Cryotherapy for localised prostate cancer

Urology Directorate
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1 Introduction

This leaflet is written for patients, their family and any carers. It provides information on prostate cryotherapy for prostate cancer which has not previously been treated. The leaflet goes through the indications, benefits, risks, technique and post-operative care associated with prostate cryotherapy.

2 What is prostate cancer?

The prostate is an organ that lies just below the bladder. In young men it is about the size of a walnut but its size tends to increase as you get older. It surrounds the beginning of the urethra, the tube that conveys urine from the bladder to the tip of the penis. During ejaculation it secretes a fluid that forms part of the semen. Cancer can develop within the prostate. It is called localised if it has not spread to other areas of the body.
The main function of the prostate is to supply fluid for the sperm during ejaculation. Prostate Specific Antigen (PSA) is produced by the prostate gland.

Prostate cancer begins when the cells in the prostate start to divide and grow out of their normal pattern. These cells are similar to cells in the prostate, but they do not grow into normal prostate tissue. They grow into lumpy bundles of cells called tumours. Tumours disrupt the normal function of the prostate, and cells that come free from the tumour can travel elsewhere in the body, and begin to grow tumours there. Prostate cancer may be:
• localised (only affecting the prostate)
• or it may be locally advanced (spread outside the outer capsule of the prostate but not into the bloodstream)
• or metastatic (the cancer has moved outside the prostate and into the bloodstream and may affect other organs). Your surgeon will be able to discuss what type of tumour you have and the likelihood of this spreading. The treatment recommended will depend on the size and site of your tumour.

3 What is cryotherapy for localised prostate cancer?

Prostate cryotherapy is a surgical technique that can be used to treat localised prostate cancer. Cryotherapy aims to use extremely cold temperatures to freeze and destroy the prostate cancer cells.

4 Who is suitable to have this treatment?

You may be suitable for prostate cryotherapy treatment if you have localised prostate cancer – that is, the cancer has been shown to be within the prostate only.
We first need to perform scans to identify where the cancer is in your prostate and to ensure the cancer is confined to the prostate and has not spread outside it. We will then take a biopsy (a tissue sample) from your prostate to obtain definite evidence that there is cancer. We also take into account information from PSA (prostate specific antigen) measurements (PSA is a substance released into the blood by prostate and prostate cancer cells). If there is evidence that the cancer has spread outside the prostate then you may be informed that you are not suitable for cryotherapy treatment and other treatment options which are outlined later in this leaflet.

5 How can cryotherapy help?

The benefits of cryotherapy for localised prostate cancer include:

- The treatment can potentially cure the cancer
- It is a minimally invasive treatment (no incisions)
- A short hospital stay (you will either go home the same day or stay in hospital for one night)
- A rapid recovery, which means that you can return to daily living quickly
A low rate of side-effects especially when used as a focal therapy (to treat just the tumour and not the whole prostate)

6 What are the risks of prostate cryotherapy?

All treatments and procedures have risks and we will talk to you about the risks of cryotherapy for localised prostate cancer.

Problems that may happen straight away

- A small number of men have difficulty in passing urine after the treatment and therefore patients have a tube (catheter) inserted at the time of the procedure to help with this. This is usually left in place for around two weeks, before it is then removed in the outpatient department.
- Some men will notice swelling of their penis or scrotum, which may happen in the first or second week after the procedure. This is temporary and will usually resolve within two months.
- A few men may develop tingling or numbness around the penis. This is a temporary side effect and will usually resolve within two to four months.
- Pain around or in the rectum (back passage) can occur in up to 18 out of every 100 men following treatment. This usually settles within three months.

Problems that may happen later
- Impotence/erectile dysfunction (problems getting or maintaining an erection): Many men may already have pre-existing impotence as a result of other health problems. However, because the nerves involved in creating an erection lie just behind the prostate gland, they might be affected during the freezing process. When cryotherapy is used to treat the whole prostate gland, like surgery and radiotherapy, the nerves on both sides of the prostate are affected and as many as 70 out of every 100 men may be impotent following whole-gland cryotherapy for localised prostate cancer. When cryotherapy is used to treat just the area of important cancer – this is called focal therapy – then the risk of impotence is lower at around ten to fifteen men out of every 100 men treated who have good erections. There are some treatments available on the NHS.
such as tablets and injections that can help to restore erections for some men, but not all.

