

**Cervical screening
and
Cervical cancer**

J A S C A P

JEET ASSOCIATION FOR SUPPORT TO CANCER PATIENTS, MUMBAI, INDIA

JASCAP**JEET ASSOCIATION FOR SUPPORT TO CANCER PATIENTS**

c/o. Abhay Bhagat & Co., Office No.4, "Shilpa", 7th.Road, Prabhat Colony, Santacruz
(East), Mumbai – 400 055

Tel.: 2617 7543, 2616 0007. Fax: 91-22-2618 6162

E-mail :pkrjascap@gmail.com & abhay@abhaybhagat.com

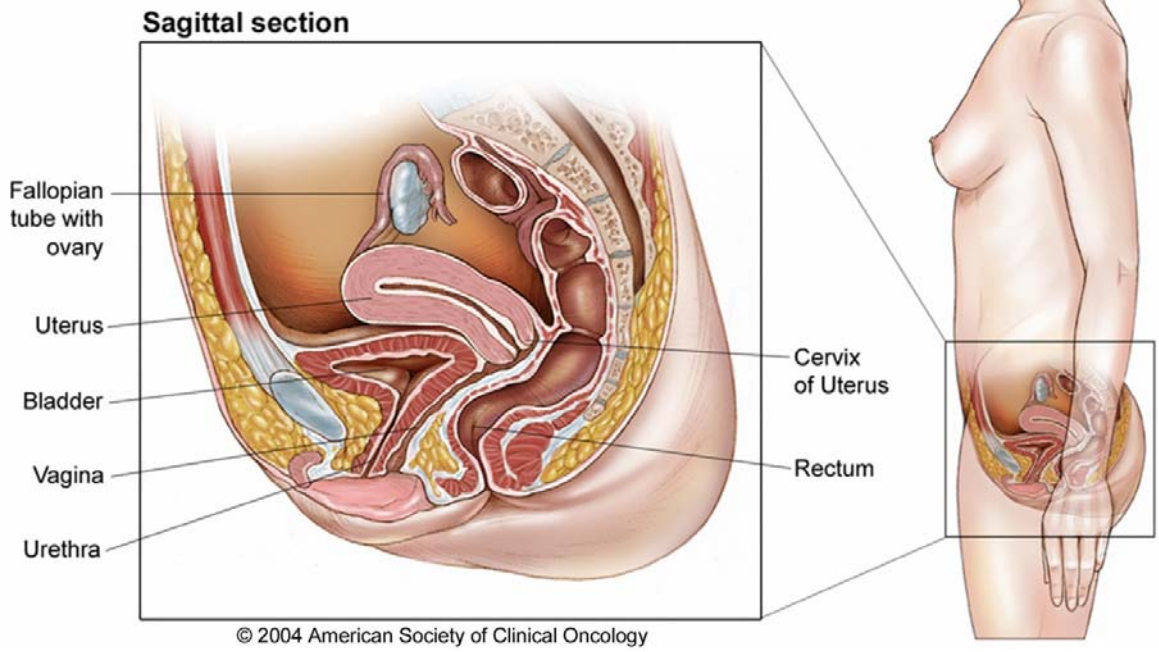
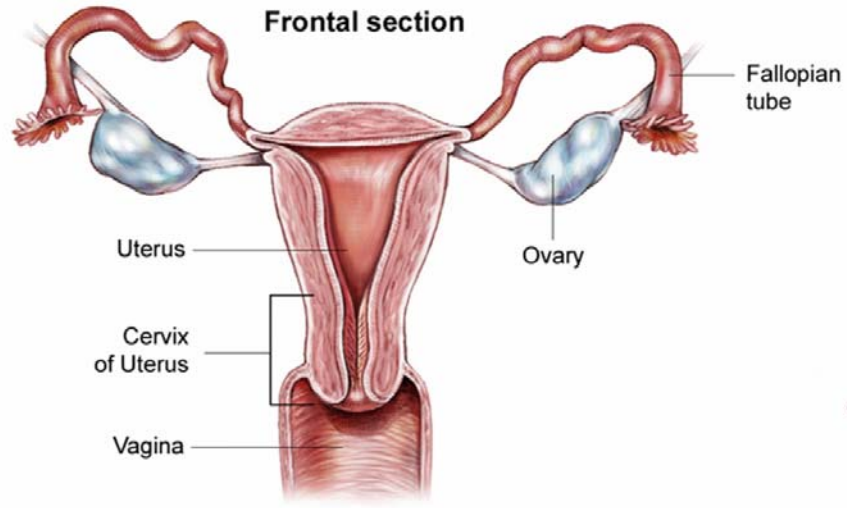
JASCAP is a charitable trust that provides information on various aspects of cancer. This can help the patient and his family to understand the disease and its treatment and thus cope with it better.

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Contact: Mr. Prabhakar K. Rao or Mrs. Neera P. Rao

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A. Cervical screening

NOTE for readers of this booklet: Information on programmes and facilities available in the UK have been intentionally retained as in the original Cancerbackup booklet only to acquaint readers with practices in advanced countries.

This information is for women who have had, or are about to have, a cervical screening test.

It aims to help you understand how cervical screening is done, treatment you may need and what happens if you have an abnormal test result.

We hope that it answers some of the questions you may have about cervical screening, and the treatment you may need if you have an abnormal test result.

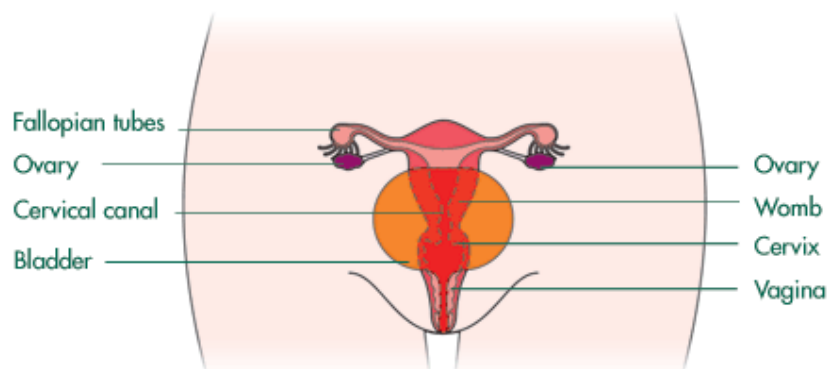
From their 20s onwards, women are invited for a cervical screening test as part of the UK's NHS Cervical Screening Programme in UK.

The test is repeated every 3–5 years, depending on your age and where you live in the UK. Each country within the UK has its own screening programme.

The NHS cervical screening programmes in UK aim to find changes to the cervix that could develop into cancer if left untreated. We can't advise you about the best treatment for yourself. This information can only come from your own doctor, who knows your full medical history.

The cervix and cervical screening

The cervix is the lower part of the womb or uterus. It is sometimes referred to as the neck of the womb.



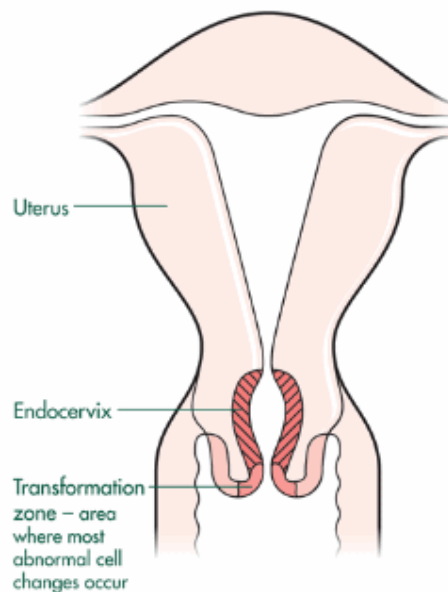
The cervix and surrounding organs

It's possible for your doctor or nurse to see and feel the cervix during an internal (**vaginal**) examination.

The surface of the outside of the cervix is covered with flat cells called squamous cells. The cervical canal (**endocervix**) is lined with longer cells called columnar cells. The area where these cells meet is known as the **transformation zone** (see diagram below). Cells in this

transformation zone can become abnormal. It is these cells, on the surface of the cervix, that are examined in a cervical screening test.

The cells lining the cervical canal produce mucus. Changes to these cells can sometimes be detected by cervical screening.



The transformation zone area of the cervix

Cervical screening

Cervical screening is a way of detecting early changes to cells of the cervix. It's not a test for cancer, but it can help prevent cervical cancer from developing by identifying early abnormalities that could become cancer if left untreated.

The first step in cervical screening is to take a sample of cells from the cervix using a method known as liquid-based cytology.

NHS cervical screening

In the UK, the NHS provides a cervical screening programme for all women who are registered with a GP. The ages at which women are invited to attend, and how often screening takes place, varies slightly between the four countries.

In **England**:

- women are sent their first invitation for routine cervical screening at the age of 25
- between the ages of 25–49 you're invited for cervical screening every three years
- from the age of 50–64 you're invited for screening every five years.

In **Scotland**, cervical screening is offered every three years to women aged 20–60.

In **Wales**, women aged 20–64 are called for a cervical screening test every three years.

In **Northern Ireland**, women aged 20–64 are currently called for a cervical screening test every five years. However, this is in the process of changing so women will be offered cervical screening every three years when they are aged 25–49 and every five years when they are 50–64 (the same as in England).

Once they reach the age of 60–65 (depending on the country where they live), women are no longer invited to have cervical screening unless they've had recent cervical changes or haven't been screened since they were 50. The reason for an upper age limit is because if the cells in the cervix are normal at this time, it's very unlikely that a cancer will develop in later years.

Women under 25 (20 in Wales and Scotland) aren't routinely screened as part of the screening programme because changes in a young woman's cervix are quite normal. In this situation, screening may lead to unnecessary treatment that could affect a woman's ability to have children. Research has also shown that screening women in their early 20s isn't very effective at preventing cervical cancer.

Women aged 60 and over who have never had a screening test are entitled to have one. Women of any age who've had treatment for abnormal cells on the cervix may need to have a screening test more often than suggested above. Your GP can discuss this with you.

Research suggests that women who have never been sexually active have a very low risk of developing cervical cancer. However, although their risk is very low, there is still a small possibility so cervical screening is still recommended. If you've never had sex you may choose not to be screened and your GP or practice nurse can discuss this with you further.

Women who are no longer sexually active, but who were in the past, are still recommended to be screened when invited. This also applies to women who've been vaccinated against human papilloma virus (HPV). Women who've never had penetrative sex and women in same sex relationships are also advised to be screened as they may still have been exposed to HPV (see page 19).

Where to go for your screening test

You'll be sent a letter from your local primary care trust or GP asking you to make an appointment for your screening test. Most women choose to have the test done by their practice nurse or GP. You can ask to have it done by a female doctor or nurse if you prefer.

Cervical screening tests can also be done at community clinics, such as family planning,

Can cervical screening prevent cancer?

Yes – for most women. Regular cervical screening every three to five years is the best way to detect changes to the cells of the cervix. Early detection and treatment can prevent cancer from developing in around three-quarters (75%) of cases. Almost half of the women who develop cervical cancer in the UK have never had a cervical screening test.

Benefits and difficulties of cervical screening

To help you make a decision about whether or not to go for screening, the main benefits and difficulties of cervical screening are explained below:

Benefits

- Cervical screening reduces the risk of developing cervical cancer.
- Because of cervical screening, cervical cancer is now an uncommon illness in the UK.
- The number of women who develop cervical cancer has halved since the 1980s due to most women regularly having cervical screening.
- NHS cervical screening saves about 4500 lives a year in England.

Difficulties

- Cervical screening can show minor changes that may go back to normal on their own, but knowing they are there can make you worry.
- Sometimes, too few cells are taken or the cells cannot be seen properly and the test will need to be done again.
- Regular cervical screening can prevent about seven or eight out of every 10 cervical cancers from developing but it does not prevent every case.
- Cervical screening does not pick up every abnormality of the cervix.
- Some women find having the test an unpleasant experience.

Reliability of cervical screening

Cervical screening, like other screening tests, is not perfect. It may not always detect early cell changes that can lead to cancer. Abnormal cervical cells on your slide may not be recognised because:

- Sometimes they do not look very different from normal cells.
- There may be very few abnormal cells on the slide.
- The person looking at and assessing the slide may miss the abnormality. This happens occasionally, no matter how experienced the person is.

Occasionally a test will have to be taken again because:

- The cervical cells on your slide may have been hidden by blood or mucus.
- There may not have been enough cervical cells on your sample to give an accurate assessment.
- Your sample may not have been properly prepared.
- Your slide or container may have been broken.
- You may have an infection that needs to be treated before a clear sample can be taken.

