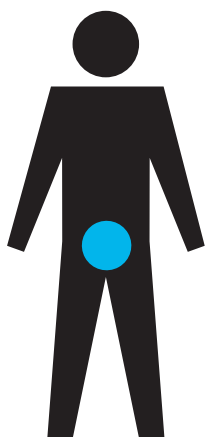




SPOTLIGHT ON

- 1. Low Dose Rate (LDR)
Prostate brachytherapy**
- 2. High Dose Rate (HDR) Prostate
brachytherapy with external
beam radiation (EBRT) and
hormone therapy**



Our aim is to help all those affected by prostate problems whether it is prostate cancer, the benign condition BPE (an enlarging prostate), or the benign disease prostatitis. It is anticipated that most of our information will be suitable, relevant and helpful for men and those born biologically male who still have a prostate. However, there might be times when your health care (such as appointments and treatment(s)) may be slightly different from our information. Our information will not be as applicable for those men not born with a prostate. Most of our publications will use the term 'you' but there may be times that we will have to use the term male.

It might be helpful if you are comfortable and willing to make your healthcare team aware of your gender identity so that they can provide the most relevant information and appropriate health care for you.

About your prostate

Only men and those born biologically male have a prostate. The prostate starts out about the size of a pea then slowly grows reaching the size of a walnut when they are in their 20s. Around the age of 40, it starts to grow or enlarge again, and this may cause them problems when passing urine.

The prostate is found inside the pelvis, just below the bladder and in front of the back passage. It wraps around the tube, called the urethra, which allows urine to flow out of the bladder and for some semen to pass out through the penis. Therefore, the prostate can't be seen or checked from outside the body.

It supplies a thick, clear fluid that mixes with sperm to form semen, called the ejaculate. This fluid helps to nourish and protect sperm during intercourse. The prostate also makes Prostate Specific Antigen or PSA which is a protein that makes semen more fluid and so helps sperm to move more easily.

About prostate cancer

Prostate cancer happens when the cells in the prostate develop abnormalities, multiply and grow faster than normal. This causes a growth or a tumour. As the prostate is inside the body this growth can't be seen and often causes no symptoms in the early stages.

Please read this introduction to know which section is relevant for you

This booklet is to help you, your partner, your spouse and your family understand more about prostate brachytherapy and help you get ready for your treatment.

There are **3** sections to the booklet:

- **Section 1** is about **LDR** brachytherapy
- **Section 2** is about **HDR** brachytherapy
- **Section 3** signposts you to more information and support services for both LDR and HDR brachytherapy.

Section 1

LDR or low dose rate brachytherapy.

This is suitable for those with **low risk or intermediate risk** prostate cancer. It can be given as a primary treatment which means it is the first treatment given with the intention of curing the prostate cancer.

Brachytherapy is a method of delivering radiotherapy where tiny metal seeds which emit radiation are permanently placed into the prostate, working to kill cancer cells from inside the body. The 'seeds' are placed or implanted throughout the prostate to match the shape and size of the prostate. This is to try to make sure that the radiation reaches all the cancer cells. The seeds remain in the prostate even though they are no longer active.

Information about **LDR** is given from page **5** to page **29**.

Section 2

HDR or high dose rate brachytherapy is suitable for those with **intermediate or high-risk** prostate cancer.

HDR is given in combination with EBRT and hormone therapy. HDR in combination with external beam radiotherapy enables a higher dose of radiation to be delivered to the prostate in a shorter time. This is known as a dose escalation or boost. Combining the 3 treatments HDR, EBRT and hormone therapy will have maximum impact on the cancer cells in the prostate. The HDR pellet is sent through the special needles into the prostate with the pellet only staying there for a short, very specific amount of time. While inside the prostate, the pellet emits high doses of radiation to kill cancer cells in the prostate. After a short time, usually only a few minutes, the pellet is taken back up into the machine. This continues until the pellets in all the needles have been used.

Information about **HDR** is given from page **30** to page **41**

Section 3

More information and support services for both **LDR** and **HDR** brachytherapy. These can be found from page **52-54**

Section 1

LDR Brachytherapy

Introduction

You may just have been told that you have prostate cancer and are now facing the decision on which treatment might suit you best. Whilst this may sound daunting to you at first it has been shown that the more you and your family are involved in helping to make the decision about treatment, the more confident and satisfied you may feel with your treatment choice.

