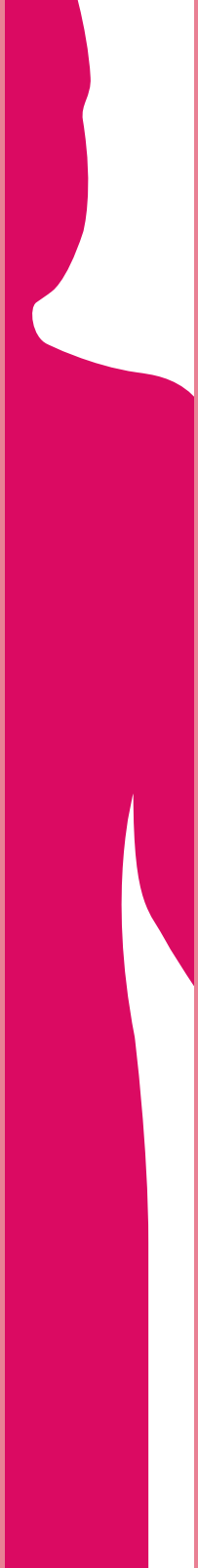
National Cancer Institute



What You Need To Know About™

Ovarian Cancer

U.S. DEPARTMENT OF
HEALTH AND HUMAN SERVICES
National Institutes of Health

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About This Booklet

This National Cancer Institute (NCI) booklet is about *ovarian epithelial cancer*. It is the most common type of *ovarian cancer*. It begins in the tissue that covers the *ovaries*.

You will read about possible causes, symptoms, diagnosis, and treatment. You will also find lists of questions to ask your doctor. It may help to take this booklet with you to your next appointment.

Important terms appear in *italics*. The Dictionary at the back of this booklet explains these terms. Definitions of more than 4,000 terms are also on the NCI Web site at **http://www.cancer.gov/dictionary**. Most words in the Dictionary have a "sounds-like" spelling to show how to pronounce them.

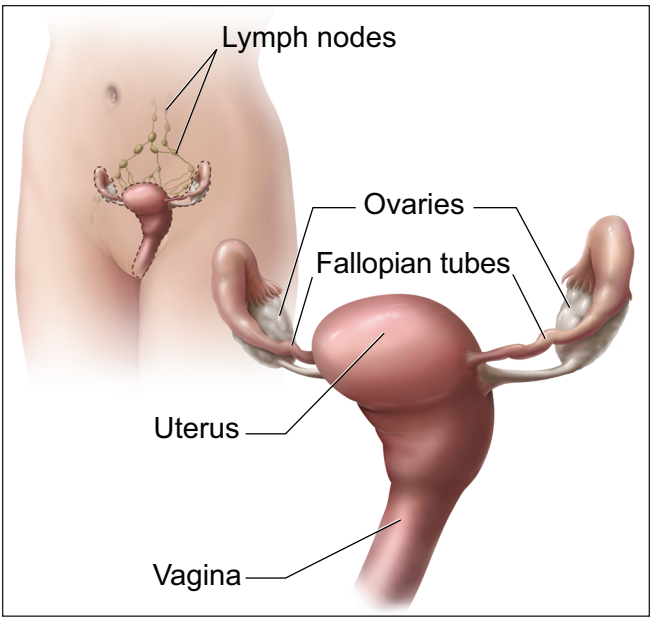
This booklet is not about *ovarian germ cell tumors* or other types of ovarian cancer. To find out about these types of ovarian cancer, please visit our Web site at **http://www.cancer.gov/cancertopics/types/ovarian**. Or, contact our Cancer Information Service. We can answer your questions about cancer. We can send you NCI booklets, fact sheets, and other materials. You can call **1–800–4–CANCER** (1–800–422–6237) or instant message us through the LiveHelp service at **http://www.cancer.gov/help**.

The Ovaries

The ovaries are part of a woman's *reproductive system*. They are in the *pelvis*. Each ovary is about the size of an almond.

The ovaries make the female *hormones*—*estrogen* and *progesterone*. They also release eggs. An egg travels from an ovary through a *fallopian tube* to the womb (*uterus*).

When a woman goes through her "change of life" (*menopause)*, her ovaries stop releasing eggs and make far lower levels of hormones.



This picture is of the ovaries and nearby organs.

Understanding Cancer

Cancer begins in cells, the building blocks that make up tissues. Tissues make up the organs of the body.

Normally, cells grow and divide to form new cells as the body needs them. When cells grow old, they die, and new cells take their place.

Sometimes, this orderly process goes wrong. New cells form when the body does not need them, and old cells do not die when they should. These extra cells can form a mass of tissue called a growth or tumor.

Tumors can be *benign* or *malignant*:

- **Benign tumors** are not cancer:
  - — Benign tumors are rarely life-threatening.
  - — Generally, benign tumors can be removed. They usually do not grow back.
  - — Benign tumors do not invade the tissues around them.
  - — Cells from benign tumors do not spread to other parts of the body.
- **Malignant tumors** are cancer:
  - — Malignant tumors are generally more serious than benign tumors. They may be life-threatening.
  - — Malignant tumors often can be removed. But sometimes they grow back.
  - — Malignant tumors can invade and damage nearby tissues and organs.
  - — Cells from malignant tumors can spread to other parts of the body. Cancer cells spread by breaking away from the original (primary) tumor and entering the *lymphatic system* or bloodstream. The cells invade other organs and form new tumors that damage these organs. The spread of cancer is called *metastasis*.

Benign and Malignant Cysts

An ovarian cyst may be found on the surface of an ovary or inside it. A cyst contains fluid. Sometimes it contains solid tissue too. Most ovarian cysts are benign (not cancer).

Most ovarian cysts go away with time. Sometimes, a doctor will find a cyst that does not go away or that gets larger. The doctor may order tests to make sure that the cyst is not cancer.

Ovarian Cancer

Ovarian cancer can invade, shed, or spread to other organs:

- **Invade**: A malignant ovarian tumor can grow and invade organs next to the ovaries, such as the fallopian tubes and uterus.
- **Shed**: Cancer cells can shed (break off) from the main ovarian tumor. Shedding into the *abdomen* may lead to new tumors forming on the surface of nearby organs and tissues. The doctor may call these seeds or implants.
- **Spread**: Cancer cells can spread through the lymphatic system to *lymph nodes* in the pelvis, abdomen, and chest. Cancer cells may also spread through the bloodstream to organs such as the liver and lungs.

