Introduction
This information has been written to help you understand more about cancer of the cervix (cervical cancer). It is designed to answer some of the questions you may have about the diagnosis and treatment of cancer of the cervix. It is very general and some aspects will not apply to you. Your treatment will be tailored to your needs and past medical history.

What is the cervix?
The cervix is the lower part of the womb (uterus) and is often called the neck of the womb. The womb is a muscular, pear-shaped organ at the top of the vagina. The lining of the womb is shed each month giving rise to bleeding called a period. These periods stop temporarily during pregnancy and will normally continue until a woman has the ‘change of life’ or menopause. It is possible for your doctor to see and feel the cervix during an internal (vaginal) examination. Situated close to the cervix is a collection of lymph nodes. These are small glands, about the size of a bean. The lymph nodes make up part of the lymphatic system. This is a network of glands situated throughout the body, linked by fine threads carrying a colourless fluid, the lymph. The system acts as a defence against disease and filters toxins such as germs, viruses, big chemicals and tumour cells.

How does cancer of the cervix develop?
Cancer of the cervix can take many years to develop. Before it does, early changes take place on the cervix.

Most women have heard of the smear test. The smear test is designed to detect changes in the cells before they develop into a cancer, so that treatment can be given before a cancer develops. The aim of a smear test is to prevent cancer, but it can of course detect a cancer that has already developed. The name given to the abnormal cells occurring in the cervix which are not cancerous but may lead to cancer is CIN (cervical intra-epithelial neoplasia). Some doctors call these changes precancer, meaning cells that have the potential to develop into cancer if left untreated.

It is important to know that the vast majority of women with abnormal cells on their smear test are not about to develop cancer. The abnormal cells are usually the result of a virus infection, usually by the human papilloma virus, which was probably acquired some years before it was detected by the smear test.

Many women have heard of risk factors for cancer of the cervix such as early age of first intercourse and having had many sexual partners, and may be distressed that friends and family may think they fall into these categories. These factors do increase the chances of catching the virus infection, but many women without these factors in their life also acquire the human papilloma virus and develop a pre-cancer or cancer. Also, the overwhelming majority of women with these risk factors never have cervical cancer, so there are many other factors at work here, most of which are unknown.

We know that some of the virus infections produce changes that show up on the smear tests but only a minority of these will develop into a cancer. Sometimes the abnormality is very slight and needs only to be rechecked in a few months. Some women with an abnormal smear test are seen in a hospital colposcopy unit where these
abnormalities can be checked. Abnormalities that might progress to a true cancer are simply treated with a laser or diathermy loop excision.

What makes CIN (pre-cancer) become cancer?
Most of the virus infections that can cause changes to the cells of the cervix may be overcome by the body’s normal defences against infection, or remain as CIN. Some, though, will lead on to cancer of the cervix. Progression to cancer seems to depend on:

1. the type of human papillomavirus - there are 80-90 types but only a few are found in cancers, notably human papillomavirus type 16;
2. the body’s ability to fight off infection, which may be weakened by smoking, poor diet, and other infections.

Women who have passed the menopause may worry that HRT has caused their cancer. There is no evidence to support this.

What are the symptoms of cancer of the cervix?
The smear test is capable of picking up changes to the cervix at an early stage (before cancer develops) and may also detect cancer at a very early stage, before any symptoms have developed. The most common symptom of cervical cancer is abnormal bleeding, such as between periods or after intercourse. Often there is also a smelly vaginal discharge, and discomfort during intercourse. In women after the menopause, who have stopped their periods, there may be some new bleeding. Of course, there are many other conditions that can produce these symptoms, but it is important that you are not shy or embarrassed to see your doctor about them. The sooner you see your doctor and the diagnosis is made, the better the chance of treatment leading to a complete recovery.

How does the doctor make the diagnosis?
Usually you begin by seeing your family doctor (general practitioner) who will examine you and refer you to hospital for specialist advice and treatment.

