Ovarian Cancer

National Comprehensive Cancer Network®

VERSION 1.2013

Also available at NCCN.com

NCCN Guidelines for Patients®

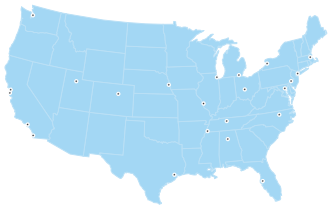
About this booklet

Its purpose

Learning that you have cancer can be overwhelming. The goal of this booklet is to help you get the best cancer treatment. It presents which tests and treatments are recommended by experts in ovarian cancer.

Supported by the NCCN Foundation®

The NCCN Foundation supports the mission of the National Comprehensive Cancer Network® (NCCN®) to improve the care of patients with cancer. One of its aims is to raise funds to create a library of booklets for patients. Learn more about the NCCN Foundation at www.nccn.com/nccn-foundation.



The source of the information

NCCN is a not-for-profit network of 23 of the world's leading cancer centers. Experts from NCCN have written treatment guidelines for ovarian cancer doctors. These treatment guidelines suggest what the best practice is for cancer care. The information in this booklet is based on these guidelines.

For more information

This booklet focuses on the treatment of ovarian cancer. This booklet does not discuss primary peritoneal and Fallopian tube cancers, although these cancers are treated the same as ovarian cancer. The full library of patient booklets can be found on **NCCN.com**.

Table of contents

How to use this booklet

Who should read this booklet?

This booklet is about treatment of cancer in the epithelial cells of the ovaries, called epithelial ovarian cancer. Epithelial ovarian cancer is the most common type of ovarian cancer. This booklet also discusses borderline epithelial ovarian cancer, which has cells that are abnormal but not clearly cancer. This booklet may be helpful for patients, caregivers, family, and friends dealing with this cancer.

Where should I start reading?

Reading the booklet in order from the beginning to the end may be the most helpful if you do not know much about ovarian cancer. The first parts of the booklet provide basic information that will make it easier to understand later parts. As you read through this booklet, you may find it helpful to create a list of questions to ask your doctor.

Does the whole booklet apply to me?

This booklet includes important information for many situations. Thus, not everyone will get every test and treatment listed. Part 1 reviews some basics about cancer and the ovaries. Part 2 describes who should be tested for ovarian cancer and which tests are used. The information in Parts 3 through 7 is for people who have ovarian cancer.

This booklet includes the recommendations that the NCCN doctors agree are most useful for most patients. However, each patient is unique and these specific recommendations may not be right for you. Your doctor may suggest other tests or treatments based on your medical history and other factors. This booklet does not replace the knowledge and suggestions of your doctors.

Making sense of medical terms

In this booklet, many medical words are included that describe cancer, tests, and treatments. These are words that you will likely hear your treatment team use in the months and years ahead. Some of this information may be new to you, and it may be a lot to learn.

Words that you may not know are defined in the text or the sidebar. Words with sidebar definitions are underlined when first used on a page. All definitions are listed in the *Dictionary* in Part 10. Acronyms are also listed in the text or the sidebar. Acronyms are words formed from the first letters of other words. One example is U.S. for United States.

about ovarian cancer

Part 1: About ovarian cancer

What are the ovaries?

The ovaries are part of the reproductive system in women. The reproductive system is a group of organs in the body that help make babies. The ovaries are located in the pelvis between the hip bones, with one ovary on the left side of the uterus and one on the right side. As shown in Figure 1, each ovary is connected to the uterus by a Fallopian tube. Without at least one ovary and a uterus, a woman will not have a menstrual cycle and cannot become pregnant.

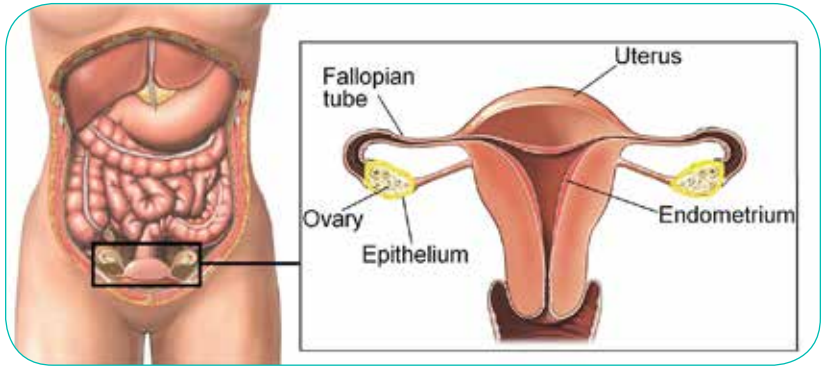


Figure 1. Female reproductive organs

What causes ovarian cancer?

Cells are the building blocks that form tissue in the body. Cells grow and divide to form new cells. But, normal cells know when to stop growing and cancer cells do not. As shown in Figure 2, cancer cells can keep growing out of control to form a mass of cells called a primary tumor. Cancer cells keep growing when they shouldn't because of changes (mutations) in genes. Genes are instructions in cells for controlling how cells behave. Although rare, ovarian cancer can be caused by mutations in genes that are passed down from a parent to a child.

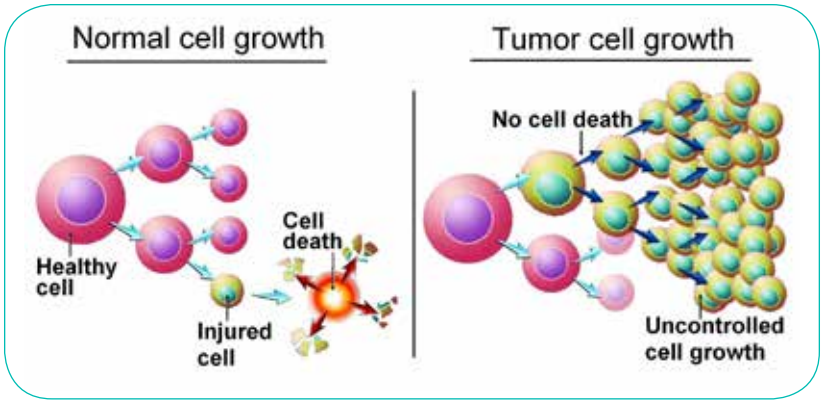


Figure 2. Normal versus cancer cell growth

Part 1: About ovarian cancer

What is ovarian cancer?

Epithelial cells form the outer layer of tissue around the ovary. This layer of tissue is called the epithelium. See Figure 1. Most ovarian cancers start in the epithelial cells. Ovarian cancer that starts in these cells is called epithelial ovarian cancer, but is simply referred to as ovarian cancer. Ovarian cancer cells can grow out of control as well as spread to and grow into (invade) other tissues and organs. Ovarian cancer often invades the Fallopian tubes and uterus.

Borderline ovarian cancer

Borderline ovarian cancer has cells that have developed the abnormal capacity to spread from the ovary and grow on other organs in the belly area (abdomen). However, they have not developed the abnormal capacity to invade normal tissues. They are abnormal, but aren't clearly cancer. Borderline ovarian cancer (also called a low malignant potential tumor) is very rare. Borderline ovarian cancer tumors often grow big enough to press against other organs, but the cells don't grow into (invade) tissue the way that fully cancerous cells do.

This booklet focuses on the treatment for epithelial ovarian cancer, but also discusses treatments for borderline ovarian cancer.

How ovarian cancer spreads

Unlike normal cells, cancer cells can spread and form tumors in other parts of the body. This process is called metastasis. Cancer cells can replace or damage normal tissue and cause organs to stop working.

Ovarian cancer cells can break off from the primary tumor to form new tumors on the surface of nearby organs and tissues in the abdomen. These are called "seeds" or "implants." Implants that grow into supporting tissues of nearby organs are called invasive implants.

Definitions:

Abdomen: The belly area between the chest and pelvis

Fallopian tube: Organ that eggs travel through from an ovary to the uterus

Menstrual cycle: Changes in the uterus and ovaries that prepare a woman's body for pregnancy

Ovaries: The pair of organs in females that make eggs and hormones

Uterus: The female organ where babies grow during pregnancy

Part 1: About ovarian cancer

Ovarian cancer cells can also spread throughout the body through lymph or blood. Lymph is a clear fluid that feeds cells and has white blood cells that fight germs. Lymph nodes are small groups of special disease-fighting cells located throughout the body. Lymph nodes remove the germs from lymph fluid, which travels throughout the body in vessels like blood does. As shown in Figure 3, lymph vessels and nodes are found everywhere in the body.

The spread of cancer cells makes cancer dangerous. However, borderline ovarian cancer is less dangerous. This is because borderline ovarian tumors have noninvasive implants and grow on the surface of organs but do not invade.

Figure 3. Lymph nodes and vessels

Part 1: Tools

Webpages

National Cancer Institute

www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient#Keypoint1
www.cancer.gov/cancertopics/pdq/treatment/ovarian-low-malignant-potential/Patient#Keypoint1

American Cancer Society

www.cancer.org/Cancer/OvarianCancer/DetailedGuide/ovarian-cancer-what-is-ovarian-cancer

National Ovarian Cancer Coalition

www.ovarian.org/types_and_stages.php

Ovarian Cancer National Alliance

www.ovariancancer.org/about-ovarian-cancer/introduction/
www.ovariancancer.org/track-your-symptoms/

Review of Part 1

- The ovaries are organs in women that help make babies.
- Ovarian cancer often starts in the cells on the surface of the ovaries.
- Cancer cells form a tumor since they don't die as they should.
- Cancer cells can break off of the primary tumor and implant on nearby tissues and organs.
- Cancer cells can spread to other parts of the body through lymph or blood.
- Borderline ovarian cancer has abnormal cells that aren't clearly cancerous.

initial tests
for ovarian cancer

Part 2: Initial tests for ovarian cancer

Symptoms and signs

Your doctor may think it is possible that you have ovarian cancer because of certain symptoms or signs. Or, ovarian cancer may have been found or confirmed during surgery. Part 2 first describes the symptoms and signs of ovarian cancer that are used to find (diagnose) ovarian cancer. Next, the recommended tests for treatment planning are presented.

Symptoms of ovarian cancer
Feeling bloated,
Pain in pelvis or abdomen,
Trouble eating or feeling full fast, or
Need to urinate frequently or urgently

One way to find ovarian cancer early is to know the symptoms of the cancer listed above. Ovarian cancer is more likely to be the cause of these symptoms if they are new (began less than 1 year ago) and frequent (occur more than 12 days each month). If this describes you, tell your doctor about your symptoms. However, ovarian cancer does not always cause symptoms. Or, ovarian cancer may not cause symptoms until it has grown very large or has spread.

It is hard to find ovarian cancer early for two main reasons. First, the symptoms caused by ovarian cancer can also be caused by many other common health conditions. Second, there are no reliable screening tests for ovarian cancer. Screening tests—such as a Pap smear for cervical cancer and mammogram for breast cancer—are used to find cancer early before it causes symptoms.

Signs of ovarian cancer
Mass in your pelvis,
Fluid buildup in your abdomen, or
Your abdomen is enlarged

Symptoms are health problems that you report to your doctor. You may or may not notice signs of disease, but your doctor can find them by doing an exam of your body. Your doctor may feel a mass in your pelvis because of a tumor or enlarged ovary, which may be a sign of ovarian cancer. Ovarian cancer can also lead to excess fluid buildup (ascites) in your pelvis and abdomen, which can cause swelling. Your doctor may think it is possible that you have ovarian cancer based on the signs listed above. But, many other health conditions could be the cause, so your doctor will give different tests and exams to confirm or rule out ovarian cancer.

Part 2: Initial tests for ovarian cancer

Initial tests and exams

Suspected ovarian cancer	Ovarian cancer confirmed by previous surgery
• Family and medical history	• Family and medical history
• Abdominal and pelvic exam	• Imaging tests of your:
• Imaging tests of your:	- Chest
- Chest	- Pelvis and abdomen as needed
- Pelvis and abdomen as needed	• Blood tests:
- GI (**g**astro**i**ntestinal) tract as needed	- CBC (**c**omplete **b**lood **c**ount)
• Blood tests:	- Chemistry profile with liver function tests
- CA-125 (**c**ancer **a**ntigen 125) or other tumor markers as needed	- CA-125 (**c**ancer **a**ntigen 125) or other tumor markers as needed
- Chemistry profile with liver fuction tests	• Review of tumor tissue at new treatment center
- CBC (**c**omplete **b**lood **c**ount)	

The tests for ovarian cancer listed above are described on the next pages. Which tests you will have depends on your symptoms, the results of other tests, and whether ovarian cancer was confirmed by a previous surgery.

Family and medical history

Before and after cancer treatment, your doctor will ask about your medical history, general health, and any symptoms you've had. Your medical history includes any health issues you've had and any medications you've taken. It may help to make a list of old and new medications while at home to bring to your doctor's office.

Your doctor may also take a family medical history. For this, your doctor will ask about cancer and other health conditions your family members have. This will help your doctor find out how many members of your family have had related cancers. Although rare, ovarian cancer can

Part 2: Initial tests for ovarian cancer

run in some families. If you have a family history of ovarian, breast, or colon cancer, this may suggest that the ovarian cancer runs in your family. Having abnormal changes (mutations) in the *BRCA1* or *BRCA2* genes increases the risk for ovarian cancer. Genes are the instructions in cells that control how cells behave. These gene mutations can be passed down from parents to children. If your doctor thinks you may have this gene mutation based on your family medical history, then genetic counseling may be recommended.

Abdominal and pelvic exam

Your doctor will perform a physical examination of your belly area (abdomen) and pelvis along with taking a family and medical history. A physical examination is a review of your body for signs of disease.

For an abdominal exam, your doctor will feel the different areas of your belly to see if organs are of normal size, are soft or hard, or cause pain when touched. Your doctor will also feel your abdomen to check for fluid buildup (called ascites) in your belly area and around your ovaries. During the pelvic exam, your doctor will feel for any lumps or unusual changes in the size, shape, or position of your uterus and ovaries. Your doctor will use a special widening instrument to view your vagina and cervix and possibly to take a sample for a Pap test as well.

During a general body exam, your doctor will listen to your lungs, heart, and gut. This is to assess your general health and check for signs that the cancer has spread to other parts of your body. This exam also helps your doctor know if you are healthy enough for certain types of treatment for ovarian cancer.

Definitions:

Cervix: The lower end of the uterus that connects to the vagina

Genetic counseling: Discussion with a health expert about a disease caused by abnormal information in cells that is passed down from parents to children

Ovaries: The pair of organs in females that make eggs and hormones

Pelvis: The area between the hip bones

Uterus: The female organ where babies grow during pregnancy

Vagina: A hollow, muscular tube at the base of a woman's uterus through which babies are born

Part 2: Initial tests for ovarian cancer

Imaging tests

Imaging tests take pictures of the inside of your body. Doctors use these tests to view the mass (tumor) in your pelvis and determine how large it is. Imaging tests alone cannot confirm if a tumor is cancer. But, they can show where the tumor is located, if the cancer has spread beyond your ovaries, or if cancer treatment worked.

Imaging tests of your chest are recommended, and imaging tests of your abdomen, pelvis, and GI (gastrointestinal) tract may also be needed. There are many different types of imaging tests. Imaging tests used for ovarian cancer may include ultrasound, scans, and scopes. These tests are often easy to undergo. Before the test, you may be asked to stop eating or drinking for several hours. You also should remove any metal objects that are on your body.

Ultrasound

Ultrasound is a test that uses sound waves to take pictures of the inside of the body. It is often the first imaging test given to look for ovarian cancer. Ultrasound is good at showing the size, shape, and location of the ovaries, Fallopian tubes, uterus, and nearby tissues.

A hand-held device called a transducer bounces sound waves off organs in a certain area of your body to make echoes. It has a cord attached to a computer and display screen that shows the images (pictures) made by the echoes, called a sonogram.

There are two types of ultrasounds that may be used to look for ovarian cancer: transabdominal ultrasound and transvaginal ultrasound. For a transabdominal ultrasound, your doctor will hold the transducer against your skin and guide it back and forth across your belly and the area between your hip bones. A gel rubbed over the area of your skin helps to make the pictures clearer. See Figure 4. For a transvaginal ultrasound, your doctor will insert the transducer into your vagina. This may help the doctor see your ovaries more clearly. See Figure 4.