When cancer spreads from its original place to another part of the body, the new tumor has the same kind of abnormal cells and the same name as the original tumor. For example, if ovarian cancer spreads to the liver, the cancer cells in the liver are actually ovarian cancer cells. The disease is *metastatic* ovarian cancer, not liver cancer. For that reason, it is treated as ovarian cancer, not liver cancer. Doctors call the new tumor “distant” or metastatic disease.

Risk Factors

Doctors cannot always explain why one woman develops ovarian cancer and another does not. However, we do know that women with certain *risk factors* may be more likely than others to develop ovarian cancer. A risk factor is something that may increase the chance of developing a disease.

Studies have found the following risk factors for ovarian cancer:

- **Family history of cancer**: Women who have a mother, daughter, or sister with ovarian cancer have an increased risk of the disease. Also, women with a family history of cancer of the breast, uterus, colon, or rectum may also have an increased risk of ovarian cancer.

  If several women in a family have ovarian or breast cancer, especially at a young age, this is considered a strong family history. If you have a strong family history of ovarian or breast cancer, you may wish to talk to a *genetic counselor*. The counselor may suggest *genetic testing* for you and the women in your family. Genetic tests can sometimes show the presence of specific *gene* changes that increase the risk of ovarian cancer.
- **Personal history of cancer**: Women who have had cancer of the breast, uterus, colon, or rectum have a higher risk of ovarian cancer.
- **Age over 55**: Most women are over age 55 when diagnosed with ovarian cancer.
- **Never pregnant**: Older women who have never been pregnant have an increased risk of ovarian cancer.

- ***Menopausal hormone therapy***: Some studies have suggested that women who take estrogen by itself (estrogen without progesterone) for 10 or more years may have an increased risk of ovarian cancer.

Scientists have also studied whether taking certain fertility drugs, using talcum powder, or being obese are risk factors. It is not clear whether these are risk factors, but if they are, they are not strong risk factors.

Having a risk factor does not mean that a woman will get ovarian cancer. Most women who have risk factors do not get ovarian cancer. On the other hand, women who do get the disease often have no known risk factors, except for growing older. Women who think they may be at risk of ovarian cancer should talk with their doctor.

Symptoms

Early ovarian cancer may not cause obvious symptoms. But, as the cancer grows, symptoms may include:

- Pressure or pain in the abdomen, pelvis, back, or legs
- A swollen or bloated abdomen
- Nausea, indigestion, gas, constipation, or diarrhea
- Feeling very tired all the time

Less common symptoms include:

- Shortness of breath
- Feeling the need to urinate often
- Unusual vaginal bleeding (heavy periods, or bleeding after menopause)

Most often these symptoms are not due to cancer, but only a doctor can tell for sure. Any woman with these symptoms should tell her doctor.

Diagnosis

If you have a symptom that suggests ovarian cancer, your doctor must find out whether it is due to cancer or to some other cause. Your doctor may ask about your personal and family medical history.

You may have one or more of the following tests. Your doctor can explain more about each test:

- **Physical exam**: Your doctor checks general signs of health. Your doctor may press on your abdomen to check for tumors or an abnormal buildup of fluid (*ascites*). A sample of fluid can be taken to look for ovarian cancer cells.
- ***Pelvic exam***: Your doctor feels the ovaries and nearby organs for lumps or other changes in their shape or size. A *Pap test* is part of a normal pelvic exam, but it is not used to collect ovarian cells. The Pap test detects *cervical cancer*. The Pap test is not used to diagnose ovarian cancer.
- **Blood tests**: Your doctor may order blood tests. The lab may check the level of several substances, including *CA-125*. CA-125 is a substance found on the surface of ovarian cancer cells and on some normal tissues. A high CA-125 level could be a sign of cancer or other conditions. The CA-125 test is not used alone to diagnose ovarian cancer. This test is approved by the Food and Drug Administration for monitoring a woman's response to ovarian cancer treatment and for detecting its return after treatment.

- ***Ultrasound***: The ultrasound device uses sound waves that people cannot hear. The device aims sound waves at organs inside the pelvis. The waves bounce off the organs. A computer creates a picture from the echoes. The picture may show an ovarian tumor. For a better view of the ovaries, the device may be inserted into the vagina (*transvaginal ultrasound*).
- ***Biopsy***: A biopsy is the removal of tissue or fluid to look for cancer cells. Based on the results of the blood tests and ultrasound, your doctor may suggest *surgery* (a *laparotomy*) to remove tissue and fluid from the pelvis and abdomen. Surgery is usually needed to diagnose ovarian cancer. To learn more about surgery, see page 15 in the "Treatment" section.

  Although most women have a laparotomy for diagnosis, some women have a procedure known as *laparoscopy*. The doctor inserts a thin, lighted tube (a *laparoscope*) through a small incision in the abdomen. Laparoscopy may be used to remove a small, benign cyst or an early ovarian cancer. It may also be used to learn whether cancer has spread.

  A *pathologist* uses a microscope to look for cancer cells in the tissue or fluid. If ovarian cancer cells are found, the pathologist describes the grade of the cells. Grades 1, 2, and 3 describe how abnormal the cancer cells look. Grade 1 cancer cells are not as likely as to grow and spread as Grade 3 cells.

Staging

To plan the best treatment, your doctor needs to know the grade of the tumor (see page 8) and the extent (stage) of the disease. The stage is based on whether the tumor has invaded nearby tissues, whether the cancer has spread, and if so, to what parts of the body.

Usually, surgery is needed before staging can be complete. The surgeon takes many samples of tissue from the pelvis and abdomen to look for cancer.

Your doctor may order tests to find out whether the cancer has spread:

- ***CT scan***: Doctors often use CT scans to make pictures of organs and tissues in the pelvis or abdomen. An *x-ray* machine linked to a computer takes several pictures. You may receive *contrast material* by mouth and by injection into your arm or hand. The contrast material helps the organs or tissues show up more clearly. Abdominal fluid or a tumor may show up on the CT scan.
- **Chest x-ray**: X-rays of the chest can show tumors or fluid.
- ***Barium enema* x-ray**: Your doctor may order a series of x-rays of the lower *intestine*. You are given an enema with a barium solution. The barium outlines the intestine on the x-rays. Areas blocked by cancer may show up on the x-rays.
- ***Colonoscopy***: Your doctor inserts a long, lighted tube into the rectum and colon. This exam can help tell if cancer has spread to the colon or rectum.