Smear or Pap test
The smear or Pap test is used to help diagnose cancer of the cervix. However, it is more commonly used as a routine test to detect early cell changes (CIN). This is known as cervical screening. Before the test you will be helped into position on the couch. The doctor or nurse will then use an instrument called a speculum to hold the vaginal walls open. Using a small spatula a sample of the cells is scraped gently from the cervix and spread onto a glass slide. The sample is examined under a microscope which shows up any abnormalities. A smear test may sometimes be slightly uncomfortable, but it only takes a few minutes.

Colposcopy
This is usually done at hospital out-patient clinics. A colposcopy allows the doctor to make a more thorough examination of the abnormal cells on your cervix detected on the smear test. Before your test the nurse will help you position yourself on the couch. In the same way as the smear test the doctor will use a speculum to hold the vaginal walls open. A solution is then dabbed onto the cervix to make the abnormal areas show up more clearly. A light is shone onto the cervix and the doctor looks through a colposcope, like a small microscope, to examine the areas in more detail. A small sample of surface cells (biopsy) is then taken from the cervix for examination under a microscope. This can be uncomfortable, but the test only takes a few minutes.

Cone biopsy/Loop/LLETZ/Laser biopsy
If the abnormal area can’t be seen properly with the colposcope, it will need to be removed. This is called a biopsy but there are many other names used by doctors to describe the same concept (e.g. Cone biopsy/Loop/LLETZ/Laser biopsy). The specimen is taken from the cervix for examination under a microscope. If there is just a very slight growth of cancer cells (microinvasive cancer), the cone biopsy may remove it all so no further treatment is needed. If the cancer is more developed and the cone biopsy is not considered enough it will still have been useful in making the diagnosis.

The pathologist’s report after the biopsy may take some time. It is helpful for you to have a definite arrangement with your doctor about when and how you will receive any further news about the need for more treatment or tests.
It is a difficult time for most women and you may need support from family or friends while you are waiting for the results. The pathologist's report is important as it gives your doctor information about the type of cancer present.

**Types of cancer of the cervix**
There are two main types of cancer of the cervix. The most common is called squamous cell carcinoma; the other type is called adenocarcinoma. These names indicate the type of cells on the cervix which are growing in an abnormal way. The report may be able to give other information such as the degree of activity in the abnormal cells and whether there are signs of tumours in the lymph or blood vessels. Some of this information, in addition to the doctor's clinical findings, will influence the advice you are given about the best form of treatment for you.

**Further tests**
If the tests show that you have cancer of the cervix your doctor will probably want to do some further tests to check for any spread of the disease. These help the doctor to decide on the best type of treatment for you. The tests may include any of the following.

- **Blood tests**
  A sample of blood is taken to check the cells in your blood and to see how well the kidneys and liver are functioning.

- **Chest X-ray**
  This is taken to check that your lungs and heart are healthy.

- **Colposcopy and internal examination**
  This tells where the cancer is and, with the biopsy result, tells the doctors how to treat it. Sometimes additional information is required and this may mean an ultrasound or CT scan.

- **Pelvic ultrasound**
  This test is used to measure the size and position of the cancer. It also shows up any abnormalities in the kidneys or urinary system. You will be asked to drink plenty of fluids before your test so that your bladder is full and a clearer picture can be seen. Once you are lying on the couch a gel is spread over your abdomen. A small microphone-like device, which produces sound waves, is then passed over the skin and the echoes are converted into a picture by a computer. Sometimes a better scan is obtained if the scan is done internally. This means that a small device is place at the entrance to the vagina (not deep). Ultrasound is completely painless and only takes a few minutes.

- **CT scan (CAT scan)**
  In this scan several small X-rays are taken and fed into a computer to build up a detailed picture of the size and position of the cancer. Before the scan you will be asked to drink a special liquid which shows up on X-ray. Just before the scan begins a tampon may be put into the vagina and the nurse will pass a liquid, which shows up on X-ray, into your back passage (rectum). These two preparations ensure that the best possible picture is produced from the scan. Once you are comfortably positioned the scan will be taken. The scan itself is painless but it will mean lying still in a short tube (both ends are open) for about 30-40 minutes.

- **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 causing any discomfort. At this time a dilatation and curettage (D and C) is usually done. This uses a small telescope to examine the womb and a sample of cells is taken for examination under a microscope. It is quite normal to have some light bleeding for a couple of days after your examination.

