

## Patient information from the BMJ Group

# Ovarian cancer

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## Ovarian cancer

Finding out that you or someone close to you has ovarian cancer can come as a shock. This is a serious illness, but treatments can help.

We've brought together the best research about ovarian cancer and weighed up the evidence about how to treat it. You can use our information to talk to your doctor and decide which treatments are best for you.

## What is ovarian cancer?

Ovarian cancer is cancer that starts in one or both of your **ovaries**. If you've been told you have this cancer, you may be shocked, afraid, and worried about what will happen to you. Ovarian cancer is serious, but it can be treated.

Most women get some symptoms in the early stages of ovarian cancer but they're not always picked up. <sup>[1]</sup> That's because they are quite common symptoms that are usually a sign of something else. This means that in most women, the cancer has already spread from the ovary by the time it's picked up. This makes it harder to cure. But doctors can't say for sure what will happen to you.

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Ovarian cancer is a serious disease. But it can be treated.

## Key points for women with ovarian cancer

- There isn't a good screening test to find this cancer before it causes symptoms. <sup>[2]</sup> But lots of research is being done to find one.
- The only way your doctor can definitely tell that you have ovarian cancer is by doing an operation to look at your ovaries .
- Treatment helps you live longer and eases your symptoms. Sometimes it can cure your cancer, especially if it's caught early.

## Your ovaries

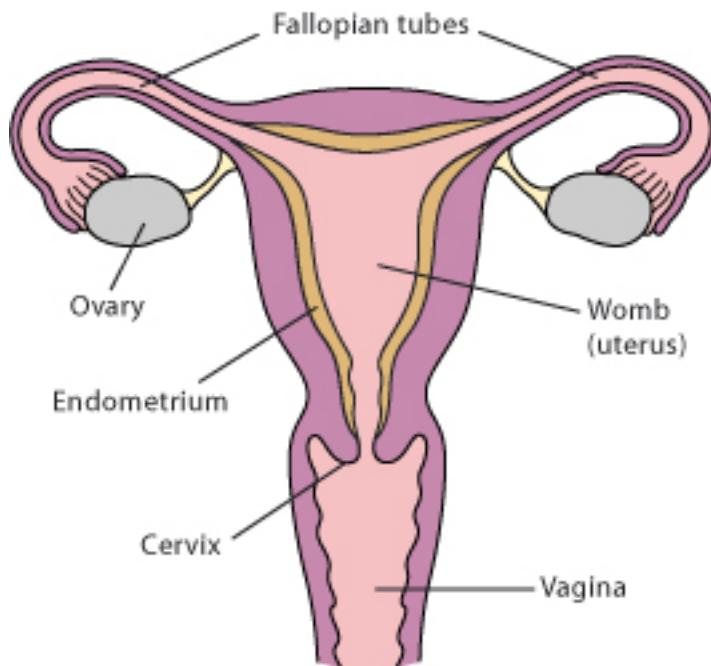
To understand how ovarian cancer starts and how it's treated, it helps to know more about your ovaries .

- Your ovaries are two small, almond-shaped organs on either side of your womb.
- They sit in your pelvis, the lower part of your abdomen between your hips.
- They make eggs so you can get pregnant.
- They also make oestrogen and progesterone, which are female sex hormones .

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After the **menopause**, your ovaries stop making eggs, you stop getting periods and your hormone levels fall.

Your ovaries are part of your reproductive system. This is the name for the parts of your body that let you get pregnant and have a baby.



Your reproductive system sits in the lower part of your abdomen, between your hips.

These parts include:

- Your two ovaries
- Your two fallopian tubes
- Your womb and the lining of your womb (the endometrium)
- Your cervix
- Your vagina .

Your ovaries also sit close to your **bladder** and bowels.

Lots of women have growths on their ovaries, and most of them aren't cancer. Most are harmless lumps filled with fluid. Doctors call these cysts. For more information, see [Cysts](#)

### **What happens in ovarian cancer?**

When your body's cells are healthy, they grow and divide to make new cells as your body needs them. When old cells die, the new ones take their place.

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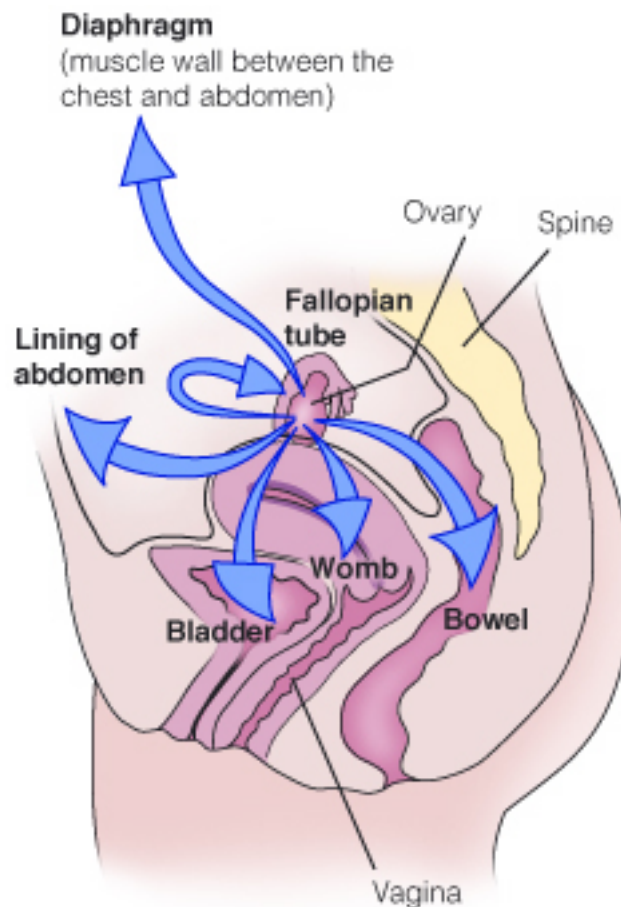
But sometimes this process breaks down. Too many new cells are made and not enough old cells die. All of these cells can stick together to make a lump called a tumour.

- If a tumour is **malignant**, this means it is cancerous and can spread to other parts of the body.
- If a tumour is **benign**, this means it is not cancerous and it won't spread to other parts of the body.

If a tumour is cancerous, this means it can invade and destroy the surrounding tissue. A non-cancerous tumour may grow bigger, but it will not spread to other parts of the body.

Most ovarian cancers start on the outside of the ovary. Only about 1 in 20 start inside the ovary.

### How does it spread?



Cancer cells from an ovary can break off and spread to your bladder, diaphragm and other organs nearby.

One way that ovarian cancer spreads is when some cancer cells break away from the ovary and travel to nearby organs such as your womb, bladder, and bowels.

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If this happens, new spots of cancer cells can grow in your pelvis and abdomen (the area below your belly button).

Common places for the new spots to grow are:

- On the muscle between your chest and your abdomen (called the **diaphragm**)
- On the fold of fat inside your abdomen (called the **omentum**)
- On the lining of your abdomen (called the **peritoneum**).

Cancer cells can damage the lining of your abdomen. If this happens, the lining makes fluid to try to soothe the upset. This fluid can build up in your abdomen and make you look and feel bloated. Doctors call the fluid **ascites**.

Ovarian cancer can also spread by travelling through your bloodstream or your **lymphatic system**. Your lymphatic system is a network of tubes that help your body fight infections. If cancer gets into your lymphatic system, it can spread to more distant parts of your body, such as your lungs. The new spots of cancer that show up in other parts of your body are called **metastases**.

### Ovarian cancer: why me?

We don't know why some women get ovarian cancer and others don't. But certain things can make it more likely that you'll get the disease. Doctors call these things risk factors. If you have a risk factor for a disease, it doesn't mean you'll get the disease for certain. It just means your chances of getting it are higher.

Most women who get ovarian cancer don't have any risk factors.<sup>[3] [4] [5] [6] [7]</sup> And even if you have a risk factor for this cancer, it doesn't mean you'll definitely get it.

Here is a summary of what we know about factors that affect your risk of ovarian cancer. Some of them increase your risk, while others decrease it.

### Things that increase your risk

#### Having ovarian cancer in your family

Having someone in your family who's had ovarian cancer is the strongest risk factor. But fewer than 1 in 10 women with ovarian cancer have a family link.

- About 1 in 50 women in the UK get ovarian cancer.<sup>[8]</sup>
- But if you have one close family member (such as a sister or mother) who's had it, your chances of getting it are about 1 in 20.<sup>[9]</sup>
- If you have two or three close family members who've had ovarian cancer, your chances of getting it are about 1 in 14.<sup>[9]</sup>

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- If you have other family members (aunts, cousins, grandmothers) with ovarian cancer, your risk may be higher than average, but less than if a close family member has it. <sup>[10]</sup>
- If any of your close family members have had breast cancer or colon cancer, you may also be at higher risk of getting ovarian cancer. <sup>[10]</sup> (To learn more about these conditions, see our sections on [breast cancer](#) and [colon cancer](#) .)

If you are worried that ovarian cancer runs in your family, you may want to see a genetic counsellor to learn more about your risk. For more about what you can do if ovarian cancer runs in your family, see [Ovarian cancer and your family](#) .