As screening is not completely effective in detecting changes to the cervix, you should see your GP if you have any unusual symptoms, such as bleeding after sex or between periods.

What happens to test samples once they have been looked at?

The laboratory that looks at your sample will keep it for at least 10 years. Your latest result can then be compared with the ones you have had before. This is to make sure you get the treatment you may need. All screening records, including your samples, can be looked at again (reviewed). If a review is needed, the staff working in the screening service will need to look at your screening records.

The cervical screening test

In the UK, cervical screening is now done using a test called liquid-based cytology. This is slightly different to the traditional smear (PAP) test, which has now been phased out.

Cervical screening doesn't diagnose cancer. It's used to detect early changes in cells of the cervix, which may develop into cancer in the future.

The best time to have the test is in the middle of your menstrual cycle when you are midway between periods.

The screening test is a very simple procedure and takes less than five minutes. It can be uncomfortable but shouldn't be painful. There are no side effects and once it's over you should be able to get back to your normal day. The person carrying out the test will explain the procedure and you should feel able to ask questions at any time.

Many women feel nervous and embarrassed about going for a cervical screening test. These are natural emotions and they shouldn't stop you having it done. If you feel unsure about having the test it may be helpful to discuss your concerns and worries with the practice nurse or your GP. They can talk to you about the screening and help reassure you so you feel able to have the test.

Liquid-based cytology

Once you're lying comfortably on the couch, the doctor or nurse will gently put an instrument called a **speculum** into your vagina to keep it open. A special brush will be used to gently take cells from the cervix. The head of the brush is then either rinsed into a small container of preservative or snapped off and put into the container. The container will be sent to the laboratory for examination.

In the laboratory, any blood or mucus that could spoil the test is removed from the sample and a thin layer of cervical cells are then spread onto a microscope slide and examined under a microscope. Liquid-based cytology preserves more cells, and makes the need for a repeat test less likely than with a smear test.

Results

You'll receive a letter with your results within about two weeks of having the test done. A copy of the report is also sent to the GP practice where the test was done. If you don't hear anything within six weeks, you can phone the surgery or clinic and ask them to check up on your results.

If the results show there may be abnormal cells in the cervix, you will be contacted and another test will be arranged. Alternatively, an appointment may be arranged with a specialist, for example a gynaecologist or a nurse colposcopist.

Abnormal cervical screening test results

Most women who have a cervical screening test have a normal result. Some women's tests will show that they have changes in the cells of their cervix. This is known as an abnormal result.

An abnormal test result means that the laboratory has found some cell changes that may need further investigation. Often the changes may be due to inflammation or infection. Sometimes certain medicines, such as hormonal therapies for gynaecological conditions or breast cancer, can cause changes in the cervix. For this reason, it's important to let the person carrying out the screening know about any medicines you are taking.

Cervical intra-epithelial neoplasia (CIN)

Sometimes the abnormality may be due to changes in the squamous cells of the cervix. This is known as CIN, which stands for cervical intra-epithelial neoplasia. The screening report may refer to the changes as **dyskaryosis**.

These abnormal cells are not cancerous, but if left untreated they can sometimes go on to develop into a type of cancer of the cervix called squamous cell carcinoma.

As the cells can sometimes develop into cancer, changes to them are sometimes called pre-cancerous changes.

Grades of CIN

CIN is divided into grades, which describe how far the abnormal cells have gone into the surface layer of the cervix.

- CIN 1 – Only one-third of the thickness of the surface layer of the cervix is affected.
- CIN 2 – Two-thirds of the thickness of the surface layer of the cervix is affected.
- CIN 3 – The full thickness of the surface layer of the cervix is affected.

With all three grades of CIN, often only a small part of the cervix is affected by abnormal changes.

CIN 3 is also known as **carcinoma-in-situ**. Although this may sound like cancer, CIN 3 is not cancer of the cervix. Cancer has developed when the deeper layers of the cervix are affected by abnormal cells. However, it's important that CIN 3 is treated as soon as possible.

A screening test can show that CIN is present, but it can't always show how deeply the abnormal cells go into the cervix. In order to find the grade of CIN, further tests may need to be carried out. During the further tests, samples (biopsies) of the abnormal areas of the cervix may be taken. The biopsies are looked at under a microscope to find the grade of the CIN. This makes it easier for the doctor to decide on the most appropriate type of treatment for you.

Cervical glandular intra-epithelial neoplasia (CGIN)

Sometimes a screening test may find changes in the glandular cells that line the cervical canal. Changes to these cells seem to go through the same stages as CIN, but are called CGIN, which stands for **cervical glandular intra-epithelial neoplasia**. If left untreated these changes may develop into a type of cancer known as adenocarcinoma. It is much less common for changes to occur in these cells.

A cervical screening test can also detect early cancer of the cervix, but most women with an abnormal test result have early cell changes and not cancer.

Very few women with an abnormal test result actually have cancer of the cervix.

Causes of CIN

Not all the causes of CIN (cervical intra-epithelial neoplasia) are known. The known risk factors are explained below.

Women who smoke are almost twice as likely to develop CIN as non-smokers.

There is also some research to suggest that women who take the contraceptive pill for longer than 10 years are slightly more likely to develop cervical cancer. If you're concerned about taking the pill, discuss it with your GP or family planning clinic.

Human papilloma virus (HPV)

The main cause of CIN is infection of the cervix with certain types of human papilloma virus (HPV). HPV is a very common infection. There are over 100 types of the virus and the commonest types can cause warts on the hands or verrucas on the feet. Some types can affect the genital area including the cervix, although not all of these types will show any symptoms, such as warts. The types of HPV that cause genital warts are not the same as the types that can lead to CIN. The types that cause genital warts are known as **low-risk** HPV types.

The human papilloma virus is sexually transmitted, and the possibility of contact with it increases with the number of partners a woman or her partner has had. It's more common in women who become sexually active at a young age when their cervix may be immature and more vulnerable.

HPV is so common that most sexually active women will be exposed to it at some time in their life. There is evidence that barrier methods of contraception, such as the cap or condoms, give some protection against the spread of HPV, but they won't cover all the susceptible areas. In most women, their body's own immune system will get rid of the HPV naturally without them ever knowing it was there.

Some types of HPV can make women more likely to develop CIN. These are known as **high-risk** types of HPV. In some women, they cause changes in the cervix that show up as an abnormality during the screening tests. Very rarely, these changes can go on to develop into CIN or cervical cancer if they are left untreated. Through regular cervical screening, the changes caused by HPV can be picked up early and any treatment needed is simple and effective. Testing for highrisk types of HPV is being introduced into the NHS Cervical

Screening Programme in some parts of England. You'll be given information about this if your screening sample is tested.

HPV vaccines

Two vaccines have been produced to prevent HPV. These are called Gardasil® and Cervarix®. It's hoped that these vaccines will prevent at least 7 in 10 (70%) of the most common type of cervical cancer (squamous cell). But HPV vaccinations won't replace the need for regular cervical screening tests in women.

Any vaccine works best if it's given to children before they reach puberty. Also, as the HPV virus can be passed on during sex, the vaccine is most effective if it's given to girls before they might start having sex. All girls aged 12–13 are routinely offered an HPV vaccine. It's likely that this vaccination will protect against two types of HPV that can cause cervical cancer, as well as two other types that cause genital warts. There's also a two-year catch-up programme for girls aged 13–18 years.

We have more detailed information about HPV and cancer and HPV vaccines which you may find helpful.

Symptoms of CIN

CIN (cervical intra-epithelial neoplasia) has no symptoms, so it is essential for women to have regular cervical screening tests to detect any early cell changes.

Tests after an abnormal cervical screening result

If the result of your cervical screening test shows there are changes in the cells of the cervix, you should have the chance to discuss this with your GP or practice nurse. You can also discuss it with one of our cancer support specialists.

Changes in Cells

Mild changes – CIN 1

Most abnormal results from screening tests show only very minor changes. These are called borderline or mild changes, or **mild dyskaryosis**. Many of these will go back to normal on their own, so your GP may arrange for you to have further screening tests six, 12 and 24 months later.

If you smoke, it may help if you try to give up, as it's more likely that your cervical cells will go back to normal.

If your second screening test still shows abnormal cells, your GP or practice nurse may then arrange for you to have some further tests. Some doctors will refer you for further investigation after just one abnormal test result, however minor.

Moderate or severe changes – CIN 2 or 3

A small number of women will have moderate or severe changes (CIN 2 or CIN 3). These are known as **moderate** or **severe dyskaryosis**. If this is the case, your GP or practice nurse will suggest that you have a further test, known as **colposcopy**, within a few weeks.

If you need to have colposcopy, you'll be referred to your local colposcopy unit, which is usually at a hospital outpatients clinic. You don't normally have to stay overnight. Almost all hospitals with gynaecological units have the facilities to do colposcopy.

Colposcopy

Colposcopy shows the cervix in detail using a specially adapted type of microscope called a colposcope. It acts like a magnifying glass so that the person doing the examination can see the whole cervix clearly.

Colposcopy can be carried out by a specialist doctor or a nurse colposcopist. Doctors and colposcopy nurses follow national guidelines when deciding whether you need further tests or treatment. Before your test, you'll have a chance to discuss your screening test results and any worries that you have, with the doctors or nurses at the clinic.

You'll be helped to position yourself on a specially-designed chair or examination table. When you are lying comfortably, the colposcopist will use a speculum, in the same way as in the screening test, to hold your vagina open. The cervix is then painted with a liquid to make the abnormal areas show up more clearly. A light is shone onto the cervix and the doctor or nurse will look through the colposcope, which stays outside your body, to examine the surface of the cervix. A small sample (**biopsy**) of cells may be taken from the cervix, to be looked at under a microscope.

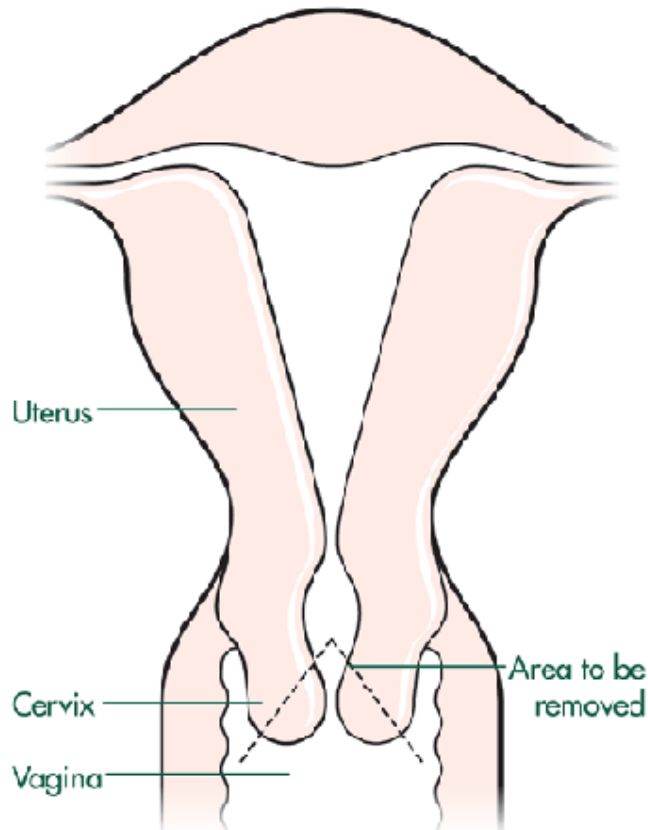
Colposcopy takes 15–20 minutes and so is longer than the screening test. It's not usually painful, but you may feel some pain if a biopsy is taken. The biopsy may also cause some slight bleeding for a couple of days afterwards. If the abnormal area still can't be seen clearly with a colposcope, the colposcopist may arrange for you to have a cone biopsy (see below) or a large loop excision of the transformation zone (LLETZ). Sometimes these procedures are done during your colposcopy appointment.

Cone biopsy

The doctor takes a small cone-shaped section of the abnormal tissue (see diagram on next page) from the cervix to examine under a microscope. This is normally done under local anaesthetic, although sometimes a general anaesthetic may be used. Looking at the tissue that has been removed can show whether the abnormal cells are CIN 1, 2 or 3 or whether deeper levels of the cervix are affected.

Afterwards, a small pack of gauze (like a tampon) may be put into the vagina to prevent bleeding. This is usually removed within 24 hours. Some women may also have a tube (catheter) put into the bladder to drain urine while the gauze pack is in place.