Ultrasounds are generally painless. But, you may feel a little discomfort when the transducer is inserted for a transvaginal ultrasound. Depending on the area of your body being looked at, an ultrasound can take between 20 and 60 minutes.

Part 2: Initial tests for ovarian cancer

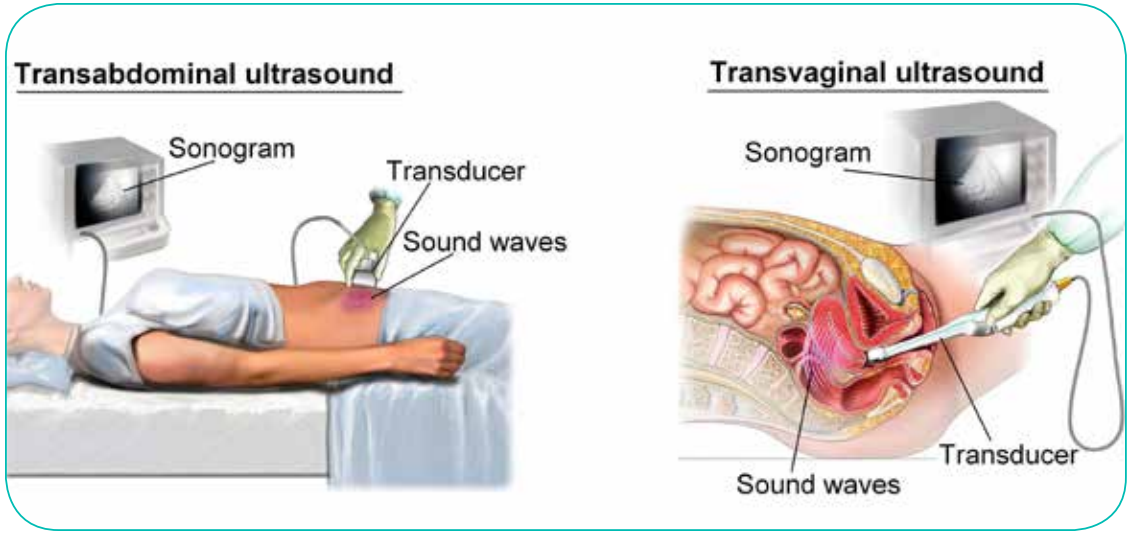


Figure 4. Ultrasounds for ovarian cancer

Scans

Scanning machines are large and have a tunnel in the middle. During the test, you will lie on a table that moves slowly through the tunnel as the machine takes many pictures. Then a computer combines all pictures into one detailed picture. Imaging scans can take 15 to 60 minutes to complete.

Often, there are no side effects. You will likely be able to resume your activities right away unless you took a sedative. You may not get the results for a few days since a radiologist needs to see the pictures. There are many different types of scans. Examples of scans used for ovarian cancer include CT (**c**omputed **t**omography), MRI (**m**agnetic **r**esonance **i**maging), and PET (**p**ositron **e**mission **t**omography). These scans are described next.

Definitions:

Abdomen: The belly area between the chest and pelvis

Fallopian tubes: The female organ that eggs travel through from an ovary (organ that makes eggs and hormones) to the uterus (where a baby grows during pregnancy)

GI tract: Group of organs that food passes through when you eat

Radiologist: A doctor who's an expert in reading imaging tests

Sedative: A drug that helps a person to relax or go to sleep

Side effect: An unplanned physical or emotional response to treatment

Part 2: Initial tests for ovarian cancer

CT scan

A CT scan takes many pictures of a part of the body from different angles using x-rays. See Figure 5. A CT scan of your chest, abdomen, and pelvis may be given initially to look for ovarian cancer. A CT scan is good at showing if the cancer has spread outside of your ovaries. But, it is not good at showing small tumors. A CT scan may also show if nearby lymph nodes are bigger than normal, which can be caused by cancer cells spreading to the lymph nodes.

Before the test, you may be given a contrast dye to make the pictures clearer. The dye will be put in a glass of water for you to drink, or it may be injected into your vein. It may cause you to feel flushed or get hives (itchy, swollen, and red skin). Rarely, serious allergic reactions occur. Allergic reactions are symptoms caused by the body trying to rid itself of invaders. Tell your doctor if you have had bad reactions before.

MRI scan

An MRI scan is like a CT scan except it uses radio waves and powerful magnets to take pictures of the inside of your body. An MRI scan may cause your body to feel a bit warm. Like a CT scan, a contrast dye may be used. An MRI scan may be given to look for cancer in your chest. It may also be given after treatment to check if treatment worked or if the cancer has spread.

Figure 5. CT scan

Part 2: Initial tests for ovarian cancer

PET scan

A PET scan shows how metabolically active your cells are by using a simple form of sugar. To create pictures, a sugar radiotracer first needs to be put into your body. Active cancer cells ingest the tracer, which then lets out a small amount of energy that is seen by the machine that takes pictures. Cancer cells use sugar faster than normal cells, so they look brighter in the pictures. PET is very good at showing small groups of cancer cells. Often, CT is given along with PET, called a PET-CT scan.

Scopes

A scope is a long, thin tube that can be guided into your body, often through the mouth, anus, or a surgical cut. One end of the scope has a small light and camera lens to see inside your body. At the other end of the scope is an eyepiece that your doctor looks through to see the images shown by the camera. For ovarian cancer, scoping tools may be used to see inside your GI tract. The GI tract includes organs that food passes through when you eat, such as your stomach, small intestine, large intestine (colon), and rectum.

Blood tests

Blood tests are used to check for signs of disease, how well organs are working, and treatment results. One common blood test is a CBC (**c**omplete **b**lood **c**ount). This test counts the number of blood cells in a blood sample. Too many or too few cells may signal there's a problem.

Another common test is a blood chemistry profile. This test checks if levels of chemicals in the blood are too low or too high. Abnormal chemical levels may be a sign that an organ—such as the liver or kidneys—isn't working well. Abnormal chemical levels in the blood can be caused by cancer or other diseases.

Definitions:

Large intestine: The organ that prepares unused food for leaving the body

Lymph nodes: Small groups of special disease-fighting cells located throughout the body

Metabolic: Having to do with chemical changes that take place in a cell

Rectum: The last part of the large intestine (organ that prepares unused food for leaving the body)

Small intestine: The organ that absorbs nutrients from eaten food

Acronyms:

CT = Computed tomography

MRI = Magnetic resonance imaging

PET = Positron emission tomography

Part 2: Initial tests for ovarian cancer

Blood tests are also used to look for tumor markers—substances found in body tissue or fluid that may be a sign of cancer. CA-125 (**c**ancer **a**ntigen 125) is a tumor marker for ovarian cancer. It is a protein with sugar molecules attached to it that is made by normal cells as well as ovarian cancer cells. High levels of CA-125 in the blood may be a sign of ovarian cancer. This test is not used alone to diagnose or confirm ovarian cancer. But, it may be done along with other initial tests if your doctor suspects ovarian cancer. It may also be done after treatment to check that the treatment was effective.

Review of tumor tissue

Ovarian cancer may have already been confirmed by a previous surgery or tests. In this case, your cancer doctors will need to review the previous test results and use a microscope to look at the tumor tissue that was removed. Your doctors will also want to know if the previous surgery left any cancer in your body. A pathologist will examine the tumor tissue to make sure it is ovarian cancer. A pathologist is a doctor who's an expert in testing cells to find disease. All of this will help your current doctors plan treatment.

Next steps: If the results of these tests suggest that you have ovarian cancer, then your doctor may recommend that you see a gynecologic oncologist before beginning cancer treatment. A gynecologic oncologist is a doctor who is an expert in treating cancers that start in the female reproductive organs. Your doctors will then use the initial test results to plan treatment. This is discussed next in Part 3.

Part 2: Tools

Questions about testing to ask your doctor

- What tests will I have?
- Where will the tests take place? Will I have to go to the hospital?
- How long will it take? Will I be awake?
- Will it hurt? Will I need anesthesia?
- What are the risks? What are the chances of infection or bleeding afterward?
- How do I prepare for testing? Should I not take aspirin? Should I not eat beforehand?
- Should I bring a list of my medications?
- Should I bring someone with me?
- How long will it take for me to recover? Will I be given an antibiotic or other drug afterward?
- How soon will I know the results and who will explain them to me?
- Who will talk with me about the next steps? When?

Part 2: Tools

Webpages

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient#Keypoint5

American Cancer Society
www.cancer.org/Cancer/OvarianCancer/DetailedGuide/ovarian-cancer-diagnosis

Ovarian Cancer Research Fund
www.ocrf.org/index.php?option=com_content&view=category&layout=blog&id=160&Itemid=482

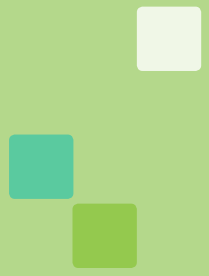
Ovarian Cancer National Alliance
www.ovariancancer.org/about-ovarian-cancer/detection/

Ovarian Cancer National Alliance
www.nccn.com/type-of-cancer/ovarian-cancer/249.html

Review of Part 2

- You may be tested for ovarian cancer because of symptoms.
- Cancer tests are used to plan treatment.
- Your health history and body exam inform your doctor about your health.
- A pelvic exam checks the health of your ovaries and uterus.
- Blood tests check for signs of disease.
- Tests that take pictures of the inside of your body may show cancer.

treatment planning



Part 3: Treatment planning

After initial tests suggest that you have ovarian cancer, your doctors must confirm the diagnosis and plan treatment. To plan treatment, your doctors need to find out how far the cancer has spread in your body (cancer stage) and how fast it may grow (cancer grade). But, it is important to note that the only way to confirm if you have ovarian cancer is to remove a sample of tissue from your body and test it for cancer cells.

Tissue tests

The removal of a tissue or fluid sample from your body to test for disease is called a biopsy. Your doctor will take a biopsy of the tumor and nearby tissue to confirm if you have ovarian cancer and to find out how far the cancer has spread. Biopsies are usually done during surgery to remove ovarian cancer. If possible, this should be performed by a gynecologic oncologist. Some biopsies can be done in about 30 minutes, but others can take longer. The biopsy samples will be sent to a lab so a pathologist can examine them with a microscope to look for cancer cells. It may take several days to get the test results of the biopsy back from the pathologist.

For certain situations, a biopsy such as FNA (**f**ine-**n**eedle **a**spiration) or paracentesis may be done before surgery. An FNA biopsy uses a very thin needle that is inserted through your skin to remove a small sample of tissue from the tumor. For paracentesis, a thin needle is inserted through your abdomen to remove a sample of fluid from the area inside your belly. Before either biopsy, your doctor will numb the area to make the procedure as painless as possible.

Cancer staging and grading

Cancer staging is a description of the extent of the cancer. Cancer stages are defined by the growth of the primary tumor and its spread to other parts of the body. Generally, ovarian cancer is staged twice. The first, called the clinical stage, is based on tests before surgery. The second, called the pathologic stage, is based on tests of tissue removed during surgery. The clinical stage gives your doctor an idea of how far the cancer may have spread. But, the pathologic stage is more important because it is based on results of tissue removed from your body and tested for cancer cells.

Ovarian cancer is also grouped into grades—1, 2, and 3. The cancer grade is based on how the cancer cells look compared to normal cells when viewed with a microscope. This helps your doctor decide if the cancer is likely to grow fast or slow and if it is likely to spread.

Grade 1 (low grade) cancer cells look similar to normal cells. Grade 2 cancer cells look more different from normal cells than Grade 1. Grade 3 (high grade) cancer cells look very different from normal cells. Grade 1 cancers are considered less aggressive because they grow slowly and are less likely to spread. Grade 3 cancers are considered more aggressive because they grow faster and are more likely to spread. Testing cancer cells from tissue removed during surgery is the only way to grade the cancer.

Part 3: Treatment planning

Surgical staging procedures

During surgery, your doctor will carefully inspect tissues and organs near the tumor to see if and where the cancer has spread. Surgical staging involves removing tissue near the tumor, where it looks like the cancer hasn't spread, so it can be tested for cancer cells. This is done to check for cancer cells that have spread outside of the ovaries and can only be seen with a microscope. These are called microscopic metastases. Which surgical staging procedures you will have depends on how far your doctor thinks the cancer may have spread in your body.

Omentectomy and lymph node dissection are two procedures that are used for surgical staging. An omentectomy is surgery to remove the omentum. The omentum is a layer of fatty tissue covering the intestines and organs in the abdomen. Lymph node dissection is surgery to remove lymph nodes from the area near the tumor.

In addition to the tumor, surgical staging also involves taking biopsy samples from other nearby tissues and organs where ovarian cancer often spreads. See Figure 6. The number of biopsy samples removed and where they are removed from depends on how far your doctor thinks the cancer has spread. Biopsy samples may be taken from the:

- Nearby lymph nodes (groups of special disease-fighting cells),
- Pelvis (area between the hip bones),
- Abdomen (belly area between the chest and pelvis),
- Diaphragm (muscles below the ribs that help a person breathe),
- Omentum (layer of fatty tissue covering organs in the abdomen),
- Peritoneum (tissue lining the inside of the abdomen), and
- Ascites (abnormal fluid buildup in the abdomen).

Definitions:

Diagnosis: Identification of a disease

Gynecologic oncologist: A doctor who's an expert in treating cancer that starts in the female organs involved in making babies

Intestines: The organs that food travels through after leaving the stomach

Microscope: A tool that uses lenses to see things the eyes can't

Pathologist: A doctor who's an expert in testing cells and tissue to find disease

Primary tumor: The first mass of cancer cells in the body

Part 3: Treatment planning

If you don't have ascites, then your doctor may "wash" the inside of your abdomen (called the peritoneal cavity) with a special liquid and then test it for cancer cells. The liquid samples collected and tested for cancer cells after the "wash" are called peritoneal washings.

Staging systems

There are two staging systems used for ovarian cancer: the TNM staging system and the FIGO (**I**nternational **F**ederation of **G**ynecology and **O**bstetrics) staging system. In the TNM system, each of the letters—T, N, and M—describes a different area of cancer growth. T = tumor size and invasion, N = cancer in lymph nodes, and M = spread to distant sites.

The FIGO staging system is the most commonly used system to stage ovarian cancer. In this system, the cancer is assigned a Roman numeral (I, II, III, or IV) and a letter (A, B, or C) based on how large or where the primary tumor has grown and how far the cancer has spread in your body.

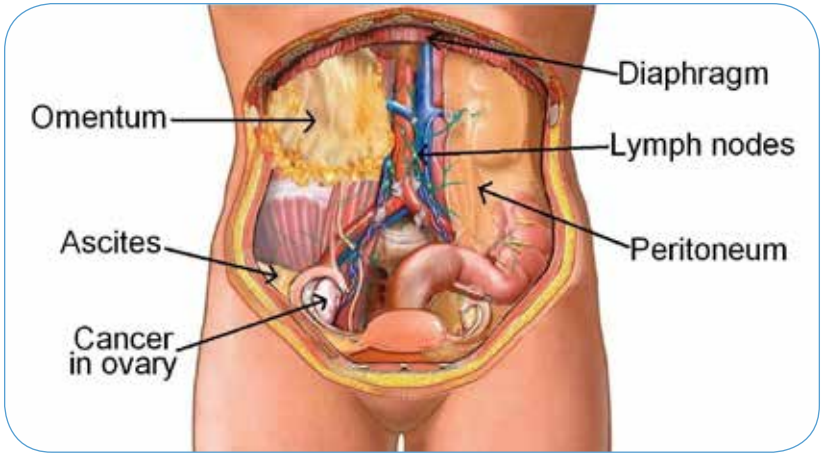


Figure 6. Possible biopsy sites in the abdomen and pelvis

Part 3: Treatment planning

Stages of Ovarian Cancer

Stage I

The tumor (cancer) is in one or both ovaries and the cancer hasn't spread to other organs or tissues.

- **Stage IA –** Cancer is only within one ovary and there is no cancer on the surface of the ovary.
- **Stage IB –** Cancer is in both ovaries, but there is no cancer on the surface of the ovaries.
- **Stage IC –** Cancer is in one or both ovaries, plus any of the following: the outer covering of the ovary has burst or broken; cancer has spread to the surface of one or both ovaries; or cancer cells are in abdominal fluid (ascites or peritoneal washings).