### Getting older

Getting older increases your risk. Most women who get ovarian cancer are older than 50, but younger women can get it, too. <sup>[11]</sup>

### Never having been pregnant

If you've never had children or been pregnant, you're more likely to get ovarian cancer. Your risk of getting it is about 1 in 50. <sup>[12]</sup> Breaks from your [menstrual cycle](#) seem to protect you, but we don't know why.

### Having certain other cancers

If you've had breast cancer or colon cancer, or cancer of the uterus (womb) or rectum, you may be more likely to get ovarian cancer. <sup>[13]</sup>

### Taking fertility drugs

Doctors aren't certain if taking fertility drugs to help you get pregnant affects your chances of getting ovarian cancer. Some studies say that it increases your risk, but others say that it doesn't. <sup>[3]</sup> <sup>[7]</sup> If you're taking these drugs and you're worried, talk to your doctor.

### Using talcum powder

It's not clear whether using talcum powder around your genitals increases your risk of ovarian cancer. There's some evidence that it may, but we need more research to know for certain. <sup>[14]</sup>

## Things that lower your risk

### Being pregnant, breastfeeding

The more children you have, the less likely you are to get ovarian cancer. <sup>[13]</sup> Breaks from your [menstrual cycle](#) seem to protect you, but we don't know why. Your cycle also often stops when you breastfeed, so the longer you do this, the less likely you are to get ovarian cancer.

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## Taking the pill

If you take the contraceptive pill, you're less likely to get ovarian cancer. All the research is on older types of pills, which had more of the **hormone oestrogen** in them. But it's probably also true of pills used today, which have much less oestrogen in them.

Taking the pill for five years cuts your chances of getting ovarian cancer by about a half. <sup>[3]</sup> <sup>[14]</sup> <sup>[15]</sup> <sup>[16]</sup> But if you take the pill for longer than five years, your risk won't continue to get lower. So whether you take it for five years or 10 years, you have the same protection.

## Having surgery to remove your ovaries

If you have a **hysterectomy** (an operation to remove your womb), your ovaries may be taken out at the same time. You can also have an operation to take out just your ovaries.

Having your ovaries taken out greatly reduces your chances of getting ovarian cancer. <sup>[17]</sup> But removing your ovaries doesn't completely take away the risk of getting this type of cancer. This is because there may be some cells left behind after surgery. These cells could turn into cancer in the place where your ovaries used to be. They could also spread to other areas. But the chances of these things happening are very small. <sup>[17]</sup>

If you have your ovaries taken out, there are some things you should know.

- You can't get pregnant naturally after having your ovaries removed. But you may be able to get pregnant by having fertility treatments.
- If you haven't reached the **menopause** yet, having your ovaries taken out may cause symptoms of the menopause, such as hot flushes, sweating at night, and a dry vagina, as well as thinning of your bones (called **osteoporosis**). You can take treatments to ease some of these problems. For more information, see our section on the [menopause](#).

If you're thinking about this surgery because ovarian cancer runs in your family, see [Ovarian cancer and your family](#).

## What stage is my ovarian cancer?

If you have ovarian cancer, it's very important to find out whether it has spread to other parts of your body, and how far it has spread. This is called the **stage** of your cancer. It will help you and your doctor decide what treatment is best. And it can help tell how long you're likely to live and your chances of being cured.

## Staging during your operation

During [surgery to check your ovaries for cancer](#), your surgeon will:

- Look for cancer everywhere in your **pelvis** and abdomen

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- Send some fluid or washings from your abdomen to the laboratory to check for cancer cells under the microscope (washings are fluid that the surgeon has flushed through your abdomen)
- Send some small bits of tissue (called **biopsies**) to the laboratory to check for cancer cells under the microscope.

To learn more, see [Surgery for ovarian cancer](#) .

### Staging tests

You may also have some or all of these tests to see whether your cancer has spread.

- A chest **x-ray** to check your lungs.
- Blood tests to see if your **kidneys** and **liver** are working properly. If they aren't, it could mean that the cancer is blocking the flow of urine from your kidneys or there is cancer in your liver.
- A **CT scan** or an **MRI scan** , which gives good pictures of the inside of your body.
- A special x-ray of your kidneys and **bladder** that uses a dye that you swallow. This helps show anything unusual in these organs.
- A barium enema test to see if there are any ovarian cancer cells in your **colon** . During this test, a liquid that contains the chemical barium is put into your rectum. The barium sticks to the lining of your colon. This helps your doctor see if there are any abnormal spots on your x-ray.

The results of surgery and these tests will help your doctor stage your cancer. <sup>[19]</sup> <sup>[20]</sup>

### What do the different stages mean?

Doctors split ovarian cancer into four main stages, from stage 1 (the earliest) to stage 4 (the most advanced). The earlier the stage of your cancer, the longer you're likely to live and the better your chances of being cured. For more information, see [What will happen to me?](#)

Here's what the stages mean.

#### Stage 1

In stage 1, you have cancer in one or both of your ovaries, but it hasn't spread anywhere. Stage 1 is split into three categories.

**Stage 1A:** You have cancer in only one of your ovaries.

**Stage 1B:** You have cancer in both of your ovaries.



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**Stage 1C:** You have cancer in one or both of your ovaries and any one or more of the following apply to you:

- You have cancer on the surface of one or both ovaries
- Your cancer has broken through the wall of an ovary
- You have cancer cells in fluid or washings from your abdomen.

### Stage 2

In stage 2, you have cancer in one or both of your ovaries, and it has spread to other areas of your **pelvis**. Stage 2 is split into three categories.

**Stage 2A:** Your cancer has spread to your womb, your **fallopian tubes** or both.

**Stage 2B:** Your cancer has spread to other tissues in your pelvis.

**Stage 2C:** Your cancer has spread to your womb or fallopian tubes or other tissues in your pelvis, and any one or more of the following apply to you:

- You have cancer on the surface of one or both of your ovaries
- Your cancer has broken through the wall of an ovary
- You have cancer cells in fluid or washings from your abdomen.

### Stage 3

In stage 3, you have cancer in one or both of your ovaries, and it has spread to other parts of your abdomen. It may also have spread to the surface of your liver. Stage 3 is split into three categories.

**Stage 3A:** Your cancer is only in your pelvis, but it has spread to the lining of your abdomen (the peritoneum). Your surgeon can't see the cancer, but it shows up under the microscope.

**Stage 3B:** Your cancer has spread to the lining of your abdomen but is less than 2.5 centimetres (1 inch) across. Your surgeon can see it.

**Stage 3C:** Either one or both of these things have happened:

- Your cancer has spread to the lining of your abdomen and is more than 2.5 centimetres (1 inch) across
- Your cancer has spread to the **lymph nodes** in your abdomen.

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## Stage 4

In stage 4, your cancer is in one or both of your ovaries, and it has spread beyond your abdomen to other parts of your body. It may be in your liver, your lungs, or both.

Unfortunately, the disease is diagnosed in most women after it has spread outside the ovary. In only about 1 in 4 women, the cancer is still at an early stage (stage 1) when it's found. <sup>[21]</sup>

## What are the symptoms of ovarian cancer?

Most women get some symptoms in the early stages of ovarian cancer but they're not always picked up. That's because they are quite common symptoms that are usually signs of something else. So ovarian cancer isn't usually found until later on when it has spread, which makes it harder to cure.

You won't be able to tell if your symptoms are due to something harmless (such as indigestion) or cancer. So you need to get them checked out by a doctor, even though there's a good chance there's nothing wrong.

The symptom most strongly associated with ovarian cancer is an enlarged abdomen (called **abdominal distension**). This means your abdomen gets bigger and doesn't get smaller again. Some women call this bloating, although bloating usually comes and goes (for example, if you have wind). If you have an enlarged abdomen, you may notice your clothes getting tighter round the waist. However, it's not about getting fat around your middle, but about the area below the layer of fat getting larger.

A good-quality study found that out of every 100 women who went to their GP with an enlarged abdomen, 2 or 3 had ovarian cancer. <sup>[1]</sup> So it's really important to see your doctor if you have this symptom.

Here are some other symptoms you should get checked out:

- Bloating in your abdomen
- Feeling full soon after you start eating
- Losing weight without trying
- Feeling sick and getting indigestion
- Having a pain in your pelvis (the part of your abdomen between your hips)
- Getting **constipation** or **diarrhoea**
- Having to urinate more often than usual
- Having backache

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- Getting swollen ankles
- Having a lump in your abdomen
- Bleeding from your vagina in between your periods or after the **menopause** . (This can also be a sign of other types of cancer. You should always get unusual bleeding checked out.)

### How do doctors diagnose ovarian cancer?

If you're worried you might have ovarian cancer, see your doctor. Diagnosing ovarian cancer early gives you the best chance of being cured.

Ovarian cancer is quite rare, so your GP may not think of it as the reason for your symptoms straight away. Be sure to tell your GP if someone in your family has had this cancer, because that can increase your risk.

To find out if you could have ovarian cancer, your GP might do some or all of the following.

- Ask about your symptoms, your past illnesses and operations, and your family's health.
- Do a physical examination. This will include listening to your lungs and feeling your abdomen.
- Do a pelvic examination. This is an examination of your vaginal area. After looking at the outside, the doctor will insert a small piece of plastic or metal (a speculum) into your vagina to look at the inside. Then he or she will check that your **fallopian tubes** , womb, and **ovaries** feel normal.