It's normal to have some light bleeding and discharge for a few days after your operation. You should avoid any sex and strenuous exercise for at least 2–4 weeks to allow the cervix to heal properly.



The dashed lines show the area of the cervix that is removed in a cone biopsy

Sometimes a cone biopsy can make the cervix slightly weaker, which may increase the risk of miscarriage during pregnancy. In this situation, miscarriage can often be prevented by putting a stitch into the cervix during pregnancy to strengthen it. Your doctor can discuss this with you in more detail if you are concerned about possible future pregnancies. A cone biopsy will not affect your ability to enjoy sex.

The cervix can become very tightly closed after a cone biopsy, although this is extremely rare. This can make it harder for sperm to enter the womb and so can affect the chances of becoming pregnant naturally. Your cervix is not completely closed if you are still bleeding during your periods after a cone biopsy.

Large loop excision of the transformation zone (LLETZ)

During the LLETZ procedure, a wire loop with an electric current (**diathermy**) is used to remove abnormal areas of tissue. This tissue is then sent to a laboratory to be checked. LLETZ is the most common treatment for CIN.

Treating CIN

The treatment for CIN partly depends on whether it is grade 1, 2 or 3.

Often, cells showing CIN 1 will return to normal without any treatment at all. If your colposcopist decides not to treat these minor changes, further screening tests should be

done – with the first repeat test after six months – to make sure that more cell changes don't take place. All doctors and researchers agree that CIN 2 and 3 should be treated.

The aim of treatments for CIN 2 and 3 is to remove the abnormal area while causing as little damage as possible to surrounding healthy tissue. It's also possible to destroy the abnormal cells, rather than remove them, although this isn't commonly done.

Ways of removing the abnormal area include:

- large loop excision of the transformation zone (LLETZ)
- a cone biopsy
- a hysterectomy, although this is very rare.

Ways of destroying the cells in the abnormal area so that normal cells can grow back in their place include:

- laser therapy
- cold coagulation
- cryotherapy.

Currently, LLETZ is the most common treatment method used.

How treatments are given

Most women need only one of the treatments described here. All of the treatments are usually very effective at removing the abnormal cells. The type of treatment you have will depend on a number of factors. These will include the facilities available at your local hospital and the type of treatment that your doctor feels is best for you. It may be possible for the treatment to be done at the same time as your initial colposcopy appointment, or you may have to come back at a later date.

Most women only need one session of treatment. LLETZ, laser therapy, cryotherapy, cold coagulation and sometimes cone biopsies are normally carried out in a hospital outpatient clinic, using a local anaesthetic. This means that you can go home after treatment. You may prefer for someone to either come with you while you're having the treatment or pick you up afterwards.

Before your treatment, the nurse will help you lie comfortably on the couch. The doctor will then use a speculum to hold your vagina open.

Try to relax as much as possible and don't be afraid to ask the doctor or nurse any questions about your treatment. The treatment itself is likely to take around 5–10 minutes and although it may be uncomfortable, it isn't painful.

The different types of treatment

Large loop excision of the transformation zone (LLETZ)

LLETZ is the most common treatment for removing abnormal cells from the cervix. It's sometimes called LEEP (loop electrosurgical excision procedure). It takes about 5–10 minutes and is usually done under local anaesthetic as an outpatient procedure. Sometimes, if a larger area of the cervix is treated, a general anaesthetic may be used.

Once you're in a comfortable position, the doctor will put some local anaesthetic onto your cervix to numb it. The doctor uses the colposcope to see a magnified image of your cervix and then, with a thin wire loop, cuts out the abnormal tissue. The loop is heated with an electric current, which cuts and seals the tissue at the same time.

The tissue will be sent off to a laboratory to check that all of the abnormal cells have been taken away. If the cells on the outer edge of the sample are normal, you won't need any more treatment. However, if there are abnormal cells along the edge, it may mean there are still some cell changes on your cervix and you'll need another colposcopy to check.

LLETZ is not usually painful, but you may experience a period-like pain or a burning sensation. After the treatment, you may have some light bleeding or discharge which can last for a couple of weeks.

Cone biopsy

This is a way to diagnose CIN if the abnormal area can't be seen clearly with a colposcope. It can also be used as a treatment for CIN. A small, cone-shaped piece of cervix containing the abnormal cells is removed. This is usually done under local anaesthetic using a laser as a 'knife'.

Laser therapy or laser ablation

Under local anaesthetic, a laser beam is directed at the abnormal areas of your cervix and the cells are destroyed. During the treatment you may notice a slight burning smell from the laser. This is normal.

Cold coagulation

This is a misleading name as the abnormal cells are removed by heating, not cooling. Firstly, a local anaesthetic is given to numb your cervix, then a hot probe is placed onto its surface.

Cryotherapy

You'll be given a local anaesthetic, and a probe will be put on your cervix to freeze the abnormal cells. Cryotherapy has a slightly lower success rate than the other treatments for CIN and so it's not often used.

Hysterectomy

A hysterectomy is an operation to remove the womb. It is sometimes done for persistent or severe CIN if women have other gynaecological problems and are past childbearing age, or don't want to have more children. For women who've not yet had the menopause, the ovaries won't be removed with the womb, so this treatment will not bring on an early menopause.

After treatment

Unless you've had a hysterectomy or possibly a LLETZ or cone biopsy, you will be able to go home from hospital on the day that you're treated.

Most women feel fine after LLETZ, cone biopsy, laser therapy, cryotherapy or cold coagulation, but some women feel slightly unwell for a few hours. It's a good idea to have the day off work, in case you need to go home and rest. Also, many women find it helps to bring a relative or friend to support them and drive them home.

If your treatment was done under local anaesthetic, you may have some period-like pains for the rest of the day once the anaesthetic has worn off. You should expect to have some bleeding or discharge for a few days after these treatments. This usually stops within two weeks but may last for up to 4–6 weeks. The bleeding shouldn't be heavier than a light period and should get steadily lighter.

You should contact your GP or the clinic where you had your treatment if:

- the bleeding starts to get heavier
- the discharge starts to smell, which can mean that you have an infection
- you have any other concerns.

Your doctor or nurse will probably advise you not to have sex for at least 3–4 weeks after your treatment to allow the cervix to heal properly. Treatments for CIN won't affect your ability to enjoy sex once the cervix has healed. You may be advised not to use tampons for a few weeks. You should feel completely back to normal within about six weeks.

Research has shown that the treatments for CIN are usually very successful. Although most women will have no further problems and the CIN will not come back, all women still need to continue with regular cervical screening tests.

Follow-up after treatment

After any treatment for CIN you'll need to have check-ups to make sure that the treatment has been successful.

If you had CIN 2 or 3, or cervical glandular intra-epithelial neoplasia (CGIN), you may have cervical screening tests six months and 12 months after treatment. You'll then have a cervical screening test every year for nine years.

If you had treatment for CIN 1, screening may be done six months, 12 months and 24 months after treatment. If all these tests show a normal result, you'll go back to routine screening, having cervical screening tests every 3–5 years, depending on your age.

After treatment, abnormal cells can sometimes come back and between 1 in 10 and 1 in 20 women (5–10%) will have a recurrence. If this happens, you'll be invited for another colposcopy and further treatment if necessary. Usually an excisional type of treatment such as loop excision, laser excision or cone biopsy is recommended if you've had previous treatment.

Very occasionally, if the abnormal cells continue to come back after treatment, some women are advised to have a hysterectomy to prevent them from developing cancer of the cervix. It's sometimes possible to remove just the neck of the womb in an operation called a **trachelectomy**. This is mainly carried out on younger women who want to continue to have the possibility of becoming pregnant. You need to discuss all your options with your doctor.

Even if you've had a hysterectomy after an abnormal test or biopsy, you'll still need to have regular check-ups using liquid-based cytology to take samples of cells from the top of the

vagina. This is sometimes called a vaginal vault smear. Your GP or gynaecologist can organise this for you, as vault smears aren't done as part of the NHS Cervical Screening Programme.

Pregnancy and abnormal cervical screening results

Treatment when you are pregnant

If you are pregnant when you are invited for your routine cervical screening test, tell your GP or clinic so that the test can be postponed until after the baby is born.

If you become pregnant and have not had a cervical screening test in the last three years, you will probably be asked to have one at your first antenatal appointment. If the test result is abnormal, you will then be asked to have a colposcopy. It is safe to have colposcopy during pregnancy and it does not cause any harm to the baby. Even if you do need treatment, it is usually safe to wait until after the baby is born.

Treatment for cervical changes and future pregnancy

Apart from a hysterectomy, it's very unlikely that having just one treatment will affect your chances of becoming pregnant.

If you've had a cone biopsy or LLETZ, there may be a higher risk of giving birth before the usual nine months of pregnancy are complete (prematurely). These methods of treatments can also slightly increase your risk of giving birth to an underweight baby.

Your feelings about having an abnormal cervical screening result

Fear

When a woman is told that she has an abnormal screening test result, the first reaction is often one of fear. Many women may immediately think that they have cancer, so it is important to remember that the vast majority of women who have an abnormal result have early changes in the cells and don't have cancer.

Shame

There has been a lot of publicity about CIN and its link with sexual activity and HPV. This has sometimes led to women feeling guilty or ashamed if they have been told they have CIN. However, you shouldn't feel that you're to blame in any way. Most women have HPV at some time in their life without even knowing it. Many women's immune systems will get rid of the virus naturally.

Embarrassment

Understandably, many women may find the treatments for CIN embarrassing and possibly frightening. Don't be afraid to ask the doctor or nurses as many questions as you like, as this may help to put your mind at rest.

If you feel that you need support, you can contact our cancer support specialists.

B. Cervical cancer

Information on cervical cancer, including how it is diagnosed, treatments you might have, possible side effects and how to get further support.

Quick facts

- About 2,800 women are diagnosed with cervical cancer in the UK each year.
- Cervical cancer is usually caused by a common infection called the human papilloma virus (HPV); however, most women who have HPV will not get cervical cancer.
- Having regular cervical screening is the most effective way to prevent cervical cancer.
- Cancer of the cervix can be treated with surgery, radiotherapy, chemotherapy or a combination of these treatments.

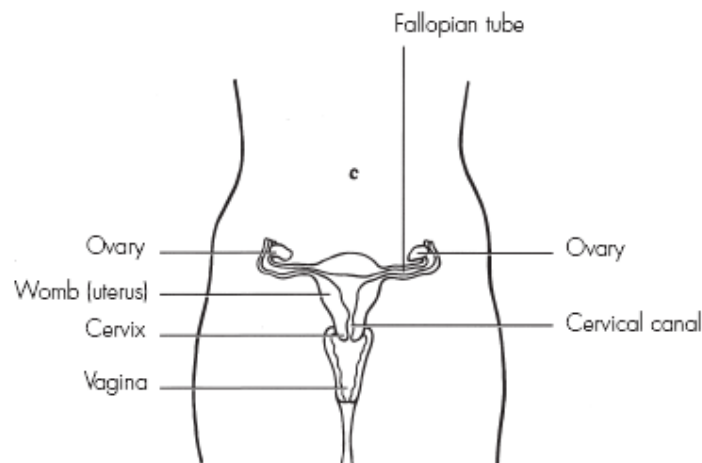
About cervical cancer

The cervix

The cervix is the lower part of the womb (uterus) and is often called the neck of the womb. It joins the womb to the top of the vagina. It is possible for your doctor or nurse to see and feel the cervix during an internal (vaginal) examination.

Close to the cervix is a collection of **lymph nodes**. These are small glands, about the size of a bean. The lymph nodes are part of the lymphatic system.

The **lymphatic system** has two main roles: it helps to protect the body from infection, and it drains fluid from the tissues. It is a complex system made up of organs such as bone marrow, the thymus, the spleen, and lymph nodes. The lymph nodes throughout the body are connected by a network of tiny lymphatic ducts.



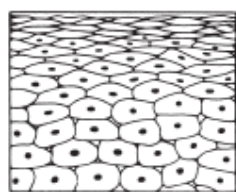
The position of the cervix in relation to the other female reproductive organs

This information is about cancer of the cervix (neck of the womb). Cancer of the womb (uterus) is different and is discussed in our section on cancer of the womb .

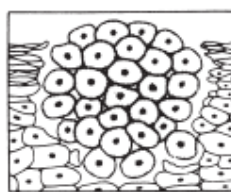
What is cancer?

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these cells.

Cells in different parts of the body may look and work differently but most reproduce themselves in the same way. Cells are constantly becoming old and dying, and new cells are produced to replace them. Normally, cells divide in an orderly and controlled manner. If for some reason the process gets out of control, the cells carry on dividing, developing into a lump which is called a **tumour**.