It doesn't mean that you need to make this decision on your own. The urologists, oncologists, clinical nurse specialists (CNS) and others who have been in this same position can give you information, help and support along the way.

Prostate Scotland is currently working on resources to help with treatment decision making. This will include a free to download App and workshop.

To find out when these will be available, please check our website

www.prostatescotland.org.uk/help-and-support-for-you

In this **LDR** section you will find an explanation about what it is, who it's suitable for, what happens and the advantages and drawbacks of this treatment and so can help you decide if this might be the right treatment choice for you.

There are other treatments available but not all of these might be suitable for you in your particular circumstances; Active Surveillance, Radical or Robotic Assisted Laparoscopic Prostatectomy, External Beam Radiotherapy (EBRT).

Your consultant urologist, oncologist or CNS will talk over which treatments may be suitable for you.

What is LDR prostate brachytherapy?

LDR brachytherapy or low-dose rate brachytherapy is sometimes called seed implants or permanent seed implants. **LDR** Brachytherapy is a method of delivering a type of radiotherapy where tiny metal seeds which emit radiation

are very carefully and accurately placed (sometimes called implanted) into the prostate, working to kill cancer cells at the site of the cancer inside your prostate. Because the radiation released doesn't spread more than a few millimetres from each seed, very little radiation reaches other healthy tissues or organs nearby. This helps lessen any potential side-effects.

More about the 'seeds'

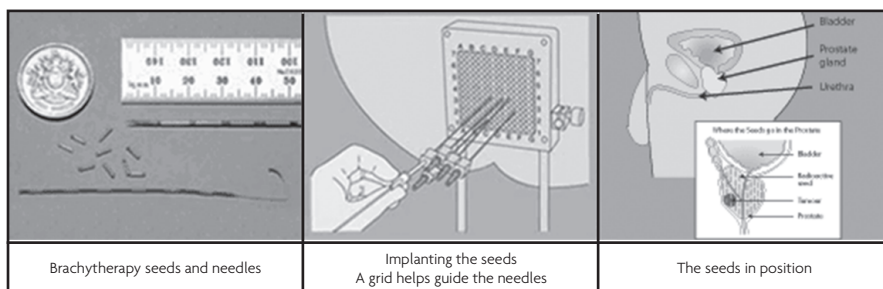


Illustration courtesy of www.prostatebrachytherapyinfo.net

Each seed is about 5mm long and about 0.5mm thick, roughly the size of an uncooked grain of rice. The seed contains a measured amount of radioactive material called Iodine-125 and is similar to a very weak type of x-ray.

Usually, around 60 – 120 seeds will be placed (implanted) into your prostate to match the shape and size of the prostate and where the cancer cells are. Each seed is placed in the prostate to give the best possible dose of radiation to the cancer while reducing the dose to the nearby tissues and organs.

The seeds slowly give off a constant flow of radiation for about 9 months until they are no longer active. To help you picture how they work it's like the ripple you get when you throw a stone into water, radiation spreads out from each tiny seed just like the ripples in the water.

Because the seeds send out low level radiation very little escapes from the prostate or your body, so don't worry, you won't be radioactive. As it won't do you any harm the seeds will be left inside your prostate.

At the present time **LDR** prostate brachytherapy is undertaken in 2 centres in Scotland – Edinburgh and Glasgow. However, **LDR** brachytherapy is available to people across Scotland with prostate cancer who are suitable for and select this treatment option.

Eligible (those who fit certain criteria/conditions) patients will be referred to the **LDR** consultant in Edinburgh or Glasgow by their local hospital urology or oncology team. Patients opting for this treatment should be prepared to travel to Edinburgh or Glasgow.

When might LDR be suggested?

- When the cancer is contained within the prostate and is thought to be low or intermediate risk. (Please see Early Prostate Cancer Explained page 32 for explanation of low/intermediate risk)
- When your Gleason Score is 7 (3+4) or below or Prognostic Grade Group 1, 2. (Please see Early Prostate Cancer Explained pages 28 & 29 for an explanation). There may be a slight variation in selection criteria based on Health Board. Your oncologist will discuss this with you
- When the prostate is measured and is not too bulky (less than 50 cc). Sometimes, hormone treatment is used to shrink prostate glands that are between 50 and 70 cc, so brachytherapy can be used
- For those who are medically fit for treatment
- When the PSA level is below 20 ng/ml
- For men who don't have severe problems when passing urine, in other words have a strong flow of urine
- If you have previously had a Transurethral Resection of the Prostate (TURP) then **LDR** may be a less suitable treatment option for you. The oncologist or CNS responsible for your care will give you more advice on this
- Very occasionally, the prostate is found to be lying behind the pelvic bones. In this case, it won't be possible to implant the seeds, even if the prostate is quite small. The oncologist, urologist or CNS will then talk through other treatment options with you.