- Urine incontinence (leakage of urine): Leakage of urine can occur in one to five out of every 100 men after treatment. This may improve with time. Some men may need to wear pads to protect their underwear. We teach pelvic floor exercises to help your urinary control.
- Sloughing of tissue in the urethra (the tube that conveys urine from the bladder to the tip of the penis) can occur in up to five out of 100 men. This may lead to pain or difficulty in passing urine. Occasionally an operation to remove this sloughed tissue may be required to improve the urinary flow.

Problems that are rare, but serious

- A rare complication of prostate cryotherapy is a connection forming between the back passage (rectum) and the tube which carries the urine (urethra). This is known as a fistula and is due to the back passage being frozen during the cryotherapy treatment. This complication occurs in less than one in 500
men treated. Although rare, this complication is serious and may require an operation to repair the hole. A “stoma”, where bodily waste is collected in an external bag worn on the body may occasionally be required.

7 What alternatives are available?

At the time of diagnosis, prostate cancer may be confined to the prostate itself, or may have spread to other sites within the body. If prostate cancer is confined to the prostate, it may be possible to cure it. The types of treatment that aim to cure prostate cancer when it is confined to the prostate include the following:

- Active surveillance
- HIFU (High Intensity Focused Ultrasound)
- External beam radiotherapy
- Brachytherapy (small implanted radioactive seeds)
- Surgery (radical prostatectomy)
Active Surveillance

Some men who are diagnosed with prostate cancer will be advised by their doctors that the best thing to do is to have no immediate treatment. Typically prostate cancer is slow growing and may never cause problems. Instead of exposing you to the side effects of treatment in those years, the plan is to monitor the cancer actively. While you are being actively monitored, you receive no treatment for your cancer. You will have your PSA levels regularly tested every three to four months, and you will need to have an MRI scan and prostate biopsies every two to three years under local anaesthetic. If your PSA level starts to go up or your biopsies show the disease is becoming more aggressive, then you and your doctor will need to discuss if and when to start treatment. You may choose at any point in active surveillance to have treatment whether the disease shows any sign of progressing or not.

Hormone Therapy

Most men will need hormone therapy either before, during or after treatment. Hormone therapy works wherever the cancer is in the
body. It does not work indefinitely and is not a cure, but where effective it will keep the cancer in check for some time.

Hormone therapy is also known as androgen deprivation or therapy (ADT) or androgen suppression therapy. These hormones are given to either reduce levels of the male hormones, called androgens, in the body or to stop the body from utilizing the androgens it has produced. The main androgens are testosterone and dihydrotestosterone (DHT). Androgens stimulate prostate cancer cells to grow. They are mainly produced in the testicles. Lowering androgen levels often makes prostate cancers shrink or grow more slowly.

**What are the side effects of hormone therapy?**

Every man reacts in a different way to hormone therapy. Some have a lot of side effects while some only have very few. The most common side effects include:

- Loss of libido or sex drive - losing your libido does not mean that you lose interest in a loving, caring relationship. It means that you may become less interested in sex.
- Impotence, which means the loss of erections sufficient for sexual intercourse.
- Hot flushes, which may improve over time, but there are treatments for troublesome flushes.
- Breast swelling and tenderness, which are more common with anti-androgens and oestrogen treatments
- Weight gain with thickening around the waist or swelling in the chest area
- Tiredness, fatigue and low mood can occur in the first weeks of treatment
- Feeling sick and diarrhoea can occur if you take Flutamide and Bicalutamide
- Osteoporosis sometimes called bone thinning may happen in the long term

These are the common effects. They are not all always severe or inevitable.
Radiotherapy

External Beam Radiotherapy
The prostate cancer is treated using radiation directed at the prostate gland from outside the body. Radiotherapy can be used to treat cancer that has not spread outside the gland (localised) and for a small number of men whose cancer has spread to the area just outside the gland (locally advanced). Some patients need to have hormone therapy before starting radiotherapy to reduce the size of the prostate and make the prostate more sensitive to the radiotherapy beam. Hormone therapy may also continue during the course of radiotherapy, and usually for a period of time afterwards, to increase the chance of controlling the cancer. Your doctor will discuss this with you if it looks like your cancer will respond.