Normal cells



Cells forming a tumour

Tumours can be either **benign** or **malignant**. Cancer is the name given to a malignant tumour. Doctors can tell if a tumour is benign or malignant by examining a small sample of cells under a microscope. This is called a **biopsy**.

In a benign tumour the cells do not spread to other parts of the body and so are not cancerous. However, if they continue to grow at the original site, they may cause a problem by pressing on the surrounding organs.

A malignant tumour consists of cancer cells that have the ability to spread beyond the original area. If the tumour is left untreated, it may spread into and destroy surrounding tissue. Sometimes cells break away from the original (primary) cancer. They may spread to other organs in the body through the bloodstream or lymphatic system.

The lymphatic system is part of the immune system - the body's natural defence against infection and disease. It is a complex system made up of organs, such as bone marrow, the thymus, the spleen, and lymph nodes. The lymph nodes (or glands) throughout the body are connected by a network of tiny lymphatic ducts.

When the cancer cells reach a new area they may go on dividing and form a new tumour. This is known as a **secondary cancer** or **metastasis**. Even when cancer spreads somewhere else in the body, it is still the same kind of cancer, and is still named after the part of the body where it started. For example, if lung cancer spreads to the bones, it is still lung cancer, not bone cancer. In that case, it may be said that the person has "lung cancer with bone metastases".

It is important to realise that cancer is not a single disease with a single type of treatment. There are more than 200 different kinds of cancer, each with its own name and treatment.

Types of cancer

Carcinomas

The majority of cancers, about 85% (85 in a 100), are carcinomas. They start in the epithelium, which is the covering (or lining) of organs and of the body (the skin). The common forms of breast, lung, prostate and bowel cancer are all carcinomas.

Carcinomas are named after the type of epithelial cell that they started in and the part of the body that is affected. There are four different types of epithelial cells:

- squamous cells - that line different parts of the body, such as the mouth, gullet (oesophagus), and the airways
- adeno cells - form the lining of all the glands in the body and can be found in organs such as the stomach, ovaries, kidneys and prostate
- transitional cells - are only found in the lining of the bladder and parts of the urinary system
- basal cells - that are found in one of the layers of the skin.

A cancer that starts in squamous cells is called a squamous cell carcinoma. A cancer that starts in glandular cells is called an adenocarcinoma. Cancers that start in transitional cells are transitional cell carcinomas, and those that start in basal cells are basal cell carcinomas.

Leukaemias and lymphomas

These occur in the tissues where white blood cells (which fight infection in the body) are formed, i.e. the bone marrow and lymphatic system. Leukaemia and lymphoma are quite rare and make up about 6.5% (6.5 in 100) of all cancers.

Sarcomas

Sarcomas are very rare. They are a group of cancers that form in the connective or supportive tissues of the body such as muscle, bone and fatty tissue. They account for less than 1% (1 in 100) of cancers.

Sarcomas are split into two main types:

- bone sarcomas - that are found in the bones
- soft tissue sarcomas - that develop in the other supportive tissues of the body.

Others forms of cancer

Brain tumours and other very rare forms of cancer make up the remainder of cancers.

Cervical cancer: causes and risk factors

How cancer of the cervix develops

Cancer of the cervix can take many years to develop. Before it does, changes occur in the cells of the cervix. These abnormal cells are not cancerous, and are called **cervical intra-**

epithelial neoplasia (CIN). CIN may also be referred to as **dysplasia**. Some doctors call these changes pre-cancerous. This means that the cells might develop into cancer in some women if they are not treated.

It is important to know that most women with CIN do not develop cancer.

CIN and HPV

CIN is usually the result of a virus infection: the human papilloma virus (HPV). HPV is a very common virus that can affect the cells of the cervix. It's mainly passed on during sex. Most women who have had sex will have the virus at some time in their life. However, in many women their immune system will get rid of the virus and they won't know they ever had it. The cervical smear can detect changes in the cells of the cervix caused by HPV infection.

There are more than 100 types of HPV and each type is identified by a number (eg HPV 16). Some types of the virus can cause genital warts, and other types can cause CIN in the cells of the cervix. CIN usually clears up once the immune system has got rid of the virus. In some women the virus stays for a number of years, and in a few of these women the CIN will develop into cancer if it is not treated.

The type of HPV can affect whether CIN develops or not. Only certain types, such as 16, 18, 31 and 33 (known as 'high-risk' types) seem to be associated with the development of CIN, and ultimately with cervical cancer.

Risk factors for cervical cancer

There are certain factors that increase your risk of developing cervical cancer:

Sexual contact

Many women are aware that having sex at an early age and having several sexual partners can increase the risk of developing cervical cancer. It's important to remember that although these factors can increase the chances of catching the HPV virus, many women who have only had one sexual partner have HPV, and may go on to develop pre-cancerous cervical changes (CIN) or cervical cancer. So there's no reason for yourself or others to feel that you're to blame for having cervical cancer. Remember that men also carry HPV, but the health risk to them is much less than that in women. And most HPV infections in men don't cause symptoms.

Condoms can help to reduce the risk of becoming infected with HPV, but they don't cover all of the skin and are therefore not completely effective.

Immune factors

A weakened immune system may also allow CIN to develop into a cancer. The immune system can be weakened by:

- smoking
- poor diet
- infections, such as HIV/AIDS.

Contraceptive pills

Long-term use of the contraceptive pill (more than 10 years) can slightly increase the risk of developing cervical cancer, but the benefits of taking the pill outweigh the risks for most women.

Cancer of the cervix is not infectious and can't be passed on to other people.

How common is cervical cancer in India?

Cervical cancer is the most common cancer among women from the Indian subcontinent. Even considering all the cancers among men and women together, cervical cancer ranks number one in India.

In India, between the years 2001-2003, across five urban centers - Mumbai, Delhi, Chennai, Bhopal and Bangalore, – and one rural center - Barshi, a total of 7,012 cases of Cervical Cancer were registered (15.74% of all cancers) for female cancer patients, across all the age groups¹.

The TATA Memorial Hospital (T.M.H.) in Mumbai, India registered a grand-total of 8,380 cases of all types of female cancer patients in the year 2006, out of which 1230 women (close to 15% of the total cases) were diagnosed with cervical cancer².

Sixty-two percent of all Genito-urinary cancers among women in the year 2006 at the T.M.H. were attributable to cervical cancer.

Preventing cervical cancer

Having routine cervical screening can reduce the risk of cervical cancer. Also two vaccines have been developed to prevent cervical cancer.

Cervical screening

Cervical screening is a way of detecting early changes to cells in the cervix (called cervical intra-epithelial neoplasia or CIN) so that treatment can be given to prevent a cancer developing. Cervical screening involves taking a sample of cells from the cervix. These days, the main method of collecting the cervical cells is known as liquid-based cytology. It's used routinely as part of the UK cervical screening programme for women with no symptoms.

Although the aim of cervical screening is to prevent cancer, it can also sometimes detect a cancer that has already developed, before any symptoms occur.

Treatment for CIN is very effective, and the risk of it coming back after treatment is low. The type of treatment will usually depend on how severe the abnormal changes are (the grade).

¹ Population based cancer registry 2001-2003 Mumbai, Delhi, Chennai, Bhopal, Barshi and Bangalore, Indian Cancer Society.

² TATA Memorial Hospital Registry Data for 2006

How is the screening test carried out?

In the UK, **liquid-based cytology** (LBC) is now the most commonly used method of collecting cells from the cervix. When you have the test you will be asked to lie on a couch. The doctor or nurse will gently put an instrument called a speculum into your vagina to keep it open. A special brush will be used to gently take cells from the cervix. The head of the brush is then rinsed into a small container of preservative or snapped off and put into the container. The container will be sent to the laboratory, where the cells are put onto a glass slide and examined under a microscope.

The smear test

You may have heard the term smear test or Pap smear. This method was used before liquid-based cytology was developed. The sample is taken in a similar way to LBC, but the cells are spread onto a glass slide instead of being preserved in liquid. As cervical cells are preserved better with liquid-based cytology, the need for a repeat test is less likely than with a conventional smear test.

Cervical cancer vaccines

Two vaccines, Gardasil® and Cervarix®, are now available in the UK to help prevent cervical cancer. They work by preventing infection with the human papilloma virus (HPV). Both vaccines have been shown to protect against HPV 16 and 18 (the types of HPV most commonly linked with cervical cancer). It is hoped they will prevent at least 7 in 10 (70%) of the most common type of cervical cancer (squamous cell).

These vaccines work best if they are given to children before puberty and before they start having sex. For this reason all 12–13 year-old girls in the UK are now routinely offered an HPV vaccination. A two-year catch-up programme is also being carried out for girls up to the age of 18. These vaccines can also be obtained privately.

At present the vaccines that have been developed to prevent cervical cancer are of no help in treating the condition. **The vaccines are not a substitute for cervical screening.** It is very important that women continue to go for regular cervical smears even if they have had the HPV vaccine.

HPV vaccines (to prevent cervical cancer)

This information is about vaccines to prevent a virus called the human papilloma virus (HPV), which can cause cervical cancer.

Cervical cancer and vaccination

About 3000 women are diagnosed with cervical cancer in the UK each year.

Vaccines to help prevent cervical cancer are a major step forward in women's health. It is hoped that the vaccines will prevent at least 70% (7 in 10) of the most common type of cervical cancer (squamous cell).

The vaccines work by preventing infection with the human papilloma virus (HPV).

HPV

The human papilloma virus is a common virus. More than 100 different types of HPV have been identified and each is known by a number. HPV affects the skin and the mucosa (the moist membranes that line the body; for example in the mouth, throat, anus and cervix).

Some types of HPV cause harmless skin warts (papillomas) that can appear on the hands and feet. Types 6 and 11 affect the genital area and can cause genital warts, but they do not cause cervical cancer. These types are called low-risk HPV.

Other types of HPV are known to increase the risk of developing particular cancers and are referred to as high-risk HPV. Types 16 and 18 are high-risk types that can lead to abnormal changes in the cells of the cervix (known as cervical intraepithelial neoplasia or CIN).

CIN is not cancer, but in some women it can develop into cancer over a number of years if it is left untreated. Treatment for CIN works very well and the risk of it coming back is low.

HPV infection of the cervix is mainly diagnosed in women as a result of the cervical screening programme. A woman may be told that she has HPV when she receives her cervical screening result. If HPV infection is present, changes in the appearance of the cells can sometimes be seen when they are looked at under a microscope during the screening process.

Some women who have an abnormal smear test result will attend a colposcopy clinic, where their cervix will be examined using an instrument like a microscope (a colposcope). During the examination, the nurse or doctor can apply a solution to the cervix that makes cells infected with HPV turn white.

Most women have HPV at some point in their lives without it causing any harm. There is no treatment for HPV, but our own immune systems can usually get rid of it quickly by themselves.

The most important thing women can do is have regular cervical smear tests. These will pick up any abnormal cell changes, which can be easily treated before they develop into cancer.

The vaccines

Researchers have been testing two vaccines to prevent infection with HPV. These are called Gardasil® and Cervarix®.

Gardasil® protects against four types of HPV:

- 16 and 18 (high-risk for cervical cancer)
- 6 and 11 (low-risk for cervical cancer but causes genital warts).

Cervarix® protects against HPV types 16 and 18.

Both vaccines are licensed (doctors can prescribe them) in the UK. Gardasil® can be prescribed for women between the ages of nine and 26. Cervarix® can be given to women aged between 10 and 25.

The vaccines don't protect against all types of HPV and women may be infected with more than one type, so it is not guaranteed that they will prevent cervical cancer. It is, however, expected that vaccination will prevent most of the more serious precancerous changes (CIN 2 and 3). Gardasil® is also expected to prevent most genital warts.

How the vaccines are given

They are given by injection into the muscle, usually the upper arm or thigh. Three separate doses are needed. The second and third doses are given two months and six months after the first dose.

Possible side effects

Both vaccines appear to have few side effects.

The main ones include:

- redness at the injection site
- pain and swelling at the injection site

Other mild effects include a slightly raised temperature, dizziness, sickness, diarrhoea and muscle aches.

Can the vaccines get rid of HPV if I already have it?

No, there's no evidence that the vaccine works in anyone who has HPV infection or abnormal cells changes in the cervix (CIN).

Cervical screening

Women will still need to attend their routine cervical smear tests . This is because there are other types of HPV linked with cervical cancer that the vaccines are not active against. The vaccines are not a substitute for cervical screening.

It is very important that women continue to go for regular cervical smears. The national cervical screening programme has been very successful since it started in 1988 and is thought to have halved the number of women diagnosed with cervical cancer in the UK.