These are the stages of ovarian cancer:

- **Stage I**: Cancer cells are found in one or both ovaries. Cancer cells may be found on the surface of the ovaries or in fluid collected from the abdomen.
- **Stage II**: Cancer cells have spread from one or both ovaries to other tissues in the pelvis. Cancer cells are found on the fallopian tubes, the uterus, or other tissues in the pelvis. Cancer cells may be found in fluid collected from the abdomen.
- **Stage III**: Cancer cells have spread to tissues outside the pelvis or to the regional lymph nodes. Cancer cells may be found on the outside of the liver.
- **Stage IV**: Cancer cells have spread to tissues outside the abdomen and pelvis. Cancer cells may be found inside the liver, in the lungs, or in other organs.

Many women with ovarian cancer want to take an active part in making decisions about their medical care. It is natural to want to learn all you can about your disease and treatment choices. Knowing more about ovarian cancer helps many women cope.

Shock and stress after the diagnosis can make it hard to think of everything you want to ask your doctor. It often helps to make a list of questions before an appointment. To help remember what your doctor says, you may take notes or ask whether you may use a tape recorder. You may also want to have a family member or friend with you when you talk to your doctor—to take part in the discussion, to take notes, or just to listen.

You do not need to ask all your questions at once. You will have other chances to ask your doctor or nurse to explain things that are not clear and to ask for more details.

Your doctor may refer you to a *gynecologic oncologist*, a *surgeon* who specializes in treating ovarian cancer. Or you may ask for a referral. Other types of doctors who help treat women with ovarian cancer include *gynecologists*, *medical oncologists,* and *radiation oncologists*. You may have a team of doctors and nurses.

Getting a Second Opinion

Before starting treatment, you might want a second opinion about your diagnosis and treatment plan. Many insurance companies cover a second opinion if you or your doctor requests it.

It may take some time and effort to gather medical records and arrange to see another doctor. In most

cases, a brief delay in starting treatment will not make treatment less effective. To make sure, you should discuss this delay with your doctor. Sometimes women with ovarian cancer need treatment right away.

There are a number of ways to find a doctor for a second opinion:

- Your doctor may refer you to one or more specialists. At cancer centers, several specialists often work together as a team.
- NCI's Cancer Information Service, at **1–800–4–CANCER**, can tell you about nearby treatment centers. Information Specialists also can assist you online through **LiveHelp** at **http://www.cancer.gov/help**.
- A local or state medical society, a nearby hospital, or a medical school can usually provide the names of specialists.
- The American Board of Medical Specialties (ABMS) has a list of doctors who have had training and passed exams in their specialty. You can find this list in the *Official ABMS Directory of Board Certified Medical Specialists*. The Directory is in most public libraries. Also, ABMS offers this information at **http://www.abms.org**. (Click on "Who's Certified.")
- NCI provides a helpful fact sheet called "How To Find a Doctor or Treatment Facility If You Have Cancer." Page 39 tells how to get NCI fact sheets.

Treatment Methods

Your doctor can describe your treatment choices and the expected results. Most women have surgery and *chemotherapy*. Rarely, *radiation therapy* is used.

Cancer treatment can affect cancer cells in the pelvis, in the abdomen, or throughout the body:

- ***Local therapy***: Surgery and radiation therapy are local therapies. They remove or destroy ovarian cancer in the pelvis. When ovarian cancer has spread to other parts of the body, local therapy may be used to control the disease in those specific areas.
- ***Intraperitoneal chemotherapy***: Chemotherapy can be given directly into the abdomen and pelvis through a thin tube. The drugs destroy or control cancer in the abdomen and pelvis.
- ***Systemic chemotherapy***: When chemotherapy is taken by mouth or injected into a vein, the drugs enter the bloodstream and destroy or control cancer throughout the body.

You may want to know how treatment may change your normal activities. You and your doctor can work together to develop a treatment plan that meets your medical and personal needs.

Because cancer treatments often damage healthy cells and tissues, *side effects* are common. Side effects depend mainly on the type and extent of the treatment. Side effects may not be the same for each woman, and they may change from one treatment session to the next. Before treatment starts, your health care team will explain possible side effects and suggest ways to help you manage them.

You may want to talk to your doctor about taking part in a clinical trial, a research study of new treatment methods. Clinical trials are an important option for women with all stages of ovarian cancer. The section on “The Promise of Cancer Research” on page 26 has more information about clinical trials.

You may want to ask your doctor these questions before your treatment begins:

- What is the stage of my disease? Has the cancer spread from the ovaries? If so, to where?
- What are my treatment choices? Do you recommend intraperitoneal chemotherapy for me? Why?
- Would a clinical trial be appropriate for me?
- Will I need more than one kind of treatment?
- What are the expected benefits of each kind of treatment?
- What are the risks and possible side effects of each treatment? What can we do to control side effects? Will they go away after treatment ends?
- What can I do to prepare for treatment?
- Will I need to stay in the hospital? If so, for how long?
- What is the treatment likely to cost? Will my insurance cover the cost?
- How will treatment affect my normal activities?
- Will treatment cause me to go through an early menopause?
- Will I be able to get pregnant and have children after treatment?
- How often should I have checkups after treatment?

Surgery

The surgeon makes a long cut in the wall of the abdomen. This type of surgery is called a laparotomy. If ovarian cancer is found, the surgeon removes:

- both ovaries and fallopian tubes (*salpingo-oophorectomy)*
- the uterus (*hysterectomy*)
- the *omentum* (the thin, fatty pad of tissue that covers the intestines)
- nearby lymph nodes
- samples of tissue from the pelvis and abdomen

If the cancer has spread, the surgeon removes as much cancer as possible. This is called "debulking" surgery.

If you have early Stage I ovarian cancer, the extent of surgery may depend on whether you want to get pregnant and have children. Some women with very early ovarian cancer may decide with their doctor to have only one ovary, one fallopian tube, and the omentum removed.