*(The information that follows about **LDR** is meant as general guidance. As procedures may vary slightly from hospital to hospital, ask for more advice from staff at the hospital you are attending. If you have been given any specific guidance by the hospital, then it is important that you follow their instructions.)*

Before your implant

Most likely you will have to attend a pre-assessment clinic:

- You may have some blood tests done and your blood pressure checked
- You may have an ECG to check your heart and a chest x-ray to check your lungs
- You may be asked a series of questions to make sure that you are fit enough and suitable to have this type of treatment
- If you normally take aspirin or anti-coagulant drugs to thin your blood such as warfarin, clopidogrel, rivaroxaban, apixaban, edoxaban or dabigatran you may be asked to stop these about 5-7 days before your seed implant as these may increase bleeding in your prostate. Always check with your oncologist or CNS before stopping these pills. They will give you clear advice on when to stop taking your particular anti-coagulant pill
- Remember to let the nurse at the pre-assessment clinic know about any medication that you take such as medicines that are prescribed for another condition, over-the-counter medicines that you buy or any herbal medications/supplements that you take. It may be helpful to make a list of all medicines that you take together with the dose and give this to someone from the oncology team
- Also let staff know of any allergies that you have to medicines or plasters
- More will be explained to you about **LDR** along with the advantages and drawbacks of the treatment
- Once you are happy to go ahead with **LDR**, you will be asked to sign a consent form.

What happens?

The amount of radiation, and the effect it has on the cancer cells, is decided by the number of seeds implanted (put) into the prostate and by getting them into exactly the right place. The number of seeds and where they are placed will vary from patient to patient.

LDR is usually done in two stages.

In **Edinburgh** the 2 stages are done on the same day using a single general anaesthetic.

In **Glasgow** the 2 stages are done separately a few weeks apart with a general anaesthetic at each stage.

Stage 1

You may be given an enema to clear your bowel. You will also have a urinary catheter put into your bladder after you have had the general anaesthetic.

The planning stage

- Measures the size and shape of the prostate, and you may hear this called your prostate volume
- This stage makes sure that your prostate is not too large for the implant to go ahead. The position of your prostate is checked to make sure that it's not lying behind the bones in your pelvis.

Edinburgh and **Glasgow** use different ways to measure the prostate volume.

In **Edinburgh**, volume is measured using the information from the diagnostic MRI scan and an ultrasound scan is still sometimes repeated.

In **Glasgow**, the measurement is taken during a transrectal ultrasound scan while you are under general anaesthetic.

The team looking after you will explain how they measure your prostate volume.

This information helps the specialist team work out a plan of how many seeds to use and where to put them, so the plan is made to suit the individual.

Stage 2

Seed implants.

In **Edinburgh**, you will usually be admitted to the ward and go to theatre on the same day to have your seed implants done.

In **Glasgow**, you will receive a letter arranging for you to go back into the ward then theatre for your implant. This is usually between 2 to 6 weeks after your planning stage.

Because you need to have your bowel empty for the operation you will most likely be given an enema prior to the brachytherapy.

Before your operation is due to take place, it's usual for you to be asked not to eat any food for around 8 hours. However, if you have been given specific instructions on eating and drinking by your oncology team, then please follow their guidance.

You can have clear fluids to drink up to 2 hours before your implant is due to go ahead. Clear fluids include:

- Water – tap water, still bottled water including flavoured water
- Black tea or coffee (no milk) or fruit tea
- Diluting squash
- Apple juice not cloudy (no fresh orange juice)
- Ice cubes.

Will I have an anaesthetic before the implant?

Yes. You will usually have a general anaesthetic (where you will be asleep) and the operation generally takes about 1-2 hours. Very occasionally, a spinal anaesthetic may be used instead of a general anaesthetic.

How is the implant done?