What we don't yet know

- How many cases of cervical cancer will be prevented by vaccines that only protect against some types of HPV.
- How long the vaccine is protective for. We need to know this to find out if and when booster vaccines will be needed. This is currently being researched.
- Will other types of HPV take over and become more active in causing CIN?
- Should boys eventually be immunised as well as girls? We still do not know whether the vaccines will work for men.

Availability

All 12-13 year-old girls in the UK are now routinely offered an HPV vaccination. There is also a catch-up programme to vaccinate 13-18 year-old girls which started in the autumn of 2008. It's also possible to obtain the vaccines privately.

Symptoms & diagnosis

Symptoms of cervical cancer

The most common symptom of cervical cancer is **abnormal vaginal bleeding** , usually between periods or after sex. Often there is also a bad-smelling **vaginal discharge** , and **discomfort during sex** . Women who have had their menopause (who are no longer having periods) may have some new bleeding.

There are many other conditions that can also cause these symptoms, but it's important that you see your doctor or practice nurse about them. It can be embarrassing to talk about these symptoms, but the sooner you see your doctor and a diagnosis is made, the better the chance of treatment being successful.

How cervical cancer is diagnosed

Usually women begin by seeing their family doctor (GP), either when they notice symptoms , or if a cervical screening test has found abnormal cervical changes. Your GP will examine you and refer you to hospital for any necessary tests and for specialist gynaecological advice and treatment.

The tests

Most women will have a test called a **colposcopy** . In this test a nurse or doctor uses a small microscope with a light (a colposcope) to examine your cervix. If your doctor cannot see area clearly enough, you may have another test: a **large loop excision of the transformation zone** (LLETZ) or a **cone biopsy** . These are minor operations that allow doctors to remove a section of tissue from the cervix. The tissue is then sent to a laboratory to be checked under a microscope.

The tests will show whether you have cancer, and give other important information such as the stage and type of cancer. This information, as well as the physical examination and the results of further tests your doctor may recommend, will help your doctors to know which is the best type of treatment for you.

How the tests are carried out

Colposcopy

This is usually done in a hospital outpatient clinic. Some hospitals don't have the facilities for colposcopy and you may have to visit a more specialised hospital in your area.

A colposcope is like a small microscope with a light and allows the nurse or doctor to make a thorough examination of the abnormal cells on the cervix.

Before your test you'll be helped to position yourself on the couch. In the same way as when you had the screening test, the nurse or doctor will use a speculum to hold the vagina open. The doctor or nurse may repeat the screening test. A liquid is then dabbed onto the cervix to make the abnormal areas show up more clearly. A light is shone onto the cervix and the nurse or doctor looks through the colposcope to examine the area in detail. A small sample of surface cells (a biopsy) will be taken from the cervix and examined under a microscope by a pathologist. This can be uncomfortable and may cause a feeling like a period pain. The test takes between 15–20 minutes. You may have some slight bleeding for a few days afterwards.

Large loop excision of the transformation zone (LLETZ)

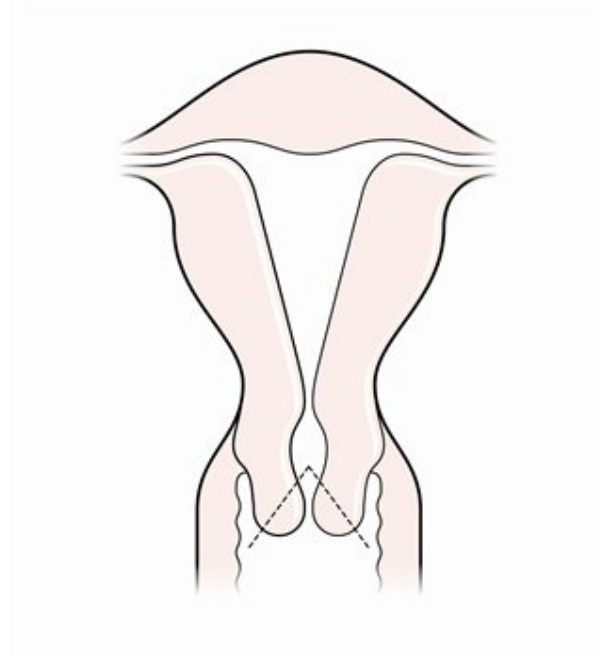
Abnormal cells are most likely to develop in an area of the cervix known as the transformation zone. LLETZ is a common procedure which removes the abnormal cells in the transformation zone. Before the procedure a local anaesthetic is usually given. A thin wire is then used to cut away the affected area. The procedure may feel uncomfortable and it's usual to have slight bleeding or discharge for a few days after this treatment. You may be asked not to use tampons or have sex for a month afterwards.

Cone biopsy

If the abnormal area can't be seen properly with the colposcope, you may have a cone biopsy. This is done under a general anaesthetic, and you may need an overnight stay in hospital.

A small cone-shaped section of the cervix, which is large enough to contain the abnormal cells, is removed for examination under a microscope by a pathologist.

If there is just a very small growth of cancer cells (microinvasive cancer), the cone biopsy may remove it all so that no further treatment is needed. Even if the cone biopsy has not removed all of the cancer cells, it's still helpful for your diagnosis, as it will help the doctors to decide on the right type of treatment for you.



The area of the cervix removed during a cone biopsy

After your cone biopsy

After the cone biopsy a gauze pack, like a tampon may be placed in your vagina to prevent bleeding. This is usually removed within 24 hours. You may also have a thin tube, called a catheter, put into your bladder so that you can pass urine while the vaginal pack is in place. It's normal to have some light bleeding for a few days after a cone biopsy. Strenuous physical activity and sex should be avoided for 4–6 weeks to allow the cervix to heal.

Sometimes a cone biopsy can make the cervix slightly weaker, which may increase the risk of miscarriage during pregnancy. In this situation, miscarriage can often be prevented by putting a stitch into the cervix during pregnancy to strengthen it. Your doctor can discuss this with you in more detail if you are concerned about possible future pregnancies. A cone biopsy will not affect your ability to enjoy sex.

The cervix can become very tightly closed after a cone biopsy, although this is extremely rare. This can make it harder for sperm to enter the womb and so can affect the chances of becoming pregnant naturally. If you are still having periods after your cone biopsy, this shows that your cervix is not completely closed.

It may take some time for you to get the results of the cone biopsy. You could ask your gynaecologist about when and how you will be given any further news about the need for more treatment or tests. It's a difficult time for most women and you may need support from family, friends or support organisations, while you are waiting for your results.

Tests after diagnosis of cervical cancer

If you are diagnosed with cervical cancer, your gynaecologist will need to do some further tests to check your general health and see whether the cancer has spread beyond the cervix. The tests may include any of the following:

- **Blood tests** to check the number of blood cells and to see how well your kidneys and liver are working.
- A **chest x-ray** to check that your lungs and heart are healthy.
- An examination under anaesthetic (EUA), which allows the doctor to examine you thoroughly without causing discomfort.
- A CT scan , which takes a series of x-rays to build up a three-dimensional picture of the body.
- An MRI scan , which is similar to a CT scan but uses magnetism instead of x-rays to build up a detailed picture of areas of your body.
- A PET scan , a newer type of scan that uses low-dose radiation to measure the activity of cells in different parts of the body.
- A PET/CT scan , a combination of a CT scan and a PET scan, which gives more detailed information about the part of the body being scanned.

Waiting for your test results

It will probably take several days for the results of these tests to be ready. The waiting period will obviously be an anxious time for you. It may help if you can find a close friend or relative to talk things over with.

How the tests are carried out

Examination under anaesthetic (EUA)

This is an examination of the vagina and cervix under a general anaesthetic. It allows the doctor to examine you thoroughly without it being uncomfortable. The doctor may also take a look into your bladder and the lower end of your large bowel (the colon and rectum) to see if the cancer has spread.

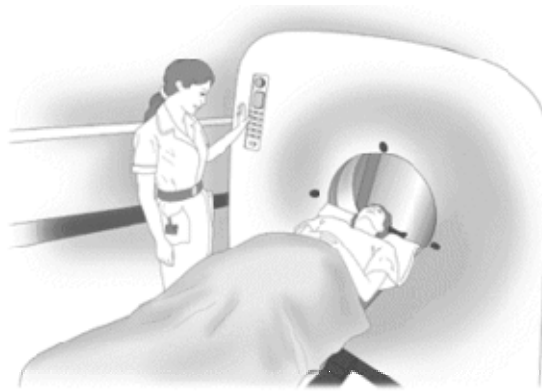
To look into your bladder the doctor will use a **cystoscope** , which is a small, fibre-optic tube with a light. If there are any abnormal areas the doctor can use the cystoscope to take biopsies.

To look into the lower end of the colon and the rectum, the doctor uses a similar tube called a **procto-sigmoidoscope** . This scope is also used to take biopsies from any abnormal areas.

You may have some slight bleeding for a couple of days after this examination.

CT (computerised tomography) scan

A CT scan takes a series of x-rays which builds up a three-dimensional picture of the body. The scan is painless and takes from 10 to 30 minutes. CT scans use a small amount of radiation, which will be very unlikely to harm you and will not harm anyone you come into contact with. You will be asked not to eat or drink for at least four hours before the scan.



A CT scan takes 10-30 minutes

Before the scan you will be asked to drink a special liquid which shows up on x-ray. Just before the scan, you may be asked to insert a tampon as this helps to identify the exact position of your vagina for the scan.

You will probably be able to go home as soon as the scan is over.

MRI (magnetic resonance imaging) scan

This test is similar to a CT scan but uses magnetism instead of x-rays to build up a detailed picture of areas of your body. Before the scan you may be asked to complete and sign a checklist. This is to make sure that it's safe for you to have an MRI scan (because the scanner is a powerful magnet). The checklist asks about any metal implants you may have, for example a pacemaker, surgical clips, bone pins etc. You should also tell your doctor if you have ever worked with metal or in the metal industry (as very tiny fragments of metal can sometimes lodge in the body). If you do have any metal in your body it's likely that you won't be able to have an MRI scan. In this situation another type of scan can be used.

Before having the scan, you'll be asked to remove any metal belongings including jewellery. Some people are given an injection of dye into a vein in the arm, which doesn't usually cause discomfort. This is called a contrast medium and can help the images from the scan to show up more clearly. During the test you will be asked to lie very still on a couch inside a long cylinder (tube) for about 30 minutes. It is painless but can be slightly uncomfortable, and some people feel a bit claustrophobic during the scan. It's also noisy, but you'll be given earplugs or headphones. You will be able to hear, and speak to, the person operating the scanner.

In some specialist centres, before having an MRI scan a special device known as an MRI endocoil may be placed in your vagina so that it sits around your cervix. The endocoil helps to give clear images of your cervix during the scan. Not all hospitals use the MRI endocoil as it's still being researched to see how helpful it is.

Positron Emission Tomography scan (PET scan)

PET scans are a new type of scan and you may have to travel to a specialist centre to have one. They are not always necessary, but you can discuss with your doctor whether one would be useful in your case. PET scans can be used to find out whether the cancer has

spread beyond the cervix, or to examine any lumps that remain after treatment to see whether they are scar tissue or whether cancer cells are still present.

A PET scan uses low-dose radioactive glucose (a type of sugar) to measure the activity of cells in different parts of the body. A very small amount of a mildly radioactive substance is injected into a vein, usually in your arm. A scan is then taken a couple of hours later. Areas of cancer are usually more active than surrounding tissue and show up on the scan.

PET/CT scan

This scan is a combination of a CT scan (which takes a series of x-rays to build up a three dimensional picture), with a PET scan, (which measures the activity of cells in different parts of the body). It gives more detailed information about the part of the body being scanned. PET/CT scans are a new type of scan and you may have to travel to a specialist centre to have one.

You will be asked not to eat for six hours before the scan, although you may be able to drink. You will be given an injection of a mildly radioactive substance into a vein, usually in your arm. The radiation dose used is very small. The scan is then taken after at least an hour. It usually takes between 30 and 90 minutes.

You should be able to go home after the scan is over.

Types of cancer of the cervix

There are two main types of cervical cancer:

- **Squamous cell carcinoma** – This is the most common type of cervical cancer. It develops from the flat cells which cover the outer surface of the cervix at the top of the vagina.
- **Adenocarcinoma** – This type develops from the glandular cells which line the cervical canal (endocervix). As adenocarcinoma starts in the cervical canal it can be more difficult to detect with cervical screening tests.