The aim of radiotherapy treatment is to destroy cancer cells in the treated area, while limiting any damage to normal cells. High energy X-ray beams are directed at the prostate from outside the body. These beams damage the cells and stop them from dividing and growing. Cancer cells are not usually able to recover from this
damage and die, but sometimes normal healthy cells can repair themselves. The whole prostate gland is treated, including the area surrounding the gland to make sure that any stray cancer cells are treated.

What are the benefits and risks of external beam radiotherapy?

The benefits and risks of radiotherapy depend on your age, health and stage of disease. Your specialist team will discuss your individual situation and options with you.

Benefits

- It has none of the risks associated with surgery and a general anaesthetic
- You do not need to stay in hospital overnight
- You can carry on with many of your usual activities while you are having treatment

Risks

- Possible damage to the bladder and back passage (rectum)
- There is a risk of erectile dysfunction and infertility
• It is possible for some cancer cells to escape the radiotherapy and it is difficult to tell straight away whether the treatment has worked

Side Effects of external beam radiotherapy:
Radiotherapy usually takes six weeks of treatment to complete. Side effects are caused by radiation of the normal healthy cells near the prostate gland. Many of these healthy cells are able to recover and so any side effects will only last a few weeks or months. However, some side effects can take longer to develop and can become long term problems. The latest treatment methods have reduced the risks but most men will still have some side effects.

Short term side effects of radiotherapy include:

Bowel problems
The bowel and back passage are exposed to radiation because they are close to the area being treated. This may not cause any problems, but in most men it causes the lining of the bowel to become inflamed (proctitis) which then leads to symptoms. These
can include diarrhoea, passing more wind, having to rush to get to a toilet, pain around the back passage or stomach, passing blood or mucus or suffering from constipation.

**Urinary symptoms**
Radiotherapy can irritate the lining of the bladder, causing a burning feeling when you pass urine and a need to pass urine more often. This is known as radiation cystitis. Symptoms may appear within a day or two of starting treatment but these usually start to improve once your course of treatment is finished.

**Tiredness**
Towards the end of your treatment, you may feel more tired than usual. Regular gentle exercise, such as walking, can help to prevent and improve tiredness. Many men continue to work throughout their treatment but if tiredness becomes a problem you may need to take some time off work. Most men recover completely from their tiredness within a couple of months of finishing treatment.
Skin irritation and hair loss
This is less common than it used to be as radiotherapy techniques have improved. Towards the end of treatment, the skin between your legs and around your back passage may become darker in colour and sore, like sunburn. You may also notice that you lose some hair in the area that has been treated. This usually grows back but hair loss can be permanent in some men.

Painful ejaculation
The tube that you pass urine and semen through (urethra) can become inflamed. This may make ejaculation uncomfortable during your course of radiotherapy, but should improve after you finish treatment.

Long term side effects
Most side effects will settle down after your course of radiotherapy treatment has finished. However, some side effects can become long term or permanent. These can start to appear three months or more after you complete your treatment.
Older age, diabetes, previous bowel or prostate surgery, and previous bladder and bowel problems can all increase your risk of getting long term side effects.

**Bowel problems**
Short term bowel problems (as outlined above) usually start to settle once treatment is finished. This can take anything from a few weeks to six months or more. However, some men will find that their bowel habits change permanently. Symptoms may start during the course of radiotherapy and never improve, or they may improve after treatment only to reappear months or years later.

**Bladder problems**
Radiotherapy can cause you to pass urine more often and you may get a burning sensation (radiation cystitis). A few men get a narrowing of the urethra (stricture) which makes it difficult to pass urine. This can be treated with surgery.
Radiotherapy can cause you to leak urine in ten to twenty men in every 100 treated. This is more likely if you have previously had prostate surgery such as TURP or radical prostatectomy.

**Erectile dysfunction**

Radiotherapy can damage the nerves that control erections and so can affect your ability to achieve and maintain an erection. It can take up to two years for these symptoms to appear fully. Some men notice a reduced volume or force when they ejaculate and some will have a ‘dry’ orgasm where they do not ejaculate any semen.

Erectile dysfunction (ED) affects one third to two thirds of men treated with radiotherapy. You are at greater risk if you had erection problems before treatment or if you have hormone therapy together with radiotherapy. The stress of dealing with a cancer diagnosis, and tiredness caused by your treatment, can also affect the quality of your sex life.
Infertility

Radiotherapy can damage the cells that produce semen. If you are planning on having children you may be able to store your sperm before you start treatment, to use later in IVF (In Vitro Fertilisation). If this is important to you, ask your specialist team if this option is available locally.

