
Ovarian Cancer Early Detection, Diagnosis, and Staging

Know the signs and symptoms of ovarian cancer. Find out how ovarian cancer is tested for, diagnosed, and staged.

Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- [Can Ovarian Cancer Be Found Early?](#)
- [Signs and Symptoms of Ovarian Cancer](#)
- [Tests for Ovarian Cancer](#)

Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- [Ovarian Cancer Stages](#)
- [Survival Rates for Ovarian Cancer](#)

Questions to Ask About Ovarian Cancer

Here are some questions you can ask your cancer care team to help you better understand your cancer diagnosis and treatment options.

- [What Should You Ask Your Doctor About Ovarian Cancer?](#)

Can Ovarian Cancer Be Found Early?

- [Ways to find ovarian cancer early](#)

Only about 20% of ovarian cancers are found at an early [stage](#). When ovarian cancer is found early, about 94% of patients live longer than 5 years after diagnosis.

Ways to find ovarian cancer early

Regular women's health exams

During a pelvic exam, the health care professional feels the ovaries and uterus for size, shape, and consistency. A pelvic exam can be useful because it can find some female cancers at an early stage, but most early ovarian tumors are difficult or impossible to feel. Pelvic exams may, however, help find other cancers or female conditions. Women should discuss the need for these exams with their doctor.

Screening tests used for cervical cancer, such as a Pap test or HPV (human papillomavirus) test aren't effective tests for ovarian cancer. Rarely, ovarian cancers are found through Pap tests, but usually they are at an advanced stage.

See a doctor if you have symptoms

Early cancers of the ovaries often cause no symptoms. [Symptoms of ovarian cancer](#) can also be caused by other, less serious conditions. By the time ovarian cancer is considered as a possible cause of these symptoms, it usually has already spread. Also, some types of ovarian cancer can rapidly spread to nearby organs. Prompt attention to symptoms may improve the odds of early diagnosis and successful treatment. If you have symptoms similar to those of ovarian cancer almost daily for more than a few weeks, report them right away to your health care professional.

Screening tests for ovarian cancer

Screening tests and exams are used to detect a disease, like cancer, in people who don't have any symptoms. (For example, a mammogram can often detect breast cancer in its earliest stage, even before a doctor can feel the cancer.)

There has been a lot of research to develop a screening test for ovarian cancer, but

there hasn't been much success so far. The 2 tests used most often (in addition to a complete pelvic exam) to screen for ovarian cancer are *transvaginal ultrasound* (TVUS) and the CA-125 blood test.

- **TVUS (transvaginal ultrasound)** is a test that uses sound waves to look at the uterus, fallopian tubes, and ovaries by putting an ultrasound wand into the vagina. It can help find a mass (tumor) in the ovary, but it can't actually tell if a mass is cancer or benign. When it is used for screening, most of the masses found are not cancer.
- The **CA-125 blood test** measures the amount of a protein called CA-125 in the blood. Many women with ovarian cancer have high levels of CA-125. This test can be useful as a tumor marker to help guide treatment in women known to have ovarian cancer, because a high level often goes down if treatment is working. But checking CA-125 levels has not been found to be as useful as a screening test for ovarian cancer. The problem with using this test for ovarian cancer screening is that high levels of CA-125 is more often caused by common conditions such as endometriosis and pelvic inflammatory disease. Also, not everyone who has ovarian cancer has a high CA-125 level. When someone who is not known to have ovarian cancer has an abnormal CA-125 level, the doctor might repeat the test (to make sure the result is correct) and may consider ordering a transvaginal ultrasound test.

Better ways to screen for ovarian cancer are being researched but currently there are no reliable screening tests. Hopefully, improvements in screening tests will eventually lead to fewer deaths from ovarian cancer.

If you're at average risk

There are no recommended screening tests for ovarian cancer for women who do not have symptoms and are not at high risk of developing ovarian cancer. In studies of women at average risk of ovarian cancer, using TVUS and CA-125 for screening led to more testing and sometimes more surgeries, but did not lower the number of deaths caused by ovarian cancer. For that reason, no major medical or professional organization recommends the routine use of TVUS or the CA-125 blood test to screen for ovarian cancer in women at average risk.

If you're at high risk

Some organizations state that TVUS and CA-125 may be offered to screen women who have a high risk of ovarian cancer due to an [inherited genetic syndrome](#)¹ such as Lynch

syndrome, BRCA gene mutations or a strong family history of breast and ovarian cancer. Still, even in these women, it has not been proven that using these tests for screening lowers their chances of dying from ovarian cancer.

Screening tests for germ cell tumors/stromal tumors

There are no recommended screening tests for germ cell tumors or stromal tumors. Some germ cell cancers release certain protein markers such as human chorionic gonadotropin (HCG) and alpha-fetoprotein (AFP) into the blood. After these tumors have been treated by [surgery](#)² and [chemotherapy](#)³, blood tests for these markers can be used to see if treatment is working and to determine if the cancer is coming back.