Stage II

Cancer is in one or both ovaries and has spread to nearby organs in the pelvis.

- **Stage IIA –** Cancer has grown into and/or spread implants on the uterus, Fallopian tubes, or both.
- **Stage IIB –** Cancer has grown into and/or spread implants on other tissues in the pelvis, including or not including the uterus, Fallopian tubes, or both.
- **Stage IIC –** Cancer has grown into and/or spread implants on the uterus, Fallopian tubes, or both, and/or other tissues in the pelvis. Cancer cells are also in abdominal fluid (ascites or peritoneal washings).

Stage III

Cancer is in one or both ovaries and has spread outside of the pelvis to the peritoneum (tissue that lines the inside of the abdomen and covers most organs in the abdomen) and/or to nearby lymph nodes.

- **Stage IIIA** – Cancer that has spread to the lining of the abdomen (peritoneum) outside of the pelvis is so small that it can only be seen with a microscope.
- **Stage IIIB –** Cancer that has spread to the lining of the abdomen (peritoneum) outside of the pelvis is 2 cm (**c**enti**m**eters) or smaller, but can be seen without a microscope.
- **Stage IIIC –** Cancer that has spread to the lining of the abdomen (peritoneum) outside of the pelvis is larger than 2 cm and/or cancer has spread to lymph nodes in or near the pelvis.

Stage IV

Cancer has spread to other parts of the body beyond the area of the pelvis and abdomen.

Part 3: Treatment planning

What is a pathology report?

A pathology report is a document with information about cancer cells and tissues that were removed from your body and looked at with a microscope for signs of disease. The pathology report is written by a pathologist, a doctor who's an expert in testing cells and tissue for disease. Your doctors will use the information in the pathology report to decide which treatment is best for you. The pathology report includes many important results and details such as the cancer stage (eg, size, location, spread in the body), cancer grade, cell subtype, and the procedure used to remove the biopsy samples. The tumor size is measured in cm (**c**enti**m**eters). Contact your treatment team if you have questions about your pathology report or if you would like a copy of it.

Subtypes of ovarian cancer. There are different subtypes of ovarian cancer based on what the cancer cells look like under a microscope. These subtypes include serous, mucinous, endometrioid, clear cell, and undifferentiated. Serous is the most common subtype. Clear cell is the least common subtype, but tends to be more aggressive. However, the different subtypes of epithelial ovarian cancer are generally all treated in the same way.

Part 3: Tools

Webpages

National Cancer Institute

www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient/page2
www.cancer.gov/cancertopics/factsheet/detection/pathology-reports

American Cancer Society

www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-staging

Ovarian Cancer Research Fund

www.ocrf.org/index.php?option=com_content&view=article&id=762&Itemid=487

NCCN

http://nccn.com/type-of-cancer/ovarian-cancer/1272.html

Review of Part 3

- To confirm ovarian cancer, a sample of fluid or tissue must be removed and tested for cancer cells.
- The stage and grade of disease are often used for treatment planning.
- Cancer staging is a way to rate the extent of the cancer.
- The cancer grade is how different the cancer cells look compared to normal cells.
- Staging is done before and after surgery.
- Surgical staging procedures are done during surgery to remove the cancer.

treatment with surgery

Part 4: Treatment with surgery

Surgery is the main way to stage ovarian cancer. It is also usually used as the initial treatment for ovarian cancer. The goal of surgery is to see how far the cancer has spread and remove all of the visible cancer from your body or decrease the amount of cancer in your body so that only a little bit is left. To do so, the cancer is removed along with other organs and tissues to which cancer cells may have spread. Most women will have surgery to remove the cancer, followed by treatment with cancer drugs such as chemotherapy.

Types of surgical treatment

There is more than one type of surgery for ovarian cancer. The type of surgery you will have depends on how far the cancer has spread and whether you want to be able to have babies afterwards. Ovarian cancer surgery, including surgical staging, should be performed by a gynecologic oncologist.

Surgery for ovarian cancer is generally done using a laparotomy. A laparotomy is an up-and-down (vertical) cut through the abdomen from your belly button to your pelvic bone. This lets your doctor see the tumor and other organs and tissues in your abdomen and pelvis.

Surgery to remove the ovary and attached Fallopian tube is called a salpingo-oophorectomy. When both ovaries and both Fallopian tubes are removed, it is called a BSO (**b**ilateral **s**alpingo-**o**ophorectomy). When only one ovary and attached Fallopian tube are removed, it's called a USO (**u**nilateral **s**alpingo-**o**ophorectomy). This is also referred to as "fertility-sparing surgery," because you will still be able to have babies after the surgery if you haven't yet gone through menopause. Fertility-sparing surgery is only an option if the cancer is only in one ovary.

A hysterectomy is surgery to remove the uterus. Surgery to remove the entire uterus through a surgical cut in your abdomen is called a TAH (**t**otal **a**bdominal **h**ysterectomy). It is done along with surgery to remove both ovaries and both Fallopian tubes (BSO). You will not be able to have babies after TAH and BSO.

Definitions:

See Part 1 on page 7 for definitions of other body parts.

Chemotherapy: Drugs that kill all cells that grow rapidly, including normal cells and cancer cells

Gynecologic oncologist: A doctor who's an expert in treating cancer that starts in the female organs involved in making babies

Menopause: The point in time when no more menstrual periods occur

Stage: Grouping of cancer according to how large the tumor is and how far the cancer has spread in the body

Surgical staging: Procedures done during surgery that are used to find out how far cancer has spread

Part 4: Treatment with surgery

Some women with early-stage ovarian cancer (stage IA or IC) or borderline ovarian cancer may be able to have a less invasive surgery using laparoscopy. Laparoscopy uses a few tiny cuts in the belly area (abdomen) rather than one big one. A long, thin tube with a light and camera lens at the end (called a laparoscope) is inserted through one of the cuts so your doctor can see inside your abdomen. Surgical tools are inserted through the other cuts to remove tissue.

Before surgery, you will be asked to stop eating, drinking, and taking some medicines for a short period of time. General anesthesia is used for all of these surgeries. You will spend several days in the hospital after the surgery. You may feel some pain and tenderness in the area between your hip bones (pelvis) and abdomen for a few days or weeks after the surgery. It may be several weeks before you are able to return to normal activities. The time it takes to fully recover depends on the extent of the surgery and varies from person to person.

Part 4 Contents

Side effects

Side effects are unplanned physical or emotional responses to treatment. Side effects of surgery depend on the type of surgery and whether you have already gone through natural menopause. If you haven't, surgery that removes both ovaries will cause surgical menopause. Natural menopause is when a woman's menstrual periods gradually stop due to aging. Surgical menopause is a sudden and permanent stop in menstrual periods caused by surgery that removes both ovaries. After natural or surgical menopause, you will not be able to become pregnant. Symptoms of menopause include:

- Hot flashes,
- Mood swings,
- Trouble concentrating,
- Vaginal dryness,
- Night sweats, and
- Infertility (inability to have babies).

Other side effects of surgery for ovarian cancer may include: pain at the surgical site, leg swelling (lymphedema), difficulty urinating, and constipation. An important part of cancer care is to treat and prevent these side effects if possible. So, be sure to tell your doctor about any side effects you have.

Part 4: Treatment with surgery

New suspected ovarian cancer

Staging and surgery

Clinical stage	Surgery
Stage IA cancer only in one ovary	Remove one ovary and its Fallopian tube, or Remove both ovaries, both Fallopian tubes, and the uterus
Stage IB cancer in both ovaries only	Remove both ovaries, both Fallopian tubes, and the uterus
Stage IC cancer in one or both ovaries and cancer cells on ovary surface or in abdominal fluid	Remove one ovary and its Fallopian tube, or Remove both ovaries, both Fallopian tubes, and the uterus
Stage II cancer in one or both ovaries and has spread into the pelvis	Remove both ovaries, both Fallopian tubes, uterus, and all cancer that can be seen
Stage III and IV cancer in one or both ovaries and has spread outside of the pelvis or abdomen	All cancer can be removed with surgery → Remove both ovaries, both Fallopian tubes, uterus, and all cancer that can be seen All cancer can't be removed with surgery → If biopsy confirms cancer, start chemotherapy then surgery to remove both ovaries, both Fallopian tubes, uterus, and all cancer that can be seen

→ + Surgical staging

Definitions:

See Part 1 on page 7 for definitions of other body parts.

Biopsy: Removal of small amounts of tissue or fluid to be tested for disease

Clinical stage: Rating of the extent of cancer based on tests before treatment

Fallopian: Organ eggs travel through from an ovary (organ that makes eggs and hormones) to the uterus (where a baby grows during pregnancy)

General anesthesia: A controlled loss of wakefulness from drugs

Surgical staging: Procedures during surgery that are used to find out how far cancer has spread

Uterus: Where babies grow during pregnancy

Part 4: Treatment with surgery

The chart on page 31 describes the surgical treatments and staging procedures recommended if your doctor thinks you have ovarian cancer. The type and extent of surgery and staging procedures you will have depends on how far your doctor thinks the cancer has spread.

Clinical stage I or II ovarian cancer means that the cancer looks like it hasn't spread outside of your pelvis (area between the hip bones). Therefore, you will have surgical treatment and staging. Surgical treatment usually involves a laparotomy to remove the cancer along with the ovaries, Fallopian tubes, and uterus.

If the cancer is in one ovary only, then you may have surgery that only removes the affected ovary and its Fallopian tube. If the cancer is in both ovaries, then you will have surgery that removes both ovaries, both Fallopian tubes, and the uterus.

Surgical staging is done to look for cancer cells that have spread outside of the ovaries or pelvis and can only be seen with a microscope. These are called microscopic metastases. Depending on how far your doctor thinks the cancer might have spread, biopsies may be taken from a number of organs and tissues. Surgical staging also includes omentectomy and lymph node dissection. See pages 22–24 for biopsy and surgical staging details.

If you have clinical stage III or IV ovarian cancer, you will not have surgical staging procedures because the cancer has clearly spread outside of the pelvis. If the cancer hasn't grown into a lot of tissue and can all be removed by surgery, then you will have debulking surgery. Debulking surgery removes as much of the cancer as possible. Debulking surgery may remove all or part of organs or tissues the cancer has spread to such as the diaphragm, intestines, bladder, liver, spleen, appendix, gallbladder, stomach, pancreas, omentum, and peritoneum. See Figure 6 on page 24 and Figure 7 below. Lymph nodes that look different or are larger than normal should also be removed if possible.

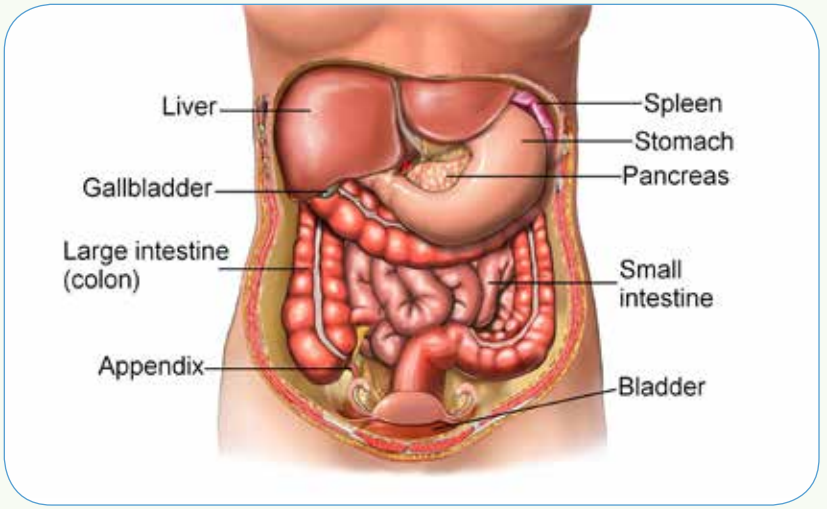


Figure 7. Possible debulking surgery sites

Part 4: Treatment with surgery

If you have clinical stage III or IV ovarian cancer that has grown into a lot of tissue, it may not be possible to safely remove it all with surgery. In this case, you will first have a biopsy—FNA or paracentesis—to confirm it is ovarian cancer. If the biopsy confirms ovarian cancer, you will have chemotherapy (treatment with cancer drugs) to shrink the tumors before surgery. Chemotherapy drugs kill fast-growing cells, including cancer cells and normal cells. Chemotherapy given before surgery is called neoadjuvant treatment. After chemotherapy, you will have surgery if your doctor thinks all or most of the cancer can be removed. It is important that a gynecologic oncologist makes this assessment and treatment decision. A gynecologic oncologist is a doctor who's an expert in treating cancer that starts in the female organs that help make babies.

Next steps: After surgery and staging, see Part 5 on page 41 for information about chemotherapy and page 46 for chemotherapy treatment recommendations.

Definitions:

See pages 22–24 for staging procedures and biopsy details.

Biopsy: Removal of small amounts of tissue or fluid to be tested for disease

Laparotomy: Surgery with a long, up-and-down cut in the abdomen (belly area)

Lymph node: Small groups of special disease-fighting cells located throughout the body

Microscope: A tool that uses lenses to see things the eyes can't

Surgical staging: Procedures during surgery that are used to find out how far cancer has spread

Acronyms:

FNA = Fine-needle aspiration

Part 4: Treatment with surgery

Ovarian cancer confirmed by previous surgery

Staging and surgery

Results from prior surgery or biopsy		Surgical treatment and staging*
Surgery and staging complete	→	No second surgery needed
Likely stage IA or IB, grade 1 cancer in one or both ovaries only and low grade (slow growing)	→	Surgical staging only
Likely stage IA or IB, grade 2 cancer in one or both ovaries only and medium grade	Doctor thinks no cancer remains →	Surgical staging only, Completion surgery and staging, or Start chemotherapy (no surgery)
	Doctor thinks some cancer remains →	Completion surgery and staging
Likely stage IA or IB, grade 3 or clear cell, or stage IC cancer in one or both ovaries and high grade (fast growing), or cancer has spread to surface of ovary or in abdominal fluid	Doctor thinks no cancer remains →	Completion surgery and staging, or Start chemotherapy (no surgery)
	Doctor thinks some cancer remains →	Completion surgery and staging
Likely stage II, III, or IV cancer in one or both ovaries and has spread into pelvis or outside of pelvis or abdomen	Doctor thinks cancer remains and can be removed by surgery →	Completion surgery
	Doctor thinks cancer remains and can't be removed by surgery →	Start chemotherapy (no surgery), or Start chemotherapy, then completion surgery

*It is important to note that most (but not all) women will receive adjuvant treatment with chemotherapy after surgical treatment and staging.

Part 4: Treatment with surgery

The chart on page 34 shows the surgical treatment and staging procedures recommended for ovarian cancer that has been confirmed by a previous surgery. The treatment options depend on whether the previous surgery and staging were complete or not.

Surgical staging is considered complete if the previous surgery removed all of the cancer along with both ovaries and both Fallopian tubes, the uterus, nearby supporting tissues, and the omentum. If prior ovarian cancer surgery and staging were complete, then you don't need any more surgery for staging. In this case, you may receive adjuvant therapy next or observation. (See "*Next steps*" at the end of this section.) If the previous surgery and staging weren't complete, you may have more surgery to confirm the cancer stage and to remove any remaining cancer.

Previous surgery and staging were not complete: For likely stage I ovarian cancer, surgical staging is done to look for cancer that has spread outside of the ovaries that can only be seen with a microscope. Surgical staging includes taking biopsies of nearby tissue and fluid that cancer cells may have spread to such as the diaphragm, peritoneum, abdomen, pelvis, and ascites or peritoneal washings. Surgical staging also includes omentectomy and lymph node dissection to take biopsies of the omentum and nearby lymph nodes. (See pages 22–24 for details on biopsies and surgical staging procedures.)

Completion surgery involves removing the remaining ovary (or ovaries), Fallopian tubes, uterus, nearby supporting tissue, and the omentum. If needed, completion surgery also removes any remaining cancer that can be seen. If your doctor thinks the previous surgery removed all of the cancer, then you may start chemotherapy treatment instead of having more surgery. (See Part 5 on page 41 for details on chemotherapy.)