Radiotherapy can harm a developing baby, so use condoms if there is a risk of your partner becoming pregnant. You should not father children for two years after your treatment has finished.

Brachytherapy

Brachytherapy is an alternative treatment to both surgery and external beam radiotherapy. Prostate Brachytherapy is a form of radiation treatment for localised prostate cancer. Radioactive seeds are implanted directly into the prostate gland. This means a higher dose of radiation can be given than is possible with external beam radiotherapy. It also means that the radiation is concentrated in the part of the body that needs treatment. Brachytherapy works well if
you have a cancer that is small and fully contained within the prostate gland.

**Permanent seed implants**
Approximately 100 radioactive seeds are placed inside the prostate. The seeds release their radiation dose over a few months and will have released 95 percent of their radiation after a year.

Your doctor implants the seeds while you are under anaesthetic. They remain in the prostate permanently, with the strength of the radiation lessening over a period of months. The dose is carefully worked out to cover the size and shape of your prostate, plus a small area of the surrounding tissue. Every effort is made to reduce unnecessary radiation to the surrounding healthy tissue.

**High Dose Rate Brachytherapy**
In this procedure thin stiff plastic tubes are inserted through the area of skin behind the scrotum - the perineum – and into the prostate. This is done under a general anaesthetic. The doctor uses a radiotherapy machine to insert a radioactive wire through
each plastic tube and into the prostate. These wires are left for a few minutes and then removed.

The tubes are left in place overnight, so an overnight stay in hospital at least is necessary. Most men stay in for about three days. The insertion and removal of the wires is repeated on the second day. The procedure is repeated for each tube. The whole procedure is over in around 30 minutes. The tubes are then removed.

**Is brachytherapy painful?**

You must expect some discomfort around the perineal area after surgery. This usually lasts for a few days and can be controlled by taking pain killers.

**Advantages of brachytherapy**

- Simple procedure
- Rapid return to normal life
• Allows high doses of radioactivity to the prostate, whilst minimising damage to surrounding tissues, such as the bladder and bowel.
• Urinary side effects exist, but are less frequent than with conventional radiotherapy for early prostate cancer.

Disadvantages of brachytherapy
• Can cause a burning sensation whilst urinating and this may last for some time
• Causes perineal (area between scrotum and anus) discomfort
• One, and usually two anaesthetics are required
• Erectile dysfunction is a major problem
• Long term effectiveness has still to be evaluated in a large number of men with prostate cancer

Safety and Precautions
After brachytherapy you will have radioactive seeds in your prostate, but the dose of radiation outside your body is very low. The seeds are sealed so that none of the radioactive material can leak out. You should avoid prolonged cuddles with pregnant
women or very young infants, for about 2 months after the seeds are implanted. However, you should not be worried about visiting, or being visited by your family or friends though you should avoid letting young family pets sit in your lap for long periods. This is not a problem if the animal is mature.

**Surgery**

You may opt to have your prostate surgically removed. This can be done laparoscopically/robotically (i.e. keyhole surgery) or via an open procedure (i.e. traditional surgery). The aim of surgery is to take out the cancer, as long as it is contained within the prostate gland, and to stop it spreading to other parts of the body. This is done by removing the whole prostate gland and the seminal vesicles, which make some of the fluid of semen.

Some surgeons also remove the lymph nodes, which are part of the immune system. They may be removed if there is a risk the cancer has spread there. Your surgeon should discuss this with you before your operation.
What are the benefits and risks of surgery?

The benefits and risks of surgery depend on your age, health and stage of disease. Your surgeon should discuss your individual situation and options with you.

Benefits

- You may be cured if the cancer is contained within the prostate gland and is completely removed
- You and your doctor will find out exactly how far the cancer has developed

Risks

- Prostate surgery carries the same risks as any major operation such as:
  o bleeding and the need for a blood transfusion
  o injury to nearby tissues and nerves
  o chest infection
  o blood clots in the lower leg that could travel to the lung
  o wound infection
• This operation carries a risk of side effects. See below for more information

• If the cancer has broken out of the prostate gland, it may not be possible to remove all of it and some cancer cells may be left behind. These can be treated at a later date with radiotherapy, hormone therapy or a combination of both if the PSA starts to rise.

