will allow you to keep all of your health information in one place. You may want to write down the names and contact information of the members of your health care team, as well as any questions for your doctor. Keep a diary of your daily experiences with symptoms related to your illness or treatment.

**Prepare a list of questions.** Before your next medical appointment, write down your questions and concerns. Because your doctor may have limited time, you should ask your most important questions first, and be as specific and brief as possible.

**Bring someone with you to your appointments.** Even if you have a journal and a prepared list of questions or concerns, it's always helpful to have support when you go to your appointments. The person who accompanies you can serve as a second set of ears. He or she may also think of questions to ask your doctor or remember details about your symptoms or treatment that you may have forgotten.

**Write down your doctor's answers.** Taking notes will help you remember your doctor's responses, advice, and instructions. If you cannot write down the answers, ask the person who accompanies you to do that for you. If you have a mobile device, ask if you can use it to take notes. Writing notes will help you review the information later.

Remember, there is no such thing as over-communication.



# CancerCare's Free Support Services and Programs

**It is very difficult to receive a diagnosis of cancer, and adjusting to the necessary changes in your life can be challenging.**

CancerCare can help. We are a national nonprofit organization providing free, professional services to anyone affected by cancer. Our licensed oncology social workers can provide support and education, help in navigating the complicated health care system, and provide information on support groups and other resources.

To learn more about how CancerCare helps, call us at 800-813-HOPE (4673) or visit [www.cancercares.org](http://www.cancercares.org).

You will likely also build your own personal support network, comprised of family and friends. In doing so, it's best to take some time to think about the people in your life and how they are best suited to help. Match the task to their strengths—ask a family member who loves to shop to pick up something for you at the store; ask a friend who's a good listener to come over for a chat.

# Frequently Asked Questions

**Q. I was recently diagnosed with ovarian cancer, and I have large tumors in my abdominal cavity. Before the surgery, my oncologist wants me to have chemotherapy to shrink the tumors. Is this a common practice?**

A. Chemotherapy delivered before surgery—known as neoadjuvant chemotherapy—can be an option for some women, including those whose tumors are likely to be difficult to remove and those who may not be able to physically withstand surgery. It's always best to consult a gynecologic oncologist who can confirm what the best option is for you—whether to have surgery first or chemotherapy first. Most women who undergo neoadjuvant chemotherapy still benefit from at least one attempt to have a tumor removed surgically.

**Q. Why do some treatments work for some women with ovarian cancer but not for others?**

A. This is most likely due to differences in the genetic makeup of each woman's tumor. In recent years, scientists have learned that the tumors of people with the same type and stage of cancer can have different genetic characteristics that may affect how they respond to treatment. In some cases, having an understanding of a tumor's genetic makeup is helping doctors better select treatments that are more likely to work. (This is called "precision" or "personalized" medicine.) The hope is that we will someday be able to identify all of the differences responsible for each tumor in order to treat them more effectively.

**Q. My doctor suggested I see a genetic counselor. Why?**

A. The Society of Gynecologic Oncology (SGO) recommends that women diagnosed with ovarian cancer undergo genetic counseling and testing. Genetic counseling can help women make informed decisions about genetic testing. In a genetic counseling session for ovarian cancer, the counselor will typically collect a detailed family and medical history and discuss genetic mutations, such as those in BRCA1 and BRCA1 genes, which can increase the chance of developing ovarian cancer.

**Q. I've been diagnosed with ovarian cancer. Because it's a reproductive cancer, should I avoid foods high in estrogen?**

A. Foods high in estrogen include tofu, tempeh, soy milk, soybeans, dried fruits, peas, and bran cereals. There is no evidence that these foods increase the risk or treatment of ovarian cancer if eaten in moderation as part of a healthy diet. However, excessive amounts of these and other estrogen-rich foods should be avoided, and estrogen supplements should not be taken.



# Notes

# Resources

**CancerCare®**

800-813-HOPE (800-813-4673)  
[www.cancercaresupport.org](http://www.cancercaresupport.org)

**American Cancer Society**

800-227-2345  
[www.cancer.org](http://www.cancer.org)

**Cancer.Net**

Patient information from  
the American Society of  
Clinical Oncology  
888-651-3038  
[www.cancer.net](http://www.cancer.net)

**National Cancer Institute**

800-422-6237  
[www.cancer.gov](http://www.cancer.gov)

**Cancer Support Community**

888-793-9355  
[www.cancersupportcommunity.org](http://www.cancersupportcommunity.org)

**National Coalition for  
Cancer Survivorship**

877-622-7937  
[www.canceradvocacy.org](http://www.canceradvocacy.org)

**National Ovarian Cancer Coalition**

888-OVARIAN (888-682-7426)  
[www.ovarian.org](http://www.ovarian.org)

**Ovarian Cancer Research Fund  
Alliance (OCFRA)**

800-873-9569  
[www.ocrf.org](http://www.ocrf.org)

**CLINICAL TRIALS WEBSITES****Coalition of Cancer Cooperative Groups**

[www.cancertrialshelp.org](http://www.cancertrialshelp.org)

**EmergingMed**

[www.emergingmed.com](http://www.emergingmed.com)

**National Cancer Institute**

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This booklet was made possible by Clovis Oncology, Inc,  
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