Hyperlinks

1. www.cancer.org/cancer/types/ovarian-cancer/causes-risks-prevention/what-causes.html
2. www.cancer.org/cancer/types/ovarian-cancer/treating/surgery.html
3. www.cancer.org/cancer/types/ovarian-cancer/treating/chemotherapy.html

References

American Cancer Society. *Cancer Facts and Figures 2018*. Atlanta, GA: American Cancer Society; 2018.

Bever TB, Brown PH, Maresso KC and Hawk ET. Ch 23 - Cancer Prevention and Early Detection. In: Abeloff MD, Armitage JO, Lichter AS, Niederhuber JE, Kastan MB, McKenna WG, eds. *Clinical Oncology*. 5th ed. Philadelphia, PA: Elsevier; 2014: 322.

Brawley OW, Parnes HL. Ch 34 – Cancer Screening. In: DeVita VT, Hellman S, Rosenberg SA, eds. *Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2015.

Buys SS, Partridge E, Black A, et al. Effect of screening on ovarian cancer mortality: the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Randomized Controlled Trial. *JAMA*. 2011 Jun 8;305(22):2295-2303.

Fleming GF, Seidman JD, Yemelyanova A and Lengyel E. (2017). Chapter 23: Epithelial Ovarian Cancer. In D. S. Chi, A. Berchuck, D. S. Dizon, & C. M. Yashar (Authors), *Principles and practice of gynecologic oncology (7th ed)*. Philadelphia:

Wolters Kluwer Health.

Jonathan S. Berek, Michael L. Friedlander, Neville F. Hacker (2015) Chapter 11: Epithelial Ovarian, Fallopian Tube, and Peritoneal Cancer. In Jonathan Berek (Author), *Berek & Hacker's Gynecologic Oncology* (6th ed.). Philadelphia: Wolters Kluwer Health.

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Signs and Symptoms of Ovarian Cancer

Ovarian cancer may cause several signs and symptoms. Women are more likely to have symptoms if the disease has spread, but even early-stage ovarian cancer can cause them. The most common symptoms include:

- Bloating
- Pelvic or abdominal (belly) pain
- Trouble eating or feeling full quickly
- Urinary symptoms such as urgency (always feeling like you have to go) or frequency (having to go often)

These symptoms are also commonly caused by benign (non-cancerous) diseases and by cancers of other organs. When they are caused by ovarian cancer, they tend to be *persistent* and a *change from normal* for example, they occur more often or are more severe. These symptoms are more likely to be caused by other conditions, and most of them occur just about as often in women who don't have ovarian cancer. But if you have these symptoms more than 12 times a month, see your doctor so the problem can be found and treated if necessary.

Others symptoms of ovarian cancer can include:

- Fatigue (extreme tiredness)
- Upset stomach
- Back pain
- Pain during sex
- Constipation
- Changes in a woman's period, such as heavier bleeding than normal or irregular

bleeding

- Abdominal (belly) swelling with weight loss

References

Cannistra SA, Gershenson DM, Recht A. Ch 76 - Ovarian cancer, fallopian tube carcinoma, and peritoneal carcinoma. In: DeVita VT, Hellman S, Rosenberg SA, eds. *Cancer: Principles and Practice of Oncology*. 10th ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2015.

Goff, B. A., Mandel, L. S., Drescher, C. W., Urban, N., Gough, S., Schurman, K. M., Patras, J., Mahony, B. S. and Andersen, M. R. (2007), Development of an ovarian cancer symptom index. *Cancer*, 109: 221-227.

Morgan M, Boyd J, Drapkin R, Seiden MV. Ch 89 – Cancers Arising in the Ovary. In: Abeloff MD, Armitage JO, Lichter AS, Niederhuber JE, Kastan MB, McKenna WG, eds. *Clinical Oncology*. 5th ed. Philadelphia, PA: Elsevier; 2014: 1592.

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Tests for Ovarian Cancer

- [Medical history and physical exam](#)
- [Consultation with a specialist](#)
- [Imaging tests](#)
- [Other tests](#)
- [Genetic counseling and testing if you have ovarian cancer](#)
- [Lab tests for gene or protein changes](#)

If your doctor finds something suspicious during a pelvic exam, or if you have [symptoms](#) that might be due to ovarian cancer, your doctor will recommend exams and tests to find the cause.

Medical history and physical exam

Your doctor will ask about your medical history to learn about possible [risk factors](#)¹,

including your family history. You will also be asked if you're having any symptoms, when they started, and how long you've had them. Your doctor will likely do a pelvic exam to check for an enlarged ovary or signs of fluid in the abdomen (which is called *ascites*).

If there is reason to suspect you might have ovarian cancer based on your symptoms and/or physical exam, your doctor will order some tests to check further.

Consultation with a specialist

If the results of your pelvic exam or other tests suggest that you might have ovarian cancer, you will need a doctor or surgeon who specializes in treating women with this type of cancer. A **gynecologic oncologist** is an obstetrician/gynecologist who is specially trained in treating cancers of the female reproductive system. Treatment by a gynecologic oncologist helps ensure that you get the best kind of surgery for your cancer. It has also been shown to help patients with ovarian cancer live longer. Anyone suspected of having ovarian cancer should see this type of specialist before having surgery.