If your GP thinks you need some more tests, you will probably be referred to a specialist. This will usually be a gynaecologist, a doctor who specialises in women's health.

If your doctor thinks you need to see a specialist you should get an appointment within two weeks. <sup>[24]</sup>

The specialist may do some or all of the following tests.

- An ultrasound scan: This lets the specialist see the organs inside your abdomen and **pelvis** .
- A rectal examination: During this examination, the specialist puts a finger into your **rectum** to feel for anything unusual in your pelvis.
- A blood test to see how much CA 125 you have: CA 125 is a protein in your blood. Women with ovarian cancer tend to have lots of it. So if you have high levels of CA 125, it could mean that you have ovarian cancer. But only half of women who have

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ovarian cancer have high CA 125, and other things can give you a high level too. So this test alone can't confirm whether you have ovarian cancer. Doctors are working on other, more specific tests, but they are still in the early stages.<sup>[25]</sup>

- A sample of fluid from your chest or abdomen: If you have a build-up of fluid in your abdomen or chest, the specialist may take some of this fluid and test it for cancer. Fluid can build up in these areas if cancer cells spread to the lining of your abdomen or chest. The lining becomes damaged and makes fluid to try to soothe it. Before collecting some of the fluid, the specialist will give you a painkiller to numb the area (a local anaesthetic). Then the specialist will use a small needle to collect fluid. This will later be checked for cancer under a microscope.

The specialist probably won't be able to say for certain if you have ovarian cancer after these tests. The only way to tell for certain is to do an operation and look at your ovaries. So if the specialist thinks you could have ovarian cancer, you will need to have surgery.

For more information, see [Surgery for ovarian cancer](#).

### How common is ovarian cancer?

Here's what we know about how many people get ovarian cancer.

- Ovarian cancer is the fifth most common cancer among women in the UK.
- Every year about 6,700 women in the UK are diagnosed with ovarian cancer.<sup>[8]</sup>
- About 1 in 50 women in the UK get ovarian cancer.<sup>[22]</sup>
- About half the women who get ovarian cancer are older than 65.

### What treatments work for ovarian cancer?

Finding out that you or someone close to you has ovarian cancer can be a big shock. This cancer is serious, but it can be treated and sometimes cured.

Here we cover treatments for ovarian cancer that has spread outside your ovary ( [stages 2, 3, or 4](#) ). Doctors call this **advanced ovarian cancer**. To learn about treatments for ovarian cancer that hasn't spread ( [stage 1](#) ), see [Treatments for early \(stage 1\) ovarian cancer](#).

### Key points about treating ovarian cancer

- The only way your doctor can tell for certain whether you have ovarian cancer is by doing an operation to look at your **ovaries**. If you have cancer, your surgeon will try to remove it all during this operation. For more information, see [Surgery for ovarian cancer](#).

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- After surgery, you'll probably have chemotherapy to kill any cancer cells that are left.
- Having chemotherapy that includes a **platinum drug** (cisplatin or carboplatin) seems to work best. Carboplatin causes fewer side effects.
- Some people take a **taxane drug** (paclitaxel or docetaxel) as well as a platinum drug. But we don't know if taking a taxane drug as well can help you live longer.
- Having more surgery during or after chemotherapy (called **routine interval debulking** and **second-look surgery**) probably won't help you live longer.
- Doctors are researching new treatments for ovarian cancer, such as vaccines and treatment with hormones. You may be able to take part in research studies testing one of these. Talk to your doctor to find out more.
- Two newer chemotherapy drugs are called topotecan and pegylated liposomal doxorubicin hydrochloride (PLDH). They are recommended for use when standard treatments don't work, or can't be used.

Which treatments work best? We've looked at the best research and given a rating for each treatment according to how well it works.

For help in deciding which treatment is best for you, see [How to use research to support your treatment decisions](#).

### Treatment Group 1

#### Treatments for advanced ovarian cancer

##### Usual treatment

- [Surgery for ovarian cancer](#) : If your doctor thinks you might have ovarian cancer, the only way to be sure is to do an operation and look at your ovaries. If your surgeon finds cancer he or she will remove as much of it as possible. [More...](#)

##### Treatments that are likely to work

- [Chemotherapy that includes a platinum drug](#) : These drugs kill cancer cells. Types of platinum drugs include cisplatin and carboplatin (brand name Paraplatin). [More...](#)

##### Treatments that need further study

- [Chemotherapy that includes one taxane drug and one platinum drug](#) : Like platinum drugs, taxane drugs also kill cancer cells. Some examples (and their brand names) are paclitaxel (Taxol) and docetaxel (Taxotere). [More...](#)

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- [A second round of chemotherapy](#) : This is done after you've had your first operation and first round of chemotherapy in the hope that it will help you live longer. [More...](#)

### Treatments that are unlikely to work

- [Second-look surgery](#) : This operation lets your doctor see what's happened to your ovarian cancer. It's done after you've had your first operation and all of your chemotherapy. [More...](#)
- [A second operation to remove more cancer \(routine interval debulking\)](#) : This operation removes more cancer in the hope that it will make your chemotherapy work better. It's done after you've had your first operation and half of your chemotherapy. [More...](#)

### What will happen to me?

Ovarian cancer is serious, but it can be treated. No one can say for certain what will happen to you if you have ovarian cancer. Different people react to cancer and to treatments in different ways. All we can do is talk about what happened to other people with ovarian cancer, in studies.

Here are some things you should know.

- Doctors usually talk about how likely it is that you'll be alive five years after your cancer is diagnosed. This is because ovarian cancer is most likely to come back in the first five years after treatment. It doesn't mean you won't live longer than five years.
- You'll probably need to have regular check-ups, even 20 years later.
- Doctors can't tell for certain what course your cancer will take. For example, some women with advanced ovarian cancer live a long time.

What will happen to you depends mainly on the following things.

- The stage of your cancer: Doctors divide ovarian cancer into four main stages, from stage 1 (the earliest) to stage 4 (the most advanced). The lower the stage, the longer you're likely to live and the better your chance of being cured. (To learn how doctors tell the stage of your cancer, see [What stage is my ovarian cancer?](#) ) In studies, more than 90 in 100 women with stage 1 ovarian cancer were cured. <sup>[23]</sup> Unfortunately, ovarian cancer is usually at a later stage (stage 3 or 4) by the time women see their doctor. This makes a cure less likely.
- The grade of your cancer: The grade of your ovarian cancer tells how much (or how little) the cancer cells look like the healthy cells of an ovary. Your outlook is usually better if your cancer has a lower grade, because it is less likely to spread. (To learn

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how doctors tell the grade of your cancer, see [What grade is my ovarian cancer?](#)  
) But the grade isn't as important as the stage.

- How much cancer is left after surgery: A surgeon will try to remove as much of your cancer as possible. But sometimes surgeons can't remove all of the cancer. The less cancer that's left, the longer you're likely to live.

For more information, see [Survival rates for ovarian cancer](#) . But remember, we can't tell you what your personal chances are of surviving ovarian cancer.

### Questions to ask your doctor

If you've been told that you have ovarian cancer, you may want to talk to your doctor to find out more.

Here are some questions that you might want to ask.

#### Questions about your diagnosis

- What [stage](#) is my ovarian cancer?
- What [grade](#) is it?
- Is my ovarian cancer linked to certain [genes](#) I got from my parents? (More than 95 percent of cases aren't.)

#### Questions about your treatment

- Will my operation be done by a surgeon experienced in treating this type of cancer? And will it be done in a hospital that specialises in treating cancer? (The results are likely to be better if it is.)
- Which of my organs will be taken out?
- How long will I have to stay in hospital?
- What side effects can I expect from surgery?
- Will I need [chemotherapy](#) ?
- If I need chemotherapy, will I have to stay in hospital for it? Or will I have it as an outpatient?
- What side effects can I expect from chemotherapy?
- How will treatment affect my usual activities?

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## Questions about your life after treatment

- How often will I need check-ups after treatment?
- What will happen during these check-ups?
- How soon will I be able to get back to my usual activities (for example, work, sport, sex, housework, shopping)?
- How will treatment affect my sex life?

## Questions about the medical team looking after you

- Who will be looking after me?
- Who do I call if I have questions or problems?
- How do I get in touch with local support groups?

## Survival rates for ovarian cancer

About 8 in 10 women live for at least one year after they find out they have ovarian cancer. <sup>[26]</sup> And just under half live for more than five years. <sup>[22]</sup>

Below, we've included information about the survival rates for women diagnosed with different stages of ovarian cancer. <sup>[22]</sup>

Remember that these statistics can't say for certain how long you'll live.

Stage	Five-year survival rate
1	90%
2	60% to 70%
3	15% to 35%
4	5% to 15%

What do the numbers mean? Here are some examples.

- A 90 percent five-year survival rate means 90 in 100 women with this stage of cancer will live for at least five years.
- A 5 percent to 15 percent five-year survival rate means that between 5 and 15 in 100 women will still be alive five years later.