- An ultrasound probe will be passed into your back passage to enable the oncologist to see exactly where each needle is going
- A urinary catheter is placed into your bladder

- The seeds are loaded into about 20-35 very fine, hollow needles
- To make sure the needles reach the correct area of the prostate, a metal grid or template which has a very regular pattern of holes is placed in front of the perineum. (The perineum is the skin behind your scrotum and in front of the back passage)
- The needles containing the seeds are inserted through the grid and perineum into the target areas in the prostate
- When the oncologist confirms that all the needles are in the correct position to accurately target the tumour(s), the seeds are pushed out of the needles into the prostate then the needles are withdrawn. Usually between 60-120 seeds are passed through the needles, as stranded seeds joined together and occasionally as loose single seeds
- The seeds stay in the prostate slowly giving out radiation for about 9 months until they are no longer radioactive. The seeds remain in the prostate permanently.

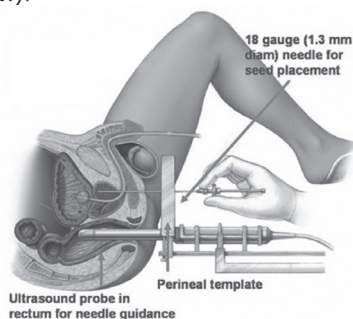


Illustration courtesy of www.prostatebrachytherapyinfo.net

What happens after the procedure is done?

Once you're back on the ward, you'll perhaps get something light to eat and something to drink.

The staff will want you to get dressed and up on your feet soon afterwards. The catheter will most likely be removed once you are settled on the ward. Those who don't have too far to travel will go home on the same day as their implant. Others will most likely go home the following day.

Usually, you'll be given a medicine called an alpha blocker, most likely Tamsulosin, to help you pass urine. This may start on the ward, or you may have to start taking it once you get home.

Just after the implant, when you need to pee, you will be asked to use a urine bottle or a commode rather than the toilet. Although it's not very common, a seed(s) may pass out in your urine, but this is nothing to worry about. If it happens, don't empty your urine down the toilet and don't touch the seed, just let the staff on the ward know.

Although unlikely, you may find a seed in your underwear. If this happens when you get home, don't pick it up with your fingers. Use a pair of tweezers or a small spoon wrap up the seed in aluminium foil and throw in the dustbin.

Will I have to stay in hospital?

You may have to stay in hospital overnight or in some hospitals you may be discharged on the day you had your implant done. Ask the CNS or oncologist what usually happens in the hospital you are attending. It's a good idea to wear some loose-fitting trousers/joggers for going home so that you feel comfortable.

Will I go home with a catheter?

Usually, the catheter will be taken out after you are settled in the ward and before you go home.

However, for a very small number of people (around 5 in every 100) who are having problems passing urine they may go home with the catheter still in place. In this case, you will usually have the catheter for around 4 weeks.

Are there any potential side-effects after LDR?

Side-effects vary from person to person so you may possibly not have all of these, and it varies as to how much any of these will affect you. If you are concerned about any of the side-effects that you are experiencing then get in touch with your CNS, someone from the oncology team or your GP.

Discomfort:

Any discomfort is usually for just a short time and is caused by the needles going through the perineum into your prostate. You may be given a painkiller to help with this. For the first 2-3 days, you may find it tender over your bottom when you sit down. You'll most likely have some bruising and tenderness underneath your scrotum and possibly going down your thighs, but this should disappear within a week or so. A warm bath may help ease any discomfort.

Passing urine:

Don't be alarmed if you see traces of blood in your urine for several days after your treatment – this is quite normal. It's beneficial to drink at least 2 litres of fluid every day especially in the first few weeks, as this helps to flush out the bladder and reduce the risk of any blood clots from forming in the bladder.

You may find some discomfort or pain or have a burning feeling when passing urine.

You may also notice that you have a slow stream when passing urine and need to pass small amounts of urine much more often. Sometimes it helps to sit down to pass urine rather than standing up. These symptoms usually settle after about 10-12 weeks, occasionally taking up to 6-12 months.

You may notice that you need to pass urine more urgently than before.

Only rarely will you have a catheter.

Difficulties with erections:

As with most treatments for prostate cancer, some may find increased difficulty in getting and keeping an erection. If this is the case, let your CNS or oncologist know as there are treatments available to help.

- It's quite usual to find that the first few times you ejaculate it is slightly painful

- You may notice that the ejaculate is a different colour, stained dark brown or red, because of bleeding in the prostate. This should go back to normal in a few weeks
- Because the prostate produces fluid that is part of semen, after your treatment, you might notice a reduction in the amount of fluid when you ejaculate – this is quite normal. Over time you may find that you don't produce any ejaculate
- For the first 2-3 months (or for 6 ejaculations) you should use a condom during intercourse just in case you pass a seed
- You should double wrap condoms before putting in the bin.