Imaging tests

Doctors use imaging tests to take pictures of the inside of your body. Imaging tests can show whether a pelvic mass is present, but they cannot confirm that the mass is a cancer. These tests are also useful if your doctor is looking to see if ovarian cancer has spread (metastasized) to other tissues and organs.

Ultrasound

[Ultrasound²](#) (ultrasonography) uses sound waves to create an image on a video screen. Sound waves are released from a small probe placed in the vagina and a small microphone-like instrument called a transducer gives off sound waves and picks up the echoes as they bounce off organs. A computer turns these echoes into an image on the screen.

Ultrasound is often the first test done if a problem with the ovaries is suspected. It can be used to find an ovarian tumor and to check if it is a solid mass (tumor) or a fluid-filled cyst. It can also be used to get a better look at the ovary to see how big it is and how it looks inside. This helps the doctor decide which masses or cysts are more worrisome.

Computed tomography (CT) scans

The [CT scan](#)³ is an x-ray test that makes detailed cross-sectional images of your body. The test can help tell if ovarian cancer has spread to other organs.

CT scans do not show small ovarian tumors well, but they can see larger tumors, and may be able to see if the tumor is growing into nearby structures. A CT scan may also find enlarged lymph nodes, signs of cancer spread to liver or other organs, or signs that an ovarian tumor is affecting your kidneys or bladder.

CT scans are not usually used to biopsy an ovarian tumor (see biopsy in the section "Other tests"), but they can be used to biopsy a suspected metastasis (area of spread). For this procedure, called a *CT-guided needle biopsy*, the patient stays on the CT scanning table, while a radiologist moves a biopsy needle toward the mass. CT scans are repeated until the doctors are confident that the needle is in the mass. A fine needle biopsy sample (tiny fragment of tissue) or a core needle biopsy sample (a thin cylinder of tissue about ½ inch long and less than 1/8 inch in diameter) is removed and examined in the lab.

Barium enema x-ray

A barium enema is a test to see if the cancer has invaded the colon (large intestine) or rectum. This test is rarely used for women with ovarian cancer. [Colonoscopy](#)⁴ may be done instead.

Magnetic resonance imaging (MRI) scans

[MRI scans](#)⁵ also create cross-section pictures of your insides. But MRI uses strong magnets to make the images – not x-rays. A contrast material called gadolinium may be injected into a vein before the scan to see details better.

MRI scans are not used often to look for ovarian cancer, but they are particularly helpful to examine the brain and spinal cord where cancer could spread.

Chest x-ray

An [x-ray](#)⁶ might be done to determine whether ovarian cancer has spread (metastasized) to the lungs. This spread may cause one or more tumors in the lungs and more often causes fluid to collect around the lungs. This fluid, called a *pleural effusion*, can be seen with chest x-rays as well as other types of scans.

Positron emission tomography (PET) scan

For a [PET scan](#)⁷, radioactive glucose (sugar) is given to look for the cancer. Body cells take in different amounts of the sugar, depending on how fast they are growing. Cancer cells, which grow quickly, are more likely to take up larger amounts of the sugar than normal cells. A special camera is used to create a picture of areas of radioactivity in the body.

The picture from a PET scan is not as detailed as a CT or MRI scan, but it provides helpful information about whether abnormal areas seen on these other tests are likely to be cancer or not.

If you have already been diagnosed with cancer, your doctor may use this test to see if the cancer has spread to lymph nodes or other parts of the body. A PET scan can also be useful if your doctor thinks the cancer may have spread but doesn't know where.

PET/CT scan: Some machines can do both a PET and CT scan at the same time. This lets the doctor compare areas of higher radioactivity on the PET scan with the more detailed picture of that area on the CT scan.

PET scans can help find cancer when it has spread, but are not used often to look for ovarian cancer.

Other tests

Laparoscopy

This procedure uses a thin, lighted tube through which a doctor can look at the ovaries and other pelvic organs and tissues in the area. The tube is inserted through a small incision (cut) in the lower abdomen and sends the images of the pelvis or abdomen to a video monitor. Laparoscopy provides a view of organs that can help plan surgery or other treatments and can help doctors confirm the [stage](#) (how far the tumor has spread) of the cancer. Also, doctors can manipulate small instruments through the laparoscopic incision(s) to perform biopsies.

Colonoscopy

A [colonoscopy](#)⁸ is a way to examine the inside of the large intestine (colon). The doctor looks at the entire length of the colon and rectum with a colonoscope, a thin, flexible, lighted tube with a small video camera on the end. It is inserted through the anus and into the rectum and the colon. Any abnormal areas seen can be biopsied. This procedure is more commonly used to look for colorectal cancer.

Biopsy

The only way to determine for certain if a growth is cancer is to remove a piece of it and examine it in the lab. This procedure is called a *biopsy*⁹. For ovarian cancer, the biopsy is most commonly done by removing the tumor during surgery.

