

PATIENT EDUCATION



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS

Ovarian Cancer

O*varian cancer is cancer that affects one or both ovaries.*

Ovarian cancer is not common. About 1 in 55 women (1.8%) will get ovarian cancer in her lifetime. But because ovarian cancer often goes undetected until it is in an advanced stage, it is the number one cause of gynecologic cancer deaths in the United States. Learning the early signs and symptoms for this type of cancer and whether you have risk factors may lead to early diagnosis and treatment.

This pamphlet explains

- *what cancer is*
- *types of ovarian cancer*
- *risk factors and screening*
- *symptoms*
- *diagnosis, treatment, and reducing risk*

Understanding Cancer

Normal cells in the body grow, divide, and are replaced on a routine basis. Sometimes, cells divide abnormally and begin to grow out of control. These cells may form growths or tumors.

Tumors can be benign (not cancer) or malignant (cancer). Benign tumors do not spread to other body tissues. Malignant tumors can invade and destroy nearby healthy tissues and organs. Cancer cells also can spread to other parts of the body and form new cancerous areas.

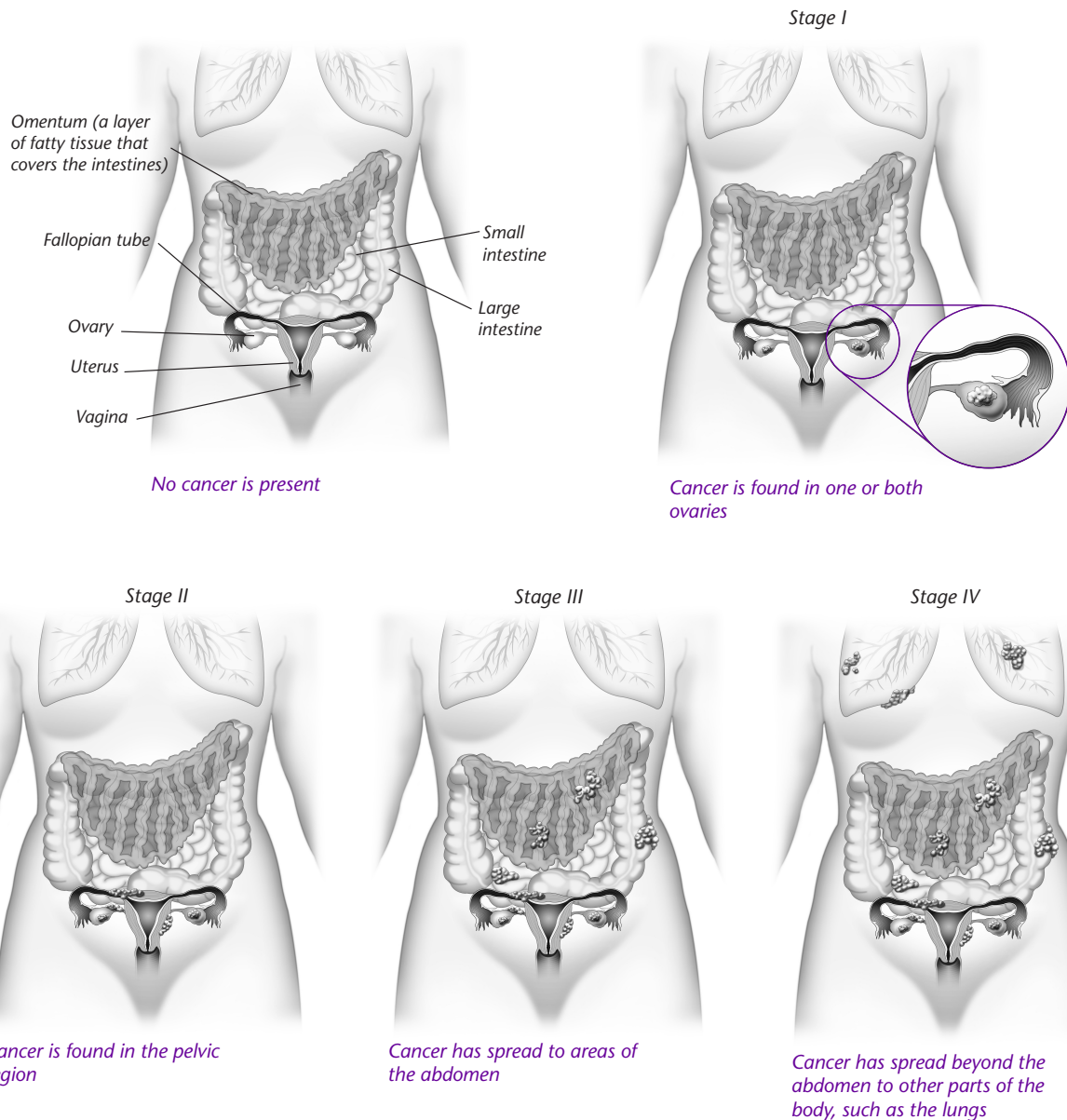
Cancer is defined with a grade and a stage. Grade refers to how abnormal cancer cells look under a