Bleeding from your bottom:

After brachytherapy it is very rare to pass blood from your bottom, but it can sometimes happen. If it continues then you should make your CNS or someone from the oncology team aware as this may need to be investigated.

Possible risks of procedures under general anaesthetic

Your oncologist will most likely discuss these with you before you sign the consent form.

Possible complications	Prevention/notes
FORMATION OF BLOOD CLOTS Possible results: deep vein thrombosis of the leg (DVT), pulmonary embolus or PE (a clot in the lung), stroke.	Compression stockings and compression system used at time of implant. Early mobilisation (getting up on your feet) back on the ward. Very rare complication.
PROBLEMS ARISING FROM POSITIONING Possible results: skin irritation or damage pressure sores, nerve damage (with associated muscle weakness)	Careful cushioning of the legs on the leg supports. Very rare complication.
SKIN DAMAGE Arising from allergic reaction to the disinfectant, sterile gowns (used during the procedure).	Very rare complication.

Possible complications	Prevention/notes
BLEEDING/HAEMATOMA The prostate receives a high blood flow with the result of a risk of bleeding during the procedure.	Some bruising is common, possibly going down your thighs but this should disappear within a week or two. Blood loss is generally under 30mls (30mls = about 2 tablespoons). Transfusion or further intervention is extremely rare.

Specific risks from LDR

Your oncologist will most likely discuss these with you before you sign the consent form.

Possible complications	Prevention/notes
URINARY RETENTION Inability to pass urine following the procedure Urinary retention can occur in 5% of people treated.	Treatment would be a urinary catheter for around 4 weeks. Very rarely required for longer and can be changed to a supra pubic catheter. Medication (Tamsulosin) will reduce the risk of retention and is given routinely after the procedure. (A supra pubic catheter means that a small cut is made just below your tummy button and the catheter is put into the bladder through this cut).
URINARY INFECTION Post treatment infection.	Antibiotics will be given while you're in theatre and sometimes for 10 days after you go home. This may vary from hospital to hospital.
URETHRAL STRICTURE Narrowing of the urethra making passing urine difficult.	Quite uncommon but can occur even a few years after treatment and requires stretching/ dilating the urethra under a general anaesthetic and sometimes subsequent intermittent passing of a small dilating tube down the urethra to keep it open.

Possible complications	Prevention/notes
CYSTITIS/FREQUENCY/URGENCY Botherome urinary symptoms.	Quite common until all the radiation has been delivered. It can be treated with a high fluid intake, drinking water might be best. Replacing drinks that contain caffeine such as tea, coffee with caffeine free alternatives. Energy drinks and shots have caffeine added to them. Cranberry juice might be helpful but shouldn't be drank if you're on warfarin. Simple pain killers may help. Ask your pharmacist if unsure what to take.
ERECTILE DYSFUNCTION (IMPOTENCE) Inability to get erections.	This can occur a number of years after treatment. Various types of treatment are available and are often helpful.
INFERTILITY Ejaculate is reduced or may dry up completely due to a reduction/absence of seminal fluid production from the prostate.	Infertility is not 100% therefore contraception is required if partner is of child bearing age.
DIARRHOEA/PROCTITIS Botherome bowel symptoms. (Proctitis is inflammation of the lining of the rectum.)	5% of people may notice this until the radiation has all been delivered and can be treated with Fybogel or Proctosedyl as required.
RECTAL FISTULA A hole in the rectal wall.	Very rare complication indeed less than one person per 1000 treated where the radiation causes a hole in the rectum requiring surgical repair.
FATIGUE Excessive tiredness.	25% of people report increased fatigue for up to 12 months before full recovery.
EMBOLISATION OF SEED TO LUNGS Passage of a seed in the veins to the lungs.	This can occur if a single loose seed is placed in a small blood vessel in the prostate and is carried to the lungs. Seeds in a strand may be used to reduce this risk. It is extremely rare and if it were to occur does not generally cause any concerns.