In rare cases, a suspected ovarian cancer may be biopsied during a laparoscopy procedure or with a needle placed directly into the tumor through the skin of the abdomen. Usually the needle will be guided by either ultrasound or CT scan. This is only done if you cannot have surgery because of advanced cancer or some other serious medical condition, because there is concern that a biopsy could spread the cancer.

If you have ascites (fluid buildup inside the abdomen), samples of the fluid can also be used to diagnose the cancer. In this procedure, called *paracentesis*, the skin of the abdomen is numbed and a needle attached to a syringe is passed through the abdominal wall into the fluid in the abdominal cavity. Ultrasound may be used to guide the needle. The fluid is taken up into the syringe and then sent for analysis to see if it contains cancer cells.

In all these procedures, the tissue or fluid obtained is sent to the lab. There it is examined by a *pathologist*, a doctor who specializes in diagnosing and classifying diseases by examining cells under a microscope and using other lab tests.

Blood tests

Your doctor will order blood count tests to make sure you have enough red blood cells, white blood cells and platelets (cells that help stop bleeding). There will also be tests to measure your kidney and liver function as well as your general health.

The doctor will also order a CA-125 test. Women who have a high CA-125 level are often referred to a gynecologic oncologist, but any woman with suspected ovarian cancer should see a gynecologic oncologist, as well.

Some germ cell cancers can cause elevated blood levels of the tumor markers human chorionic gonadotropin (HCG), alpha-fetoprotein (AFP), and/or lactate dehydrogenase (LDH). These may be checked if your doctor suspects that your ovarian tumor could be a germ cell tumor.

Some ovarian stromal tumors cause the blood levels of a substance called *inhibin* and hormones such as estrogen and testosterone to go up. These levels may be checked if your doctor suspects that you have this type of tumor.

Genetic counseling and testing if you have ovarian cancer

If you have been diagnosed with an epithelial ovarian cancer, your doctor will likely recommend that you get genetic counseling and genetic testing for certain [inherited gene changes](#)¹⁰, even if you do not have a family history of cancer. The most common mutations found are in the *BRCA1* and *BRCA2* genes, but some ovarian cancers are [linked to mutations](#)¹¹ in other genes, such as *ATM*, *BRIP1*, *RAD51C/RAD51D*, *MSH2*, *MLH1*, *MSH6*, or *PMS6*.

Genetic testing to look for inherited mutations can be helpful in several ways

- If you are found to have a gene mutation, you might be more likely to get other types of cancer as well. You might benefit from doing what you can to lower your risk of these cancers, as well as having tests to find them early.
- If you have a gene mutation, your family members (blood relatives) might also have it, so they can decide if they want to be tested to learn more about their cancer risk.
- If you have a *BRCA1* or *BRCA2* mutation, at some point you might benefit from treatment with [targeted drugs](#)¹² called **PARP inhibitors**.
- Even if you do not have any of the gene mutations listed above, your tumor might be tested for some of these abnormal genes because it might give you more options for treatment.

You may have heard about some home-based genetic tests. There is a concern that these tests are promoted by companies without giving full information. For example, a test for a small number of [BRCA1 and BRCA2 gene mutations](#)¹³ has been approved by the FDA. However, there are more than 1,000 known *BRCA* mutations, and the ones included in the approved test are not the most common ones. This means there are many *BRCA* mutations that would not be detected by this test.

A genetic counselor or other qualified medical professional can help you understand the risks, benefits, and possible limits of what genetic testing can tell you. This can help you decide if testing is right for you, and which testing is best.

To learn more about genetic testing, see [Should I Get Genetic Testing for Cancer Risk?](#)¹⁴

Lab tests for gene or protein changes

In some ovarian cancers, doctors might look for specific gene or protein changes in the

cancer cells that could mean certain [targeted or immunotherapy drugs](#)¹⁵ might help treat the cancer. These tests can be done on a piece of the cancer taken during a biopsy or surgery for ovarian cancer.

BRCA1 and BRCA2 gene mutations: *BRCA* genes are normally involved in DNA repair, and mutations in these genes can cause cells to grow out of control and turn into cancer. Ovarian cancers with *BRCA* gene mutations are more likely to be helped by treatment with targeted drugs called *PARP inhibitors*.

Folate receptor-alpha (FR-alpha) testing: In many ovarian cancers, the cells have high levels of the FR-alpha protein on their surfaces. Testing for FR-alpha levels can show if the cancer is more likely to respond to treatment with a targeted drug such as mirvetuximab soravtansine (Elahere).

MSI and MMR gene testing: Women who have clear cell, endometrioid, or mucinous ovarian cancer might have their tumor tested to see if it shows high levels of gene changes called **microsatellite instability** (MSI). Testing might also be done to see if the cancer cells have changes in any of the mismatch repair (MMR) genes (*MLH1*, *MSH2*, *MSH6*, and *PMS2*).

Changes in MSI or in MMR genes (or both) are often seen in people with [Lynch syndrome](#)¹⁶ (HNPCC). Up to 10% of all ovarian epithelial cancers have changes in these genes.