microscope. Stage refers to the size of a tumor and whether cancer cells have spread to other parts of the body.

Types of Ovarian Cancer

Ovarian cancer can develop on the surface of the ovary or from tissues inside the ovary. There are three main types. The type that develops on the surface of the ovary, epithelial cell cancer, is the most common type. About 90% of cases of ovarian cancers involve epithelial tumors. This pamphlet discusses epithelial cell cancer.

Stages of Ovarian Cancer



Ovarian cancer has four stages. Stage I is the earliest stage. Stage IV is the most advanced stage. Ovarian tumors are graded as low-grade or high-grade. Low-grade tumors look the most like normal ovarian tissue. High-grade tumors look the least like normal ovarian tissue. The stage and the grade of ovarian cancer help guide treatment decisions.

Researchers now believe that some high-grade tumors may develop in a **fallopian tube** and travel to an ovary. More research is needed in this area.

Risk Factors

Certain risk factors are associated with epithelial ovarian cancer. The following factors have been shown to increase a woman's risk of getting this type of cancer:

- Age older than age 55 years
- Family history of breast cancer, ovarian cancer, colon cancer, or endometrial cancer (cancer of the lining of the **uterus**)
- Personal history of breast cancer

- **Mutations** in *BRCA1* and *BRCA2* genes
- Never having had children
- Infertility
- **Endometriosis**
- **Lynch Syndrome**

Cancer of the ovary can occur at any age, but the risk increases as you get older. Most cases of ovarian cancer occur after **menopause** in women aged 55–64 years. Ovarian cancer is much less common in premenopausal women.

Another risk factor is a strong family history of ovarian and breast cancer. **Hereditary breast and ovarian cancer (HBOC) syndrome** is an inherited risk of breast cancer, ovarian cancer, and other types of cancer. HBOC syndrome most commonly is linked to mutations in two genes called *BRCA1* and *BRCA2*. About 10–15% of all cases of ovarian cancer are due to mutations in *BRCA1* and *BRCA2*.

While ovarian cancer is often associated with *BRCA1* and *BRCA2* gene mutations, there are other genes that also may cause ovarian cancer. For this reason, health care professionals may order genetic testing that looks for mutations in several genes at once. This is called **multigene panel testing**.

Screening

A screening test is a test that is done when no symptoms are present. Examples of screening tests are **colonoscopy** for colorectal cancer and the **Pap test** for cervical cancer. Currently, there is no screening test for ovarian cancer.

One way to monitor treatment in women who have ovarian cancer is to do a blood test for a protein called **CA 125**. When the CA 125 level goes down, it may suggest a woman's treatment is working. When the CA 125 level goes up, it may suggest the cancer has returned. Researchers looked at whether measuring CA 125 levels also could be used as a screening test for all women, but levels can go up for many reasons not related to ovarian cancer. So measuring CA 125 is not useful for women without risk factors for the disease.

There are tests marketed to consumers as ovarian cancer screening tests. These tests are not accurate and not reliable for screening women who do not have symptoms of ovarian cancer. These tests have not been approved by the U.S. Food and Drug Administration and should be avoided.