For likely stage II, III, or IV ovarian cancer that can all be removed by surgery, you will have completion surgery as described above. If all of the cancer can't be removed by surgery, then you will start chemotherapy treatment. You may

Definitions:

See pages 22–24 for biopsy and staging details.

Adjuvant therapy: Treatment that is given after the main treatment used to rid the body of cancer

Biopsy: Removal of small amounts of tissue or fluid to be tested for disease

Chemotherapy: Drugs that kill all cells that grow rapidly, including normal cells and cancer cells

Omentum: The double layer of fatty tissue covering the intestines and organs in the belly area

Staging procedures: Procedures during surgery that are used to find out how far the cancer has spread

Part 4: Treatment with surgery

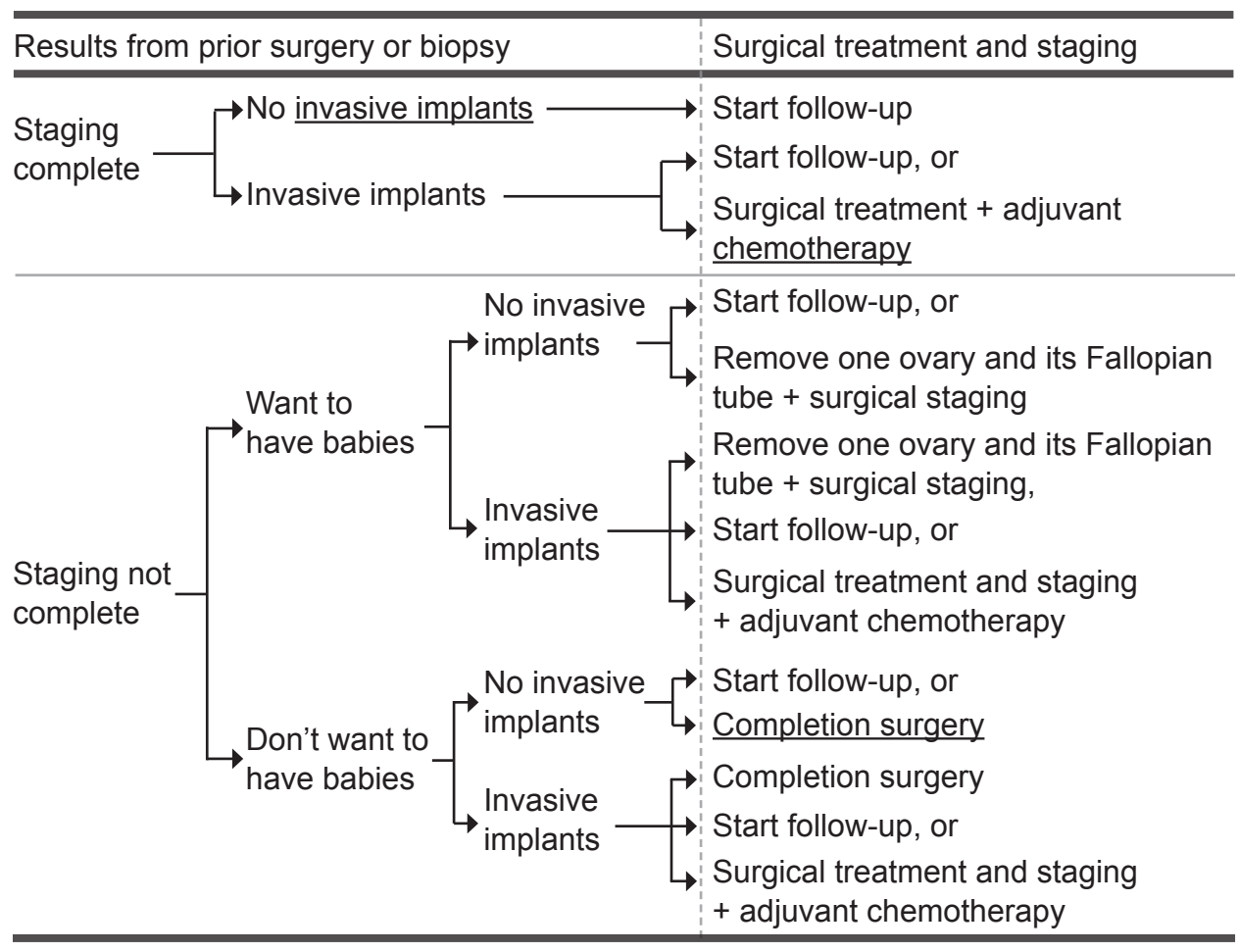
finish all of the chemotherapy treatments and not have surgery in between. Or, you may have completion surgery after a few rounds of chemotherapy if your doctor thinks all of the cancer can be safely removed. (See Part 5 on page 41 for details on chemotherapy.)

Next steps: After surgery and staging, see Part 5 on page 41 for information about chemotherapy and page 46 for chemotherapy treatment recommendations.

Part 4: Treatment with surgery

Borderline ovarian cancer

Staging and surgery



The chart above describes the recommended surgical treatment and staging procedures for borderline ovarian cancer. Borderline ovarian cancer is often found by accident during surgery or testing for an unrelated health condition. Borderline ovarian cancer may also be found because of its symptoms. (See page 11 for symptom details.)

Definitions:

For more details, see page 22 for staging, 29 for surgery, and 41 for chemotherapy.

Biopsy: Removal of small amounts of tissue or fluid to be tested for disease

Chemotherapy: Drugs that kill all cells that grow rapidly, including normal cells and cancer cells

Completion surgery: Surgery that removes the remaining ovary (or ovaries), Fallopian tube(s), and uterus, and possibly the omentum, nearby supporting tissue, and any remaining cancer

Invasive implant: Cancer cells that have broken away from the first tumor and have invaded (grown into) supporting tissues of another organ or structure

Part 4: Treatment with surgery

Treatment options for borderline ovarian cancer depend on three important factors. The first factor is whether previous staging was complete or not complete. The second factor is whether or not there are invasive implants. The third factor is whether or not you want to have babies after treatment.

Staging is considered complete if the previous surgery removed all of the cancer along with the affected ovary and its Fallopian tube, nearby supporting tissues, and the omentum. The uterus, other ovary, and other Fallopian tube may be left because fertility-sparing surgery is always an option for borderline ovarian cancer.

Previous surgery and staging were complete: In this case, one option is to start observation with follow-up tests. Observation is a period of testing after treatment (surgery) to check that treatment worked. If there are invasive implants, another option is to have surgical treatment to remove the remaining ovary, Fallopian tube, and uterus, followed by adjuvant chemotherapy. Adjuvant treatment is given after surgery to rid your body of any remaining cancer cells.

Previous surgery and staging were not complete: In this case, observation with follow-up tests is always an option. Observation is a period of testing after treatment (surgery) to check that treatment worked. Follow-up tests are done to check for signs that the cancer is growing or has come back after treatment.

If you want to have babies, another option is to have fertility-sparing surgery—removal of one ovary and its Fallopian tube—and surgical staging procedures. If you have invasive implants, a third option is to have fertility-sparing surgery and surgical staging procedures followed by adjuvant chemotherapy. Adjuvant treatment is given after surgery to rid your body of any remaining cancer cells.

Surgical staging procedures involve taking biopsy samples from the tumor and nearby tissue where cancer cells may have spread. (See pages 22–24 for biopsy and staging details.) Such sites include the uterus, other ovary and Fallopian tube, pelvis, diaphragm, peritoneum, abdomen, and ascites or peritoneal washings. Omentectomy should also be performed to take biopsies of the omentum. Lymph node dissection may be considered on a case-by-case basis to take biopsies of nearby lymph nodes.

If you don't want to have babies, then completion surgery is an option. Completion surgery involves removing any remaining cancer cells as well as the uterus, ovaries, and Fallopian tubes. It may also involve lymph node dissection and omentectomy. If you have invasive implants, a third option is surgery to remove both ovaries, both Fallopian tubes, and the uterus, plus surgical staging procedures and adjuvant chemotherapy.

Next steps: For recommended follow-up tests, see page 55. See page 41 for details about chemotherapy and page 46 for recommended adjuvant chemotherapy treatment.

Part 4: Tools

Webpages

National Cancer Institute

www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient/page4#Keypoint17
www.cancer.gov/cancertopics/pdq/treatment/ovarian-low-malignant-potential/Patient/page5#Section_86

American Cancer Society

www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-treating-surgery
www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-treating-low-malignant-potential

Ovarian Cancer Research Fund

www.ocrf.org/index.php?option=com_content&view=article&id=761&Itemid=486

Office on Women's Health – U.S. Department of Health and Human Services

www.womenshealth.gov/publications/our-publications/fact-sheet/hysterectomy.cfm

Review of Part 4

- Surgery is the main way to stage ovarian cancer and is usually also used as the initial treatment.
- Surgery to remove both ovaries and both Fallopian tubes is called BSO (**b**ilateral **s**alpingo-**o**ophorectomy).
- Surgery to remove only one ovary and its Fallopian tube is called USO (**u**nilateral **s**alpingo-**o**ophorectomy).
- Surgery to remove the entire uterus through a surgical cut in your abdomen is called TAH (**t**otal **a**bdominal **h**ysterectomy).
- Debulking surgery removes as much of the cancer as possible.
- Staging procedures are done during surgery to remove the cancer.

treatment
with cancer drugs

Part 5: Treatment with cancer drugs

Even when the surgeon has removed all visible cancer, some cancer cells may remain. For this reason, most women with ovarian cancer will take cancer drugs in addition to surgery. Chemotherapy (or "chemo") is the most common type of cancer drug given. Chemotherapy kills all cells that grow rapidly, including normal cells and cancer cells.

Drug regimens and categories

A regimen is a treatment plan that specifies the dosage, schedule, and duration of treatment. When only one drug is used, it is called a single agent. However, different types of chemotherapy drugs attack cancer cells in different ways. Therefore, more than one drug is often used. A combination regimen is the use of two or more chemotherapy drugs. A specific drug combination is called a chemotherapy regimen. The first, or initial, chemotherapy treatment given is called primary chemotherapy. When given before surgery, it is called neoadjuvant chemotherapy. When given after surgery, it is called adjuvant chemotherapy.

Taxanes are a class of chemotherapy drugs that block certain structures in cancer cells to stop cell growth. Paclitaxel and docetaxel are examples of taxanes used to treat ovarian cancer. Platinum agents are a class of chemotherapy drugs that work in a different way. Platinum agents damage the coded instructions in cancer cells that control how the cells behave to stop them from growing and dividing. Cisplatin and carboplatin are examples of platinum agents used to treat ovarian cancer.

Bevacizumab (sold as Avastin®) is a targeted therapy drug that is sometimes added to chemotherapy. Targeted therapy drugs specifically target and kill cancer cells. Bevacizumab treats ovarian cancer by stopping the growth of new blood vessels that feed cancer cells.

Notes:

Part 5: Treatment with cancer drugs

The chemotherapy drugs used for ovarian cancer are:

Recommended primary chemotherapy regimens		
Stage	**Drug**	**Route given**
Stage I	Carboplatin with paclitaxel or docetaxel	Injection in a vein (IV)
Stage II, III, IV	Paclitaxel with cisplatin	Injection in the abdomen (IP)
	Paclitaxel with carboplatin	Injection in a vein (IV)
	Docetaxel with carboplatin	Injection in a vein (IV)
	Dose-dense paclitaxel with carboplatin	Injection in a vein (IV)
Other regimens		
Stage	**Drug**	**Route given**
Stage II, III, IV	Bevacizumab with paclitaxel and carboplatin	Injection into a vein (IV)

The chart above lists the chemotherapy drug regimens used to treat ovarian cancer. Chemotherapy for ovarian cancer can be given as a liquid that is slowly injected into a vein or your abdomen. When it is injected into a vein, it is called IV (**i**ntra**v**enous) chemotherapy. When it is injected into your abdomen, it is called IP (**i**ntra**p**eritoneal) chemotherapy. IV chemotherapy is a type of systemic treatment, which travels through the bloodstream to treat cancer throughout your body. Neoadjuvant treatment is almost always IV chemotherapy. IP chemotherapy is a type of regional treatment and delivers higher doses of the drugs directly to the cancer. IP chemotherapy is given through a thin, flexible tube called a catheter that is placed inside the abdomen (peritoneal cavity) during surgery.

Chemotherapy injections are often given as outpatient treatment at a hospital, clinic, or doctor's office. The length of the outpatient visit depends on which chemotherapy drugs you receive.

Part 5: Treatment with cancer drugs

Chemotherapy is given in cycles of treatment days followed by days of rest. These cycles vary in length depending on which drugs are used. Often, the cycles are 14, 21, or 28 days long. These cycles give the body a chance to recover before the next treatment. The number of treatment days per cycle and the total number of cycles varies depending on the chemotherapy drug given.

Which chemotherapy drug you receive depends on several factors such as your overall health (performance status), how well your kidneys work, and risk for neuropathy. Performance status is a rating of your ability to do daily activities. It is important that your kidneys are working well if you may receive a combination of IV and IP chemotherapy.

Your doctor may give a blood test to assess for chemicals normally filtered out of the blood by your kidneys. High levels of certain chemicals may be a sign that your kidneys aren't working well (poor kidney function). Neuropathy is a nerve problem that causes pain, tingling, and numbness in the hands and feet. If you have a poor performance status, poor kidney function, or a high risk for neuropathy, then IP chemotherapy may not be a good treatment option for you.

Part 5 Contents

Definitions:

Abdomen: The belly area between the chest and pelvis

Kidneys: A pair of organs that filter blood and remove waste from the body through urine

Neoadjuvant treatment: Treatment given before surgery to remove a tumor

Regimen: A treatment plan that specifies the dosage, schedule, and duration of treatment

Regional treatment: Treatment with cancer-killing drugs directed to a specific area of the body

Part 5: Treatment with cancer drugs

Side effects

A side effect is an unplanned physical or emotional response to treatment. Side effects of chemotherapy depend on the drug, amount taken, length of treatment, how the drug is given, and the person. In general, side effects are caused by the death of fast-growing cells, which are found in the gut, mouth, and blood. As a result, common side effects include:

- Loss of appetite,
- Nausea and vomiting,
- Mouth sores,
- Hair loss,
- Fatigue,
- Increased risk of infection,
- Bleeding or bruising easily,
- Nerve damage (neuropathy), and
- Anemia.

Certain chemotherapy drug combinations have different and sometimes more severe side effects. For example, the combination of docetaxel and carboplatin is more likely to increase the risk of infection. The combination of paclitaxel and carboplatin is more likely to cause nerve damage (neuropathy). Chemotherapy given in the abdomen (IP chemotherapy) generally causes more severe side effects, which include infection, fatigue, kidney damage, abdominal pain, and neuropathy. An important part of cancer care is to treat and prevent these side effects if possible. So, be sure to tell your doctor about any side effects you have.

Part 5: Treatment with cancer drugs

Complementary and alternative medicine

You may hear about other treatments from your family and friends. They may suggest using CAM (**c**omplementary and **a**lternative **m**edicine). CAM is a group of treatments that aren't often given by doctors. There is much interest today in CAM for cancer. Many CAMs are being studied to see if they are truly helpful. Complementary medicines are treatments given along with usual medical treatments. While CAMs aren't known to kill cancer cells, they may improve your comfort and well-being. Two examples are acupuncture for pain management and yoga for relaxation.

Alternative medicine is used in place of usual medicine. Some alternative medicines are sold as cures even though they haven't been proven to work. If there was good proof that CAMs or other treatments cured cancer, they would be included in this booklet.

It is important to tell your treatment team if you are using any CAMs. They can tell you which CAMs may be helpful and which CAMs may limit how well treatments work.