You may be uncomfortable for the first few days after surgery. Medicine can help control your pain. Before surgery, you should discuss the plan for pain relief with your doctor or nurse. After surgery, your doctor can adjust the plan if you need more pain relief.

The time it takes to heal after surgery is different for each woman. You will spend several days in the hospital. It may be several weeks before you return to normal activities.

If you haven't gone through menopause yet, surgery may cause hot flashes, vaginal dryness, and night sweats. These symptoms are caused by the sudden loss of female hormones. Talk with your doctor or nurse about your symptoms so that you can develop a treatment plan together. There are drugs and lifestyle changes that can help, and most symptoms go away or lessen with time.

You may want to ask your doctor these questions about surgery:

- What kind of surgery do you recommend for me? Will lymph nodes and other tissues be removed? Why?
- How soon will I know the results from the pathology report? Who will explain them to me?
- How will I feel after surgery?
- If I have pain, how will it be controlled?
- How long will I be in the hospital?
- Will I have any long-term effects because of this surgery?
- Will the surgery affect my sex life?

Chemotherapy

Chemotherapy uses anticancer drugs to kill cancer cells. Most women have chemotherapy for ovarian cancer after surgery. Some women have chemotherapy before surgery.

Usually, more than one drug is given. Drugs for ovarian cancer can be given in different ways:

- **By vein** (*IV*): The drugs can be given through a thin tube inserted into a vein.
- **By vein and directly into the abdomen**: Some women get IV chemotherapy along with intraperitoneal (IP) chemotherapy. For IP chemotherapy, the drugs are given through a thin tube inserted into the abdomen.
- **By mouth**: Some drugs for ovarian cancer can be given by mouth.

Chemotherapy is given in cycles. Each treatment period is followed by a rest period. The length of the rest period and the number of cycles depend on the anticancer drugs used.

You may have your treatment in a clinic, at the doctor's office, or at home. Some women may need to stay in the hospital during treatment.

The side effects of chemotherapy depend mainly on which drugs are given and how much. The drugs can harm normal cells that divide rapidly:

- **Blood cells**: These cells fight *infection*, help blood to clot, and carry oxygen to all parts of your body. When drugs affect your blood cells, you are more likely to get infections, bruise or bleed easily, and feel very weak and tired. Your health care team checks you for low levels of blood cells. If blood tests show low levels, your health care team can suggest medicines that can help your body make new blood cells.

- **Cells in hair roots**: Some drugs can cause hair loss. Your hair will grow back, but it may be somewhat different in color and texture.
- **Cells that line the *digestive tract***: Some drugs can cause poor appetite, nausea and vomiting, diarrhea, or mouth and lip sores. Ask your health care team about medicines that help with these problems.

Some drugs used to treat ovarian cancer can cause hearing loss, kidney damage, joint pain, and tingling or numbness in the hands or feet. Most of these side effects usually go away after treatment ends.

You may find it helpful to read NCI's booklet *Chemotherapy and You: A Guide to Self-Help During Cancer Treatment*. Page 39 tells how to get NCI booklets.

You may want to ask your doctor these questions about chemotherapy:

- When will treatment start? When will it end? How often will I have treatment?
- Which drug or drugs will I have?
- How do the drugs work?
- Do you recommend both IV and IP (intraperitoneal) chemotherapy for me? Why?
- What are the expected benefits of the treatment?
- What are the risks of the treatment? What side effects might I have?
- Can I prevent or treat any of these side effects? How?
- How much will it cost? Will my health insurance pay for all of the treatment?

Radiation Therapy

Radiation therapy (also called radiotherapy) uses high-energy rays to kill cancer cells. A large machine directs radiation at the body.

Radiation therapy is rarely used in the initial treatment of ovarian cancer, but it may be used to relieve pain and other problems caused by the disease. The treatment is given at a hospital or clinic. Each treatment takes only a few minutes.

Side effects depend mainly on the amount of radiation given and the part of your body that is treated. Radiation therapy to your abdomen and pelvis may cause nausea, vomiting, diarrhea, or bloody stools. Also, your skin in the treated area may become red, dry, and tender. Although the side effects can be distressing, your doctor can usually treat or control them. Also, they gradually go away after treatment ends.

NCI provides a booklet called *Radiation Therapy and You: A Guide to Self-Help During Cancer Treatment*. Page 39 tells how to get NCI booklets.

Supportive Care

Ovarian cancer and its treatment can lead to other health problems. You may receive supportive care to prevent or control these problems and to improve your comfort and quality of life.

Your health care team can help you with the following problems:

- **Pain**: Your doctor or a specialist in pain control can suggest ways to relieve or reduce pain. More information about pain control can be found in the NCI booklets *Pain Control: A Guide for People with Cancer and Their Families*, *Get Relief from Cancer Pain*, and *Understanding Cancer Pain*. Page 39 tells how to get NCI booklets.
- **Swollen abdomen** (from abnormal fluid buildup called ascites): The swelling can be uncomfortable. Your health care team can remove the fluid whenever it builds up.
- **Blocked intestine**: Cancer can block the intestine. Your doctor may be able to open the blockage with surgery.
- **Swollen legs** (from *lymphedema*): Swollen legs can be uncomfortable and hard to bend. You may find exercises, massages, or compression bandages helpful. Physical therapists trained to manage lymphedema can also help.
- **Shortness of breath**: Advanced cancer can cause fluid to collect around the lungs. The fluid can make it hard to breathe. Your health care team can remove the fluid whenever it builds up.
- **Sadness**: It is normal to feel sad after a diagnosis of a serious illness. Some people find it helpful to talk about their feelings. See the "Sources of Support" section on page 24 for more information.

You can get information about supportive care on NCI's Web site at **http://www.cancer.gov/cancerinfo/coping** and from NCI's Cancer Information Service at **1–800–4–CANCER** or **LiveHelp (http://www.cancer.gov/help)**.

Nutrition and Physical Activity

It's important for women with ovarian cancer to take care of themselves. Taking care of yourself includes eating well and staying as active as you can.

You need the right amount of calories to maintain a good weight. You also need enough protein to keep up your strength. Eating well may help you feel better and have more energy.