Symptoms

Because there is no screening test for ovarian cancer, all women should be aware of the most common symptoms. If you have any of the following symptoms, especially if you have them for more than 12 days per month, contact your **obstetrician–gynecologist (ob-gyn)** or other health care professional:

- Bloating or an increase in abdominal size
- Pelvic or abdominal pain

- Difficulty eating or feeling full quickly
- Urinary symptoms (frequency and urgency)

Others symptoms can include vaginal bleeding, especially after menopause, and a change in bowel habits. Having these symptoms does not mean that you have ovarian cancer, but it is a good idea to find out what is causing them.

Diagnosis

If you have frequent or persistent symptoms of ovarian cancer, you may have a physical exam, including a **pelvic exam**. An imaging test of the ovaries, such as a **transvaginal ultrasound exam**, may be done. If a growth is found on an ovary, the level of CA 125 or other markers in your blood may be measured. Results of these tests are used to assess the likelihood that the growth is cancer. Test results also will guide the next steps in evaluation.

Based on your age and symptoms, other tests such as a colonoscopy, **computed tomography (CT)**, **magnetic resonance imaging (MRI)**, and chest X-ray may be done. These tests can show if there is cancer in other areas of the body.

Sometimes a growth is found during a routine pelvic exam, and an ultrasound exam is done to find out more. If the growth does not have the appearance of cancer and you do not have symptoms, the chance that you have cancer is low. Periodic ultrasound exams may be recommended to see if the growth changes in size or appearance. Often, benign growths on the ovaries go away on their own.

There are two other types of cancers that can look and act like ovarian cancer: 1) fallopian tube cancer and 2) primary peritoneal cancer (cancer of the lining of the abdomen). If one of these types of cancers is found, it will be treated the same way that ovarian cancer is treated.

Treatment

If the first tests suggest that cancer is present, your ob-gyn or other health care professional may recommend exploratory surgery. If possible, it is best that a doctor specially trained or experienced in cancer, such as a gynecologic oncologist, perform the surgery. This surgery usually is done through an incision in the abdomen. In some cases, this surgery may be done with a minimally invasive procedure called **laparoscopy**.

During exploratory surgery, tissue is removed and immediately tested for cancer. If this test shows that cancer is present, the surgeon usually will remove the uterus, ovaries, and fallopian tubes. **Lymph nodes** and tissues in the pelvis and abdomen are checked for cancer and may be removed as well. In some cases, only the ovary with cancer may be removed.

Chemotherapy after surgery is recommended for most cases of ovarian cancer. Chemotherapy is the use of drugs that kill cancer cells. In some cases, chemotherapy may be recommended before surgery.

Follow-Up After Treatment

Women treated for ovarian cancer need to have regular checkups to assess their general health and make certain that the cancer has not come back. A checkup after cancer treatment usually includes a review of symptoms and a physical exam. The checkup also may include a blood test for CA 125. Imaging tests are not routinely done but may be recommended. These may include ultrasound, chest X-ray, MRI, or CT scan.

Reducing Risk

Because there is no screening test for ovarian cancer, experts are looking at ways to lower the risk of it occurring. Combined hormonal birth control pills (those that contain estrogen and **progestin**) may reduce the risk of ovarian cancer. The longer a woman takes the pill, the more the risk is reduced—for every 5 years on the pill, a woman reduces her risk by about 20%. This benefit needs to be balanced against the risks of using the pill. The pill is safe for most women, but it is associated with a small increased risk of **deep vein thrombosis (DVT)**, heart attack, and stroke. Your ob-gyn or other health care professional can help you understand how to balance the benefits and risks of using the pill.

Current theories suggest that some types of ovarian cancer may start in the fallopian tubes. If you need to have your uterus removed or you have chosen sterilization as a permanent method of birth control, you may want to ask your ob-gyn or other health care professional about having your fallopian tubes removed. This operation is called a **salpingectomy**. In this procedure, only the fallopian tubes are removed. The ovaries are left in place. A salpingectomy may help reduce the risk of future ovarian cancer.

Risk-reducing salpingo-oophorectomy is the removal of both the fallopian tubes and the ovaries in a woman who does not have cancer. It is recommended for women with **BRCA1** or **BRCA2** mutations by age 40 years or when childbearing is complete. It also may be recommended for women with Lynch syndrome. This operation reduces the risk of ovarian cancer. When it is performed before menopause, it also reduces the risk of getting breast cancer.