**Side-effects** include erectile dysfunction (30-60 men in every 100), incontinence (10-20 men in every 100), no ejaculation (all men) and bladder neck obstruction (5 in 100 men).

8 What are the risks of having an anaesthetic?

If you require a general anaesthetic there are a number of issues that affect the chances of suffering complications, including: age, weight, lifestyle issues and your general state of health. Your anaesthetist and/or your surgeon can give further details. The
information below on risks is provided by the Royal College of Anaesthetists.

- **Very common (1 in 10) and common (1 in 100) side effects**
  - Feeling sick and vomiting after surgery
  - Sore throat
  - Dizziness, blurred vision
  - Headache
  - Itching
  - Aches, pains and backache
  - Pain during injection of drugs
  - Bruising and soreness
  - Confusion or memory loss

- **Uncommon side effects and complications (1 in 1000)**
  - Chest infection
  - Bladder problems
  - Muscle pains
  - Slow breathing (depressed respiration)
  - Damage to teeth, lips or tongue
An existing medical condition getting worse
Awareness (becoming conscious during your operation)

- **Rare (1 in 10,000) or very rare (1 in 100,000 or less)**
  - complications
  - Damage to the eyes
  - Serious allergy to drugs
  - Nerve damage
  - Death
  - Equipment failure

Deaths caused by anaesthesia are very rare, and are usually caused by a combination of four or five complications together. There are probably about five deaths for every million anaesthetics in the UK.
9 What will happen if I do not have cryotherapy treatment?

This depends on the risk category of your disease. High risk categories of prostate cancer usually require some form of treatment. In this case, if you do not have treatment (whether cryotherapy or any other form of treatment) then the risk to you in terms of the cancer progressing is high. Delay in this instance may mean that treatment cannot be given at a later date and it could also mean that there is a risk to your life without any treatment.

Studies have shown that men who are in a low risk group (and some medium risk men) can be safely managed by active surveillance for a number of months to years and if they show signs of progression they can have treatment at that point. In fact, the difference between no treatment and radical prostatectomy is between 0 percent and 5 percent in terms of surgery reducing the chance of dying from prostate cancer over ten years. Many men who choose treatment do not like the thought of having no treatment for cancer, so they choose a form of treatment that they
want. Your doctor will have told you what risk category you are in. If you are unsure please ask your doctor or nurse practitioner or specialist nurse to explain. If you choose not to have prostate cryotherapy other alternative treatments are available (refer to next section above), which the team will go through with you.

10 How should I prepare for prostate cryotherapy?

You will be given an appointment for an assessment with a pre assessment nurse several weeks before your operation. As part of this you will be given instructions as regards what you should bring with you on the day of the operation, whether you should continue taking all your medications as normal, what time you should arrive on the day and for how long you should fast before your arrival. On the actual day of the operation you will be given an enema one to two hours prior to the procedure. This involves putting liquid in your back passage to empty it, which allows us to obtain a clear ultrasound picture during the cryotherapy treatment. The cryotherapy treatment takes approximately two hours under general anaesthetic (this means you will be asleep) and you will be
able to go home the same day providing that there is someone to accompany you on the way home. Occasionally we may ask you to stay overnight if you do not have an escort to take you home or if you have medical problems that necessitate you having to remain in hospital.

11 Asking for your consent

We want to involve you in all the decisions about your care and treatment. If you decide to go ahead with prostate cryotherapy, by law we must ask you to sign a consent form before proceeding with the treatment. This confirms that you agree to have the procedure and understand what it involves. Staff will explain all the risks, benefits and alternatives before they ask you to sign a consent form. If you are unsure about any aspect of your proposed treatment, please don’t hesitate to speak with a senior member of staff again.
12 What happens during a prostate cryotherapy procedure?