## Treatments:

### Surgery for ovarian cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

This information is for women who may have ovarian cancer. It tells you about surgery, a treatment used to diagnose and treat ovarian cancer.

#### Does it work?

Yes. Surgery is the only way to find out for certain if you have ovarian cancer. If you do have cancer, the surgeon will remove as much of the cancer as possible and find out how far it has spread during the same operation.

#### What is it?

If you've been told you need surgery because you may have ovarian cancer, you're probably worried about what's going to happen. This can be a big operation, depending on what surgeons find. But you'll likely be able to get out of bed the next day, and you shouldn't have to stay in hospital for more than about a week.

#### What happens during surgery?

There are two types of operations to check for ovarian cancer. Whichever kind you have, you'll be given a **general anaesthetic** so you'll sleep through it.

- During keyhole surgery (**laparoscopy**), your surgeon makes two small cuts in your abdomen. Tiny instruments and a camera are put through the cuts to get a close look at your **ovaries**. You should recover faster from this surgery than from standard surgery. But if your surgeon finds cancer, you may need standard surgery afterwards.
- During standard surgery (**laparotomy**), your surgeon makes a large cut in your abdomen to look at your ovaries.

Your surgeon will probably choose which type of operation to do based on how strongly he or she suspects that you have ovarian cancer.

- If your surgeon thinks your risk of having cancer is high, you will probably have standard surgery. This is because the smaller operation (laparoscopy) can cause the cancer to spread along the cuts that the surgeon makes to put the instruments and camera through.
- If your risk is low, your surgeon may try the smaller operation (laparoscopy) first.

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During your surgery (either kind), the following might happen.

- Your surgeon may not find anything unusual.
- Your surgeon may find a growth on your ovary. If your surgeon thinks it could be cancer, he or she will probably remove your whole ovary. Surgeons do this because cutting away just a piece of the ovary could let cancer cells spread. Your surgeon will send the growth to the laboratory immediately to check if it is cancer. The results will come back while you are still under the anaesthetic on the operating table.
- In extremely rare cases, surgeons remove just the cancerous part of the ovary. Your surgeon may do this if your other ovary (the one without the cancer) isn't working properly and you still want to have children.

### What happens if the laboratory finds cancer?

If the laboratory finds that you have ovarian cancer, your surgeon may also: <sup>[30]</sup> <sup>[31]</sup> <sup>[32]</sup>

- Remove one or both of your ovaries and your fallopian tubes
- Remove your womb (do a hysterectomy )
- Remove the lining of your abdomen (the peritoneum) if there's cancer in it
- Remove the fold of fat on the inside of your abdomen (the omentum) because cancer often spreads to there
- Remove some lymph nodes from your abdomen and around your ovaries to see if they have cancer in them.

Your surgeon will send all of these to the laboratory, where they'll be checked under a microscope for cancer cells. This will tell how far the cancer has spread (its stage). For more information, see [What stage is my ovarian cancer?](#)

Your surgeon will also try to remove as much of the cancer as possible to give you the best chance of staying healthy. But he or she may not be able to remove all of it if there's just too much or it's in places the surgeon can't get to without harming you.

### What your surgeon might say after surgery

- We removed all of your cancer.
- We removed most of your cancer (only small bits are left).
- We didn't try to remove all of your cancer because there is too much of it.

## Ovarian cancer

- We couldn't remove all of your cancer, and you may need another operation after some chemotherapy. (Chemotherapy uses chemicals to kill any cancer cells that are left.)

### Questions you might want to ask after surgery

- What stage is my cancer?
- Did you remove all of it?
- Do I need any other treatment?
- If I need chemotherapy, what type is best for me?
- Will I need more surgery after chemotherapy?

### Recovering from your operation

You'll probably need to stay in hospital for about one week after your operation.<sup>[32]</sup> And it may be four weeks to six weeks before you're back to your normal routine. But once you've recovered from the operation, you should be able to do all the things you did before.<sup>[32]</sup>

You'll be able to have a full sex life once you've recovered from your operation.<sup>[32]</sup> But you might not feel like having sex straight away. If you've been diagnosed with ovarian cancer, you may need time to adjust to what is happening. Let your partner know that you need support and understanding. Your sexual feelings will probably come back in a few weeks. It may help to talk to a counsellor about this.

Most women with ovarian cancer have chemotherapy after surgery.<sup>[32]</sup> The aim of chemotherapy is to kill any cancer cells that are left. Your doctor will want you to start it soon, often within a week or 10 days after your operation.

### How can it help?

Having surgery is the only way to find out for certain whether you have ovarian cancer. If you do have cancer, your surgeon will remove as much of the cancer as possible during the same operation. Your surgeon will also find out how far your cancer has spread, which will help you decide about any further treatment.

Doctors have known for a long time that this operation helps. So researchers aren't likely to do a study that compares people who've had surgery with people who haven't.

### How does it work?

Cancer cells grow quickly. Without surgery, the cancer would continue to grow and could spread to other parts of your body.

### Can it be harmful?

All surgery has risks. Having a general anaesthetic can cause problems with your heart and breathing, but these problems are rare. You may also have heavy bleeding, get blood clots in your legs, or have problems healing.

If both of your ovaries are taken out during surgery:

- You won't be able to get pregnant naturally, but you may be able to get pregnant with fertility treatments
- If you haven't already gone through the **menopause**, you may get symptoms of the menopause, such as hot flushes, sweating at night, and a dry vagina, as well as thinning of your bones ( **osteoporosis** ). Treatments can help with some of these problems.

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## Chemotherapy that includes a platinum drug

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy that includes a platinum drug?](#)

This information is for women who have ovarian cancer. It tells you about chemotherapy that includes a platinum drug, a treatment used for ovarian cancer. It is based on the best and most up-to-date research.

### Does it work?

Yes. If you have **chemotherapy** that includes a platinum drug after [surgery](#), it can help you live longer and stay free of cancer longer.

### What is it?

Chemotherapy uses drugs to kill cancer cells.

Doctors use many types of drugs in chemotherapy. Platinum drugs are one type. Examples of platinum drugs are:

- cisplatin
- carboplatin (brand name Paraplatin).

Your chemotherapy will probably be injected into a **vein**, and you'll probably have six treatments over several months. For more information, see [What can I expect during chemotherapy?](#)

## Ovarian cancer

Your doctor may suggest chemotherapy that has both a platinum drug and a taxane drug in it. For more information, see [Chemotherapy that includes one taxane drug and a platinum drug](#) .

If platinum and taxane drugs don't help, or you can't take them for some reason, you may be offered newer chemotherapy drugs called topotecan and pegylated liposomal doxorubicin hydrochloride (PLDH).<sup>[33]</sup>

### How can it help?

Chemotherapy that includes a platinum drug can help in the following ways.

- If you've had surgery for ovarian cancer, having chemotherapy that includes a platinum drug can help you live longer.<sup>[34] [35]</sup>
- Having chemotherapy with just one platinum drug on its own may work as well as having chemotherapy that contains a platinum drug plus other drugs.<sup>[34] [36] [37]</sup>
- The platinum drugs cisplatin and carboplatin work just as well as each other.<sup>[34] [38]</sup>  
<sup>[39] [40]</sup> But cisplatin causes more side effects.<sup>[40]</sup>

One study we found looked at whether it would be best to have chemotherapy before having surgery. But so far, there's no evidence that it works any better. Most people have surgery first.<sup>[41]</sup>

Researchers have also looked at whether it is best to have chemotherapy injected into a vein or put into your abdomen through one or two plastic tubes. (called 'intraperitoneal' chemotherapy or IP chemotherapy.) The studies found having chemotherapy through the abdomen rather than injected into a vein might help women with ovarian cancer live longer. But the research isn't clear. More research is needed to be sure.<sup>[42] [43] [44] [45]</sup>  
<sup>[46]</sup>

### How does it work?

Chemotherapy drugs kill ovarian cancer cells left in your body after surgery. Doctors use many drugs that work in different ways. Platinum drugs damage the DNA in cells. DNA is what tells cells how to grow and divide into new cells. When the DNA is damaged, the cells die. (To learn more about cancer cells, see [What is ovarian cancer?](#) )

### Can it be harmful?

Yes. All chemotherapy drugs can cause side effects.

These drugs work best at killing cells that divide rapidly. Cancer cells divide rapidly, but so do some of your healthy cells. When the drugs affect these healthy cells, you get side effects.

## Ovarian cancer

Cisplatin is especially likely to cause side effects, and it causes lots of them. Carboplatin is much easier on your body. <sup>[36]</sup>

If you have **cisplatin chemotherapy**, you may get these side effects.

- Nausea and vomiting. This can be bad and last for up to five days.
- Numbness and tingling in your hands and feet because of damage to your nerves. This can be bad and permanent.
- Problems with your hearing.
- Damage to your kidneys. But your doctor will check how well your **kidneys** are working. If you start to have kidney problems, the cisplatin can be stopped.

If you have **carboplatin chemotherapy**, you may get these side effects.

- Changes in your blood that can lead to **anaemia**, **infections**, and bleeding. These changes are usually mild and don't last long. You'll have regular blood tests to check for them.
- Nausea and vomiting. This is usually mild and lasts for a day or two.
- **Allergic reactions**, such as rashes.
- Numbness and tingling in your hands and feet because of damage to your nerves. But this is rare and usually mild.