Sometimes, especially during or soon after treatment, you may not feel like eating. You may be uncomfortable or tired. You may find that foods do not taste as good as they used to. In addition, the side effects of treatment (such as poor appetite, nausea, vomiting, or mouth sores) can make it hard to eat well. Your doctor, a *registered dietitian*, or another health care provider can suggest ways to deal with these problems. Also, the NCI booklet *Eating Hints for Cancer Patients* has many useful ideas and recipes. Page 39 tells how to get NCI booklets.

Many women find they feel better when they stay active. Walking, yoga, swimming, and other activities can keep you strong and increase your energy. Whatever physical activity you choose, be sure to talk to your doctor before you start. Also, if your activity causes you pain or other problems, be sure to let your doctor or nurse know about it.

Follow-up Care

You will need regular checkups after treatment for ovarian cancer. Even when there are no longer any signs of cancer, the disease sometimes returns because undetected cancer cells remained somewhere in your body after treatment.

Checkups help ensure that any changes in your health are noted and treated if needed. Checkups may include a pelvic exam, a CA-125 test, other blood tests, and imaging exams.

If you have any health problems between checkups, you should contact your doctor.

You may wish to get the NCI booklet *Facing Forward Series: Life After Cancer Treatment*. It answers questions about follow-up care and other concerns. It also suggests ways to talk with your doctor about making a plan of action for recovery and future health. Page 39 tells how to get NCI booklets.

Complementary Medicine

It's natural to want to help yourself feel better. Some people with cancer say that complementary medicine helps them feel better. An approach is called complementary medicine when it is used along with standard cancer treatment. *Acupuncture*, massage therapy, herbal products, vitamins or special diets, and meditation are examples of such approaches.

Talk with your doctor if you are thinking about trying anything new. Things that seem safe, such as certain herbal teas, may change the way your cancer treatment works. These changes could be harmful. And certain complementary approaches could be harmful even if used alone.

You may find it helpful to read the NCI booklet *Thinking About Complementary & Alternative Medicine: A guide for people with cancer*. Page 39 tells how to get NCI booklets.

You also may request materials from the National Center for Complementary and Alternative Medicine, which is part of the National Institutes of Health. You can reach their clearinghouse at 1–888–644–6226 (voice) and 1–866–464–3615 (TTY). Also, you can visit their Web site at **http://www.nccam.nih.gov**.

You may want to ask your doctor these questions before you decide to use complementary medicine:

- What benefits can I expect from this approach?
- What are its risks?
- Do the expected benefits outweigh the risks?
- What side effects should I watch for?
- Will the approach change the way my cancer treatment works? Could this be harmful?
- Is this approach under study in a clinical trial?
- How much will it cost? Will my health insurance pay for this approach?
- Can you refer me to a complementary medicine practitioner?

Sources of Support

Learning you have ovarian cancer can change your life and the lives of those close to you. These changes can be hard to handle. It is normal for you, your family, and your friends to have many different and sometimes confusing feelings.

You may worry about caring for your family, keeping your job, or continuing daily activities. Concerns about treatments and managing side effects, hospital stays, and medical bills are also common. Doctors, nurses, and other members of your health care team can answer questions about treatment, working,

and other activities. Meeting with a social worker, counselor, or member of the clergy can be helpful if you want to talk about your feelings or concerns. Often, a social worker can suggest resources for financial aid, transportation, home care, or emotional support.

Support groups also can help. In these groups, patients or their family members meet with other patients or their families to share what they have learned about coping with the disease and the effects of treatment. Groups may offer support in person, over the telephone, or on the Internet. You may want to talk with a member of your health care team about finding a support group.

It is natural for you to be worried about the effects of ovarian cancer and its treatment on your sexuality. You may want to talk with your doctor about possible sexual side effects and whether these effects will be permanent. Whatever happens, it may be helpful for you and your partner to talk about your feelings and help one another find ways to share intimacy during and after treatment.

For tips on coping, you may want to read the NCI booklet *Taking Time: Support for People With Cancer*. NCI's Information Specialists at **1–800–4–CANCER** and at **LiveHelp** (**http://www.cancer.gov/help**) can help you locate programs, services, and publications. For a list of organizations offering support, you may want to get the NCI fact sheet "National Organizations That Offer Services to People With Cancer and Their Families." Page 39 tells how to get NCI fact sheets.

The Promise of Cancer Research

Doctors all over the country are conducting many types of clinical trials (research studies in which people volunteer to take part). They are studying new and better ways to prevent, detect, and treat ovarian cancer.

Clinical trials are designed to answer important questions and to find out whether new approaches are safe and effective. Research already has led to advances, and researchers continue to search for more effective methods.

Women who join clinical trials may be among the first to benefit if a new approach is effective. And even if the women in a trial do not benefit directly, they may still make an important contribution by helping doctors learn more about ovarian cancer and how to control it. Although clinical trials may pose some risks, researchers do all they can to protect their patients.

Researchers are conducting studies with women across the country:

- **Prevention studies**: For women who have a family history of ovarian cancer, the risk of developing the disease may be reduced by removing the ovaries before cancer is detected. This surgery is called *prophylactic oophorectomy*. Women who are at high risk of ovarian cancer are taking part in trials to study the benefits and harms of this surgery. Other doctors are studying whether certain drugs can help prevent ovarian cancer in women at high risk.
- **Screening studies**: Researchers are studying ways to find ovarian cancer in women who do not have symptoms.

- **Treatment studies**: Doctors are testing novel drugs and new combinations. They are studying *biological therapies*, such as *monoclonal antibodies*. Monoclonal antibodies can bind to cancer cells. They interfere with cancer cell growth and the spread of cancer.

If you are interested in being part of a clinical trial, talk with your doctor. You may want to read the NCI booklets *Taking Part in Clinical Trials*: *What Cancer Patients Need To Know* and *Taking Part in Clinical Trials: Cancer Prevention Studies*. NCI also offers an easy-to-read brochure called *If You Have Cancer… What You Should Know About Clinical Trials*. These NCI publications describe how clinical trials are carried out and explain their possible benefits and risks. Page 39 tells how to get NCI booklets.