During cryotherapy, special needles or probes are passed through the skin in front of the anus (back passage) and behind the scrotum (this area is called the perineum) and placed into the prostate. The surgeon uses ultrasound images of the prostate to confirm that the needles are in the correct position. Argon gas is then circulated through these needles, which makes the needles very cold. The result is that the surrounding prostate tissue freezes and is destroyed. The temperature in and around the prostate is monitored by special needles, which are also inserted at the start of the procedure. During the treatment, a narrow ‘warming’ tube is in place in the urethra (the tube that carries urine from the bladder to the tip of the penis) to prevent it from being damaged by the freezing process. A catheter (a narrow, flexible hollow tube inserted through the penis into the bladder) for urine drainage is left in place for one to two weeks after the procedure. Sometimes we have to place a suprapubic catheter – this is a catheter that is inserted through the skin of your lower abdomen (tummy) directly into the bladder.
13 What should I expect after the procedure?

When you get home from the hospital after the cryotherapy treatment you should, at first, only perform small tasks and take plenty of rest in between. For the first six weeks after cryotherapy you should not lift anything heavier than a full kettle. You should drink at least 1.5 litres (about three pints) of fluid every day – water is best and fruit juice is also acceptable but tea and coffee do not count. This will prevent you from becoming dehydrated and developing a urine infection. Also, you should avoid constipation as this leads to straining. To help with this you will be given a gentle laxative syrup when you leave the hospital, either lactulose or Milpar© (instructions will be provided as regards how much and how often you should take this). The laxative softens the stool (bowel movement) making it easier to pass. As regards the cryotherapy needle puncture sites in the skin in front of your anus (back passage), you should simply aim to keep this area clean and dry (no dressings should be needed in this area once you leave the hospital).
If there are any problems, call our nurse specialist on 0845 155 5000 bleep 2119 or go to the nearest Accident and Emergency Department (Casualty). You should be aware of the following:

- **Urinary catheter** - you will be discharged from hospital with a urinary catheter which will be left in place for one to two weeks after the procedure. You will be given instructions when and where to go to have this catheter removed. Before leaving hospital, the nurses will show you how to empty and change the catheter bag. Once at home the district nurse will visit you to arrange spare catheter bags. The catheter should not cause you any discomfort. Intermittently, you may have the sensation of needing to pass urine. This is normal and should be ignored. Occasionally, the catheter may become blocked. Symptoms include pain in the lower tummy and inability to pass urine. This can be due to debris in the urine which in turn can be caused by a urine infection.

- **Pain** - It is normal to expect some discomfort after your cryotherapy treatment particularly in and around the area that the cryotherapy needles were inserted. You will be provided
with some simple pain killers on discharge from hospital and you can get more from your general practitioner if necessary.

- **Bleeding** – occasionally, there may be slight bleeding from the area in front of your anus (back passage) where the needles or probes used for cryotherapy were inserted (this area is termed the perineum). If this happens, then you can apply a dry dressing. If the bleeding is heavier than slight, contact us or go to the nearest Accident and Emergency Department (Casualty).

- **Urine infection** – occasionally you may develop a urine infection following prostate cryotherapy. Symptoms may include fever, pain around your lower back or lower tummy, or pain on passing urine. If you develop any of these symptoms, you should contact our nurse specialist or contact your general practitioner or go to the nearest Accident and Emergency Department (Casualty).

- **Bruising and swelling of scrotum** – you may develop some bruising in the area that the cryotherapy needles were inserted (perineum) or you may get some swelling of your scrotum after
the procedure. Both of these will settle without any treatment over a couple of months.

You should note that on discharge from the hospital, you will be given an appointment to see your surgical team about six to eight weeks following your prostate cryotherapy. The next appointment will be three months later and the subsequent one six months later. After this you will continue to be seen on a regular basis in our out-patient clinics. We will usually organise an MRI scan of the prostate in six to twelve months depending on what the PSA results show.
14 Where can I get more information?

- Prostate Cancer UK
  Tel: 0800 074 8383
  www.prostatecanceruk.org

- UCLH Macmillan Support and Information Service
  Location: Ground Floor, Huntley Street, London, WC1E 6DH
  Tel: 020 3447 8663
  Email: supportandinformation@uclh.nhs.uk

- Macmillian Cancer Support
  Tel: 0808 808 00 00
  www.macmillan.org.uk

UCL Hospitals cannot accept responsibility for information provided by external organisations.
15 References


16 Contact details

University College London Hospital

Switchboard: 0845 155 5000 or 020 3456 77890

Website: www.uclh.nhs.uk

Clinical Nurse Specialists

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Out of hours, please contact your GP or nearest Accident & Emergency Department
17 How to find us
Space for notes and questions