To find out more about the side effects you might get from other drugs used in chemotherapy, see [General side effects of chemotherapy](#).

### **How good is the research on chemotherapy that includes a platinum drug?**

The research on platinum drugs is good.

Having **chemotherapy** with a platinum drug in it could help you live longer and keep you free of cancer longer than having chemotherapy without one. <sup>[34]</sup>

One review of the research (called a **systematic review**) looked at four good studies (called **randomised controlled trials**). Between them, the studies looked at 1,024 women with ovarian cancer. <sup>[34]</sup> The review found that adding a platinum drug to any type of chemotherapy with at least two other drugs helped women live longer.

The review found that women who had chemotherapy with a platinum drug in it were 5 percent more likely to be alive two years later and five years later. <sup>[34]</sup>

## Ovarian cancer

Here are the numbers from the study. <sup>[34]</sup>

Chemotherapy without a platinum drug:

- About 40 in 100 to 45 in 100 women were alive two years later
- About 20 in 100 to 25 in 100 women were alive five years later.

Chemotherapy with a platinum drug:

- About 45 in 100 to 50 in 100 women were alive two years later
- About 25 in 100 to 30 in 100 women were alive five years later.

Other studies have found that:

- The platinum drugs carboplatin and cisplatin work equally well <sup>[34] [47] [38] [39]</sup>
- A platinum drug on its own seems to work just as well as a platinum drug given with other chemotherapy drugs. And you're less likely to get side effects. <sup>[34] [36] [37]</sup>

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## Chemotherapy that includes one taxane drug and one platinum drug

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on chemotherapy that includes one taxane drug and one platinum drug?](#)

This information is for women who have ovarian cancer. It tells you about chemotherapy that includes one taxane drug and one platinum drug, a treatment used for ovarian cancer. It is based on the best and most up-to-date research.

### Does it work?

We know that people who have chemotherapy with one taxane drug and one platinum drug are likely to live longer than people who have one other type of chemotherapy. But we're not sure how much difference it makes to have the taxane as well as the platinum drug.

### What is it?

Chemotherapy uses drugs to kill cancer cells. The standard chemotherapy for ovarian cancer is to have a platinum drug. This might be cisplatin or carboplatin. Platinum drugs work well to treat ovarian cancer.

## Ovarian cancer

Doctors use many types of drugs in chemotherapy. Taxane drugs are another type. There are two taxane drugs available in the UK. They are:

- paclitaxel (brand name Taxol)
- docetaxel (brand name Taxotere).

Paclitaxel is used the most. It's injected into a **vein** for over three hours to 24 hours. In one study, women with ovarian cancer were given paclitaxel with other chemotherapy drugs every three weeks. They had a total of six treatments (called cycles).<sup>[48]</sup>

The National Institute for Health and Care Excellence (NICE), the government body that decides which treatments should be available on the NHS, has said that all women in the UK with ovarian cancer should be offered chemotherapy with a platinum drug (cisplatin or carboplatin), with or without paclitaxel (Taxol) after surgery. It's up to you and your doctor to decide whether to use paclitaxel as well as the platinum drug.<sup>[49]</sup> For more information on platinum drugs, see [Chemotherapy that includes one platinum drug](#) .

If your ovarian cancer has come back and you haven't had treatment with paclitaxel and a platinum drug before, then you should be offered this combination treatment.

If platinum and taxane drugs don't help, or you can't take them for some reason, you may be offered newer chemotherapy drugs called topotecan and pegylated liposomal doxorubicin hydrochloride (PLDH).<sup>[41]</sup>

### How can it help?

Chemotherapy with a platinum drug works well.

But we don't know if having paclitaxel as well as a platinum drug helps you live any longer than just having a platinum drug on its own. The research isn't clear.<sup>[50]</sup> <sup>[51]</sup>

Studies show that if you have chemotherapy with a platinum drug and paclitaxel, you'll probably live longer than if you have a platinum drug and another type of anti-cancer drug called cyclophosphamide.<sup>[49]</sup> <sup>[52]</sup>

### How does it work?

Chemotherapy drugs kill cancer cells left in your body after [surgery](#) . Doctors use many drugs that work in different ways. Taxane drugs like paclitaxel stop cells growing and developing properly. So the cells die. (To learn more about cancer cells, see [What is ovarian cancer?](#) )

### Can it be harmful?

Yes. All chemotherapy drugs can cause side effects.



## Ovarian cancer

These drugs work best at killing cells that divide rapidly. Cancer cells divide rapidly, but so do some of your healthy cells. When the drugs affect these healthy cells, you get side effects.

Doctors usually give paclitaxel with other chemotherapy drugs, such as platinum drugs (carboplatin or cisplatin). The other drugs can cause side effects, too, such as anaemia, infection, and fever. For more information, see [General side effects of chemotherapy](#).

Here's what we know about the side effects caused by adding paclitaxel to your chemotherapy.

- You're more likely to lose your hair if your chemotherapy has paclitaxel in it. Most women lose their hair, but it grows back. <sup>[53]</sup>
- Between 7 in 100 and 18 in 100 women feel sick and vomit if their chemotherapy has paclitaxel in it. That's about the same as for other chemotherapy drugs. <sup>[52]</sup>
- In one study, women were more likely to get a fever if their chemotherapy had paclitaxel in it. <sup>[50]</sup> But this wasn't found in all studies. <sup>[52]</sup>
- In one study, around 6 in 100 women given paclitaxel and cisplatin got muscle pain. <sup>[53]</sup> None of the women given chemotherapy without paclitaxel got muscle pain.

### How good is the research on chemotherapy that includes one taxane drug and one platinum drug?

We found reasonably good information from two summaries of the research that chemotherapy with the taxane drug paclitaxel (brand name Taxol) added to a platinum drug works better against ovarian cancer than one other type of chemotherapy (a platinum drug plus cyclophosphamide). <sup>[49]</sup> <sup>[52]</sup> But it isn't clear if adding paclitaxel to a platinum drug works any better than just taking the platinum drug alone.

The two summaries we looked at covered the same four good studies (called randomised controlled trials).

Two of the studies compared cisplatin plus paclitaxel, with cisplatin plus cyclophosphamide. Both of these studies found women who took cisplatin plus paclitaxel were likely to live longer and be free of cancer for longer. <sup>[48]</sup> <sup>[53]</sup>

The other two studies compared treatment with a platinum drug (cisplatin or carboplatin) alone, with treatment with a platinum drug plus paclitaxel. But these studies didn't find any difference in how long the women lived. <sup>[50]</sup> <sup>[51]</sup>

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## A second round of chemotherapy

# Ovarian cancer

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on a second round of chemotherapy?](#)

This information is for women who have ovarian cancer. It tells you about having a second round of chemotherapy, a treatment used for ovarian cancer. It is based on the best and most up-to-date research.

## Does it work?

We're not sure. We don't know if having another round of chemotherapy after you've had your first operation and first round of chemotherapy for ovarian cancer will help you live longer.

## What is it?

Most people with ovarian cancer have surgery and one round of chemotherapy. But because ovarian cancer sometimes comes back, some doctors have tried also giving a second round of chemotherapy, even when there's no sign of any remaining cancer cells.

Chemotherapy uses drugs to kill cancer cells. Doctors use many types of drugs in chemotherapy, including platinum drugs. Examples of platinum drugs include:

- cisplatin
- carboplatin (brand name Paraplatin).

Chemotherapy is usually injected into a vein. In a second round of chemotherapy, the drugs are sometimes put directly into your abdomen through either one or two plastic tubes. This is called intraperitoneal chemotherapy or IP chemotherapy. The idea of this type of treatment is that the chemotherapy reaches any cancer cells in your abdomen in a higher concentration than it would via your bloodstream.

This is still a fairly new treatment so you may not be offered it except in clinical trials.

## How can it help?

Chemotherapy with a platinum drug works well. But we don't know if having a second round of chemotherapy helps you live any longer than not having any further treatment.

[\[54\]](#) [\[55\]](#) [\[56\]](#)

The studies done so far have not shown any benefit. But some of them were too small or had other problems that make it hard to rely on their results.

### How does it work?

We're not certain whether a second round of chemotherapy will help you live longer. But it could help to destroy any microscopic traces of cancer that might be left in your body. This could reduce the chances of it coming back in this area.

### Can it be harmful?

Yes. All chemotherapy drugs can cause side effects.

These drugs work best at killing cells that divide rapidly. Cancer cells divide rapidly, but so do some of your healthy cells. When the drugs affect these healthy cells you get side effects. Having a second round of chemotherapy can cause typical [side effects of chemotherapy](#) such as nausea and vomiting, hair loss, tiredness, numbness or tingling in your hands or feet, a sore mouth, and loss of appetite. What side effects you get depends a lot on the type of chemotherapy drugs you use. Your doctor can tell you what to expect and what treatments can ease these side effects.

### How good is the research on a second round of chemotherapy?

We looked at two studies (called [randomised controlled trials](#) ) and one summary of research (a [systematic review](#) ) that included eight studies. [\[54\]](#) [\[55\]](#) [\[56\]](#)

The studies looked at whether women with ovarian cancer who were given a second round of [chemotherapy](#) after receiving chemotherapy and surgery lived longer than those who had no further treatment. All of the studies found that women who had a second round of chemotherapy did not live any longer. We need to see more research before we can tell whether second-round chemotherapy helps or not.