There are 2 possible reasons to test ovarian cancers for MSI or for MMR gene changes:

- To identify patients who should be tested for Lynch syndrome. A diagnosis of Lynch syndrome can help determine if a person should have screenings for other types of cancer, such as endometrial or colon cancer. If a person does have Lynch syndrome, their relatives could also have it, and may want to be tested for it.
- To determine treatment options for ovarian cancer. Ovarian cancers that have certain MSI or MMR gene changes might be treated with certain immunotherapy drugs known as [checkpoint inhibitors](#)¹⁷.

NTRK gene mutations: Some ovarian cancers might be tested for changes in one of the *NTRK* genes. Cells with these gene changes can lead to abnormal cell growth and cancer. Larotrectinib (Vitrakvi) and entrectinib (Rozlytrek) are targeted drugs that stop the proteins made by the abnormal *NTRK* genes. The number of ovarian cancers that have this mutation is very small, but this may be an option for some women.

Hyperlinks

1. www.cancer.org/cancer/types/ovarian-cancer/causes-risks-prevention/risk-factors.html
2. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/ultrasound-for-cancer.html
3. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/ct-scan-for-cancer.html
4. www.cancer.org/cancer/diagnosis-staging/tests/endoscopy/colonoscopy.html
5. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/mri-for-cancer.html
6. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/x-rays-and-other-radiographic-tests.html
7. www.cancer.org/cancer/diagnosis-staging/tests/imaging-tests/nuclear-medicine-scans-for-cancer.html
8. www.cancer.org/cancer/diagnosis-staging/tests/endoscopy/colonoscopy.html
9. www.cancer.org/cancer/diagnosis-staging/tests/biopsy-and-cytology-tests.html
10. www.cancer.org/cancer/types/ovarian-cancer/causes-risks-prevention/risk-factors.html
11. www.cancer.org/cancer/types/ovarian-cancer/causes-risks-prevention/risk-factors.html
12. www.cancer.org/cancer/types/ovarian-cancer/treating/targeted-therapy.html
13. www.cancer.org/cancer/types/breast-cancer/risk-and-prevention/breast-cancer-risk-factors-you-cannot-change.html
14. www.cancer.org/cancer/risk-prevention/genetics/genetic-testing-for-cancer-risk/should-i-get-genetic-testing-for-cancer-risk.html
15. www.cancer.org/cancer/types/ovarian-cancer/treating.html
16. www.cancer.org/cancer/types/colon-rectal-cancer/causes-risks-prevention/risk-factors.html
17. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/immune-checkpoint-inhibitors.html

References

Chen, L., & Berek, J. (2018, January). UpToDate - Epithelial carcinoma of the ovary, fallopian tube, and peritoneum: Clinical features and diagnosis. Retrieved February 6, 2018, from <https://www.uptodate.com/contents/epithelial-carcinoma-of-the-ovaryfallopian-tube-and-peritoneum-clinical-features-anddiagnosis>.

Coleman RL, Liu J, Matsuo K, Thaker PH, Weston SN, and Sood Ak. Chapter 86:

Carcinoma of the Ovaries and Fallopian Tubes. In: Niederhuber JE, Armitage JO, Doroshow JH, Kastan MB, Tepper JE, eds. *Abeloff's Clinical Oncology*. 6th ed. Philadelphia, Pa. Elsevier: 2020.

Konstantinopoulos PA, Norquist B, Lacchetti C, Armstrong D, Grisham RN, Goodfellow PJ, et al. Germline and Somatic Tumor Testing in Epithelial Ovarian Cancer: ASCO Guideline. *J Clin Oncol*. 2020. doi: 10.1200/JCO.19.02960. [Epub ahead of print].

Koczkowska M, Zuk M, Gorczynski A, et al. Detection of somatic BRCA1/2 mutations in ovarian cancer - next-generation sequencing analysis of 100 cases. *Cancer Med*. 2016;5(7):1640–1646.

Morgan M, Boyd J, Drapkin R, Seiden MV. Ch 89 – Cancers Arising in the Ovary. In: Abeloff MD, Armitage JO, Lichter AS, Niederhuber JE, Kastan MB, McKenna WG, eds. *Clinical Oncology*. 5th ed. Philadelphia, PA: Elsevier; 2014: 1592.

National Comprehensive Cancer Network (NCCN)—Genetic/Familial High-Risk Assessment: Breast, Ovarian, and Pancreatic. V1.2020. Accessed March 26, 2020 from https://www.nccn.org/professionals/physician_gls/pdf/genetics_bop.pdf

National Comprehensive Cancer Network (NCCN)—Ovarian Cancer Including Fallopian Tube Cancer and Primary Peritoneal Cancer. (2018, February 2). Retrieved February 5, 2018, from https://www.nccn.org/professionals/physician_gls/pdf/ovarian.pdf

National Comprehensive Cancer Network (NCCN)—Ovarian Cancer Including Fallopian Tube Cancer and Primary Peritoneal Cancer. V1.2020. Accessed March 26, 2020 from http://www.nccn.org/professionals/physician_gls/pdf/ovarian.pdf