**What types of treatment are used?**
Surgery, radiotherapy and chemotherapy may be used, alone or together to treat cancer of the cervix. Your doctor will plan your treatment by taking into consideration a number of factors, including your age, general health, the type and size of the tumour, what it looks like under the microscope and whether it has spread beyond the cervix. Sometimes, especially in the early stages of cancer of the cervix, either radiotherapy or surgery can be used, as both give similar results.

If you have any questions about your treatment, don't be afraid to ask your doctor or the ward sister. It often helps to make a list beforehand of the questions you wish to ask the doctor and to take a close friend or relative with you.
Surgery
Your doctor will discuss with you the best type of surgery for you, which depends on the size and spread of the cancer. Before any operation make sure that you have discussed it fully with your doctor.

The operation for cancer of the cervix usually involves the removal of the womb (hysterectomy), and sometimes a small part of the vagina and lymph nodes. If the cancerous cells have spread only very slightly beyond the surface cells of the cervix, it may be possible to treat this with a cone biopsy.

The ovaries may also be removed but, where possible, they are preserved in young women as their removal brings on an early menopause. In this respect surgery may be more suitable for young women than radiotherapy. If it is necessary to remove the ovaries, the symptoms of the menopause can often be prevented by replacing the hormones with tablets or creams (hormone replacement therapy). Your doctor will be able to discuss this with you in more detail.

Radiotherapy
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 or internally, and often as a combination of the two. In the past, radiotherapy in the pelvic area sometimes led to long term effects on the bowel or bladder, but improved planning and treatment techniques have made these long term effects less likely.
Radiotherapy may sometimes be given, either before or after surgery, if your doctor is concerned that some cancer cells may be left behind. At other times it is used on its own to treat cancer of the cervix.
Your radiotherapist, who plans your treatment, will be able to help you with any concerns you may have.

Planning your treatment
To ensure that you receive maximum benefit from your radiotherapy it has to be carefully planned. On your first few visits to the radiotherapy department you will be asked to lie under a large machine called a simulator which takes X-rays of the area to be treated. Before the X-rays are taken a tampon is inserted into your vagina and a liquid which shows up on X-ray is passed into the rectum. These preparations are done to ensure that the clearest possible pictures are taken.

External radiotherapy
This is given by directing high energy rays over the area of the cancer. It is usually given at a hospital out-patient clinic during weekdays. The type and length of your treatment will depend on the size and position of the cancer.
Treatment planning is a very important part of radiotherapy and it may take several visits before the radiotherapist is satisfied with the result.
Marks will be made on your skin to show the radiographer, who gives you your treatment, where the rays are to be directed. During your course of treatment this area should be kept as dry as possible to prevent the skin becoming red and sore.
Before radiotherapy is given the radiographer will position you carefully on the couch and make sure you are comfortable. During treatment you will be left alone in the room but you will be able to talk to the radiographer who will be watching you carefully from an adjoining room.
Radiotherapy is not painful but you do have to lie still for several minutes during treatment. The treatment will not make you radioactive and it is perfectly safe for you to be with other people, including children, after your treatment.

Internal (intracavity) radiotherapy
This is given by inserting an applicator, like a tampon, containing a radioactive substance, into the cervix under an anaesthetic. It is usually left in place for one or two days and gives a high dose of radiation to the cervix and the surrounding area. Occasionally, an implant containing a higher dose of radioactivity is used and this is only in place for a few hours.
Although the dose of radioactivity used in internal radiation is relatively small you will probably be nursed in a separate room, off the main ward and often behind lead shields, 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 the implant is in place you will be asked to stay in bed.
to make sure that it stays in the correct position. A small tube or catheter may be passed into your bladder to drain off urine. This means you don’t have to get on and off bedpans and risk moving the applicators. These precautions can make you feel isolated but they only last for a couple of days, and once the implant is removed the radioactivity disappears.

**Curitron/Selectron machine**

In some hospitals a machine, which may be called a Curitron or Selectron or similar name, is used to put the radioactive material into the applicators. The machine is attached to the applicators by tubes. When the machine is switched on it passes small radioactive sources into the applicators. If the machine is switched off, the sources are pulled back inside the machine. When someone needs to go into your room the machine can be turned off, so reducing their exposure to the rays. However, safety measures and visiting restrictions are still necessary. The time you spend on the machine varies but it is usually between 12 and 48 hours.