NCI's Web site includes a section on clinical trials at **http://www.cancer.gov/clinicaltrials**. It has general information about clinical trials as well as detailed information about specific ongoing studies of ovarian cancer. NCI's Information Specialists at **1–800–4–CANCER** or at **LiveHelp** at **http://www.cancer.gov/help** can answer questions and provide information about clinical trials.

Dictionary

A dictionary of more than 4,000 terms is on the NCI Web site at **http://www.cancer.gov/dictionary**.

Abdomen (AB-doh-men): The area of the body that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs.

Acupuncture (AK-yoo-PUNK-chur): The technique of inserting thin needles through the skin at specific points on the body to control pain and other symptoms. It is a type of complementary and alternative medicine.

Ascites (ah-SYE-teez): Abnormal buildup of fluid in the abdomen that may cause swelling. In late-stage cancer, tumor cells may be found in the fluid in the abdomen. Ascites also occurs in patients with liver disease.

Barium enema: A procedure in which a thick liquid containing barium is put into the rectum and colon. Barium is a silver-white metallic compound that helps to show the image of the lower gastrointestinal tract on an x-ray.

Benign (beh-NINE): Not cancerous. Benign tumors may grow larger but do not spread to other parts of the body.

Biological therapy (by-oh-LAH-jih-kul THAYR-uh-pee): Treatment to stimulate or restore the ability of the immune system to fight cancer, infections, and other diseases. Also used to lessen side effects that may be caused by some cancer treatments. Also called immunotherapy, biotherapy, or biological response modifier (BRM) therapy.

Biopsy (BY-op-see): The removal of cells or tissues for examination by a pathologist. The pathologist may study the tissue under a microscope or perform other tests on the cells or tissue.

CA-125: A substance sometimes found in an increased amount in the blood, other body fluids, or tissues. Increased levels of CA-125 may suggest the presence of some types of cancer.

Cervical cancer (SER-vih-kul KAN-ser): Cancer that forms in tissues of the cervix (organ connecting the uterus and vagina). It is usually a slow-growing cancer that may not have symptoms, but can be found with regular Pap smears (procedure in which cells are scraped from the cervix and looked at under a microscope).

Chemotherapy (kee-moh-THAYR-uh-pee): Treatment with drugs that kill cancer cells.

Colonoscopy (koh-luh-NAHS-kuh-pee): An examination of the inside of the colon using a thin, lighted tube (called a colonoscope) inserted into the rectum. Samples of tissue may be collected for examination under a microscope.

Contrast material: A dye or other substance that helps show abnormal areas inside the body. It is given by injection into a vein, by enema, or by mouth. Contrast material may be used with x-rays, CT scans, or other imaging tests.

CT scan: Computed tomography scan. A series of detailed pictures of areas inside the body taken from different angles; the pictures are created by a computer linked to an x-ray machine. Also called computerized tomography and computerized axial tomography (CAT) scan.

Digestive tract (dy-JES-tiv): The organs through which food and liquids pass when they are swallowed, digested, and eliminated. These organs are the mouth, esophagus, stomach, small and large intestines, rectum, and anus.

Estrogen (ES-truh-jin): A type of hormone made by the body that helps develop and maintain female sex characteristics and the growth of long bones. Estrogens can also be made in the laboratory. They may be used as a type of birth control and to treat symptoms of menopause, menstrual disorders, osteoporosis, and other conditions.

Fallopian tube (fuh-LOH-pee-in): A slender tube through which eggs pass from an ovary to the uterus. In the female reproductive tract, there is one ovary and one fallopian tube on each side of the uterus.

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein.

Genetic counselor: A specially trained health professional concerned about the genetic risk of disease. This type of professional considers an individual's family and personal medical history. Counseling may lead to genetic testing.

Genetic testing: Analyzing DNA to look for a genetic alteration that may indicate an increased risk for developing a specific disease or disorder.

Gynecologic oncologist (guy-nuh-koh-LAH-jik on-KOL-oh-jist): A doctor who specializes in treating cancers of the female reproductive organs.

Gynecologist (guy-nuh-KAH-loh-jist): A doctor who specializes in treating diseases of the female reproductive organs.

Hormone: A chemical made by glands in the body. Hormones circulate in the bloodstream and control the actions of certain cells or organs. Some hormones can also be made in a laboratory.

Hysterectomy (hiss-ter-EK-toe-mee): Surgery to remove the uterus and, sometimes, the cervix. When the uterus and part or all of the cervix are removed, it is called a total hysterectomy. When only the uterus is removed, it is called a partial hysterectomy.

Infection: Invasion and multiplication of germs in the body. Infections can occur in any part of the body and can spread throughout the body. The germs may be bacteria, viruses, yeast, or fungi. They can cause a fever and other problems, depending on where the infection occurs. When the body's natural defense system is strong, it can often fight the germs and prevent infection. Some cancer treatments can weaken the natural defense system.

Intestine (in-TES-tin): The long, tube-shaped organ in the abdomen that completes the process of digestion. The intestine has two parts, the small intestine and the large intestine. Also called the bowel.

Intraperitoneal chemotherapy (IN-truh-PAYR-ih-toh-NEE-ul kee-moh-THAYR-uh-pee): Treatment in which anticancer drugs are put directly into the abdominal cavity through a thin tube.

IV: Intravenous (IN-truh-VEE-nus). Injected into a blood vessel.

Laparoscope (LAP-uh-ruh-skope): A thin, lighted tube used to look at tissues and organs inside the abdomen.

Laparoscopy (lap-uh-RAHS-koh-pee): The insertion of a thin, lighted tube (called a laparoscope) through the abdominal wall to inspect the inside of the abdomen and remove tissue samples.

Laparotomy (lap-uh-RAH-toh-mee): A surgical incision made in the wall of the abdomen.

Local therapy: Treatment that affects cells in the tumor and the area close to it.

Lymph node (limf node): A rounded mass of lymphatic tissue that is surrounded by a capsule of connective tissue. Lymph nodes filter lymph (lymphatic fluid), and they store lymphocytes (white blood cells). They are located along lymphatic vessels. Also called a lymph gland.

Lymphedema (LIMF-uh-DEE-muh): A condition in which excess fluid collects in tissue and causes swelling. It may occur in the arm or leg after lymph vessels or lymph nodes in the underarm or groin are removed or treated with radiation.