There are other, less common types of cancer of the cervix known as **adenosquamous carcinoma**, **clear-cell** and **small-cell carcinomas**. Our cancer support specialists can give you more information about these types of cervical cancer.

Tests will show which type of cervical cancer you have. They will give other important information such as the stage of the cancer. This information will help your doctor know which is the best type of treatment for you.

Staging of cervical cancer

The **stage** of a cancer describes its size and whether it has spread beyond its original site. Knowing the extent of the cancer helps the doctors to decide on the most appropriate treatment.

Cervical cancer is divided into 4 main stages.

Stages of cervical cancer

Stage 1

The cancer cells are only within the cervix.

Stage 2

The cancer has spread into surrounding structures such as the upper part of the vagina or tissues next to the cervix.

Stage 3

The cancer has spread to areas such as the lower part of the vagina, or tissues at the sides of the pelvic area.

Stage 4

The cancer has spread to the bladder or bowel or beyond the pelvic area.

If the cancer comes back after initial treatment this is known as **recurrent cancer** .

Sub-stages of cervical cancer

Each stage then has sub-divisions, which further describe the extent of the cancer:

- **Stage 1A** The cancer can only be seen with a microscope or colposcope.
 - **Stage 1A1** The cancer is 3 mm or less deep and 7mm or less wide.
 - **Stage 1A2** The cancer is between 3–5mm deep and 7mm or less wide.
- **Stage 1B** The cancer growth is larger but still confined to the cervix.
 - **Stage 1B1** The cancer is not larger than 4 cm.
 - **Stage 1B2** The cancer is larger than 4 cm.
- **Stage 2A** The cancer has spread into the upper part of the vagina.
 - **Stage 2A1** The tumour size is not larger than 4cm.
 - **Stage 2A2** The tumour size is larger than 4cm.
- **Stage 2B** The cancer has spread into the tissues next to the cervix.
- **Stage 3A** The cancer has spread into the lower part of the vagina.
- **Stage 3B** The cancer has spread through to the tissues at the sides of the pelvic area and may press on one of the ureters (the tubes through which the urine passes from the kidneys to the bladder). If the tumour is causing pressure on a ureter there may be a build up of urine in the kidney.
- **Stage 4A** The cancer has spread to nearby organs such as the bladder and bowel.
- **Stage 4B** The cancer has spread to more distant organs such as the lungs, liver or bone.

When staging the cancer, your specialists may also look at whether it has spread to any of the lymph nodes. This is important because sometimes it's possible for cancer cells to travel to other parts of the body through the lymphatic system, causing a secondary cancer. Checking if the cancer is in any of the lymph nodes near the cervix is an important part of the staging process as it helps your doctors plan the best treatment for you.

Treating cervical cancer

Treatment for cervical cancer

Cancer of the cervix can be treated with either surgery, radiotherapy, chemotherapy or a combination of these treatments. Your doctor will advise you on the best plan of treatment, taking into account a number of factors. These include your age and general health, and the type and stage of the cancer.

Early-stage cancer

Surgery is often the main treatment for cancer of the cervix in its early stages (where it is only in the cervix).

Radiotherapy may be used as an alternative to surgery for early stage cancer. It is sometimes given after surgery if there is a risk that some cancer cells may be left behind. This helps reduce the risk of the cancer coming back. Often radiotherapy is combined with chemotherapy for larger tumours in the cervix (over 4cm). This is known as chemoradiation.

Chemotherapy is occasionally used before surgery, to shrink the cancer and make the operation easier, but this is not common. If it's given, it's usually combined with radiotherapy treatment.

Locally advanced cancer

If the cancer has spread beyond the cervix, and can't be cured with surgery alone, **radiotherapy** is usually given in combination with **chemotherapy** rather than surgery.

Advanced and recurrent cancer

Chemotherapy may be given to women whose cancer has spread to other parts of the body or if the cancer comes back after radiotherapy. It is used in this situation to try to shrink and control the cancer and relieve symptoms, to prolong a good quality of life. This is known as **palliative treatment**. Occasionally an operation known as a **pelvic exenteration** may be carried out, although this is only suitable for a small number of women.

Planning treatment for cervical cancer

In most hospitals a team of specialists will work together to decide which treatment is best for you. This **multidisciplinary team** (MDT) will include:

- a surgeon who specialises in gynaecological cancers (a gynaecological oncologist)
- a clinical oncologist (chemotherapy and radiotherapy specialist)

- a nurse specialist
- a consultant pathologist
- a radiologist.

The team may include a number of other healthcare professionals such as:

- a dietitian
- a physiotherapist
- an occupational therapist
- a psychologist or counsellor.
- a clinical trials nurse.

Benefits and disadvantages of treatment

Many people worry about having cancer treatments, because of the side effects that can occur. Although the treatments can cause side effects, it's usually possible to control these with medicines. Some people want to know what would happen if they don't have any treatment.

Treatment can be given for different reasons and the potential benefits will vary depending upon the individual situation. In women with **early-stage cervical cancer**, surgery is often done with the aim of curing the cancer. Occasionally, additional treatments such as radiotherapy or a combination of radiotherapy and chemotherapy, are given after surgery to help reduce the risk of it coming back.

With **advanced cancer**, surgery is not usually possible. However, treatment using a combination of chemotherapy and radiotherapy can still cure the cancer for some women. In other situations, treatment may be able to control the cancer, leading to an improvement in symptoms and a better quality of life.

However, for some women the treatment will have little effect upon the cancer and they will have the side effects without a great deal of benefit.

We have more information that you might find useful while planning your treatment, including:

- Guidance to help you in making treatment decisions
- Advice on seeking a second opinion
- Information on giving your consent to treatment

Surgery for cervical cancer

Your gynaecologist will discuss your surgery with you. The type of surgery depends on the size of the cancer and whether it has spread beyond the cervix (the stage). Before any operation it's important to make sure that you have discussed it fully with your gynaecologist.

According to NHS guidelines, any surgery for cancer of the cervix should be carried out in specialist cancer centres by a gynaecological oncologist or a gynaecologist with a specialist interest in cancer.

Types of surgery

If the cancer cells have spread only slightly beyond the surface cells of the cervix it may be possible to treat this with a cone biopsy . Sometimes an operation called a radical trachelectomy may be possible. With this type of operation the womb is left in place so it's still possible to have a baby after cancer treatment. This is known as fertility preserving surgery. It's only possible for women with early stage cervical cancer, and it's only done in a few hospitals in the UK.

Often it's necessary to treat cancer of the cervix by an operation known as a hysterectomy . Two different types of hysterectomy are used to treat cancer of the cervix. The type of hysterectomy that you have will depend on the stage of your cancer:

- A **simple hysterectomy** involves removal of the womb and cervix and occasionally the fallopian tubes and ovaries. If you are going to have your fallopian tubes and ovaries removed, your doctors will discuss this with you before your surgery.
- A **radical hysterectomy** is the removal of the womb, cervix, tissue around the cervix (parametrium), fallopian tubes, pelvic lymph nodes, the upper part of the vagina, and sometimes the fallopian tubes and ovaries.

A hysterectomy is usually carried out through an incision in the abdomen but it may also be done laparoscopically (keyhole surgery) using a small telescope and several very small incisions in the abdomen.

Sometimes surgery will also include removal of some of the lymph nodes in abdomen and pelvis.

Where possible the ovaries are not taken out in young women with cancer of the cervix as this brings on an early menopause. If it's necessary to remove the ovaries, hormone replacement therapy (HRT), given as tablets, skin patches or creams, can often prevent the symptoms of the menopause. Your doctor will be able to discuss this with you in detail.

If after the initial treatment, your cancer comes back in the pelvic area, it may be possible to have an operation called a pelvic exenteration . This is a major operation and involves removing all or most of the organs in the pelvic area. It's only suitable for a small number of women, and various investigations and scans will be needed to see if it's possible.

After surgery for cervical cancer

After your operation you'll be encouraged to start moving about as soon as possible. This is an essential part of your recovery and, even if you have to stay in bed, the nurses will encourage you to do regular leg movements and deep breathing exercises. You'll be seen by a physiotherapist who can help you to do the exercises.

This page is about recovering from a hysterectomy or trachelectomy. We also have information on pelvic exenteration, another type of operation that is sometimes carried out if cervical cancer comes back.

Drips and drains

When you get back to the ward you'll have a drip (an intravenous infusion of fluid) going into a vein in your arm until you're able to eat and drink normally. You may also have drainage tubes from the wound to drain off any excess fluid.

The drip and drains are taken out within a few days.

Usually a small tube (catheter) is put into your bladder to drain your urine into a collecting bag. You may have vaginal bleeding and discharge for a few days after the surgery.

Pain

After your operation you may need to take regular painkilling drugs, which are very effective. If you still have pain, it's important to let the nurses know as soon as possible, so that your painkillers can be changed until you find a type and dose that is effective.

In many hospitals, epidural pain relief is used during and for a short time after the operation. This means that a thin tube is inserted into the epidural space (an area around the spinal cord) through which pain relieving medicine can be given. A local anaesthetic is used to numb the area around the lower back where the epidural goes in. Your doctor can tell you more about this method of pain relief.

Going home

Most women are ready to go home about 6–8 days after their operation. This may be sooner if you've had laparoscopic (keyhole) surgery. If you think you might have problems when you go home, for example if you live alone or have several flights of stairs to climb, let your nurse or social worker know when you are admitted to the hospital, so that help can be arranged.

Sometimes, after an operation it can take a while for bladder function to return to normal. In this situation, you may need to go home with a urinary catheter in place, just for a short time until your bladder function returns. If this happens, arrangements can be made for a district nurse to visit you at home to check how things are.

If you have any problems you should contact your doctor as soon as possible.

At home

Before you leave hospital you'll be given an appointment to attend an outpatient clinic for your post-operative check up. This will be a good time to discuss any problems you may have after your operation. But remember, you can usually ring your hospital doctor, specialist nurse or ward nurse at any time if you have any problems.

Sex

You will be able to go back to your usual sex life, but your doctor will probably advise you not to have sex for at least six weeks after your operation, to allow the wound to heal properly. Many women need more time before they are ready to resume a sexual relationship. This is an important part of your recovery so don't be afraid to discuss it with your doctor, specialist nurse or one of the cancer support specialists on our helpline.

Being able to resume a sexual relationship is likely to take more time if you've had surgery and radiotherapy as well.

After a hysterectomy you will no longer have your monthly periods or be able to become pregnant.

We have more information on sexuality and cancer that you may find helpful.

Physical activity

After a hysterectomy it's important to avoid strenuous physical activity or heavy lifting for about two months. Your physiotherapist or nurse will give you advice about this. Some women also find it uncomfortable to drive for a few weeks after their operation and it's probably a good idea to wait a few weeks before you start driving again. Some insurance companies have guidelines about this and it may be helpful to contact your own company.

Getting support

Some women take longer than others to recover from their operation. If you find you are having problems, it may be helpful to talk to someone who is not directly associated with your illness. Our cancer support specialists are always happy to talk with you and they may be able to put you in touch with a counsellor or a support group in your area, so you can discuss your experiences with other women who are in a similar situation.

Possible long-term complications of surgery for cervical cancer

Most women will have no long-term complications after surgery for cancer of the cervix. However some women, in particular those who've had both surgery and radiotherapy or chemotherapy and radiotherapy, are more likely to develop long-term complications of surgery.

Rarely women may have bladder or bowel problems after a hysterectomy, because of damage to the nerves that control them during the surgery. To avoid these problems, surgeons try to not damage the nerves during surgery; this is known as **nerve sparing** or **nerve-preserving surgery**.

If the lymph nodes have been removed there is a risk of developing swelling (lymphoedema) in one or both legs. This is a build up of lymph fluid that can't drain away normally because the glands have been removed. It's more likely to happen if you've had radiotherapy to the pelvic area as well as surgery.

If you develop any problems after your surgery, let your surgeon or nurse know so that you can get the right kind of help.

Radical trachelectomy

For some women with very early cancer of the cervix, it may be possible to have a **radical trachelectomy**. In this type of surgery the cervix, the tissues next to the cervix and the

upper part of the vagina are removed, but the rest of the womb is left in place. The lymph nodes in the pelvis are also removed, usually through tiny cuts in the abdomen (called keyhole or laparoscopic surgery).

As the womb is not removed, a trachelectomy means that it may still be possible for the woman to have children. At the time of surgery a stitch is placed at the bottom of the womb (uterus); this keeps it closed during pregnancy. There is a higher chance of miscarriage after this procedure, and the baby will need to be delivered by Caesarean section.

Trachelectomy is only suitable for women with early stage cancer of the cervix.