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## Second-look surgery

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on second-look surgery?](#)

This information is for women who have ovarian cancer. It tells you about second-look surgery, a treatment used for ovarian cancer. It is based on the best and most up-to-date research.

### Does it work?

Probably not. Having another operation after you've had all of your [chemotherapy](#) for ovarian cancer probably won't help you live longer. Seeing your doctor and having blood tests and examinations are likely to work just as well.

### What is it?

Second-look surgery is an operation to look inside your abdomen and **pelvis** to see if your cancer has changed since your first operation and chemotherapy. It used to be done as part of the treatment for ovarian cancer.

It's not as big an operation as [the first operation to remove your cancer](#) . But you'll still need a **general anaesthetic** to put you to sleep, and the operation can take up to one hour.

Second-look surgery isn't usually done now because there isn't any good evidence to show it helps. But if you're in a study of cancer treatments (called a clinical trial), you might have it as part of the study to see if your treatment has worked.

On the other hand, second-look surgery can help your doctor predict how long you might live. Among women who have this operation:

- Those who don't have any cancer live longer than those who have cancer cells that can be seen under the microscope
- Those who have cancer that the surgeon can see during the operation live the shortest.

To read more about cancer cells, see [What is ovarian cancer?](#)

### How can it help?

It probably doesn't. There isn't any evidence that having a second operation to see if your cancer has changed will help you live longer. <sup>[57]</sup>

### How does it work?

A second-look operation might let your doctor tell if your cancer has grown or shrunk. This may help you and your doctor decide what treatment, if any, you need next. But in practice, there's no evidence to show that this helps you live longer.

### Can it be harmful?

Yes. Having a general anaesthetic carries risks, especially if you're weak because of your cancer and chemotherapy. And surgery can lead to **infection** , heavy bleeding, and **blood clots** .

### How good is the research on second-look surgery?

The evidence suggests that having second-look surgery after **chemotherapy** doesn't help women with ovarian cancer live longer.

## Ovarian cancer

We found one good study (called a [randomised controlled trial](#) ) of women with ovarian cancer that had spread ( [stage 2, 3, or 4 cancer](#) ).<sup>[57]</sup> It showed that having a second operation after chemotherapy didn't help.

The study looked at 102 women who had surgery to remove their cancer and then chemotherapy.<sup>[57]</sup> After that, half the women had usual tests, while half had second-look surgery. Women in both groups had just about the same chance of being alive five years later.

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### Second operation to remove more cancer (routine interval debulking)

In this section

[Does it work?](#)

[What is it?](#)

[How can it help?](#)

[How does it work?](#)

[Can it be harmful?](#)

[How good is the research on a second operation to remove more cancer \(routine interval debulking\)?](#)

This information is for women who have ovarian cancer. It tells you about having a second operation to remove more cancer (routine interval debulking). It is based on the best and most up-to-date research.

#### Does it work?

Probably not. Having a second operation to remove more cancer is unlikely to help you live longer, especially if most of the cancer was removed during the first operation.

#### What is it?

The second operation is a lot like the first operation to remove your cancer. (For more information on that, see [Surgery for ovarian cancer](#) .) You'll be given a [general anaesthetic](#) so you'll sleep through the operation.

Your surgeon will cut open your abdomen and remove any cancer. Your surgeon may also remove your womb, your [ovaries](#) , and the lining of your abdomen (the peritoneum) if these organs weren't taken out during your first operation.

Whatever stage of cancer you've had, your doctors may recommend a second operation if they think they didn't get all the cancer out the first time. You'll usually have this second operation halfway through your [chemotherapy](#) treatments. Most women have six chemotherapy treatments. So you'll probably have the operation after your first three treatments. (To learn more, see [What can I expect during chemotherapy?](#) )

#### How can it help?

Overall, the evidence suggests that a second operation to remove cancer doesn't help women live longer. But the evidence is mixed. A second operation may be of some benefit

## Ovarian cancer

if your first operation wasn't done by an ovarian cancer specialist and didn't remove all the cancer. <sup>[58]</sup>

If your first operation removed most of your cancer, doctors agree that having a second operation is unlikely to help.

### How does it work?

We're not certain if a second operation will help you live longer. It may depend on how much cancer or other tissue was removed during your first operation. But your doctor may suggest this surgery for the following reasons.

- If you have less cancer, there will be fewer cancer cells left to divide and spread.
- If you have less cancer, the cancer is less likely to press on your organs, such as your bladder and bowels. So it's less likely to cause you problems.

To learn more about cancer cells and how they spread, see [What is ovarian cancer?](#)

### Can it be harmful?

All surgery has risks. Having a general anaesthetic carries risks, especially if you're weak because of your cancer and chemotherapy. You may have heavy bleeding, get blood clots in your legs, or have problems healing.

In a study of 26 women who had a second operation, more than half had a serious problem. <sup>[59]</sup> Here's what happened:

- 11 had heavy bleeding and needed a blood transfusion
- 5 got problems with their digestion
- 3 got infections in the wound where their surgery was done
- 2 got infections in their chest
- 1 got a clot in a vein.

### How good is the research on a second operation to remove more cancer (routine interval debulking)?

There isn't much evidence that having a second operation to remove more cancer (routine interval debulking) helps women with ovarian cancer live longer.

We found a summary of the evidence (a systematic review), which included three studies. One study found that the second operation helped women with ovarian cancer

to live longer, but the others found that it didn't. Overall, the evidence suggests it is not likely to help. <sup>[58]</sup>

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### Further informations:

#### Cysts

Many women have growths on their ovaries . And most of them aren't cancer. The most common type of growth on the ovaries is a cyst.

Cysts are fluid-filled sacs that show up on the surface of your ovary. They aren't cancer and they often go away on their own. But if they grow very large or cause symptoms, you may need surgery to remove them.

#### Types of cysts

You can get different types of cysts. The most common ones are called **simple cysts** or **follicle cysts**. They grow because of the changes in hormone levels that are part of your normal menstrual cycle .

Your doctor may find them during a pelvic examination or an ultrasound scan . Usually they don't cause any symptoms and go away on their own. But they can sometimes twist around and hurt. If this happens, you'll need surgery to remove them.

Some cysts grow out of the same cells that most ovarian cancers do (the cells on the surface of your ovaries). These are called **epithelial cysts**, and they can hide an ovarian cancer. To be on the safe side, doctors remove all of these cysts with surgery.

Some cysts have a solid part. If yours do, your doctor will probably remove them and look at them under a microscope for signs of cancer. Usually there aren't any. Doctors sometimes call these **benign tumours**.

#### Polycystic ovary syndrome

If you've got lots of cysts on one or both of your ovaries, you may have polycystic ovary syndrome (or **PCOS** for short). This condition is fairly common among women old enough to have children. It tends to happen when your sex hormones are out of balance.

If you've got PCOS, you may have:

- Irregular periods (periods that come at different times) or no periods
- Hair on your face
- Spots (acne)
- Problems getting pregnant.

## Ovarian cancer

What treatment you need depends on your symptoms. For example, the contraceptive pill may help with acne and facial hair. If you're having problems getting pregnant, you may need other treatments to help with that. For more information, see our section on [Infertility](#) . To learn more about PCOS, see our information on [Polycystic ovary syndrome](#) .

### Ovarian cancer and your family

If ovarian cancer runs in your family, you may worry that you could get it, too. But even if two close family members (such as your mother and sister) have had ovarian cancer, you still have a better than 9 in 10 chance of never getting it.

Your family's health is important in working out your own risk of getting ovarian cancer. This is because you can get **genes** from your father's or mother's family that increase your risk.

But it's not just your family's history of ovarian cancer that you need to consider. You should tell your doctor whether breast cancer and other cancers (such as cancer of the womb, **colon** , and **prostate** ) run in your family. It's especially important to note if a relative got cancer before the age of 50, because this may increase your risk of ovarian cancer.

However, few women with ovarian cancer (fewer than 1 in 20) have a relative, such as a mother or sister, who has had ovarian cancer. <sup>[9]</sup>

### Genetic counselling

If you're worried that your family could have cancer genes, you may want to see a genetic counsellor. Your GP can tell you if this will help. A genetic counsellor will ask you:

- Which of your relatives have had cancer?
- What kind of cancer did they have?
- How old were they when they got it?
- What happened to them?

Your counsellor will then work out if your chances of getting ovarian cancer (or another type of cancer) are higher than average.

### Cancer genes

Two genes have been linked to ovarian cancer in families. They're called **BRCA1** and **BRCA2**. A blood test can show if you have changes in these genes (called mutations)



## Ovarian cancer

that might increase your chances of getting ovarian cancer. Some changes also increase your chances of getting breast cancer.

If you have changes in these genes, it doesn't mean that you'll definitely get ovarian cancer. It just means that you're more likely to get it than someone who doesn't have these changes. Your chances of getting ovarian cancer may be just a bit higher, or they may be a lot higher. <sup>[18]</sup>

But other things also affect your chances. For example, taking the pill, having children, and breastfeeding all reduce your chances of getting this cancer.