Lymphatic system (lim-FAT-ik SIS-tem): The tissues and organs that produce, store, and carry white blood cells that fight infections and other diseases. This system includes the bone marrow, spleen, thymus, lymph nodes, and lymphatic vessels (a network of thin tubes that carry lymph and white blood cells). Lymphatic vessels branch, like blood vessels, into all the tissues of the body.

Malignant (muh-LIG-nant): Cancerous. Malignant tumors can invade and destroy nearby tissue and spread to other parts of the body.

Medical oncologist (MEH-dih-kul on-KOL-oh-jist): A doctor who specializes in diagnosing and treating cancer using chemotherapy, hormonal therapy, and biological therapy. A medical oncologist often is the main health care provider for someone who has cancer. A medical oncologist also gives supportive care and may coordinate treatment given by other specialists.

Menopausal hormone therapy (MEN-uh-PAH-zul): Hormones (estrogen, progesterone, or both) given to women after menopause to replace the hormones no longer produced by the ovaries. Also called hormone replacement therapy or HRT.

Menopause (MEN-uh-pawz): The time of life when a woman's menstrual periods stop permanently. A woman is in menopause when she hasn't had a period for 12 months in a row. Also called "change of life."

Metastasis (meh-TAS-tuh-sis): The spread of cancer from one part of the body to another. A tumor formed by cells that have spread is called a "metastatic tumor" or a "metastasis." The metastatic tumor contains cells that are like those in the original (primary) tumor. The plural form of metastasis is metastases (meh-TAS-tuh-seez).

Metastatic (MET-uh-STAT-ik): Having to do with metastasis, which is the spread of cancer from one part of the body to another.

Monoclonal antibody (MAH-noh-KLOH-nul AN-tih-BAH-dee): A laboratory-produced substance that can locate and bind to cancer cells wherever they are in the body. Many monoclonal antibodies are used in cancer detection or therapy; each one recognizes a different protein on certain cancer cells. Monoclonal antibodies can be used alone, or they can be used to deliver drugs, toxins, or radioactive material directly to a tumor.

Omentum (oh-MEN-tum): A fold of the peritoneum (the thin tissue that lines the abdomen) that surrounds the stomach and other organs in the abdomen.

Ovarian cancer (oh-VAYR-ee-un): Cancer that forms in tissues of the ovary. Most ovarian cancers are either ovarian epithelial carcinomas (cancer that begins in the tissue that covers the ovary) or malignant germ cell tumors (cancer that begins in egg cells).

Ovarian epithelial cancer (oh-VAYR-ee-un ep-ih-THEE-lee-ul): Cancer that begins in the tissue that covers the ovary.

Ovarian germ cell tumor (oh-VAYR-ee-un): An abnormal mass of tissue that forms in germ (egg) cells in the ovary. These tumors usually occur in teenage girls or young women, usually affect just one ovary, and can be benign (not cancer) or malignant (cancer). The most common ovarian germ cell tumor is called dysgerminoma.

Ovary (OH-vuh-ree): One of a pair of female reproductive organs in which the ova, or eggs, are formed. The ovaries are located in the pelvis, one on each side of the uterus.

Pap test: A procedure in which cells are scraped from the cervix for examination under a microscope. It is used to detect cancer and changes that may lead to cancer. A Pap test can also show noncancerous conditions, such as infection or inflammation. Also called a Pap smear.

Pathologist (puh-THOL-oh-jist): A doctor who identifies diseases by studying cells and tissues under a microscope.

Pelvic exam: A physical examination in which the health care professional will feel for lumps or changes in the shape of the vagina, cervix, uterus, fallopian tubes, ovaries, and rectum. The health care professional will also use a speculum to open the vagina to look at the cervix and take samples for a Pap test.

Pelvis: The lower part of the abdomen, located between the hip bones.

Progesterone (proh-JES-ter-own): A type of hormone made by the body that plays a role in the menstrual cycle and pregnancy. Progesterone can also be made in the laboratory. It may be used as a type of birth control and to treat menstrual disorders, infertility, symptoms of menopause, and other conditions.

Prophylactic oophorectomy (proh-fih-LAK-tik oh-oh-for-EK-toh-mee): Surgery intended to reduce the risk of ovarian cancer by removing the ovaries before disease develops.

Radiation oncologist (ray-dee-AY-shun on-KOL-oh-jist): A doctor who specializes in using radiation to treat cancer.

Radiation therapy (ray-dee-AY-shun THAYR-uh-pee): The use of high-energy radiation from x-rays, gamma rays, neutrons, and other sources to kill cancer cells and shrink tumors. Radiation may come from a machine outside the body (external-beam radiation therapy), or it may come from radioactive material placed in the body near cancer cells (internal radiation therapy, implant radiation, or brachytherapy). Systemic radiation therapy uses a radioactive substance, such as a radiolabeled monoclonal antibody, that circulates throughout the body. Also called radiotherapy.

Registered dietitian (dy-uh-TIH-shun): A health professional with special training in the use of diet and nutrition to keep the body healthy. A registered dietitian may help the medical team improve the nutritional health of a patient.

Reproductive system: In women, this system includes the ovaries, the fallopian tubes, the uterus (womb), the cervix, and the vagina (birth canal). The reproductive system in men includes the prostate, the testes, and the penis.

Risk factor: Anything that increases a person's chance of developing a disease. Some examples of risk factors for cancer include a family history of cancer, use of tobacco products, certain foods, being exposed to radiation or other cancer-causing agents, and certain genetic changes.

Salpingo-oophorectomy (sal-PIN-goh oh-oh-for-EK-toh-mee): Surgical removal of the fallopian tubes and ovaries.

Side effect: A problem that occurs when treatment affects healthy tissues or organs. Some common side effects of cancer treatment are fatigue, pain, nausea, vomiting, decreased blood cell counts, hair loss, and mouth sores.

Surgeon: A doctor who removes or repairs a part of the body by operating on the patient.

Surgery (SER-juh-ree): A procedure to remove or repair a part of the body or to find out whether disease is present. An operation.

Systemic chemotherapy (sis-TEH-mik kee-moh-THAYR-uh-pee): Treatment with anticancer drugs that travel through the blood to cells all over the body.