This type of surgery isn't common and is only done in a few hospitals in the UK. You may need to ask your gynaecologist to refer you to a specialist hospital if you would like to discuss the possibility of having a radical trachelectomy. It's important that your doctor fully explains to you the benefits and possible risks of this type of operation.

Pelvic exenteration

If after the initial treatment, your cancer comes back in the pelvic area, it may be possible to have an operation called a **pelvic exenteration**. This is a major operation and involves removing some or all of the structures in the pelvis, including the womb, cervix, vagina, fallopian tubes and ovaries, bladder and the lower end of the large bowel (rectum). This type of operation is only carried out when cancer has come back (recurred) and there are no other treatments available. It's only suitable for a small number of women and various investigations and scans will be needed to see if it's possible.

The surgery is divided into 2 stages:

- Removal of the tumour and nearby structures in the pelvis such as the bladder, rectum and vagina – some or all of which may be attached to the cancer and have to be removed.
- Reconstruction of the pelvic organs, such as the bladder and rectum so that it's possible to pass water and stools (bowel motions).

Reconstructive surgery

The operation involves creating two openings (**stomas**) on the abdominal wall if both the bladder and rectum have been removed. This means you will need two stoma bags: one to collect bowel motions and one for urine. These stomas are known as a **colostomy** and a **urostomy**.

Sometimes, if only part of the rectum is removed during surgery, it may be possible for the bowel to be reconnected to the rectum at a later stage. Often, the rectum can be reconnected during the operation, but as a precaution a stoma for the bowel is made and this is then reversed some months later. In this case the bowel stoma will only be temporary.

Occasionally if the bladder is removed it may be possible to have a new bladder created from part of the bowel. This new bladder only requires a small stoma and you don't need to wear a bag over it. Urine is drained by putting a catheter into the stoma several times a day. You can be taught how to do this yourself. This type of surgery is complicated and only

suitable for a small number of people. Your doctor will be able to discuss with you whether it is suitable for you.

Before the operation you will see a nurse who specialises in the care of people with stomas (a **stoma nurse**). The nurse will explain all about stomas and how to look after them and can answer any questions you may have. The stoma nurse will also visit you after the operation to give you practical help and emotional support.

The operation also involves making (reconstructing) a new vagina. Unfortunately because scar tissue easily forms, this often results in the new vagina being less flexible and shorter in length.

A pelvic exenteration is a very big operation, and many women find that recovery can be difficult, both physically and emotionally. It's important that you understand exactly how the operation may affect you so it's really important to talk to your surgeon or specialist nurse. You may need to have a few consultations with them to do this. They can support you in deciding whether pelvic exenteration is right for you.

Radiotherapy for cervical cancer

Radiotherapy treats cancer by using high-energy rays which destroy the cancer cells, while doing as little harm as possible to normal cells. Radiotherapy for cancer of the cervix can be given:

- externally (from outside the body, using equipment similar to a large x-ray machine), or
- internally (through special tubes placed into the vagina).

It's often given as a combination of the two. Treatment with radiotherapy may last for 5–8 weeks. External radiotherapy is usually given as a series of short daily treatments, with a break at the weekend. Internal radiotherapy (also called **brachytherapy**) may be given to you as an inpatient over a few days or in shorter sessions repeated a few days apart.

When is it given?

Radiotherapy may be given for larger tumours contained in the cervix and it's usually given if the cancer has spread beyond the cervix and is not curable with surgery alone.

Radiotherapy may also be used after surgery if there is a high risk that the cancer may come back. It is often given in combination with chemotherapy (**chemoradiation**).

Your cancer specialist (clinical oncologist), who plans your treatment, will be able to discuss this treatment in detail with you.

Radiotherapy to the pelvic area can cause short-term side effects such as vaginal bleeding, sore skin, diarrhoea and tiredness, but most of these side effects will improve once the treatment is finished. Unfortunately, radiotherapy for cervical cancer can cause long-term side effects such as an early menopause and a type of swelling of the legs called **lymphoedema** . Your specialist will be able to advise you on what to expect, and there are usually medications and treatments to help if you do experience side effects.

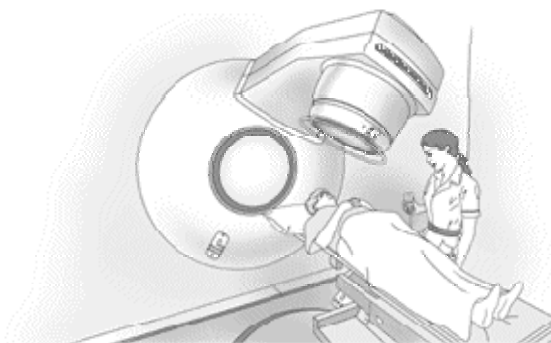
Planning your treatment

Planning is a very important part of radiotherapy, and makes sure that it is as effective as possible. It may take a few visits. On your first visit to the radiotherapy department, you will be asked to have a CT scan or lie under a machine called a simulator, which takes x-rays of the area to be treated. The treatment is planned by a clinical oncologist. Marks will be made on your skin to show the radiographer (the person who gives you your treatment) where the rays are to be directed.

External radiotherapy

External radiotherapy is normally given as an outpatient, as a series of short daily treatments in the hospital radiotherapy department. High-energy x-rays are directed from a machine at the area of the cancer. The treatments are usually given from Monday to Friday, with a rest at the weekend. The number of treatments will depend on the type and size of the cancer, but the whole course of treatment for early cancer will usually last a few weeks. Your doctor or radiographer will discuss the treatment and possible side effects with you.

Before each session of radiotherapy, the radiographer will position you carefully on the couch and make sure that you are comfortable. During your treatment you will be left alone in the room, but you will be able to talk to the radiographer who will be able to see you from the next room.



Positioning the radiotherapy machine

Radiotherapy is not painful but you do have to lie still for a few minutes during treatment. The treatment will not make you radioactive and it's perfectly safe for you to be with other people, including children, afterwards.

Internal radiotherapy

Internal radiotherapy (also called **brachytherapy**) gives radiation directly to the cervix and the area close by. It's often given following external beam radiotherapy.

To give internal radiotherapy, applicators (specially designed tubes) which give the radiation are placed into your vagina, close to the cervix. If the cervix has been removed during surgery, the tubes are placed at the vaginal vault which is at the top of the vagina.

Internal radiotherapy may be given as **low dose rate treatment** or **high dose rate treatment**. Both low dose rate and high dose rate treatment give the same total dose of radiotherapy but over different time periods.

Low Dose Rate Treatment

Low dose rate treatment is given as an inpatient over a few days using a machine which feeds small balls of caesium (the radioactive source) into the applicator tubes. One type of machine which gives this treatment is known as Selectron. The applicators are put into your vagina or womb during a short anaesthetic and gauze packing is used to stop them moving about. This can be uncomfortable so painkillers are often given. The applicators are usually left in place for one or two days. The radioactive balls (sources) can be withdrawn into the machine when people come into the room. This is to keep the dose of radioactivity to visitors and nurses as low as possible.

Visitors are usually restricted and children are not encouraged to visit while you're having your treatment. You will be asked to stay in bed to make sure that the applicators stay in the right position during the treatment. For the same reason, you will have a urinary catheter in place. This is a small tube (catheter) which is passed into your bladder and which drains your urine into a collecting bag.

The safety measures and visiting restrictions might make you feel isolated, worried and depressed at a time when you might want people around you. If you have these feelings, it's important to tell someone so that you can get some support. It might also help to take in plenty of reading material, an MP3 player and things to keep you occupied while you're in isolation. You only need to be in isolation while the applicators are in place. Once they are removed the radioactivity disappears and it's perfectly safe to be with other people.

The applicators will be removed by one of the doctors or nurses and this may be a bit uncomfortable (you will have painkillers beforehand). Sometimes sedation or gas and air (entonox) may be given to make it easier for you.

High Dose Rate Treatment;

With high dose rate treatment a machine (microSelectron) containing a radioactive source of iridium or cobalt is used to give a higher dose of radioactivity over a few minutes.

Before the treatment you will have an anaesthetic so that the doctors can place the applicators through your vagina and into your womb or vaginal vault. Once the tubes have been inserted they are connected to the machine that passes the radioactive sources into the tubes. When the treatment is finished the tubes are removed.

Treatments may need to be repeated several times, a few days apart, and may be given to you as an inpatient or outpatient. This treatment does not need a tube (catheter) in the bladder to drain the urine, but a catheter may be needed when x-ray pictures are taken during the planning of the treatment.

Pulsed Dose Rate Brachytherapy (PDR)

This is a new method of giving brachytherapy which is only available in some specialist centres. In this treatment the applicators stay in place for the same length of time as low dose rate treatment, but short doses of higher dose radiation are given in pulses rather than as a continuous low dose.

Side effects of radiotherapy for cervical cancer

It's usual to have slight vaginal bleeding or discharge once the radiotherapy treatment has ended. If it continues for more than a couple of weeks or becomes heavy it is important to let your doctor or nurse know.

Radiotherapy to the pelvic area can cause side effects such as tiredness, diarrhoea and a burning sensation when passing urine. These side effects can be mild or more troublesome depending on the strength of the radiotherapy dose and the length of your treatment. Your specialist will be able to advise you what to expect.

Most of these side effects can be treated with medicines. Your cancer specialist will be able to help you. Any side effects should gradually disappear once your treatment is over.

We have information about the early and late effects of pelvic radiotherapy in women , and ways of dealing with them.

Diarrhoea

Diarrhoea is a possible side effect following radiotherapy to the pelvic area. It's important to drink plenty of fluids if you experience this so that you don't become dehydrated. If your diarrhoea is not controlled with medicines, let your doctor or nurse know.

Nausea

You may feel sick during treatment, but this is not common. If you don't feel like eating, you can have nutritious high-calorie drinks instead of meals. The drinks are available from most chemists and can be prescribed by your GP. We have helpful tips on eating well when you feel ill, including tips for coping with eating problems .

Sore skin

Your skin may get sore in the area being treated. Perfumed soaps, creams or deodorants may irritate the skin and should not be used during the treatment. Your radiographer or nurse can talk to you about taking care of your skin during this time.

Tiredness

Radiotherapy can make you very tired . It's important to get as much rest as you can, especially if you have to travel a long way for treatment each day.

Menopause

Unfortunately, radiotherapy for cancer of the cervix affects the ovaries. This will bring on the menopause (if you've not already been through it), usually about three months after the treatment starts. This means that your periods will stop and you will have menopausal side effects such as hot flushes, dry skin and possibly loss of concentration. Some women become less interested in sex and notice that their vagina is dry.

Sometimes radiotherapy causes a narrowing of the vagina, which can make sex uncomfortable. It can be very hard to cope with the prospect of an early menopause, but help is available to support you through this. For example, the menopausal side effects can be reduced by taking HRT (hormone replacement treatment) as tablets or skin patches. These can be prescribed by your gynaecologist during the radiotherapy treatment or shortly after it has ended. There is also psychological support from professionals and support groups. Coping with the effect on your fertility can be particularly difficult, especially if you have not yet started (or completed) your family.

Some women may have an operation before radiotherapy to reposition their ovaries lower in the abdomen out of the radiotherapy site. This is known as **ovarian transposition** and is usually carried out at the same time as initial surgery (if it's thought radiotherapy will be needed afterwards). It prevents an early menopause as the ovaries are not affected by the radiotherapy treatment. It's also possible to perform ovarian transposition through keyhole (laparoscopic) surgery.

Possible long-term side effects

Radiotherapy to the pelvic area can sometimes lead to long-term side effects (sometimes called late effects) but these are not common. Our information on pelvic radiotherapy in women discusses ways of dealing with these side effects.

Effects on the bowel or bladder

In a small number of women, the bowel or bladder may be permanently affected by the radiotherapy. If this happens the increased bowel motions and diarrhoea may continue, or you may need to pass urine more often than before. The blood vessels in the bowel and bladder can become more fragile after radiotherapy treatment and this can cause blood in the urine or bowel movements. These effects can take many months or years to occur. If you notice any bleeding it's important to let your doctor know so that tests can be done and appropriate treatment given.

Effects on the vagina

Radiotherapy can make the tissue in the vagina lose some of its elasticity (stretchiness), which may make it narrower and shorter. This can make sexual intercourse difficult and painful. We have tips to help relieve vaginal pain and discomfort in our sex and fertility section.

Swelling of the legs (lymphoedema)

Some people find that the radiotherapy affects the lymph nodes in the pelvic area and cause swelling of the legs. This is known as **lymphoedema** and is more likely if you have had surgery as well as radiotherapy. Our section on lymphoedema discusses ways of reducing and coping with this effect.