A genetic counsellor will look at all of these factors and work out your chances of getting ovarian cancer. Then you can talk about what you can do.

### What can I do if my risk of ovarian cancer is high?

If your risk of ovarian cancer is high, it's important to have regular check-ups. You can also talk to your doctor about several other options you have.

### CA 125 tests

There's no good test for finding ovarian cancer early. But doctors are looking at a blood test to see if it can help.

This test shows how much of a protein called **CA 125** you have in your blood. Women with ovarian cancer tend to have lots of it. So if you have high levels of CA 125, it could mean that you have early ovarian cancer.

However, there are problems with this test. For example, only about half the women with early ovarian cancer have raised levels of CA 125. Plus, a higher-than-normal CA 125 level could be caused by other health problems, not just ovarian cancer.

This means that if the CA 125 test was used on its own, some women with ovarian cancer would be missed. (Doctors call this a **false negative** test result.)

And the test might come up positive in some women who don't have ovarian cancer. These women would then be put through the anxiety of thinking that they might have cancer when, in fact, they don't. (Doctors call this a **false positive** test result.)

There is lots of research going on at the moment to see whether the CA 125 test can help diagnose ovarian cancer early. This test is often used with another test that uses ultrasound through your vagina to look at your ovaries (called **transvaginal ultrasound**).

### Transvaginal ultrasound

During this examination, a doctor puts an ultrasound probe into your vagina to look at your ovaries. This works better than doing the ultrasound over your abdomen. But even so, it is very difficult to tell what is cancer and what is a harmless lump, such as a [cyst](#), just by looking at your ovary.

## Ovarian cancer

Doctors are doing lots of research in women who are at high risk of getting ovarian cancer to see how tests like this can help to diagnose the condition early.

### An operation to remove your ovaries

If you have a very high risk of getting ovarian cancer, you may want to consider having an operation to take out your ovaries. This greatly reduces your chances of getting ovarian cancer.<sup>[17]</sup> It also reduces your chances of getting breast cancer. (Some women who have changes in two genes that have been linked to ovarian cancer and breast cancer, called BRCA1 and BRCA2, are at high risk for both cancers.)

But removing your ovaries doesn't take away all the risk of getting ovarian cancer. This is because there may be some cells left behind after surgery. These cells could turn into cancer in the place where your ovaries used to be. They could also spread to other areas. But the chances of this happening are very small.<sup>[17]</sup>

If you have this operation to remove your ovaries, there are some things you should know.

- You can't get pregnant naturally after this surgery. But you may be able to get pregnant by having fertility treatments.
- If you haven't reached the menopause yet, having your ovaries taken out may cause symptoms of the menopause, such as hot flushes, sweating at night, and a dry vagina, as well as thinning of your bones (called osteoporosis). You can take treatments to ease some of these problems. For more information, see our section on the [menopause](#).

### What grade is my ovarian cancer?

The **grade** of your ovarian cancer tells how much (or how little) the cancer cells look like the healthy cells of an ovary.

- **Grade 1** cells look a lot like healthy cells. These are the least serious. Doctors say these cells are **well differentiated**.
- **Grade 3** cells don't look much like healthy cells at all. These are the most serious. Doctors say these cells are **poorly differentiated**.
- **Grade 2** cells are in between grades 1 and 3.

Your outlook is usually better if your cancer has a lower grade, because it is less likely to spread. But if you have a low-grade cancer that has already spread a lot, it may be more difficult to treat.

### Treatments for early (stage 1) ovarian cancer

We haven't looked at the research on these treatments in as much detail as we've looked at the research on most of the treatments we cover. (To read more, see [Our method](#).) But we wanted to cover these treatments because you may have questions about them.

Only about 1 in 4 women have early ovarian cancer (stage 1) when they are diagnosed. Stage 1 means the cancer hasn't spread outside your ovary. It's very different from ovarian cancer that has spread.

- Early ovarian cancer is much easier to treat than cancer that has spread.
- It can be cured in around 9 in 10 women.
- It shows up more often in younger women.
- Sometimes it's found because it causes pain in a woman's abdomen or bleeding from her vagina. But in most women, it doesn't cause any symptoms.
- It's usually found when a woman is having a regular checkup or a test for some other reason.

### Stages of early ovarian cancer

Early ovarian cancer is split into **stage 1A**, **stage 1B**, and **stage 1C**, with stage 1A being the least serious. The stage of your cancer can sometimes help you and your doctor decide what treatment is best. To learn how doctors tell these stages apart, see [What stage is my ovarian cancer?](#)

### Treating early ovarian cancer

If you've got early ovarian cancer, you'll probably have surgery to remove it. What kind of surgery you have will depend on:

- Your age
- Your cancer
- Whether you want to get pregnant.

For example, if you still want to have children, your surgeon may remove just your ovary with cancer and leave your healthy one in place. If you're past the menopause, you may decide to have surgery to remove both your ovaries as well as your womb and your fallopian tubes. This will keep your cancer spreading to these areas. To learn more, see [Surgery for ovarian cancer](#).

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You might also need **chemotherapy** to kill any cancer cells that are left after surgery.

For a long time, doctors weren't sure whether women with early (stage 1) ovarian cancer should be treated with chemotherapy. They thought that just having surgery alone would be enough to get rid of the cancer. But some research has shown that women with early ovarian cancer who get chemotherapy live longer than those who don't. <sup>[27]</sup>

There is some debate among doctors about whether women with stages 1A, 1B, and 1C cancer all benefit from chemotherapy. Some doctors think they do, but some think that only women with stage 1C cancer live longer if they have chemotherapy. <sup>[28]</sup>

After your operation, if your doctor is completely sure that you have stage 1A or 1B ovarian cancer, he or she may say you don't need chemotherapy. You should discuss this carefully with your doctor.

### What can I expect after my treatment?

For one year after your treatment, you'll probably need to see your doctor every two months to three months.

At each visit, your doctor will ask you if you've had any symptoms. And you may have some of these examinations and tests to see if your cancer has come back:

- A physical examination, including a check for any changes in your lungs and abdomen
- A **pelvic examination** to check for any changes around your ovaries, fallopian tubes, and womb
- A blood test to see how much CA 125 you have. Women with ovarian cancer usually have lots of this protein in their blood. But levels go back to normal when their cancer is treated. So if your level goes up after treatment, it could mean your cancer has come back. But other things can give you high levels, too.

After a year, you'll probably need to see your doctor every six months for three years. And after that, you'll probably need to see him or her just once a year. During these visits, you may have some of the tests and exams listed above.

### What can I expect during chemotherapy?

If your doctor uses **chemotherapy** to treat your ovarian cancer, you may have it at the following times.

- Before surgery, to shrink your cancer if it's large: This could make the surgery to remove your cancer easier.

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- After surgery to remove your ovarian cancer: This is because there's a good chance that some cancer cells were missed by surgery.
- After surgery and chemotherapy: You could have chemotherapy again if your cancer comes back or spreads to other parts of your body, such as your **liver** or lungs.

Here's what you can expect.

- Chemotherapy drugs for ovarian cancer are usually injected into a **vein**.
- How long each treatment takes depends on the type of chemotherapy. Some types take a few hours, while others take up to 24 hours.
- You'll probably get at least six treatments (called cycles) and maybe as many as 12.
- Between treatments, you'll have three weeks to four weeks off to rest. This lets you recover from the side effects and get your strength back.
- Different drugs have different schedules for how often and how long you use them. Your doctor will talk to you about your schedule.
- You'll probably have chemotherapy in hospital. But you may not need to stay in hospital overnight.

### General side effects of chemotherapy

Chemotherapy drugs kill cells that are dividing rapidly. Cancer cells divide rapidly, but so do certain healthy cells in your body. When the drugs kill some of your healthy cells, you get side effects.

Here's a list of some healthy cells in your body that divide rapidly and can be killed by chemotherapy drugs:

- Cells lining the parts of your body involved in digestion
- Cells that become red blood cells (red blood cells carry oxygen around your body)
- Cells that become white blood cells (white blood cells help stop you getting **infections**)
- Cells that become platelets (platelets help stop you bleeding when you have a cut)
- Cells that make your hair.

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Side effects can range from mild to serious, and which ones you get depends a lot on the type of chemotherapy drugs you use. Your doctor can tell you what to expect and what treatments can ease these side effects. He or she can also help you weigh up the benefits of chemotherapy against its side effects.