Okamura R, Boichard A, Kato S, Sicklick JK, Bazhenova L, Kurzrock R. Analysis of *NTRK* Alterations in Pan-Cancer Adult and Pediatric Malignancies: Implications for *NTRK*-Targeted Therapeutics. *JCO Precis Oncol*. 2018;2018:10.1200/PO.18.00183. doi:10.1200/PO.18.00183

Tewari KS, Penson RT, and Monk BJ. Chapter 77: Ovarian Cancer. In: DeVita VT, Lawrence TS, Rosenberg SA, eds. *DeVita, Hellman, and Rosenberg's Cancer: Principles & Practice of Oncology*. 11th ed. Philadelphia, Pa: Lippincott Williams & Wilkins; 2019.

Weber S, McCann CK, Boruta DM, Schorge JO, Growdon WB. Laparoscopic Surgical Staging of Early Ovarian Cancer. *Reviews in Obstetrics and Gynecology*. 2011;4(3-4):117-122.

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Ovarian Cancer Stages

- [How is the stage determined?](#)

After a woman is diagnosed with ovarian cancer, doctors will try to figure out if it has spread, and if so, how far. This process is called *staging*. The stage of a cancer describes how much cancer is in the body. It helps determine how serious the cancer is and how best to treat it. Doctors also use a cancer's stage when talking about survival statistics.

Ovarian cancer stages range from stage I (1) through IV (4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV, means cancer has spread more. Although each person's cancer experience is unique, cancers with similar stages tend to have a similar outlook and are often treated in much the same way.

One of the goals of surgery for ovarian cancer is to take tissue samples for diagnosis and staging. To stage the cancer, samples of tissues are taken from different parts of the pelvis and abdomen and examined in the lab.

How is the stage determined?

The 2 systems used for staging ovarian cancer, the **FIGO (International Federation of Gynecology and Obstetrics) system** and the **AJCC (American Joint Committee on Cancer) TNM staging system** are basically the same.

They both use 3 factors to stage (classify) this cancer :

- The extent (size) of the **tumor (T)**: Has the cancer spread outside the ovary or fallopian tube? Has the cancer reached nearby pelvic organs like the uterus or bladder?
- The spread to nearby lymph **nodes (N)**: Has the cancer spread to the lymph nodes in the pelvis or around the aorta (the main artery that runs from the heart down along the back of the abdomen and pelvis)? Also called para-aortic lymph nodes.
- The spread (**metastasis**) to distant sites (**M**): Has the cancer spread to fluid around the lungs (malignant pleural effusion) or to distant organs such as the liver or bones?

Numbers or letters after T, N, and M provide more details about each of these factors.

Higher numbers mean the cancer is more advanced. Once a person's T, N, and M categories have been determined, this information is combined in a process called *stage grouping* to assign an overall stage.

The staging system in the table below uses the pathologic stage (also called the surgical stage). It is determined by examining tissue removed during an operation. This is also known as **surgical staging**. Sometimes, if surgery is not possible right away, the cancer will be given a clinical stage instead. This is based on the results of a physical exam, biopsy, and imaging tests done **before** surgery. For more information see [Cancer Staging](#)¹.

The system described below is the most recent AJCC system effective January 2018. It is the staging system for ovarian cancer, fallopian tube cancer, and primary peritoneal cancer.

Cancer staging can be complex, so ask your doctor to explain it to you in a way you understand.

AJCC Stage	Stage grouping	FIGO Stage	Stage description*
I	T1 N0 M0	I	The cancer is only in the ovary (or ovaries) or fallopian tube(s) (T1). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IA	T1a N0 M0	IA	The cancer is in one ovary, and the tumor is confined to the inside of the ovary; or the cancer is in one fallopian tube, and is only inside the fallopian tube. There is no cancer on the outer surfaces of the ovary or fallopian tube. No cancer cells are found in the fluid (ascites) or washings from the abdomen and pelvis (T1a). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IB	T1b N0 M0	IB	The cancer is in both ovaries or fallopian tubes but not on their outer surfaces. No cancer cells are found in the fluid (ascites) or washings from the abdomen and pelvis (T1b). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IC	T1c	IC	The cancer is in one or both ovaries or fallopian tubes and any of the