Definitions:

Abdomen: The belly area between the chest and pelvis

Anemia: A health condition in which the number of red blood cells is low

Fatigue: Severe tiredness despite getting enough sleep that limits one's ability to function

Kidneys: A pair of organs that filter blood and remove waste from the body through urine

Neuropathy: A nerve problem that causes pain, tingling, and numbness in the hands and feet

Acronyms:

IP = Intraperitoneal

Part 5: Treatment with cancer drugs

Chemotherapy treatment recommendations

Pathologic stage			Chemotherapy	
Stage IA or IB cancer in one or both ovaries only	Grade 1 slow-growing		Start follow-up	
	Grade 2 medium grade		Start follow-up, or	
			Chemotherapy given in a vein (IV) for 3–6 cycles	
	Grade 3 or clear cell fast-growing		Chemotherapy given in a vein (IV) for 3–6 cycles	
Stage IC cancer in one or both ovaries and cancer cells on ovary surface or in abdominal fluid			Chemotherapy given in a vein (IV) for 3–6 cycles	
Stage II or III cancer in one or both ovaries and has spread to the pelvis or abdomen	No prior chemo	< 1 cm of cancer left	Chemotherapy given in the abdomen (IP) for 6–8 cycles, or	Maybe more surgery
			Chemotherapy given in a vein (IV) for 6–8 cycles	
		≥ 1 cm of cancer left	Chemotherapy given in a vein (IV) for 6–8 cycles	
	Prior chemo		Finish chemotherapy if received < 6–8 cycles	
Stage IV cancer in one or both ovaries and has spread outside of the pelvis and abdomen	No prior chemo		Chemotherapy given in a vein (IV) for 6–8 cycles	
	Prior chemo		Finish chemotherapy if received < 6–8 cycles	

Part 5: Treatment with cancer drugs

The chart to the left describes the recommended chemotherapy treatments for ovarian cancer. If and how much chemotherapy you will receive depends on several factors such as the cancer stage and grade, how much cancer is left after surgery, and whether or not you had chemotherapy before surgery.

For ovarian cancer that is stage IA or IB, grade 1, treatment with surgery alone works very well. Chemotherapy after surgery does not improve results; therefore, starting observation with follow-up tests is recommended.

For ovarian cancer that is stage IA or IB, grade 2, observation with follow-up tests is an option if surgical staging was completed initially or with a second surgery. Another option is 3 to 6 cycles of chemotherapy given in a vein. If the surgical staging wasn't completed initially or with a second surgery, you should receive at least 6 cycles of chemotherapy given in a vein.

For all other stage I ovarian cancers, treatment with chemotherapy only is recommended. If surgical staging was completed initially or by a second surgery, then 3 to 6 cycles of chemotherapy given in a vein is recommended. Otherwise (if staging wasn't completed initially or with a second surgery), you should receive at least 6 cycles of chemotherapy given in a vein.

For stage II, III, or IV ovarian cancer, treatment with chemotherapy for a total of 6 to 8 cycles is recommended. You may have started chemotherapy (given in a vein) before surgery to shrink the tumors. In this case, you should finish the remaining cycles of chemotherapy after surgery.

For stage II or III ovarian cancer—no prior chemotherapy—with less than 1 cm of cancer left after surgery, you will receive 6 to 8 cycles of chemotherapy given in the abdomen or in a vein. If there is 1 or more cm of cancer left, then you will receive chemotherapy given in a vein. It is important to discuss the differences between IP chemotherapy (given in the abdomen) and IV chemotherapy (given in a vein) with your doctor.

Definitions:

See pages 41–43 for more details on chemotherapy.

Grade: How closely the cancer cells look like normal cells

Observation: A period of testing after treatment to check that treatment worked

Stage: The rating of the growth and spread of cancer

Surgical staging: Procedures done during surgery that are used to find out how far cancer has spread

Acronyms:

cm = Centimeter

IP = Intraperitoneal

IV = Intravenous

Part 5: Treatment with cancer drugs

If you have stage IV ovarian cancer and didn't receive chemotherapy before surgery, then you will receive 6 to 8 cycles of chemotherapy given in a vein. After completing chemotherapy for stage II, III, or IV ovarian cancer, you may have more surgery to remove any remaining cancer.

Monitoring tests during chemotherapy

Monitoring tests
Physical + pelvic exam every 2–3 cycles
CA-125 blood test as needed
CBC and blood chemistry as needed
Imaging tests as needed

During chemotherapy treatment your doctor will give you tests to assess for treatment response, cancer growth, and side effects. A treatment response is an outcome or improvement related to treatment. You will have a physical and pelvic exam at least every 2 to 3 cycles to assess the size, shape, firmness, and location of organs in your pelvis and abdomen. If CA-125 levels were high when the cancer was first found, then you may have a CA-125 blood test before each chemotherapy cycle to assess for a treatment response. If CA-125 levels drop after chemotherapy, that is a sign that the cancer is responding to treatment. You may have CBC and blood chemistry tests to assess if you have the right number of different blood cells and to assess if your liver and kidneys are working properly. (See page 17 for details on blood tests.) You may have imaging tests to assess if the cancer has spread. (See page 14 for details on imaging tests.)

Next steps: For stage I ovarian cancer, see page 55 for follow-up recommendations after completing chemotherapy. For stage II, III, or IV ovarian cancer, see page 49 for post-chemotherapy treatment recommendations.

Part 5: Treatment with cancer drugs

Post-chemotherapy treatment

If you have stage II, III, or IV ovarian cancer, you may receive additional treatment after completing primary chemotherapy. The treatment options depend on how the cancer responded to primary chemotherapy. A complete response is when all signs and symptoms of the cancer have completely disappeared after treatment—no signs of cancer on imaging tests, physical exam, or CA-125 blood tests. A partial response is when some but not all of the signs and symptoms of the cancer have disappeared—a decrease in the size of tumors and/or decrease in CA-125 levels. Persistent disease is cancer that did not respond to chemotherapy at all. Progressive disease is cancer that responded to chemotherapy initially and then began to grow or spread again (progressed).

Additional treatment for stage II, III, IV

Test results	Treatment
Complete response all signs and symptoms of cancer have completely disappeared	Clinical trial, Start follow-up, or Paclitaxel for 12 cycles
Partial response some or most signs and symptoms of cancer have disappeared	Clinical trial, Start recurrence treatment, or Start follow-up
Persistent or progressive disease cancer didn't respond to chemo, or responded then began to grow again	Clinical trial, Start recurrence treatment, or Supportive/palliative care

Definitions:

See Part 2 on page 12 for more test details and definitions.

CA-125: A protein made by ovarian cancer cells as well as normal cells

Chemotherapy cycle: Days of treatment followed by days of rest

Primary chemotherapy: The first or main chemotherapy drug or drugs given to treat cancer

Side effect: An unplanned physical or emotional response to treatment

Acronyms:

CA-125 = Cancer antigen 125

CBC = Complete blood count

Part 5: Treatment with cancer drugs

The chart on page 49 describes additional treatment recommendations for stage II, III, and IV ovarian cancer after primary chemotherapy. Joining a clinical trial is always an option after primary chemotherapy. A clinical trial is a type of research that studies how safe and helpful new tests or treatments are. (Clinical trials are discussed on page 51.) Talking with your treatment team, family, and friends can help you decide if a clinical trial is right for you.

If you had a complete response, observation with follow-up tests is an option. Another option is maintenance treatment with paclitaxel, a chemotherapy drug. Maintenance treatment is chemotherapy given to keep (maintain) a good treatment response. For maintenance treatment, paclitaxel is given in a vein on Day 1 of a 28-day cycle for a total of 12 cycles. Not all doctors recommend paclitaxel maintenance treatment, and it is important to discuss the benefits and risks with your doctor.

If you had a partial response, observation with follow-up tests is an option. Another option is to start recurrence treatment. Recurrence treatment is treatment given for cancer that only partially responded to treatment or came back after a complete response.

For persistent or progressive disease, you may receive recurrence treatment or supportive care (also called palliative care) only. Supportive care treats cancer symptoms and treatment side effects, but does not treat the cancer itself.

Next steps: For follow-up recommendations after primary or additional treatment, see page 55. For recurrence treatment recommendations, see page 59.

Part 5: Treatment with cancer drugs

Clinical trials

A clinical trial is a type of research that studies a test or treatment. Tests and treatments aren't offered to all patients as soon as they're made. They must be tested in clinical trials first. When tests and treatments are found to be safe and helpful, they may become tomorrow's standard of care. However, there is no way to know this before the trial is done.

Clinical trials are done in a series of steps, called phases. This is to fully study how safe and helpful a test or treatment is for patients. The four phases of clinical trials are described next using the example of a new drug treatment:

Phase I trials aim to find the best dose and way to give a new drug with the fewest side effects. If a drug is found to be safe, it will be studied in a phase II trial.

Phase II trials assess if a drug works for a specific type of cancer. They are done in larger groups of patients with the same type of cancer.

Phase III trials compare a new drug to the standard treatment or a fake treatment (placebo). These are randomized, meaning patients are put in a treatment group by chance.

Phase IV trials test new drugs approved by the FDA (**F**ood and **D**rug **A**dministration) to learn more about side effects and safety. They involve many patients with different types of cancer.

There may be an open clinical trial you can join. To join a clinical trial, you must meet the conditions of the study. Patients in a clinical trial often have a similar cancer type and general health. This helps ensure that any response is because of the treatment and not because of differences between patients. You also must review and sign a paper called an informed consent form to join a clinical trial. This form describes the study in detail, including the risks and benefits.

Definitions:

Chemotherapy cycle: Days of treatment followed by days of rest

FDA: A federal government agency that regulates drugs and food

Observation: A period of testing after treatment to check that treatment worked

Primary chemotherapy: The first or main chemotherapy drug or drugs given to treat cancer

Side effect: An unplanned physical or emotional response to treatment

Part 5: Tools

Questions about treatment to ask your doctor

- What are the available treatments for ovarian cancer?
- Are there any clinical trials I could take part in?
- What are the risks and benefits of each treatment for ovarian cancer?
- Will my age, general health, stage of ovarian cancer, and other medical conditions limit my treatment choices?
- Do I have to get treated?
- Where will I be treated? Will I have to stay in the hospital or can I go home after each treatment?
- What can I do to prepare for treatment? Should I stop taking my medications? Should I store my blood in case I need a transfusion?
- Am I a candidate for fertility-sparing surgery?
- Is ovarian cancer surgery a major part of your practice?
- How many ovarian tumor surgeries have you done? How many of your patients have had complications?
- If IP chemotherapy is being considered, how frequently do you give this type of treatment? Is my general health good enough to make this a good treatment option for me?
- How soon should I start treatment? How long does treatment take?
- How much will the treatment cost? How can I find out how much my insurance company will cover?
- How likely is it that I'll be cancer-free after treatment?
- What symptoms should I look out for while being treated for ovarian cancer?
- When will I be able to return to my normal activities?
- What is the chance that my cancer will come back and/or spread?
- What should I do after I finish treatment?
- Are there supportive services that I can get involved in? Support groups?

Part 5: Tools

Webpages

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient/page4#Keypoint19

American Cancer Society
www.cancer.org/Cancer/OvarianCancer/DetailedGuide/ovarian-cancer-treating-chemotherapy

Ovarian Cancer Research Fund
www.ocrf.org/index.php?option=com_content&view=article&id=763&Itemid=488

NCCN
nccn.com/type-of-cancer/ovarian-cancer/1270.html

Review of Part 5

- Chemotherapy is the use of drugs to treat cancer.
- Chemotherapy kills all cells that grow and divide quickly.
- Chemotherapy may be given as an injection into a vein, called IV (**i**ntra**v**enous) chemotherapy.
- Chemotherapy may be given as an injection into your abdomen, called IP (**i**ntra**p**eritoneal) chemotherapy.
- A treatment response is an improvement related to treatment.
- A clinical trial is a type of research that studies a test or treatment.

follow-up tests

Part 6: Follow-up tests

After completing cancer treatment, the next step is observation with follow-up tests. Observation is a period of testing after treatment to check that treatment worked. Follow-up tests are done to check for any signs that the cancer has started growing or has come back (recurred) after treatment.

Post-treatment follow-up tests

Ovarian cancer	Borderline ovarian cancer
Tests	**Tests**
Testing every 2–4 months for 2 years, then 3–6 months for 3 years, then once every year • Physical and pelvic exam • Blood tests: - CA-125 or other tumor markers if initial test results were high - CBC and chemistry profile as needed • Imaging tests: - CT, MRI, PET-CT, or PET of chest, abdomen, and pelvis as needed - Chest x-ray as needed • Consider genetic counseling if not done prior	Testing every 3–6 months for up to 5 years, then once every year • Physical and pelvic exam • Blood tests: - CA-125 or other tumor markers if initial test results were high - CBC and chemistry profile as needed • Imaging tests: - Ultrasound as needed if you had surgery that removed only one ovary and Fallopian tube (fertility-sparing surgery) • If you had surgery that removed only one ovary and Fallopian tube and you are finished having babies, consider completion surgery

Definitions:

See Part 2 on page 12 for more test details and definitions.

Completion surgery: Removal of the remaining ovary (ovaries), Fallopian tube(s), and uterus, and possibly the omentum, nearby supporting tissue, and any remaining cancer

Tumor marker: Substance found in body tissue or fluid that may be a sign of cancer

Acronyms:

CA-125 = Cancer antigen 125

CBC = Complete blood count

CT = Computed tomography

MRI = Magnetic resonance imaging

PET = Positron emission tomography

Part 6: Follow-up tests

The chart on page 55 describes the follow-up tests recommended after you complete treatment for ovarian cancer or borderline ovarian cancer. Generally, the same tests used to find the cancer are also used for follow-up after treatment. (See details of initial tests on page 12.)

A physical and pelvic exam assesses the size, shape, firmness, and location of organs in your pelvis and abdomen. This helps your doctor check for physical signs that the cancer has come back, such as abdominal swelling or bloating, unusual lumps, or sudden changes in weight.

Follow-up CA-125 blood tests are recommended if your CA-125 levels were high when the cancer was first found. This test is important to watch for rising CA-125 levels after treatment, which may be an early sign that the cancer has come back (recurred). You may have a CBC and blood chemistry test to check if you have the right number of different blood cells and to check if certain organs are working properly.

You may also have imaging tests of your chest, abdomen, and pelvis if needed to see if the cancer has spread. CT, MRI, PET, and PET-CT may be used. If needed, a chest x-ray may also be done to show if the cancer has spread to your lungs. An x-ray uses small amounts of radiation to make pictures of organs and tissues inside the body. A tumor changes the way radiation is absorbed and will show up on the x-ray image. This test is painless and takes about 20 minutes.

Your doctor may recommend a family medical history evaluation focused on what cancers your family members have had and possibly genetic counseling. Genetic counseling is a discussion with a health expert about a disease caused by abnormal information in cells that is passed down from parent to children. This is recommended because some health problems, including ovarian cancer, can run in families. For example, the risk of developing ovarian cancer is higher if your mother, sister, or daughter has had ovarian or breast cancer.

If you had surgery to only remove one ovary and Fallopian tube so you could have babies, you may have ultrasound tests to check for cancer in the remaining ovary. Then, once you are finished having babies, your doctor may recommend completion surgery. Completion surgery removes the remaining ovary, Fallopian tube, and uterus.

Next steps: For recurrence treatment details and recommendations, see page 59.

Part 6: Tools

Webpages

National Cancer Institute

www.cancer.gov/cancertopics/pdq/treatment/ovarianepithelial/Patient/page4#Keypoint25
www.cancer.gov/cancertopics/factsheet/Therapy/followup

American Cancer Society

www.cancer.org/cancer/ovariancancer/detailedguide/ovarian-cancer-after-follow-up

Ovarian Cancer Research Fund

www.ocrf.org/index.php?option=com_content&view=article&id=765&Itemid=490

Review of Part 6

- Follow-up tests are done to check for signs that the cancer has come back after treatment.
- Follow-up tests are initially done every 2 to 4 months for ovarian cancer and every 3 to 6 months for borderline ovarian cancer.
- Follow-up tests may include CA-125 blood tests, CBC, and imaging tests.

recurrence treatment

Part 7: Recurrence treatment

A recurrence (also called a relapse) is when the cancer partially or completely disappears in response to treatment and then comes back after a period of time. Treatment given for a recurrence or relapse is called recurrence treatment. Recurrence treatment may also be given for persistent disease, which is cancer that continues to grow or spread during initial treatment.