Once you have received your dose of radiation the sources and the applicators will be removed. This is usually done on the ward. As it can be a little uncomfortable, you will be offered some painkillers beforehand. Sometimes a few breaths of the gas Entonox will help you to relax. The staff on the ward check that all the applicators and implants have been removed. Your catheter may be removed at the same time.

Your doctor may suggest you use vaginal douches for a few days after the insertion has been removed to keep the vagina clean. Your nurse will show you how to use these. You will probably be able to go home the same, or the following, day. Once the radioactive sources are removed, all traces of radioactivity will immediately disappear.

**Side effects**

Radiotherapy to the pelvic area can cause side effects such as feeling sick (nausea), tiredness, diarrhoea and a burning sensation when passing urine. It is important that you drink plenty of fluids and maintain a healthy diet during your treatment. If you don’t feel like eating you could supplement your meals with soups or high calorie drinks. There is a wide range of these drinks and you can buy them at most chemists. Your doctor can also prescribe them for you. Most of these side effects can be treated quite easily with tablets and your radiotherapist will be able to help you. Any side effects should gradually disappear once your treatment is over.

BACUP publishes a booklet called *Understanding radiotherapy*, which gives more details about this treatment and its side effects. If you are having radiotherapy you should be given a copy by us but if not, please ask for one.

Unfortunately, radiotherapy for cancer of the cervix affects your ovaries and this brings on the menopause. This means having to cope with menopausal side effects like hot flushes, a 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 sexual intercourse uncomfortable. Most radiotherapists and gynaecologists try to protect you from this side effect by giving HRT (hormone replacement treatment) with tablets or skin patches. These can be started during the radiotherapy treatment or shortly after it has been completed by your gynaecologist who will help choose the correct replacement hormones and dosage.

If you are feeling low it may help to talk over your problems with a trained counsellor, either at the hospital or in your local area.

**Chemotherapy**

Chemotherapy is sometimes used to treat cervical cancer. Chemotherapy is the use of special anti-cancer (cytotoxic) drugs to destroy cancer cells. They work by disrupting the growth and division of cancer cells. Chemotherapy may be given before surgery or radiotherapy, to shrink the cancer and to make these treatments easier to carry out. If it is given in this way it is called neo-adjuvant chemotherapy.

It may also be used after surgery if your doctor feels that there is a risk of the cancer remaining and possibly recurring in the future. This is called adjuvant chemotherapy.

The chemotherapy drugs are usually given intravenously (by injection into a vein). They tend to reduce temporarily the number of normal cells in your blood. When your blood count is low you
are more likely to get an infection and may tire easily. During chemotherapy your blood will be tested regularly and, if necessary, you will be given a blood transfusion or antibiotics. Other side effects may include nausea, vomiting and hair loss. Some drugs also make your mouth sore and cause small ulcers. Regular mouthwashes are important and the nurse will show you how to do these properly. If you don't feel like eating meals you can supplement your diet with nutritious drinks or soups. There is a wide range of these drinks available and you can buy them at most chemist shops. Although these side effects may be hard to bear at the time, they do disappear once your treatment is over and your hair will grow back surprisingly quickly. Not all drugs cause side effects and your doctor will tell you what problems, if any, to expect from your treatment. Nausea and vomiting are now much less of a problem than they used to be because of effective anti-sickness drugs. Chemotherapy is not usually used for cervix disease but if it is needed, you will need to ask for a more detailed leaflet.

Web sites
Surfers will find http://www.nccc-online.org/ an excellent place to start searching.

Good Books
One well reviewed book with a high circulation is “God Said, Ha!” by Julia Sweeney, Bantam Books. This is a comedy and cancer work in the memoir of Pat of ‘Saturday Night Live’ fame. She relates her experiences in coming to terms with her younger brother’s death from lymphatic cancer and her own brush with cervical cancer and radical surgery.

*This text is based on a series of booklets from Bacup and has been edited with their kind permission.*