	N0 M0		<p>following are present:</p> <ul style="list-style-type: none"> • The tissue (capsule) surrounding the tumor broke during surgery, which could allow cancer cells to leak into the abdomen and pelvis (called surgical spill). This is stage IC1. • Cancer is on the outer surface of at least one of the ovaries or fallopian tubes or the capsule (tissue surrounding the tumor) has ruptured (burst) before surgery (which could allow cancer cells to spill into the abdomen and pelvis). This is stage IC2. • Cancer cells are found in the fluid (ascites) or washings from the abdomen and pelvis. This is stage IC3. <p>It has not spread to nearby lymph nodes (N0) or to distant sites (M0).</p>
II	T2 N0 M0	II	The cancer is in one or both ovaries or fallopian tubes and has spread to other organs (such as the uterus, bladder, the sigmoid colon, or the rectum) within the pelvis or there is primary peritoneal cancer (T2). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIA	T2a N0 M0	IIA	The cancer has spread to or has invaded (grown into) the uterus or the fallopian tubes, or the ovaries. (T2a). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIB	T2b N0 M0	IIB	The cancer is on the outer surface of or has grown into other nearby pelvic organs such as the bladder, the sigmoid colon, or the rectum (T2b). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIIA1	T1 or T2 N1 M0	IIIA1	The cancer is in one or both ovaries or fallopian tubes, or there is primary peritoneal cancer (T1) and it may have spread or grown into nearby organs in the pelvis (T2). It has spread to the retroperitoneal (pelvic and/or para-aortic) lymph nodes only. It has not spread to distant sites (M0).
IIIA2	T3a N0 or N1 M0	IIIA2	The cancer is in one or both ovaries or fallopian tubes, or there is primary peritoneal cancer and it has spread or grown into organs outside the pelvis. During surgery, no cancer is visible in the abdomen (outside of the pelvis) to the naked eye, but tiny deposits of cancer are found in the lining of the abdomen when it is examined in the lab (T3a).

			The cancer might or might not have spread to retroperitoneal lymph nodes (N0 or N1), but it has not spread to distant sites (M0).
IIIB	T3b N0 or N1 M0	IIIB	There is cancer in one or both ovaries or fallopian tubes, or there is primary peritoneal cancer and it has spread or grown into organs outside the pelvis. The deposits of cancer are large enough for the surgeon to see, but are no bigger than 2 cm (about 3/4 inch) across. (T3b). It may or may not have spread to the retroperitoneal lymph nodes (N0 or N1), but it has not spread to the inside of the liver or spleen or to distant sites (M0).
IIIC	T3c N0 or N1 M0	IIIC	The cancer is in one or both ovaries or fallopian tubes, or there is primary peritoneal cancer and it has spread or grown into organs outside the pelvis. The deposits of cancer are larger than 2 cm (about 3/4 inch) across and may be on the outside (the capsule) of the liver or spleen (T3c). It may or may not have spread to the retroperitoneal lymph nodes (N0 or N1), but it has not spread to the inside of the liver or spleen or to distant sites (M0).
IVA	Any T Any N M1a	IVA	Cancer cells are found in the fluid around the lungs (called a malignant pleural effusion) with no other areas of cancer spread such as the liver, spleen, intestine, or lymph nodes outside the abdomen (M1a).
IVB	Any T Any N M1b	IVB	The cancer has spread to the inside of the spleen or liver, to lymph nodes other than the retroperitoneal lymph nodes, and/or to other organs or tissues outside the peritoneal cavity such as the lungs and bones (M1b).

* The following additional categories are not described in the table above:

- **TX:** Main tumor cannot be assessed due to lack of information
- **T0:** No evidence of a primary tumor.
- **NX:** Regional lymph nodes cannot be assessed due to lack of information.

Hyperlinks

1. www.cancer.org/cancer/diagnosis-staging/staging.html

References

American Joint Committee on Cancer. Ovary, Fallopian Tube, and Primary Peritoneal carcinoma. In: *AJCC Cancer Staging Manual*. 8th ed. New York, NY: Springer; 2017:681-690.

Prat J; FIGO Committee on Gynecologic Oncology. Staging classification for cancer of the ovary, fallopian tube, and peritoneum. *Int J Gynecol Obstet*. 2014;124(1):1-5.

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Survival Rates for Ovarian Cancer

Survival rates can give you an idea of what percentage of people with the same type and stage of cancer are still alive a certain amount of time (usually 5 years) after they were diagnosed. They can't tell you how long you will live, but they may help give you a better understanding of how likely it is that your treatment will be successful.

Keep in mind that survival rates are estimates and are often based on previous outcomes of large numbers of people who had a specific cancer, but they can't predict what will happen in any particular person's case. These statistics can be confusing and may lead you to have more questions. Ask your doctor how these numbers might apply to you.

What is a 5-year relative survival rate?

A **relative survival rate** compares people with the same type and stage of cancer to people in the overall population. For example, if the **5-year relative survival rate** for a specific stage of ovarian cancer is 80%, it means that people who have that cancer are,

on average, about 80% as likely as people who don't have that cancer to live for at least 5 years after being diagnosed.

Where do these numbers come from?

The American Cancer Society relies on information from the Surveillance, Epidemiology, and End Results (SEER) database, maintained by the National Cancer Institute (NCI), to provide survival statistics for different types of cancer.

The SEER database tracks 5-year relative survival rates for ovarian cancer in the United States, based on how far the cancer has spread. The SEER database, however, does not group cancers by [AJCC or FIGO stages](#) (stage 1, stage 2, stage 3, etc.). Instead, it groups cancers into localized, regional, and distant stages:

- **Localized:** There is no sign that the cancer has spread outside of the ovaries.
- **Regional:** The cancer has spread outside the ovaries to nearby structures or lymph nodes.
- **Distant:** The cancer has spread to distant parts of the body, such as the liver or lungs.