Part 7 Contents

Notes:

Part 7: Recurrence treatment

Recurrence treatments

Recommended recurrence treatment regimens	
Preferred	**Other**
Combination if platinum-sensitive Carboplatin/paclitaxel Carboplatin/weekly paclitaxel Carboplatin/docetaxel Carboplatin/gemcitabine Carboplatin/gemcitabine/bevacizumab Carboplatin/liposomal doxorubicin Cisplatin/gemcitabine **Single agent if platinum-sensitive** Carboplatin Cisplatin **Single agent if platinum-resistant** Docetaxel Etoposide, oral Gemcitabine Liposomal doxorubicin Paclitaxel, weekly Topotecan **Targeted therapy** Bevacizumab	**Single agents** Altretamine Capecitabine Cyclophosphamide Ifosfamide Irinotecan Melphalan Oxaliplatin Paclitaxel Nab-paclitaxel Pemetrexed Vinorelbine **Hormone therapy** Anastrozole Letrozole Leuprolide acetate Megestrol acetate Tamoxifen

Part 7: Recurrence treatment

Recurrence treatments include chemotherapy, targeted therapy, and hormone therapy. Which chemotherapy drug you will receive depends on whether the cancer responded to the initial treatment with platinum-based chemotherapy—carboplatin or cisplatin. (See page 41 for details about chemotherapy.) Targeted therapy is designed to specifically attack and kill cancer cells. Targeted therapy drugs may be less likely to harm normal cells than chemotherapy. Bevacizumab (sold as Avastin®) is a targeted therapy drug used for ovarian cancer. It works by stopping the growth of new blood vessels that feed cancer cells. Hormone therapy drugs treat ovarian cancer by stopping the body from making certain hormones or stopping the effect of hormones in the body.

Definitions:

Chemotherapy: Drugs that kill all cells that grow rapidly, including normal cells and cancer cells

Hormones: Chemicals in the body that activate cells or organs

Platinum-resistant: The cancer doesn't respond (doesn't improve or go away) to a chemotherapy drug made with platinum

Platinum-sensitive: The cancer responds (improves or goes away) to a chemotherapy drug made with platinum

Single agent: The use of one drug

Part 7: Recurrence treatment

Side effects

Targeted therapy: Bevacizumab (sold as Avastin®) is a targeted therapy drug sometimes given with chemotherapy to treat ovarian cancer. Bleeding and blood clots are less common, but they are serious side effects of bevacizumab. Common side effects of bevacizumab include:

- High blood pressure,
- Feeling tired or weak,
- Low white blood cell count,
- Loss of appetite,
- Diarrhea,
- Mouth sores, and
- Headache.

Hormone therapy: Side effects of hormone therapy vary depending on the drug, amount taken, length of treatment, and the person. Common side effects of hormone therapy drugs for ovarian cancer include:

- Hot flashes,
- Muscle and joint pain,
- High cholesterol,
- Decreased libido,
- Vaginal discharge, and
- Swelling in feet, ankles, or hands.

Part 7: Recurrence treatment

Recommendations for recurrence

The treatment recommendations for ovarian cancer that comes back—called a recurrence or relapse—are based on the type of relapse. A biochemical relapse is when blood tests show an increase in CA-125 levels, but you don't have symptoms and there are no signs of recurrence on the imaging tests or physical exam. A radiographic relapse is when imaging tests show signs that the cancer has come back. A clinical relapse is when you have physical signs or symptoms that ovarian cancer has come back. Physical signs of recurrence include abdominal bloating and sudden weight changes. Symptoms of recurrence may include pelvic or abdominal pain, indigestion or constipation, difficulty eating or feeling full quickly, or needing to urinate frequently or urgently.

Definitions:

CA-125: A protein that is made by ovarian cancer cells as well as normal cells

Hot flashes: A feeling of intense heat and body sweat for short periods

Imaging test: A test that makes pictures (images) of the inside of the body

Indigestion: Feeling of discomfort, such as heat, burning, or pain in the upper belly area

Libido: Sexual desire or emotions related to sex

Side effect: An unplanned physical or emotional response to treatment

Acronyms:

CA-125 = Cancer antigen 125

Part 7: Recurrence treatment

Ovarian cancer recurrence

Cancer status	Treatment
Relapse without prior chemotherapy relapse based on symptoms, imaging test results, or increase in CA-125 levels →	Surgical treatment with or without chemotherapy
Biochemical relapse after chemotherapy relapse based on increase in CA-125 levels only →	Clinical trial Delay treatment until clinical relapse, or Start recurrence treatment
Clinical or radiographic relapse after chemotherapy relapse based on symptoms or imaging test results →	< 6 months after chemo → Clinical trial, Start recurrence treatment, or Start follow-up
	> 6 months after chemo → Consider surgery → Clinical trial, Platinum chemotherapy (preferred), or Recurrence treatment

Part 7: Recurrence treatment

The chart to the left describes the treatment recommendations for ovarian cancer that has come back after a complete response or that continued to grow or spread during initial treatment. Once tests or symptoms signal a relapse, you may have imaging tests if they weren't done recently during follow-up. This may include CT, MRI, PET, or PET-CT of your chest, abdomen, and pelvis. (See page 14 for details on imaging tests.) The recurrence treatment recommendations are based on the type of relapse and whether you've had chemotherapy before.

If the cancer relapses and you haven't had chemotherapy before, then you will have surgery to remove the cancer, possibly followed by chemotherapy. If it looks like the cancer hasn't spread outside the area between your hip bones (pelvis), then surgical treatment will likely involve staging procedures. If it looks like the cancer has spread outside the pelvis, then you will have debulking surgery to remove as much of the cancer as possible. For details, see New suspected ovarian cancer—staging and surgery on pages 31–33.

If you have a biochemical relapse and you have had chemotherapy before, then the preferred treatment option is a clinical trial. See page 51 for information about clinical trials. Another option is to wait and not start treatment until you have physical signs or symptoms of cancer recurrence. The third option is to start recurrence treatment right away.

If you have a clinical or radiographic relapse and you have had chemotherapy before, the treatment options depend on how long it has been since you completed chemotherapy treatment. Cancer that comes back less than 6 months after completing chemotherapy treatment is called "platinum-resistant." This means that the cancer didn't respond well to the initial treatment with platinum-based chemotherapy such as cisplatin or carboplatin. Therefore, the treatment options are a clinical trial, recurrence treatment with a different type of chemotherapy, or observation with follow-up tests.

Definitions:

See Part 2 on page 14 for more test details and definitions.

Clinical trial: Research on a test or treatment to assess its safety or how well it works

Observation: A period of testing after treatment to check that treatment worked

Staging procedures: Procedures during surgery that are used to find out how far the cancer has spread

Acronyms:

CA-125 = Cancer antigen 125

CT = Computed tomography

MRI = Magnetic resonance imaging

PET = Positron emission tomography

Part 7: Recurrence treatment

Cancer that comes back more than 6 months after completing chemotherapy treatment is called “platinum-sensitive.” This means that the cancer responded well to the initial treatment with platinum-based chemotherapy such as cisplatin or carboplatin. In this case, you may have debulking surgery to remove as much of the cancer as possible. Then, the treatment options are a clinical trial, combination platinum-based chemotherapy (preferred, especially for first recurrence), or recurrence treatment.

Next steps: For recommended monitoring tests during chemotherapy, see page 48.

Part 7: Recurrence treatment

Borderline ovarian cancer recurrence

Tumor status	Treatment
Clinical relapse relapse based on symptoms, imaging test results, or increase in CA-125 levels →	Surgical evaluation + debulking if needed → Noninvasive disease → Observation with follow-up tests Surgical evaluation + debulking if needed → Invasive disease → Surgical treatment and staging + chemotherapy

The chart above describes the recommended treatment for borderline ovarian cancer that has come back after responding to initial treatment. After a clinical relapse, you may have surgery so your doctor can see where the cancer has spread. Surgery may also remove as much of the cancer as possible, called debulking surgery.

The treatment options for borderline ovarian cancer recurrence depend on whether the cancer has grown into supporting tissues (invasive) or not (noninvasive). If it is not invasive, then the cancer is less likely to cause physical (clinical) symptoms. Therefore, your doctor will watch the cancer closely with follow-up tests. If it is invasive, then you will have surgical treatment and staging procedures, followed by adjuvant chemotherapy. See page 23 for details on surgical staging procedures. Surgical treatment will remove as much cancer as possible, as well as the remaining ovary, Fallopian tube, and uterus. After surgery, chemotherapy recommendations are the same as those for ovarian cancer, described on page 46.

Next steps: For noninvasive disease, see page 55 for recommended follow-up tests. For invasive disease, see page 46 for recommended chemotherapy treatment after surgery.

Definitions:

Adjuvant treatment: Treatment given after the main treatment used to rid the body of cancer

CA-125: A protein with sugar molecules that is made by ovarian cancer cells as well as normal cells

Staging procedures: Procedures done during surgery that are used to find out how far the cancer has spread

Surgical evaluation: Surgery to find out how far cancer has spread in the body and to see if surgery to remove all of the cancer is a safe and good option

Acronyms:

CA-125 = Cancer antigen 125

Part 7: Tools

Webpages

National Ovarian Cancer Coalition
www.ovarian.org/recurrence.php

American Cancer Society
www.cancer.org/cancer/ovariancancer/overviewguide/ovarian-cancer-overview-treating-recurrent-persistent
www.cancer.org/Cancer/OvarianCancer/DetailedGuide/ovarian-cancer-treating-targeted-therapy
www.cancer.org/Cancer/OvarianCancer/DetailedGuide/ovarian-cancer-treating-hormone-therapy

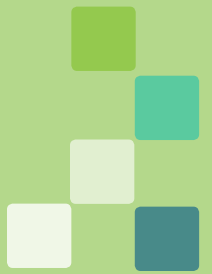
Ovarian Cancer Research Fund
www.ocrf.org/index.php?option=com_content&view=article&id=766&Itemid=491

NCCN
nccn.com/type-of-cancer/ovarian-cancer/1271.html

Review of Part 7

- A recurrence, also called a relapse, is when the cancer comes back after responding to treatment.
- A biochemical relapse is when CA-125 levels increase but there are no other signs that the cancer has come back.
- A clinical relapse is when you have physical signs or symptoms that the cancer has come back.
- A radiographic relapse is when imaging tests show signs that the cancer has come back.
- Recurrence treatment options depend on whether the cancer comes back more or less than 6 months after completing chemotherapy treatment.

beyond cancer treatment



Part 8: Beyond cancer treatment

A treatment plan often addresses challenges other than cancer treatment. Often, a patient's main concern is that treatment works. However, dealing with cancer is complex and brings many physical and emotional challenges. It is important to know about these challenges and get the support you need.

You may have different challenges than the ones listed. But, it is important to remember that everyone has strengths and talents. Use yours to help cope with ovarian cancer and its treatments. Maintain warm relationships with family and friends. Make a list for them of things that would help you. Most people would be happy to hear what you need. If you are a person of faith, your personal beliefs and faith community can help. There are also professionals in mental health, social work, and pastoral services who can help you. You can also join support groups for help and support from other cancer survivors.

Becoming a "cancer patient"

Hearing "you have cancer" is likely to be life-changing. Some challenges may include managing doctor visits, figuring out how to care for your kids, missing work, and feeling a loss of control. Some people try to keep their life as normal as they can. Others change their life a lot. However, many cancer survivors will tell you that during the active treatment period, being a patient is your job. It's a job that requires much time and energy. This can be hard. Accept the support offered to you and reach out for more help if you need it. Many people are willing to help if asked.

Getting enough sleep

You may have already lost some nights of sleep. This is common. The stress of learning that you have cancer and deciding a treatment plan takes its toll. You may lose more sleep while waiting to have treatment and during recovery. Getting less sleep can affect your mood, conversations, and ability to do things. If possible, allow yourself to rest, let people do things for you, and talk with your doctor about sleep medication. Behavioral sleep medicine—a type of talk therapy—may also help.

Anxiety and depression

Feelings of anxiety and depression are common among people with cancer. You may feel anxious before testing and while waiting for the results. Likewise, you may have a passing depression during a hard part of treatment. Feeling distressed may be a minor problem or it may be more serious. Serious or not, tell your treatment team so that you can get help if needed. Help can include support groups, talk therapy, or medication. Some people also feel better by exercising, talking with loved ones, or relaxing. Your treatment team has information to help you.

View of self

Some people blame themselves for getting cancer. However, what causes ovarian cancer is unknown. Instead of blaming yourself, try to focus on getting better. Undergoing cancer treatment can be hard. You'll have a lot to deal with without the blame.

Part 8: Beyond cancer treatment

After treatment, some people dislike their looks because of side effects. Common concerns are hair loss from chemotherapy and scars from surgery. It can be difficult to adapt to these changes. You may also be concerned with what your partner thinks. Partners may stop showing their love because they are unsure of what to do. They may also think of themselves as more of a caregiver than a partner during treatment. Sharing what you need and want can help your partner and yourself.

Taking care of your body

Healthy eating is always important. This includes eating a balanced diet, eating the right amount of food, and drinking enough fluids. However, you may have special food needs during and after treatment. A nutritionist—an expert in creating a healthy diet—can help.

Many patients benefit from some exercise. Exercise tones muscles, lowers stress, and improves health. Exercise programs differ between people based on their needs. Talk with your treatment team about which exercises would be best for you.

Caring for caregivers

No one experiences cancer alone. Having cancer can affect your loved ones, especially those who provide care. This care can take many forms. It can range from giving emotional support to giving medical services in the home. Caregivers often take on extra duties to keep life normal for the family. They also play a central role in explaining what is happening to you to others, like friends and doctors.

It is natural for caregivers to focus on you. Don't feel guilty. However, caregivers need to meet their own needs as well. Cancer treatment can last from months to years. Caregivers often get too tired from the physical and mental challenges related to the cancer. It isn't easy, but caregivers need to take care of themselves. If they don't, they won't be able to take good care of anyone.

Notes:

Part 8: Tools

Coping tips for patients

- Let other people help you. This is the time to accept offers for rides, meals, childcare, or just good company.
- Be as healthy as you can—eat well, get enough rest, exercise, and stop smoking.
- Talk with your family and friends about your concerns and needs. Let them know what is important to you, including your feelings about end-of-life decisions.
- Do the things that help you cope—keep a journal, garden, play music, or take that trip you've been wanting to take.
- Don't be afraid to take medications that can help your emotional and physical symptoms. Let your cancer care team help you.
- Talk with your treatment team about what you are experiencing. Don't wait until you are feeling overwhelmed.
- Know the resources that are available to you and use them.
- Be your own advocate—ask questions, take notes, and be active in your treatment.

Part 8: Tools

Coping tips for caregivers

- Take the time to understand your loved one's cancer and its treatment. Educating yourself will help you know what to expect and how to be supportive.
- Help provide eyes and ears and sometimes a voice for your loved one. For instance, you can help at doctor visits. You can help by asking questions, hearing what is said, taking notes, and sometimes speaking up for your loved one.
- Talk with your loved one about important issues. Do it from the very beginning. Don't wait because your loved one may become too sick to talk.
- Help develop a treatment plan. A treatment plan helps everyone to understand what treatment goals and other life decisions are important.
- Take care of yourself. Find the time to get away—take a walk, have lunch with a friend, or see a movie. Do something that feels normal. Also, eat healthy foods, try to sleep well, and exercise. You'll be a better caregiver if you are taking care of yourself.
- Let other people help you. Take advantage of offers to make a meal, provide a ride, watch the kids, or just give you a break. Let your friends know how they can help.
- Take advantage of resources. There are many approaches to dealing with the complex issues you may face as a caregiver. Find out what support is available and use these resources.
- Understand that caregivers are survivors just as much as patients are. Cancer is life-changing whether you are the patient or the person caring for the patient.

Part 8: Tools

Webpages

National Cancer Institute
http://www.cancer.gov/cancertopics/coping

National Ovarian Cancer Coalition
www.ovarian.org/coping.php

American Cancer Society
http://www.cancer.org/Treatment/index

Ovarian Cancer Research Fund
www.ocrf.org/index.php?option=com_content&view=category&layout=blog&id=175&Itemid=495

NCCN
http://www.nccn.com/living-with-cancer.html

Review of Part 8

- You'll face challenges other than cancer treatment.
- Ask for and accept help during this stressful time.
- Give caregivers support to take care of themselves.

treatment plans

Part 9: Treatment plans

Cancer can be very stressful. While absorbing the fact that you have cancer, you must also learn about tests and treatments. And, the time to accept a treatment plan may feel short. Parts 1 through 8 aimed to teach you about ovarian cancer, its treatment, and other challenges. Part 9 addresses issues related to your ovarian cancer treatment plan.