Chemotherapy for cervical cancer

Chemotherapy uses anti-cancer (cytotoxic) drugs to destroy cancer cells. There are several chemotherapy drugs which can be used to treat cervical cancer. The most commonly used is cisplatin which is often given in combination with radiotherapy or other chemotherapy drugs. The drugs are usually given **intravenously** (by injection into a vein).

In cervical cancer chemotherapy may be given:

- Before surgery or radiotherapy to shrink the size of a tumour.
- With radiotherapy – this is called chemoradiation.
- If the cancer has spread, to help control it and reduce symptoms.

Early and locally advanced cervical cancer

Chemotherapy may be used to treat larger tumours that are confined to the cervix or those that have spread locally (to the surrounding area). It's commonly combined with radiotherapy to make the radiotherapy more effective. This is called **chemoradiation** . It is thought that the chemotherapy makes cervical cancer more sensitive to the effects of the radiotherapy. Usually the chemotherapy is given once a week during the course of radiotherapy.

Chemotherapy may sometimes be used before surgery or radiotherapy, to shrink the cancer and to make these treatments more effective. If it is given in this way it's called **neo-adjuvant chemotherapy** .

Advanced cancer

Chemotherapy may also be given to women whose cancer has spread to other parts of the body or if the cancer has come back after radiotherapy. It is used in this situation to try to shrink and control the disease and relieve symptoms, to prolong a good quality of life. In some women the chemotherapy will achieve this. Unfortunately for others the chemotherapy will not shrink the cancer and in this situation the treatment will be stopped to avoid the side effects it may cause. It's helpful to discuss the pros and cons of chemotherapy in your particular situation with your cancer specialist.

Side effects

Chemotherapy can cause side effects, which may be slightly worse when given alongside radiotherapy. Here is an outline of some of the side effects you may experience:

- Lowered production of blood cells , making you more prone to infection and anaemia
- Damage to the kidneys
- Nausea and vomiting
- Sore mouth and loss of appetite
- Hair loss

For more detailed information on chemotherapy, including tips for coping with side effects, take a look at our guide to understanding chemotherapy .

Lowered production of blood cells

While the drugs are acting on the cancer cells in your body, they also temporarily reduce the number of normal cells in your blood. When these cells are reduced, you're more likely to get an infection and you may tire easily . If you have any signs of infection during chemotherapy, you will be given antibiotics. Less commonly, if people become anaemic due to the chemotherapy they may need a blood transfusion .

Effects on the kidneys

Some of the chemotherapy drugs used to treat cancer of the cervix may affect the kidneys. Usually this doesn't cause any symptoms, but the effect can be severe and the kidneys can be permanently damaged unless the treatment is stopped. For this reason your kidney function will be checked by a blood test before each treatment. You may be asked to drink plenty of fluids, and to measure how much liquid you drink and the amount of urine you pass.

Nausea and vomiting

Your doctor will prescribe anti-sickness drugs (anti-emetics) to prevent or reduce nausea and vomiting. These are usually very effective. We have more information on dealing with nausea and vomiting .

Sore mouth and loss of appetite

Some chemotherapy drugs can make your mouth sore and cause small mouth ulcers. Regular mouthwashes are important. Your nurse will show you how to do these properly. If you don't feel like eating during treatment , you could try replacing some meals with nutritious soft drinks or a soft diet. A referral to a dietician may also be helpful.

Hair loss

Unfortunately, some chemotherapy drugs can cause hair loss, but your hair will almost always grow back once the chemotherapy has finished. This usually takes between 3–6 months. Women who lose their hair often cover up by wearing wigs, bandanas, hats or scarves. Most patients are entitled to a free wig from the NHS. Your doctor or nurse will be able to arrange for you to see a wig specialist if you are having chemotherapy that causes hair loss .

Research - clinical trials for cervical cancer

Cancer research trials are carried out to try to find new and better treatments for cancer.

Trials that are carried out on patients are known as clinical trials.

Clinical trials may be carried out to:

- test new treatments, such as new chemotherapy drugs, gene therapy or cancer vaccines
- look at new combinations of existing treatments, or change the way they are given, to make them more effective or to reduce side effects
- compare the effectiveness of drugs used to control symptoms
- find out how cancer treatments work
- find out treatments are the most cost-effective.

Trials are the only reliable way to find out if a different type of operation, chemotherapy, radiotherapy, or other treatment is better than what is already available.

Taking part in a trial

You may be asked to take part in a treatment research trial. There can be many benefits in doing this.

Trials help to improve knowledge about cancer and develop new treatments. You will be carefully monitored during and after the study. Usually, several hospitals around the country take part in these trials. It's important to bear in mind that some treatments that look promising at first are often later found to be not as good as existing treatments, or to have side effects that outweigh the benefits.

If you decide not to take part in a trial your decision will be respected and you do not have to give a reason. There will be no change in the way you're treated by the hospital staff and you will be offered the standard treatment for your situation.

The process of clinical trials is described in more detail in our section about cancer research trials , which includes links to clinical trials databases that have details of research trials for cervical cancer.

Blood and tumour samples

Many blood samples and tumour biopsies may be taken to help make the right diagnosis. You may be asked for permission to use some of your samples for research into cancer.

If you're taking part in a trial you may also be asked to give other samples which may be frozen and stored for future use, when new research techniques become available. These samples will have your name removed so you can't be identified. The research may be carried out at the hospital where you are treated, or it may be at another hospital.

The samples will be used to increase knowledge about the causes of cancer and its treatment, which could improve the outlook for future patients. This type of research takes a long time, and results may not be available for many years.

Follow-up after treatment for cervical cancer

After your treatment has finished you will need to have regular check-ups and possibly x-rays or scans. These will often go on for several years. If you have any problems or ongoing side effects from the treatment, or notice any new symptoms between these times, let your doctor know as soon as possible.

For people whose treatment is over apart from regular check-ups, our guide to life after cancer treatment gives useful advice on how to keep healthy and adjust to life after treatment.

Living with cervical cancer

How treatment for cervical cancer may affect your sex life

The treatments for cervical cancer may affect your sex life, but many of these effects can be prevented or treated.

Menopausal symptoms

If you have had a hysterectomy and your ovaries have been removed, or if you've had radiotherapy to the pelvis, you will go through the menopause (if you haven't done so already). Menopausal symptoms can include:

- hot flushes
- dry skin
- dryness of the vagina
- feeling low or anxious
- being less interested in sex.

Many of these effects can be eased by hormone creams, skin patches or tablets, prescribed by your doctor.

These replace the hormones that are normally produced by the ovaries.

If dryness of the vagina is a problem, your doctor can prescribe creams or you can buy lubricating gels such as KY Jelly, Sylk® or Astroglide® from the chemist. You or your partner can apply them directly to the penis or vagina during sex.

Vaginal care

Radiotherapy to the pelvis can make the vagina become narrower and this can make sex difficult or uncomfortable.

The key to overcoming this problem is to keep the muscles in the vagina as supple as possible. Hormone creams applied to the vagina can help, and are available on prescription from your doctor. Using vaginal dilators or having regular penetrative sex are often the best ways to keep the vagina supple.

Vaginal dilators are usually made of plastic and your nurses or doctor can give you a set. Dilators usually come in sets of graduated sizes. A dilator needs to be gently and regularly inserted into the vagina to stretch it gradually and prevent narrowing. The nurses or your doctor can show you how to use the dilators and can answer any questions. They are used to discussing these issues, so you don't need to feel embarrassed.

Many women find dilators very useful in improving the suppleness of the vagina after radiotherapy, even if they have a regular sexual partner. Dilators can also be useful for women who may have temporarily lost interest in sex due to menopausal symptoms, who feel nervous about having sex soon after treatment, or who don't have a regular sexual partner.

Sex

Many women feel nervous about having sex soon after treatment for cancer, but it's perfectly safe. Sex won't make the cancer come back and your partner can't catch cancer from you.

Women often find that they need to take more time over sex to help the vagina relax. It may also be easier if your partner is gentle at first so that the vagina can stretch slowly. Regular gentle sex will help the vagina become more supple again and you should be able to go back to your usual sex life a few weeks after the radiotherapy.

If sex is difficult, you and your partner might find it helps to discuss things with one of your treatment team. Although it might feel embarrassing at first, it can really help to talk things through.

Your nurse or doctor will have experience in this area and can advise you about what might help. You can also talk to our cancer support specialists .

Our section on sexuality and cancer has further information and advice.

Fertility

Pelvic radiotherapy will stop you from being able to have children. This can feel devastating. Infertility is very hard to come to terms with, especially if you were planning to have children in the future or to have more children to complete your family. The sense of loss can be very painful and distressing for people of all ages. Sometimes it can feel as though you have actually lost a part of yourself. You may feel less feminine because you can't have children.

It's important to discuss any concerns you have about your fertility with your healthcare team before treatment starts. They can discuss any options you may have for preserving your fertility. For example, you may be able to store embryos (fertilised eggs), or have your eggs frozen and stored for future use.

This must happen before treatment starts. Ovarian tissue which contains eggs can be removed for future use, but this is still a very experimental technique.

Embryo storage may be available on the NHS, but you often have to pay privately for other treatments. Our section on sex and fertility discusses the options for having a baby (such as adoption, surrogacy or egg storage) if treatment has affected your fertility.

Emotional effects

People react differently to the risk of infertility. Some women may come to terms with it more quickly and feel that dealing with the cancer is more important. Others may find that they accept the news calmly when they start treatment, and find that they don't feel the full impact until the treatment is over and they are sorting out their lives again.

There is no right or wrong way to react. Your partner will also need special consideration in any discussions about fertility and future plans. You may both need to speak to a professional counsellor or therapist specialising in fertility problems. They can help you to come to terms with your situation.

Your doctor may be able to refer you to a specialist or you can be put in touch with one directly by contacting a useful organisation . Our cancer support specialists can discuss problems you may have and they can also help you to find a counsellor who can offer you help and advice.

Living with and after cancer

Cancer can affect many areas of your life such as your finances, work, your emotions and relationships. Find information and advice about what the effects might be, how to deal with them and how we can help.

Emotional effects

Information on the emotions you might experience as a result of your cancer diagnosis, ways that you might manage them and other sources of support.

Relationships and communication

Advice on how to talk to other people, talking to children, relationships and sexuality.

NOTE: JASCAP has booklets on these subjects.

Questions you might like to ask your doctor

You can fill this in before you see the doctor or surgeon, and then use it to remind yourself of the questions you want to ask, and the answers you receive.

1. _____

Answer _____

2. _____

Answer _____

3. _____

Answer _____

4. _____

Answer _____

5. _____

Answer _____

JASCAP : We need your help

We hope that you found this booklet useful.

To help other patients and their families we need and intend to extend our Patient Information Services in many ways.

Our Trust depends on voluntary donations. Please send your donation by Cheque or D/D payable in Mumbai in favour of "JASCAP".

Note for Reader

This JASCAP booklet is not designed to provide medical advice or professional services and is intended to be for educational use only. The information provided through JASCAP is not a substitute for professional care and should not be used for diagnosing or treating a health problem or a disease. If you have, or suspect you may have, a health problem you should consult your doctor.

JASCAP

JEET ASSOCIATION FOR SUPPORT TO CANCER PATIENTS,
C/O ABHAY BHAGAT & CO., OFFICE NO.4, "SHILPA",
7TH. ROAD, PRABHAT COLONY,
SANTACRUZ (East),
MUMBAI - 400 055.
PHONE: 91-22-2617 7543 & 91-22-2616 0007
FAX: 91-22-2618 6162,
e-mail: pkrijascap@gmail.com, abhay@abhaybhagat.com

AHMEDABAD: MR. D.K.GOSWAMY,
1002, LABH, SHUKAN TOWER,
NEAR JUDGES' BUNGALOWS,
AHMEDABAD - 380 015.
PHONE : 91-79-6522 4287. Mob : 93270 10529
e-mail : dkgoswamy@sify.com

BANGALORE: MS. SUPRIYA GOPI,
"KSHITIJ", 455, I CROSS,
HAL III STAGE,
BANGALORE – 560 075
PHONE : 91-80-2528 0309 .
e-mail : supriyakgopi@yahoo.co.in

HYDERABAD: MS. SUCHITA DINAHER & DR. M. DINAHER, M.D.,
FLAT NO. G4, 1ST. FLOOR, "STERLING ELEGANZA",
STREET NO.5, NEHRUNAGAR,
SECUNDERABAD – 500 026.
PHONE : 91-40-2780 7295.
e-mail : suchitadinaker@yahoo.co.in