Some side effects happen soon after chemotherapy, while others happen a few weeks or months after chemotherapy. <sup>[29]</sup>

### Side effects that can happen soon after chemotherapy

- Nausea and vomiting: You'll probably feel queasy and you may vomit. Usually these side effects are mild, and your doctor can give you a drug to prevent them.
- A drop in your number of white blood cells: White blood cells fight infection, so if you don't have enough, you're more likely to get ill. Your doctor may give you a treatment to stop the number of white blood cells dropping.
- A drop in your number of platelets: Platelets help stop bleeding. So if you don't have enough, you might bruise or bleed more easily.
- Tiredness: You may feel very tired, and you may feel this way even after you stop chemotherapy. This may be because you have fewer red blood cells, which help to carry oxygen and nutrients around your body to keep it working properly.
- Hair loss: Carboplatin (a [platinum drug](#)) hardly ever causes hair loss, but paclitaxel (a [taxane drug](#)) always does. You may lose all your hair, but it will grow back. You can ask your doctor about a treatment called **scalp cooling**, which may help save some of your hair. Some women who lose their hair choose to wear a wig.
- Numbness or tingling in your hands or feet: This is very common if your chemotherapy has cisplatin (a platinum drug) in it, and it can be severe and permanent. You may also get it if your chemotherapy has paclitaxel in it, but then it's usually mild and goes away a few months after you stop chemotherapy. You may also find it hard to do things that involve using your fingertips, such as threading a needle.
- Changes in your hearing: If your chemotherapy has cisplatin or very high doses of carboplatin in it, you may get ringing in your ears and have trouble hearing some sounds. These problems usually ease after you stop chemotherapy.
- Sore mouth and loss of appetite: Some chemotherapy drugs can make your mouth sore and cause small breaks in the skin in your mouth (called ulcers). You may be able to soothe your mouth by using mouthwashes or sucking on ice cubes. If you lose your appetite, it should come back after a few days when the drugs are mostly out of your system.

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## Side effects that can happen a few weeks or months after chemotherapy

- **Early menopause:** If you haven't gone through the menopause, having chemotherapy may bring it on. You may get hot flushes, night sweats, and other symptoms. Your doctor should be able to tell you how long these symptoms might last and may be able to suggest drugs that can relieve these symptoms.
- **Infertility:** You may not be able to have a baby after you've had chemotherapy. For example, if you go through the menopause after chemotherapy, you'll no longer produce an egg each month, so you won't be able to get pregnant.

### Glossary:

#### ovaries

Women have two ovaries, one on each side of their womb. They are small glands that store eggs. Inside the ovaries are hundreds of thousands of pre-eggs, called follicles. Some of these grow into eggs.

#### hormones

Hormones are chemicals that are made in certain parts of the body. They travel through the bloodstream and have an effect on other parts of the body. For example, the female sex hormone oestrogen is made in a woman's ovaries. Oestrogen has many different effects on a woman's body. It makes the breasts grow at puberty and helps control periods. It is also needed to get pregnant.

#### menopause

When a woman stops having periods, it is called the menopause. This usually happens around the age of 50.

#### fallopian tubes

Fallopian tubes are the two tubes that come out of the top of a woman's womb. They carry eggs from the ovaries to the womb.

#### cervix

The cervix is a piece of tissue that sits between a woman's womb and her vagina. It has a small opening in it that gets much bigger when a woman is having a baby.

#### vagina

This is the passage from a woman's womb (uterus) to the outside of her body.

#### bladder

Your bladder is the hollow organ at the top of your pelvis that stores urine. It is similar to a balloon, only with stronger walls. It fills up with urine until you go to the toilet.

#### lymphatic system

The lymphatic system is your body's way of clearing unwanted materials from your blood and tissues. It includes a network of lymph nodes that filter these materials to detect if there is an infection that needs to be dealt with by your immune system.

#### menstrual cycle

The menstrual cycle is the regular monthly process that causes an egg to be released from the ovaries so that a woman can get pregnant. The menstrual cycle causes her period, the bleeding that happens if she does not get pregnant.

#### pelvic examination

A pelvic examination is when doctors examine the area around a woman's vagina. After looking at the outside, the doctor will insert a small piece of plastic or metal into the vagina to look at the inside. Then he or she will check the fallopian tubes, womb and ovaries.

#### ultrasound

Ultrasound is a tool doctors use to create images of the inside of your body. An ultrasound machine sends out high-frequency sound waves, which are directed at an area of your body. The waves reflect off parts of your body to create a picture. Ultrasound is often used to see a developing baby inside a woman's womb.

#### hysterectomy

A hysterectomy is an operation to take out a woman's womb (also called her uterus). Sometimes the ovaries and fallopian tubes are removed as well.

#### osteoporosis

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Osteoporosis is when your bones get too brittle. It happens if not enough new bone tissue is growing to keep bones strong. If you have osteoporosis, the bones in your body may break easily.

## **genes**

Your genes are the parts of your cells that contain instructions for how your body works. Genes are found on chromosomes, structures that sit in the nucleus at the middle of each of your cells. You have 23 pairs of chromosomes in your normal cells, each of which has thousands of genes. You get one set of chromosomes, and all of the genes that are on them, from each of your parents.

## **colon**

Your colon is the first 2 metres (6 feet) of your large intestine. During digestion, food travels from your stomach to your small intestine and then to your large intestine. What's not digested then leaves your body as a stool.

## **prostate**

The prostate is a small, solid gland that's about the size of a walnut. Only men have a prostate. The prostate makes the milky fluid that comes out of a man's penis when he has an orgasm. The fluid from the prostate helps keep sperm healthy and also helps them swim freely.

## **pelvis**

Your pelvis is the area between your hips.

## **biopsy**

Biopsy is when doctors remove some tissue from a part of your body, so that it can be examined under a microscope.

## **X-ray**

X-rays are pictures taken of the inside of your body. They are made by passing small amounts of radiation through your body and then onto film.

## **kidney**

Your kidneys are organs that filter your blood to make urine. You have two kidneys, on either side of your body. They are underneath your ribcage, near your back.

## **liver**

Your liver is on the right side of your body, just below your ribcage. Your liver does several things in your body, including processing and storing nutrients from food, and breaking down chemicals, such as alcohol.

## **CT scan**

A CT scan is a type of X-ray. It takes several detailed pictures of the inside of your body from different angles. CT stands for computed tomography. It is also called a CAT scan (computed axial tomography).

## **MRI scan**

A magnetic resonance imaging (MRI) machine uses a magnetic field to create detailed pictures of the inside of your body.

## **lymph nodes**

Lymph nodes (also called lymph glands) are small, bean-shaped lumps that you can't usually see or feel easily. You have them in various parts of your body, such as your neck, armpits, and groin. Lymph nodes filter lymph and remove unwanted things from your body, such as bacteria and cancer cells.

## **constipated**

When you're constipated, you have difficulty passing stools (faeces). Your bowel movements may be dry and hard. You may have fewer bowel movements than usual, and it may be a strain when you try to go.

## **diarrhoea**

Diarrhoea is when you have loose, watery stools and you need to go to the toilet far more often than usual. Doctors say you have diarrhoea if you need to go to the toilet more than three times a day.

## **rectum**

The rectum is the last 15 to 20 centimetres (six to eight inches) of the large intestine, ending with the anus (where you empty your bowels from).

## **local anaesthetic**

A local anaesthetic is a painkiller that's used to numb one part of your body. You usually get local anaesthetics as injections.

## **chemotherapy**

The use of chemicals or drugs to treat or prevent disease, usually cancer.

## **veins**

Veins are blood vessels that carry blood back to your heart after your blood has delivered oxygen and food to the tissues.

## **infection**



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You get an infection when bacteria, a fungus, or a virus get into a part of your body where it shouldn't be. For example, an infection in your nose and airways causes the common cold. An infection in your skin can cause rashes such as athlete's foot. The organisms that cause infections are so tiny that you can't see them without a microscope.

## **general anaesthetic**

You may have a type of medicine called a general anaesthetic when you have surgery. It is given to make you unconscious so you don't feel pain when you have surgery.

## **counsellor**

A counsellor is a professional who is trained to help people, usually with the emotional part of their illness. Counsellors talk to people about their illness. They also suggest ways that people can make changes for the better.

## **blood clot**

A blood clot forms when the cells in blood clump together. Sometimes this happens to stop you from bleeding if you've had an injury. But it can also happen on the inside of your blood vessels, even when you haven't had an injury. A blood clot inside a blood vessel is called a thrombus.

## **anaemia**

Anaemia is when you have too few red blood cells. Anaemia can make you get tired and breathless easily. It can also make you look pale. Anaemia can be caused by a number of different things, including problems with your diet, blood loss and some diseases.

## **allergy**

If you have an allergy to something (such as pollen or a medicine), your body always overreacts to it. The reaction happens because your immune system (your body's system for fighting infection) is too sensitive to it.

## **systematic reviews**

A systematic review is a thorough look through published research on a particular topic. Only studies that have been carried out to a high standard are included. A systematic review may or may not include a meta-analysis, which is when the results from individual studies are put together.

## **randomised controlled trials**

Randomised controlled trials are medical studies designed to test whether a treatment works. Patients are split into groups. One group is given the treatment being tested (for example, an antidepressant drug) while another group (called the comparison or control group) is given an alternative treatment. This could be a different type of drug or a dummy treatment (a placebo). Researchers then compare the effects of the different treatments.

## **fever**

If you have a fever, your body temperature is above 37 degrees Celsius (98.6 degrees Fahrenheit). With a fever you often get other symptoms, such as shivering, headache or sweating. A fever is usually caused by an infection.

## **transfusion**

A transfusion is the replacement of blood that may have been lost during a long operation or in an accident. Before a transfusion, your doctor will make sure that the new blood matches your own. It is also possible, if you are planning surgery, to store some of your blood in advance, so that it can be given back to you during the operation. This is called an autologous transfusion.

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