Benefits of a treatment plan

Learning you have cancer starts an unplanned journey to an unknown place. A treatment plan is like having a roadmap for your journey. It is a written course of action through treatment and beyond. It can help you, your loved ones, and your treatment team. A treatment plan is useful for:

- Starting and guiding talks about treatment,
- Teaching what the treatment choices are,
- Informing everyone of the decisions made,
- Reminding everyone of the decisions made,
- Pinpointing who is in charge of each part of care,
- Controlling stress,
- Knowing what to expect,
- Changing from one doctor to another,
- Improving contact among your doctors, and
- Providing care for all issues.

Parts of a treatment plan

A treatment plan addresses all cancer care needs while respecting your beliefs, wishes, and values. It is likely to change and expand as you go through treatment. The plan will include the role of your doctors and how you can help yourself. A treatment plan often has the following parts:

Cancer information

Cancer can greatly differ even when people have a tumor in the same organ. Test results that describe the cancer are reported in the treatment plan. Such test results include the cancer site, cell type, and cancer stage. See Part 2 and Part 3 for the tests used for ovarian cancer.

Your treatment team

Cancer care is a team effort. Who is on your team depends on the treatments you choose. It is recommended that a gynecologic oncologist is part of your treatment team. A gynecologic oncologist is a doctor who is an expert in treating cancers that start in the female reproductive organs. If possible, a gynecologic oncologist should perform the initial surgery for ovarian cancer. Medical oncologists treat cancer with drugs such as chemotherapy, targeted therapy, and hormone therapy. Your primary care doctor can also be part of your team. He or she can help you express your feelings about treatment to the team. Treatment of other medical problems may be improved if he or she is informed of your cancer care. Besides doctors, you may receive care

from nurses, social workers, and other health experts. Ask to have the names and contact information of your health providers included in the treatment plan.

Cancer treatment

There is no single treatment practice that is best for all patients. There is often more than one treatment option, including clinical trials. Treatment planning takes into account many factors, such as:

- The cancer stage and grade,
- Location of the tumor,
- Your general health,
- Treatment side effects,
- Costs of treatment,
- Changes to your life,
- What you want from treatment, and
- Your feelings about side effects.

The cancer treatment that you agree to have should be reported in the treatment plan. It is also important to note the goal of treatment and the chance of a good treatment response. In addition, all known side effects should be listed and the time required to treat them should be noted.

Your treatment plan may change because of new information. You may change your mind about treatment. Tests may find new results. How well the treatment is working may change. Any of these changes may require a new treatment plan.

Definitions:

Cancer stage: The rating of the growth and spread of cancer

Clinical trial: Research on a test or treatment to assess its safety or how well it works

Reproductive organs: Organs that help make babies, such as the ovaries, Fallopian tubes, and uterus

Side effect: An unplanned physical or emotional response to treatment

Treatment response: Outcome or improvement related to treatment

Tumor: An overgrowth of cells

Part 9: Treatment plans

Stress and symptom control

Cancer or its treatment can cause bothersome symptoms. You may also have symptoms from the stress of having cancer. Such symptoms include pain, sleep loss, and anxiety. See Part 8 for more information. Helping you to be comfortable and stay active are key goals of the treatment plan. There are ways to treat many symptoms, so tell your treatment team about any symptoms you have so they can help.

Having cancer may cause you to feel helpless, fearful, alone, or overwhelmed. There are ways to manage this stress. At your cancer center, cancer navigators, social workers, and other experts can help. There may also be helpful community resources, such as support groups and wellness centers.

Financial stress is common. You may be unemployed or miss work during treatment. You may have too little or no health insurance. Talk to your treatment team about work, insurance, or money problems. They will include information in the treatment plan to help you control your finances.

Survivorship care

Cancer survivorship begins on the day you learn of having ovarian cancer. For many survivors, the end of active treatment signals a time of celebration but also of great anxiety. This is a very normal response. You may need support to address issues that arise from not having regular visits with your treatment team. Your treatment plan should include a schedule of follow-up cancer tests, treatment of long-term side effects, and care of your general health.

Advance care planning

Talking with your doctor about your prognosis can help with treatment planning. If the cancer can't be cured, a care plan for the end of life can be made. However, such talks often happen too late or not at all. Your doctor may delay these talks for fear that you may lose hope, become depressed, or have a shorter survival. Studies suggest that these fears are wrong. Instead, there are many benefits to advance care planning. It is useful for:

- Knowing what to expect,
- Making the most of your time,
- Lowering the stress of caregivers,
- Having your wishes followed,
- Having a better quality of life, and
- Getting good care.

Advance care planning starts with an honest talk between you and your doctors. You don't have to know the exact details of your prognosis. Just having a general idea will help with planning. With this information, you can decide at what point you'd want to stop chemotherapy, if at all. You can also decide what treatments you'd want for symptom relief, such as surgery or drugs.

Part 9: Treatment plans

Another part of the planning involves hospice care. Hospice care doesn't include treatment to fight the cancer, but rather to reduce symptoms caused by cancer. Hospice care may be started because you don't want more cancer treatment, no other cancer treatment is available, or because you may be too sick for cancer treatment.

Hospice care allows you to have the best quality of life possible. Care is given all day, every day of the week. You can choose to have hospice care at home or at a hospice center. One study found that patients and caregivers had a better quality of life when hospice care was started early.

An advance directive describes the treatment you'd want if you weren't able to make your wishes known. It also can name a person whom you'd want to make decisions for you. It is a legal paper that your doctors have to follow. It can reveal your wishes about life-sustaining machines, such as feeding tubes. It can also include your treatment wishes if your heart or lungs were to stop working. If you already have an advance directive, it may need to be updated to be legally valid.

Getting a 2nd opinion

The time around a cancer diagnosis can be very stressful. People with cancer often want to start treatment as soon as possible. They want to make the cancer go away before it spreads any further. While cancer can't be ignored, there is time to think about and choose which treatment plan is best for you.

You may wish to have another doctor review your test results and the treatment plan your doctor has recommended. This is called getting a 2nd opinion. Ovarian cancer is a serious disease, and new information may have been published about which treatments are most effective and safe. You may completely trust your doctor, but a 2nd opinion on which treatment is right for you can help.

Definitions:

Chemotherapy: Drugs that kill all cells that grow rapidly, including normal cells and cancer cells

Prognosis: The course and outcome of a disease

Side effect: An unplanned physical or emotional response to treatment

Part 9: Treatment plans

Copies of the pathology report, a CD of the imaging tests, and other test results need to be sent to the doctor giving the 2nd opinion. Some people feel uneasy asking for copies from their doctors. However, a 2nd opinion is a normal part of cancer care. When doctors have cancer, most will talk with more than one doctor before choosing their treatment. What's more, some health plans require a 2nd opinion. If your health plan doesn't cover the cost of a 2nd opinion, you have the choice of paying for it yourself.

Choosing your cancer treatment is a very important decision. It can affect length and quality of life. There are few cancers that are so aggressive that you can't take a few weeks to get a 2nd opinion and select the best treatment for you.

Part 9: Treatment plans

Webpages

American Cancer Society
http://www.cancer.org/Treatment/FindingandPayingforTreatment/index

National Cancer Institute
http://www.cancer.gov/cancertopics/factsheet/Therapy/doctor-facility

National Coalition for Cancer Survivorship
http://www.canceradvocacy.org/toolbox/

Ovarian Cancer Research Fund
www.ocrf.org/index.php?option=com_content&view=article&id=759&Itemid=484

Review of Part 9

- A treatment plan can help you through treatment and beyond.
- It covers many issues—test results, treatments, and supportive programs.
- You can choose how active a role to have in planning your treatment.
- You may wish to get a 2nd opinion on your treatment plan.

Part 10: Dictionary

Abdomen
The belly area between the chest and pelvis.

Adjuvant chemotherapy
A type of cancer drug that is given after surgery.

Adjuvant therapy
Treatment given after the main treatment used to rid the body of cancer.

Advance directive
Written statements about your wishes for medical care should you become unable to make these wishes known at a later time.

Aggressive cancer
A cancer that spreads quickly.

Allergic reaction
Symptoms caused when the body is trying to rid itself of invaders.

Alternative medicine
Treatments used in place of ones usually given by doctors.

Anemia
A health condition in which the number of red blood cells is low.

Appendix
A small pouch-like organ that sticks out from the first part of the large intestine (organ that prepares unused food for leaving the body).

Artery
A tube that carries blood away from the heart to the rest of the body.

Ascites
Abnormal fluid buildup in the belly area (abdomen) or pelvis.

Bilateral salpingo-oophorectomy (BSO)
Surgery that removes both ovaries (organs that make eggs and hormones) and both Fallopian tubes (organs that eggs travel through from the ovaries to the uterus).

Biochemical relapse
A rise in the level of CA-125 (a protein that is made by ovarian cancer cells and other cells) in the blood after treatment, without symptoms or signs on imaging tests that the cancer has come back.

Biopsy
Removal of small amounts of tissue or fluid to be tested for disease.

Bladder
An organ that holds and drains urine from the body.

Blood chemistry profile
A test to show unusual amounts of chemicals in the blood.

Borderline ovarian cancer
An ovarian tumor with abnormal cells that aren't clearly cancer.

CA-125 (cancer antigen 125)
A protein with sugar molecules attached to it that is made by ovarian cancer cells as well as normal cells.

Part 10: Dictionary

Cancer grade
How closely the cancer cells look like normal cells.

Cancer stage
The rating of the growth and spread of cancer.

Cancer staging
Grouping of cancer according to how far it has spread in the body.

Cancerous
Cells that invade (grow into) and destroy nearby tissue and spread to other parts of the body. Also called malignant.

Catheter
A flexible tube inserted in the body to give treatments, or drain fluid from the body.

Cell subtypes
Different types of ovarian cancer cells that are grouped based on how the cells look when viewed with a microscope.

Cells
The "building blocks" of tissues in the body.

Cervix
The lower end of the uterus (where babies grow during pregnancy) that connects to the vagina (canal from the uterus to outside the body).

Chemotherapy
Drugs that kill all cells that grow rapidly, including normal cells and cancer cells.

Chemotherapy cycle
Days of treatment followed by days of rest.

Clear cell
An ovarian cancer cell subtype that is more aggressive (more likely to grow and spread).

Clinical relapse
The presence of physical signs or symptoms that cancer has come back after responding to treatment.

Clinical stage
The rating of the extent of cancer based on tests before treatment.

Clinical trial
Research on a test or treatment to assess its safety or how well it works.

Colon
An organ that changes eaten food from a liquid into a solid form.

Combination chemotherapy
The use of two or more chemotherapy drugs.

Combination regimen
The use of two or more drugs.

Complete blood count (CBC)
A test of the number of blood cells.

Complete response
The end of all signs of cancer after treatment.

Completion surgery
Surgery that removes the remaining ovary (or ovaries), Fallopian tube(s), and uterus, and possibly the omentum, nearby supporting tissue, and any remaining cancer that can be seen.

Computed tomography (CT) scan
A test that combines many x-rays taken from different angles to make a picture of the inside of the body.

Part 10: Dictionary

Contrast dye
A dye put into your body to make clearer pictures during imaging tests.

Control group
Patients in research who don't receive a new treatment.

Debulking surgery
Surgery that removes as much of the cancer as possible.

Diagnose
To identify a disease.

Diagnosis
Identification of a disease.

Diaphragm
A sheet of muscles below the ribs that helps a person to breathe.

Endometrioid
One of five cell subtypes of ovarian cancer based on how the cells look when viewed with a microscope.

Endometrium
The inner lining of the uterus (organ where babies grow during pregnancy).

Epithelial cells
Cells that form the outer layer of tissue lining around organs and structures in the body.

Epithelial ovarian cancer
Cancer that starts in the cells that form the outer layer of tissue lining around the ovaries.

Epithelium
The outer layer of tissue lining around organs and structures in the body.

Fallopian tube
The female organ that eggs travel through from an ovary (organ that makes eggs and hormones) to the uterus (where a baby grows during pregnancy).

Fatigue
Severe tiredness despite getting enough sleep that limits one's ability to function.

Fertility
The ability to have babies.

Fertility-sparing surgery
Surgery that removes one ovary (organ that makes eggs and hormones) and one Fallopian tube (organ eggs travel through from the ovary to the uterus) so that a woman can still have babies.

Fine-needle aspiration (FNA) biopsy
Use of a thin needle to remove fluid or tissue from the body to test for disease.

Follow-up tests
Tests done after treatment to check for signs that the cancer has come back.

Food and Drug Administration (FDA)
A federal government agency that regulates drugs and food.

Gallbladder
A small organ that holds digestive fluid from the liver.

Gastrointestinal (GI) tract
Group of organs that food passes through when you eat.

Part 10: Dictionary

General anesthesia
A controlled loss of wakefulness from drugs.

Genes
Instructions in cells for making and controlling cells.

Genetic counseling
Discussion with a health expert about a disease caused by abnormal information in cells that is passed down from parents to children.

Genetic mutation
Abnormal change in the instructions in cells for making and controlling cells.

Gut
Another name for the intestine, which is the organ that food passes through after leaving the stomach.

Gynecologic oncologist
A doctor who's an expert in treating cancer that starts in the female organs involved in making babies.

Hives
Itchy, swollen, and red skin caused by the body ridding itself of an invader.

Hormone therapy
Treatment that stops the making or action of hormones (chemicals that activate cells or organs) in the body.

Hormones
Chemicals in the body that activate cells or organs.

Hospice
Treatment for the symptoms of a disease near the end of life.

Hot flash
A medical condition of feeling intense heat and body sweat for short periods.

Hysterectomy
Surgery that removes the uterus (female organ where babies grow during pregnancy).

Imaging test
A test that makes pictures (images) of the inside of the body.

Implants
Cancer cells that have broken off from the first tumor and spread to the surface of nearby organs and structures in the belly area. Also called seeds.

Indigestion
Feeling of discomfort, such as heat, burning, or pain in the upper belly area.

Infertility
The inability to have babies.

Informed consent form
A document describing a research study that must be read, understood, and signed by any person wanting to join.

Intestines
The organs that food travels through after leaving the stomach.

Intraperitoneal (IP) chemotherapy
Drugs given by a small tube surgically placed in the abdomen (belly area).

Intravenous (IV) chemotherapy
Drugs given by a needle or tube inserted into a vein.

Invasive disease
Cancer cells that have invaded (grown into) supporting tissues of organs or structures.

Part 10: Dictionary

Invasive implant
Cancer cells that have broken away from the first tumor and have invaded (grown into) supporting tissues of another organ or structure.

Kidneys
A pair of organs that filter blood and remove waste from the body through urine.

Laparoscope
A thin, long tube with a light and camera that is used to see inside the belly area.

Laparoscopy
Surgery that uses a thin, long tube with a light and camera, and possibly tools to remove tissue, inserted through a small cut in the belly area.

Laparotomy
Surgery with a long, up-and-down cut through the wall of the abdomen (belly area).

Large intestine
The organ that prepares unused food for leaving the body.

Libido
Sexual desire or emotions related to sex.

Liver
An organ that removes waste from the blood.

Local anesthesia
A controlled loss of feeling in a small area of the body due to drugs being administered to that area, usually injected with a needle or rubbed on top of the skin.

Lung
An organ in the body made of airways and air sacs.

Lymph
A clear fluid containing white blood cells.

Lymph node
Small groups of special disease-fighting cells located throughout the body.

Lymph node dissection
Removal of all groups of disease-fighting cells from a cluster.

Lymph vessels
Tube-shaped ducts that carry lymph throughout the body.

Lymphedema
Swelling due to buildup of lymph (a clear fluid containing white blood cells).

Magnetic resonance imaging (MRI) scan
A test that uses radio waves and powerful magnets to make pictures of the inside of the body showing the shape and function of body parts.

Maintenance treatment
Treatment given to continue good treatment results.

Medical history
All health events and medications taken to date.

Medical oncologist
A doctor who's an expert in treating cancer with drugs.

Menopause
When a woman goes 12 or more months without menstrual periods and is no longer able to have babies.

Part 10: Dictionary

Menstrual cycle
When changes in the uterus (where babies grow during pregnancy) and ovaries (organs that make eggs and hormones) occur to prepare a woman's body for pregnancy.