Transvaginal ultrasound (tranz-VA-jih-nul UL-truh-SOWND): A procedure used to examine the vagina, uterus, fallopian tubes, ovaries, and bladder. An instrument is inserted into the vagina that causes sound waves to bounce off organs inside the pelvis. These sound waves create echoes that are sent to a computer, which creates a picture called a sonogram. Also called transvaginal sonography (TVS).

Ultrasound (UL-truh-SOWND): A procedure in which high-energy sound waves (ultrasound) are bounced off internal tissues or organs and make echoes. The echo patterns are shown on the screen of an ultrasound machine, forming a picture of body tissues called a sonogram. Also called ultrasonography.

Uterus (YOO-ter-us): The small, hollow, pear-shaped organ in a woman's pelvis. This is the organ in which a baby grows. Also called the womb.

X-ray: A type of high-energy radiation. In low doses, x-rays are used to diagnose diseases by making pictures of the inside of the body. In high doses, x-rays are used to treat cancer.

National Cancer Institute Information Resources

You may want more information for yourself, your family, and your doctor. The following NCI services are available to help you.

Telephone

The NCI's Cancer Information Service (CIS) provides accurate, up-to-date information on cancer to patients and their families, health professionals, and the general public. Information Specialists translate the latest scientific information into understandable language and respond in English, in Spanish, or on TTY equipment. Calls are free. The service is available to callers in the United States and its territories.

Telephone: **1–800–4–CANCER** (1–800–422–6237)

TTY: 1–800–332–8615

Internet

The NCI's Web site (**http://www.cancer.gov**) provides information from numerous NCI sources. It offers current information on cancer prevention, screening, diagnosis, treatment, genetics, supportive care, and ongoing clinical trials. It has information about NCI's research programs and funding opportunities, cancer statistics, and the Institute itself. Information Specialists provide live, online assistance through **LiveHelp** at **http://www.cancer.gov/help**.

National Cancer Institute Publications

The NCI provides information about cancer, including the publications mentioned in this booklet. You can order these materials by telephone, on the Internet, or by mail. You can also read them online and print your own copy.

- **By telephone**: People in the United States and its territories may order these and other NCI publications by calling the NCI's Cancer Information Service at **1–800–4–CANCER**.
- **On the Internet**: Many NCI publications can be viewed, downloaded, and ordered from **http://www.cancer.gov/publications** on the Internet. People in the United States and its territories may use this Web site to order printed copies. This Web site also explains how people outside the United States can mail or fax their requests for NCI booklets.
- **By mail**: NCI publications can be ordered by writing to the address below:

  Publications Ordering Service
  National Cancer Institute
  Suite 3035A
  6116 Executive Boulevard, MSC 8322
  Bethesda, MD 20892–8322

Treatment and Supportive Care

- *Chemotherapy and You: A Guide to Self-Help During Cancer Treatment* (also available in Spanish: *La quimioterapia y usted: una guía de autoayuda durante el tratamiento del cáncer*)

- *Helping Yourself During Chemotherapy: 4 Steps for Patients*
- *Radiation Therapy and You: A Guide to Self-Help During Cancer Treatment* (also available in Spanish: *La radioterapia y usted: una guía de autoayuda durante el tratamiento del cáncer*)
- *Eating Hints for Cancer Patients: Before, During & After Treatment* (also available in Spanish: *Consejos de alimentación para pacientes con cáncer: antes, durante y después del tratamiento*)
- *Understanding Cancer Pain* (also available in Spanish: *El dolor relacionado con el cáncer*)
- *Pain Control: A Guide for People with Cancer and Their Families* (also available in Spanish: *Control del dolor: guía para las personas con cáncer y sus familias*)
- *Get Relief from Cancer Pain*
- *Biological Therapy*: *Treatments That Use Your Immune System to Fight Cancer*
- "Biological Therapies for Cancer: Questions and Answers" (also available in Spanish: "Terapias biológicas del cáncer: preguntas y respuestas")
- "How To Find a Doctor or Treatment Facility If You Have Cancer" (also available in Spanish: "Cómo encontrar a un doctor o un establecimiento de tratamiento si usted tiene cáncer")
- "Tumor Markers: Questions and Answers" (also available in Spanish: "Marcadores tumorales")

Living With Cancer

- *Facing Forward Series: Life After Cancer Treatment* (also available in Spanish: *Siga adelante: la vida después del tratamiento del cáncer*)
- *Facing Forward Series: Ways You Can Make a Difference in Cancer*
- *Taking Time: Support for People with Cancer*
- *Coping with Advanced Cancer*
- *When Cancer Returns*
- "National Organizations That Offer Services to People With Cancer and Their Families" (also available in Spanish: "Organizaciones nacionales que brindan servicios a las personas con cáncer y a sus familias")

Clinical Trials

- *Taking Part in Clinical Trials: What Cancer Patients Need To Know* (also available in Spanish: *La participación en los estudios clínicos: lo que los pacientes de cáncer deben saber*)
- *If You Have Cancer: What You Should Know About Clinical Trials* (also available in Spanish: *Si tiene cáncer...lo que debería saber sobre estudios clínicos*)
- *Taking Part in Clinical Trials: Cancer Prevention Studies: What Participants Need To Know* (also available in Spanish: *La participación en los estudios clínicos: estudios para la prevención del cáncer*)

Complementary Medicine

- *Thinking About Complementary and Alternative Medicine: A Guide for People with Cancer*
- "Complementary and Alternative Medicine in Cancer Treatment: Questions and Answers" (also available in Spanish: "La medicina complementaria y alternativa en el tratamiento del cáncer: preguntas y respuestas")

Caregivers

- *When Someone You Love Is Being Treated for Cancer: Support for Caregivers*
- *When Someone You Love Has Advanced Cancer: Support for Caregivers*
- *Facing Forward: When Someone You Love Has Completed Cancer Treatment*

¿Necesita información en español?

Llame al Servicio de Información sobre el Cáncer y hable en español con un especialista en información. El número es **1–800–422–6237**.

The National Cancer Institute

The National Cancer Institute (NCI) is part of the National Institutes of Health. NCI conducts and supports basic and clinical research in the search for better ways to prevent, diagnose, and treat cancer. NCI also supports the training of scientists and is responsible for communicating its research findings to the medical community and the public.

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