Having this surgery before menopause will cause immediate menopause symptoms, which often are more severe than when menopause occurs naturally. Symptoms can be managed with a variety of hormonal and nonhormonal medications, as well as lifestyle changes. Also, once both ovaries are removed, a woman cannot become pregnant using her own eggs.

For women at high risk of ovarian cancer, such as women with **BRCA1** or **BRCA2** mutations, periodic tests to check for ovarian cancer may be recommended. These tests include transvaginal ultrasound exam to

look for changes in the ovaries and measurement of CA 125 levels. Routine testing is not recommended for women at average risk.

Finally...

Women should be aware of their risk of ovarian cancer. Be alert to changes in your body and discuss them with your ob-gyn or health care professional. The earlier that ovarian cancer is diagnosed, the more likely that treatment will be successful.

Glossary

BRCA1 and BRCA2: Genes that keep cells from growing too rapidly. Changes in these genes have been linked to an increased risk of breast cancer and ovarian cancer.

CA 125: A substance in the blood that may increase when a person has cancerous tumors.

Chemotherapy: Treatment of cancer with drugs.

Colonoscopy: An exam of the large intestine using a small, lighted instrument.

Computed Tomography (CT): A type of X-ray that shows internal organs and structures in cross section.

Deep Vein Thrombosis (DVT): A condition in which a blood clot forms in veins in the leg or other areas of the body.

Endometriosis: A condition in which tissue that lines the uterus is found outside of the uterus, usually on the ovaries, fallopian tubes, and other pelvic structures.

Fallopian Tube: A tube through which an egg travels from the ovary to the uterus.

Genes: Segments of DNA that contain instructions for the development of a person's physical traits and control of the processes in the body. The gene is the basic unit of heredity and can be passed from parent to child.

Hereditary Breast and Ovarian Cancer (HBOC) Syndrome: A genetic condition that increases a person's risk of cancer of the breast, ovary, prostate, pancreas, and skin (melanoma).

Laparoscopy: A surgical procedure in which a thin, lighted telescope called a laparoscope is inserted through a small incision (cut) in the abdomen. The laparoscope is used to view the pelvic organs. Other instruments can be used with it to perform surgery.

Lymph Nodes: Small groups of special tissue that carry lymph, a liquid that bathes body cells. Lymph nodes are connected to each other by lymph vessels. Together, these make up the lymphatic system.

Lynch Syndrome: A genetic condition that increases a person's risk of cancer of the colon, rectum, ovary, uterus, pancreas, and bile duct.

Magnetic Resonance Imaging (MRI): A test to view internal organs and structures by using a strong magnetic field and sound waves.

Menopause: The time when a woman's menstrual periods stop permanently. Menopause is confirmed after 1 year of no periods.

Multigene Panel Testing: A type of genetic test that can look for mutations in multiple genes at once.

Mutations: Changes in genes that can be passed from parent to child.

Obstetrician–Gynecologist (Ob-Gyn): A doctor with special training and education in women's health.

Ovarian Cancer: Cancer that affects one or both of the ovaries.

Ovaries: The organs in women that contain the eggs necessary to get pregnant and make important hormones, such as estrogen, progesterone, and testosterone.

Pap Test: A test in which cells are taken from the cervix (or vagina) to look for signs of cancer.

Pelvic Exam: A physical examination of a woman's pelvic organs.

Progestin: A synthetic form of progesterone that is similar to the hormone made naturally by the body.

Risk-Reducing Salpingo-oophorectomy: Surgery to remove both healthy fallopian tubes and both healthy ovaries. This surgery is done to reduce the risk of cancer.

Salpingectomy: Surgery to remove one or both of the fallopian tubes.

Transvaginal Ultrasound Exam: A type of ultrasound in which the device is placed in your vagina.

Uterus: A muscular organ in the female pelvis. During pregnancy, this organ holds and nourishes the fetus.

This information was designed as an educational aid to patients and sets forth current information and opinions related to women's health. It is not intended as a statement of the standard of care, nor does it comprise all proper treatments or methods of care. It is not a substitute for a treating clinician's independent professional judgment. Please check for updates at www.acog.org to ensure accuracy.

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American College of Obstetricians and Gynecologists
409 12th Street, SW
PO Box 96920
Washington, DC 20090-6920