5-year relative survival rates for ovarian (or fallopian tube) cancer

These numbers are based on people diagnosed with cancers of the ovary (or fallopian tube) between 2012 and 2018. These survival rates differ based on the [type of ovarian cancer](#)¹ (invasive epithelial, stromal, or germ cell tumor).

Invasive epithelial ovarian cancer

SEER stage	5-year relative survival rate
Localized	93%
Regional	75%
Distant	31%
All SEER stages combined	50%

Ovarian stromal tumors

SEER* stage	5-year relative survival rate
Localized	97%
Regional	86%
Distant	70%
All SEER stages combined	89%

Germ cell tumors of the ovary

SEER stage	5-year relative survival rate
Localized	97%
Regional	94%
Distant	71%
All SEER stages combined	92%

Fallopian tube cancer

SEER stage	5-year relative survival rate
Localized	94%
Regional	53%
Distant	44%
All SEER stages combined	55%

*SEER = Surveillance, Epidemiology, and End Results

Understanding the numbers

- **These numbers apply only to the stage of the cancer when it is first diagnosed.** They do not apply later on if the cancer grows, spreads, or comes back after treatment.
- **These numbers don't take everything into account.** Survival rates are grouped based on how far the cancer has spread. But other factors, such as your age and

overall health, and how well the cancer responds to treatment, can also affect your outlook.

- **People now being diagnosed with ovarian (or fallopian tube) cancer may have a better outlook than these numbers show.** Treatments improve over time, and these numbers are based on people who were diagnosed and treated at least five years earlier.

Hyperlinks

1. www.cancer.org/cancer/types/ovarian-cancer/about/what-is-ovarian-cancer.html

References

SEER*Explorer: An interactive website for SEER cancer statistics [Internet]. Surveillance Research Program, National Cancer Institute. Accessed at <https://seer.cancer.gov/explorer/> on February 23, 2023.

Last Revised: March 1, 2023

What Should You Ask Your Doctor About Ovarian Cancer?

- [When you're told you have ovarian cancer](#)
- [When deciding on a treatment plan](#)
- [During treatment](#)
- [After treatment](#)

It is important for you to have honest, open discussions with your cancer care team. They want to answer all of your questions, so that you can make informed treatment and life decisions. Here are some questions to consider:

When you're told you have ovarian cancer

- What type of ovarian cancer do I have?
- Has my cancer spread beyond the ovaries?
- What is the cancer's [stage](#) (extent), and what does that mean?
- Will I need other [tests](#) before we can decide on treatment?
- Do I need to see any other doctors or health professionals?
- If I'm concerned about the costs and insurance coverage for my diagnosis and treatment, who can help me?
- Will I be able to have children after my treatment?
- Should I think about [genetic testing](#)¹? What are my testing options? Should I take a home-based genetic test? What would the pros and cons of testing be?

When deciding on a treatment plan

- What are my [treatment options](#)²?
- What do you recommend and why?
- How much experience do you have treating this type of cancer?
- Should I get a second opinion? How do I do that? Can you recommend someone?
- What would the goal of the treatment be?
- How quickly do we need to decide on treatment?
- What should I do to be ready for treatment?
- How long will treatment last? What will it be like? Where will it be done?
- What risks or side effects are there to the treatments you suggest?
- Are there things I can do to reduce these side effects?
- How might treatment affect my daily activities? Can I still work full time?
- What are the chances the cancer will recur (come back) with these treatment plans?
- What will we do if the treatment doesn't work or if the cancer recurs?
- What if I have [transportation problems](#)³ getting to and from treatment?

During treatment

Once treatment begins, you'll need to know what to expect and what to look for. Not all of these questions may apply to you, but asking the ones that do may be helpful.

- How will we know if the treatment is working?
- Is there anything I can do to help manage side effects?
- What symptoms or side effects should I tell you about right away?
- How can I reach you on nights, holidays, or weekends?
- Do I need to change what I eat during treatment?
- Are there any limits on what I can do?
- Can I exercise during treatment? If so, what kind should I do, and how often?
- Can you suggest a mental health professional I can see if I start to feel overwhelmed, depressed, or distressed?
- What if I need social support during treatment because my family lives far away?

After treatment

- Do I need a special diet after treatment?
- Are there any limits on what I can do?
- What other symptoms should I watch for?
- What kind of exercise should I do now?
- What type of follow-up will I need after treatment?
- How often will I need to have follow-up exams and imaging tests?
- Will I need any blood tests?
- How will we know if the cancer has come back? What should I watch for?
- What will my options be if the cancer comes back?

Along with these sample questions, be sure to write down some of your own. For instance, you might want more information about recovery times. You may also want to ask about [clinical trials](#)⁴ for which you may qualify.

Hyperlinks

1. www.cancer.org/cancer/risk-prevention/genetics.html
2. www.cancer.org/cancer/types/ovarian-cancer/treating.html
3. www.cancer.org/support-programs-and-services/road-to-recovery.html
4. www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html

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Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

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