Possible complications	Prevention/notes
LATE COMPLICATIONS OF RADIATION These are rare events that can happen from 6 months onwards after completion of treatment.	Blood in the urine or back passage can occur due to tearing of delicate blood vessels called telangiectasia which can form following radiation treatment (less than 5%). Usually mild and intermittent but may require cauterisation (sealing) in the bladder or laser cauterisation if in the rectum.
RADIATION INDUCED SECOND CANCER Theoretical risk of radiation to surrounding tissues.	From the evidence there appears to be a very low risk of secondary cancers from brachytherapy on its own and indeed it is very uncommon.

Will I need to take any medicines?

Painkillers

You may need mild painkillers for a day or two after your operation. If you feel any discomfort, you can take simple painkillers, such as paracetamol or ibuprofen to help. It is beneficial for you take enough painkillers (do not take more than the maximum dose stated on the box) to keep you free of pain so you can go about your day with showering, getting dressed or taking some gentle exercise. As the pain or discomfort gets less then you should reduce the number of painkillers that you take. If you are in any doubt about what you can take or how much you can take, ask the nurses on the ward, CNS, oncologist, GP or your local pharmacist.

Antibiotics

Sometimes, after you get home, you will be asked to take antibiotic tablets for 10 days. If you are given these, remember to take all the tablets as labelled on the box. Your nurse on the ward, CNS or oncologist will let you know if you need to take antibiotics once you get home.

Alpha blockers or relaxers

The blocker/relaxer generally used is Tamsulosin.

This medicine relaxes the muscle around the urethra (waterpipe) to help make it easier for you to pass urine. It will most likely be started just after your operation and you may be advised to take it for anything from 3–6

months until your symptoms settle down. A small supply of alpha blockers will most likely be given to you when you are discharged from the ward. Your GP will continue to prescribe Tamsulosin until it is no longer needed.

Anti-inflammatory painkillers

For a few months you may be given Ibuprofen or Diclofenac to help with inflammation and the burning feeling you may have when passing urine.

Getting home

Activity

It's quite normal to feel a bit tired.

- For the first few days, you shouldn't do any heavy lifting or strenuous exercise
- After a few days you can probably go back to your normal day-to-day activities
- You can probably go back to work a few days afterwards as you usually recover quite quickly. If your job involves a lot of physical activity it might take slightly longer
- You shouldn't drive for 24 hours after a general anaesthetic. In fact, it may be best to wait for a few days to a week before driving after the implant to make you sure you feel comfortable. You must be able to do an emergency stop should that be necessary
- You can start cycling again when any tenderness or bruising has settled. It's important to keep hydrated. If cycling causes urinary irritation hold-off for a few more weeks before trying again.

Drinking

Drinking about 8-10 glasses of water each day helps flush out the bladder and so helps reduce the risk of blood clots. Having a glass of cranberry juice each day may help reduce the risk of infection but if you're on Warfarin you shouldn't drink cranberry juice. Caffeine irritates the bladder and can affect how much urine you pass so if having black or green tea or coffee, decaffeinated types are better. Cola type drinks also contain caffeine so try to buy those without caffeine. Remember, too, that some energy drinks or shots contain large amounts of caffeine so it may be better to avoid these for the meantime.

Alcohol

Unless you've been advised not to have alcohol in the past, it's usually fine to have a small amount of alcohol, but it can irritate the lining of the bladder making you pee more often. Ask the CNS or someone from the oncology team if it's safe for you to have a couple of drinks.

Constipation

Keeping your bowel movements regular helps to prevent any discomfort because of the swelling in your prostate or straining. If you find that constipation is a difficulty then include at least 5 portions of fruit and vegetables every day and have wholemeal bread and cereals. If constipation becomes a real difficulty your GP may be able to prescribe something to help or have a word with the pharmacist. Fybogel is often suggested to help keep your bowel movements regular and help with any diarrhoea.

Intimacy

It's quite safe to sleep in the same bed as your partner right after your implant (except if she's pregnant) although you are advised not to have sexual intercourse for at least a week. You will notice that your ejaculate may well be discoloured, possibly dark red or brown because of bleeding during the operation. Because there is the very slight chance of a seed being passed into the ejaculate, you should use a condom for at least the first 2-3 months (or 6 ejaculations) during intercourse. If your partner is pregnant and you have sexual intercourse then you should use a condom for the full pregnancy. To dispose of the condom, twist, tie and double wrap before putting in the bin.

Recent consultations/consensus suggest that if you receive anal sex then you should wait for 6 months before having anal sex to minimise your partners risk of exposure to the radiation.