Menstrual period
The flow of blood and tissue from the uterus (organ where babies grow during pregnancy) to outside the body.

Menstruation
The flow of blood and tissue from the uterus (organ where babies grow during pregnancy) to outside the body.

Metabolic
Having to do with chemical changes that take place in a cell.

Metastasis
The spread of cancer cells from the first tumor to another body part.

Microscope
A tool that uses lenses to see things the eyes can't.

Microscopic metastases
Cancer cells that have spread outside of the ovaries and can only be seen with a microscope (a tool that uses lenses to see things the eyes can't).

Monitoring tests
Tests done during treatment to check if treatment is working.

Mucinous
One of five cell subtypes of ovarian cancer based on how the cells look when viewed with a microscope.

Mutation
Abnormal changes in the instructions in cells for making and controlling cells.

Neoadjuvant chemotherapy
Chemotherapy given before surgery to remove a tumor.

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

Noninvasive disease
Cancer cells that haven't grown into supporting tissues of organs or structures.

Noninvasive implant
Cancer cells that have broken away from the first tumor, but have not invaded (grown into) supporting tissues of other organs or structures.

Observation
A period of testing right after treatment to check that treatment worked. Or, a period of testing without treatment to check for cancer growth to know when to start treatment.

Omentectomy
Surgery that removes the omentum (the double layer of fatty tissue covering the intestines and organs in the belly area).

Omentum
The double layer of fatty tissue covering the intestines and organs in the belly area.

Part 10: Dictionary

Ovaries
The pair of organs in females that make eggs and hormones.

Palliative care
Treatment for symptoms of a disease. Also called supportive care.

Pancreas
An organ that makes digestive fluids and chemicals to control blood sugar.

Pap test
A procedure in which cells are removed from the cervix (lower part of the uterus) to be looked at with a microscope for signs of disease.

Paracentesis
Use of a thin tube or needle inserted through the skin of the belly to remove a sample of fluid to test for disease.

Partial response
When some, but not all, signs and symptoms of cancer have disappeared after treatment.

Pathologic stage
The rating the extent of cancer based on tests after surgery.

Pathologist
A doctor who's an expert in testing cells and tissue to find disease.

Pathology report
A document with information about cancer cells and tissue that were removed from the body and tested for signs of disease.

Pelvis
The area between the hip bones.

Perimenopause
When menstrual periods become less frequent leading up to menopause (12 or more months without a menstrual period) when a woman is no longer able to have babies.

Peritoneal cavity
Area inside the belly area (abdomen) that contains the abdominal organs such as the intestines, stomach, and liver.

Peritoneal washings
A special liquid that is tested for cancer cells after it is used to "wash" the inside of the belly area called the peritoneal cavity.

Peritoneum
The tissue lining the inside of the belly area (abdomen).

Persistent disease
Cancer that continued to grow and/or spread during treatment.

Physical exam
A review of the body by a health expert for signs of disease.

Placebo
A fake medicine that has no active agents.

Platinum chemotherapy
Treatment with chemotherapy drugs that are made with platinum.

Platinum-based chemotherapy
Treatment with two or more drugs when the main chemotherapy drug is made with platinum.

Platinum-resistant
The cancer doesn't respond (doesn't improve or go away) to a chemotherapy drug made with platinum.

Part 10: Dictionary

Platinum-sensitive
The cancer responds (improves or goes away) to a chemotherapy drug made with platinum.

Positron emission tomography (PET) scan
A test that uses radioactive material to see the function of organs and tissues inside the body.

Primary chemotherapy
The first or main chemotherapy drug or drugs given to treat cancer.

Primary tumor
The first mass of cancer cells in the body.

Prognosis
The course and outcome of a disease.

Progressive disease
Cancer that responded to treatment and then began to grow or spread again.

Protein
A chain of small chemical compounds important to every cell in the body.

Radiographic relapse
When imaging tests show signs that the cancer has come back (relapsed or recurred) after treatment.

Radiologist
A doctor who's an expert in reading imaging tests.

Radiotracer
Matter with energy that is put into the body to make pictures clearer.

Randomized
Assignment to a group by chance.

Rectum
The last several inches of the large intestine (organ that prepares unused food for leaving the body).

Recurrence
The return of cancer after treatment. Also called relapse.

Recurrence symptoms
Physical signs that the cancer has come back (recurred) after treatment.

Recurrence treatment
More treatment for cancer that returned after previous treatment.

Recurrent cancer
Cancer that has come back after treatment.

Regimen
A treatment plan that specifies the dosage, schedule, and duration of treatment.

Regional treatment
Treatment with cancer-killing drugs directed to a specific area of the body.

Relapse
The return of cancer after treatment. Also called recurrence.

Reproductive organs
Organs that help make babies, such as the ovaries, Fallopian tubes, and uterus.

Salpingo-oophorectomy
Surgery that removes the ovaries (organs that make eggs and hormones) and Fallopian tubes (tube-like organs eggs travel through from the ovaries to the uterus).

Sedative
A drug that helps a person to relax or go to sleep.

Part 10: Dictionary

Serous
One of five cell subtypes of ovarian cancer based on how the cells look when viewed with a microscope.

Side effect
An unplanned physical or emotional response to treatment.

Single agent
The use of one drug.

Small intestine
The organ that absorbs nutrients from eaten food.

Sonogram
A computer picture of areas inside the body created by sound waves bounced off of tissues and organs.

Spleen
An organ to the left of the stomach that helps protect the body against disease.

Staging
Grouping of cancer according to how large the tumor is and how far the cancer has spread in the body.

Staging procedures (surgical staging procedures)
Procedures during surgery that are used to find out how far the cancer has spread.

Standard care
The process that a health professional should follow to treat a medical problem.

Stomach
An organ of the digestive system that turns solid food into a liquid form.

Supportive care
Treatment of the symptoms of a disease. Also called palliative care.

Surgery
An operation to remove or repair a part of the body.

Surgical evaluation
Surgery to find out how far cancer has spread in the body and to see if surgery to remove all of the cancer is a safe and good option.

Surgical menopause
A sudden stop in menstrual periods caused by surgery to remove both ovaries.

Surgical staging
Procedures done during surgery that are used to find out how far cancer has spread.

Symptom
A physical sign or patient report of a health condition.

Systemic treatment
Drugs used to treat cancer cells throughout the body.

Targeted therapy
Drugs that specifically target and kill cancer cells.

Total abdominal hysterectomy (TAH)
Surgery that removes the uterus (female organ where babies grow during pregnancy) through a surgical cut in the abdomen (belly area).

Part 10: Dictionary

Transabdominal ultrasound
A type of test that uses sound waves to take pictures of the inside of the body with the use of a special tool glided across the skin of the belly area.

Transducer
A hand-held tool that bounces sound waves off organs and tissue in a certain area to make pictures of the inside of the body.

Transvaginal ultrasound
A type of test that uses sound waves to take pictures of the inside of the body with the use of a special tool inserted through the vagina.

Treatment plan
A written course of action through cancer treatment and beyond.

Treatment response
Outcome or improvement related to treatment.

Tumor
An overgrowth of cells.

Tumor marker
A substance found in body tissue or fluid that may be a sign of cancer.

Ultrasound
A test that uses sound waves to take pictures of the inside of the body. Also called ultrasonography.

Undifferentiated
One of five cell subtypes of ovarian cancer based on how the cells look when viewed with a microscope.

Unilateral salpingo-oophorectomy (USO)
Surgery that removes one ovary (organ that makes eggs and hormones) and one Fallopian tube (organ that eggs travel through from the ovary to the uterus). Also called fertility-sparing surgery.

Uterus
The female organ where babies grow during pregnancy.

Vagina
A hollow, muscular tube at the base of a woman's uterus (where babies grow during pregnancy) through which babies are born.

Vein
A tube that carries blood to the heart from tissues and organs in the body.

X-ray
Use of small amounts of radiation to make pictures of organs and structures inside the body.

Credits

NCCN aims to improve the care given to patients with cancer. NCCN staff work with experts to create helpful programs and resources for many stakeholders. Stakeholders include health providers, patients, businesses, and others. One resource is the series of booklets for patients called the NCCN Patient Guidelines. Each booklet presents the standard of care for a type of cancer.

The patient booklets are based on guidelines written for doctors. These guidelines are called the NCCN Guidelines. They give a step-by-step course of care that many cancer doctors follow. Panels of experts create the NCCN Guidelines. Most of the experts are from the 23 NCCN Member Institutions. Panelists may include surgeons, radiation oncologists, medical oncologists, and patient advocates. Recommendations in the NCCN Guidelines are based on clinical trials and the experience of the panelists.

NCCN abbreviations and acronyms

NCCN®
National Comprehensive Cancer Network®

NCCN Patient Guidelines®
NCCN Guidelines for Patients®

NCCN Guidelines®
NCCN Clinical Practice Guidelines in Oncology®

The people involved in the making of the guidelines for patients and doctors are listed next, starting with NCCN staff:

NCCN Patient Guidelines

Dorothy A. Shead, MS
Director
Patient and Clinical Information Operations

Laura J. Hanisch, PsyD
Medical Writer/
Patient Information Specialist

Lacey Marlow
Associate Medical Writer

NCCN Guidelines

Mary Dwyer, MS
Guidelines Coordinator

Miranda Hughes, PhD
Oncology Scientist/
Senior Medical Writer

NCCN Marketing

Rene Dubnanski
Graphic Design Specialist

NCCN Drugs & Biologics Programs

Rachael Clarke
Medical Copyeditor

NCCN Panel Members for Ovarian Cancer

Robert J. Morgan, Jr., MD/Chair
City of Hope Comprehensive Cancer Center

Ronald D. Alvarez, MD
University of Alabama at Birmingham Comprehensive Cancer Center

Deborah K. Armstrong, MD
The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins

Robert Burger, MD
Fox Chase Cancer Center

Lee-may Chen, MD
UCSF Helen Diller Family Comprehensive Cancer Center

Larry Copeland, MD
The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute

Marta Ann Crispens, MD
Vanderbilt-Ingram Cancer Center

David M. Gershenson, MD
The University of Texas MD Anderson Cancer Center

Heidi J. Gray, MD
University of Washington Medical Center/Seattle Cancer Care Alliance

Ardeshir Hakam, MD
Moffitt Cancer Center

Laura J. Havrilesky, MD
Duke Cancer Institute

Carolyn Johnston, MD
University of Michigan Comprehensive Cancer Center

Shashikant Lele, MD
Roswell Park Cancer Institute

Lainie Martin, MD
Fox Chase Cancer Center

Ursula A. Matulonis, MD
Dana-Farber/Brigham and Women's Cancer Center

David M. O'Malley, MD
The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute

Richard T. Penson, MD, MRCP
Massachusetts General Hospital Cancer Center

Matthew A. Powell, MD
Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine

Steven W. Remmenga, MD
UNMC Eppley Cancer Center at The Nebraska Medical Center

Paul Sabbatini, MD
Memorial Sloan-Kettering Cancer Center

Joseph T. Santoso, MD
St. Jude Children's Research Hospital/ The University of Tennessee Health Science Center

Julian C. Schink, MD
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Nelson Teng, MD, PhD
Stanford Cancer Institute

Theresa L. Werner, MD
Huntsman Cancer Institute at the University of Utah

NCCN Member Institutions

City of Hope Comprehensive Cancer Center
Los Angeles, California
800.826.4673
cityofhope.org

Dana-Farber/Brigham and Women's Cancer Center
Massachusetts General Hospital Cancer Center
Boston, Massachusetts
800.320.0022
dfbwcc.org
massgeneral.org/cancer

Duke Cancer Institute
Durham, North Carolina
888.275.3853
dukecancerinstitute.org

Fox Chase Cancer Center
Philadelphia, Pennsylvania
888.369.2427
foxchase.org

Huntsman Cancer Institute at the University of Utah
Salt Lake City, Utah
877.585.0303
huntsmancancer.org

Fred Hutchinson Cancer Research Center/ Seattle Cancer Care Alliance
Seattle, Washington
206.288.7222 • seattlecca.org
206.667.5000 • fhcrc.org

The Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins
Baltimore, Maryland
410.955.8964
hopkinskimmelcancercenter.org

Robert H. Lurie Comprehensive Cancer Center of Northwestern University
Chicago, Illinois
866.587.4322
cancer.northwestern.edu

Memorial Sloan-Kettering Cancer Center
New York, New York
800.525.2225
mskcc.org

Moffitt Cancer Center
Tampa, Florida
800.456.3434
moffitt.org

The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute
Columbus, Ohio
800.293.5066
cancer.osu.edu

Roswell Park Cancer Institute
Buffalo, New York
877.275.7724
roswellpark.org

Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine
St. Louis, Missouri
800.600.3606
siteman.wustl.edu

NCCN Member Institutions

St. Jude Children's Research Hospital/ The University of Tennessee Health Science Center
Memphis, Tennessee
888.226.4343 • stjude.org
877.988.3627 • utcancer.org

Stanford Cancer Institute
Stanford, California
877.668.7535
cancer.stanfordhospital.com

University of Alabama at Birmingham Comprehensive Cancer Center
Birmingham, Alabama
800.822.0933
ccc.uab.edu

UC San Diego Moores Cancer Center
La Jolla, California
858.657.7000
cancer.ucsd.edu

UCSF Helen Diller Family Comprehensive Cancer Center
San Francisco, California
800.888.8664
cancer.ucsf.edu

University of Colorado Cancer Center
Aurora, Colorado
720.848.0300
coloradocancercenter.org

University of Michigan Comprehensive Cancer Center
Ann Arbor, Michigan
800.865.1125
mcancer.org

UNMC Eppley Cancer Center at The Nebraska Medical Center
Omaha, Nebraska
800.999.5465
unmc.edu/cancercenter

The University of Texas MD Anderson Cancer Center
Houston, Texas
877.632.6789
mdanderson.org

Vanderbilt-Ingram Cancer Center
Nashville, Tennessee
800.811.8480
vicc.org

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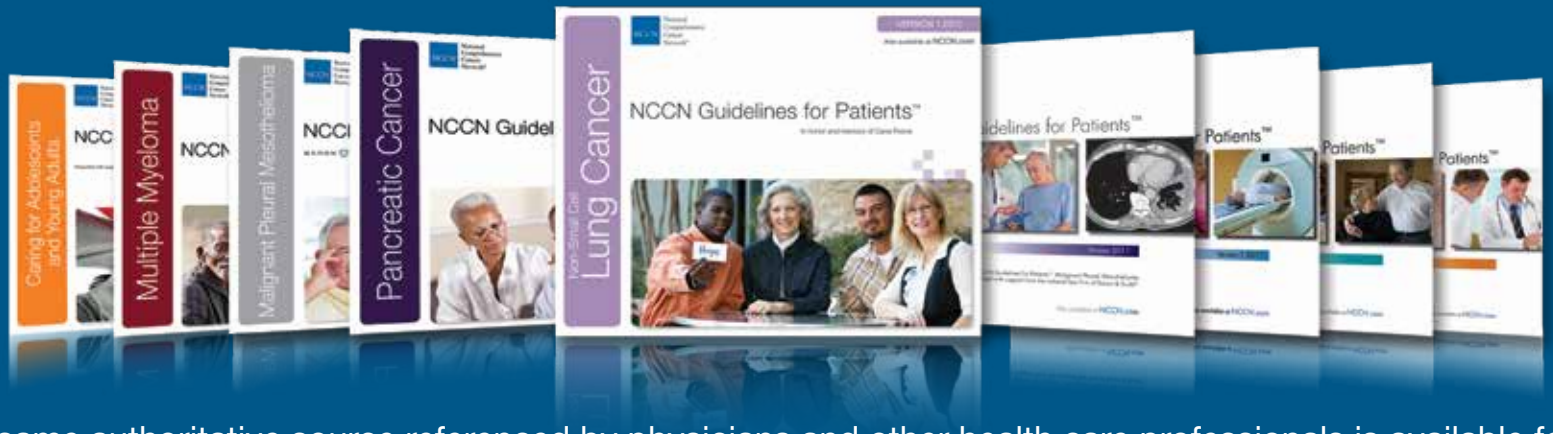

The same authoritative source referenced by physicians and other health care professionals is available for patients.
To request a printed copy: patientguidelines@NCCN.org

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