Checking for seeds

At home, you may be asked to check your urine for a few weeks afterwards to look for any seeds in the toilet bowl which may have passed into your urine. The CNS or oncologist will most likely give you more information

about what to do if you do pass a seed in your urine or if you find one in your underwear. If you happen to pass a seed, it's nothing to worry about but always let someone from the oncology team know when you go back to the clinic. Even if you do lose one or two seeds that shouldn't mean your treatment won't work as well.

Although unlikely, if you do find a seed in your underwear when you get home, don't pick it up with your fingers. Use a pair of tweezers or a small spoon wrap the seed up in aluminium foil and throw in the dustbin.

Antibiotics

Remember to finish the full course of antibiotics if you were given these.

When to get in touch with your GP, CNS or oncology team

Although this doesn't happen very often, if you have any of the following signs then you should get in touch with your GP or NHS 24 as these can be signs of an infection:

- You have a high temperature over 37.5 °
- You feel chilled and are shivering
- You can't pass urine
- Your urine looks cloudy and has a strong, unpleasant smell
- Your urine is very bloody or there are blood clots in your urine
- You have difficulty in passing urine.

Looking after your wound

You will have small, pinhole wounds in your perineum where the special needles went through the skin. You will most likely have had a dressing over these at first.

If you notice that:

- The skin around the area looks red and angry
- The area feels hot to touch compared with the rest of your skin
- The area seems swollen
- There seems to be a bad/unpleasant smell from the area

- There seems to be pus or fluid in your underpants or dressing from the wound.

These may be a sign that the small wounds have developed an infection. You should get in touch with your GP, CNS, the ward where you had your procedure or go to an A&E department.

Your PSA after LDR

Very importantly you will want to know if your treatment has worked so you will have regular PSA tests.

In Edinburgh	In Glasgow
YEAR 1 PSA every 3 months in clinic	YEAR 1 PSA every 3 months
YEAR 2&3 PSA every 4-6 months in clinic	YEARS 2-5 PSA every 6 months
At the end of year 3, postal follow-up will continue every 6 months	

After LDR, your PSA will fall slowly, and it may take up to 2 years or slightly longer to fall to its lowest level called the nadir.

Spike or bounce in your PSA level

Occasionally at around 2 years (or possibly sooner) your PSA may 'bounce' or 'spike' (meaning the PSA level increases). This doesn't necessarily mean that your treatment isn't working, and your CNS or oncologist will most likely want to chat over why this might happen. However, if your PSA level keeps on rising over the course of a year, this may be due to the cancer recurring and your oncologist or CNS will talk this over with you.

Safety and your seed implants

Contact with others

You may worry that because of your LDR you expose your partner, family and friends to radiation or if something might happen to them because of your implants. As most of the radiation remains within your prostate it won't be transmitted and so this shouldn't be a problem. It may be reassuring to know that you won't be 'radioactive' so it won't affect the things that you touch or come into contact with and your urine, blood, sweat, saliva or motions won't be radioactive either.

To be on the safe side for the first 3 months after implant:

- It's recommended that you don't sit children or babies in your lap for long periods of time or sit very close to them. There's no harm in giving them a quick hug or cuddle
- Women who are or may be pregnant shouldn't sit beside or be too close to you for long periods of time.

Your LDR Brachytherapy Information Card (BIC card)

After your implant you will be given or sent an information card to carry. Always carry the card with you. The card gives other doctors and nurses who may be treating you essential information that they need to know to keep them safe. You, the CNS or someone from the oncology team should fill in any blanks on the card with the information about your treatment. If you're not given a card, it's a good idea to ask for one.

Your BIC card from the Beatson or Western General Hospital may include slightly different information and be written in a slightly different way from the sample information given overleaf. Please use the card that you have been given by your hospital.

- i. The name and address of the hospital where you had your treatment
- ii. Telephone numbers and possibly names of staff at the hospital where you were treated who may be contacted if further information is required
- iii. Your name and date of birth may be on the card
- iv. Why you had the treatment and the type of implant you were given e.g. the number of permanent radioactive iodine-125 seeds that were placed in your prostate
- v. The date the seeds were implanted
- vi. Safe date. The date that you no longer need to carry the card i.e. when the seeds will no longer be radioactive. For example, this means it will be a safe for medical staff to carry out planned pelvic surgery without additional precautions
- vii. Where the card should be returned in the event that you lose the card
- viii. It will state that you should show this card to any health care professional who is treating you.

Things to remember about your LDR Brachytherapy Information Card with regard to treatment for other medical conditions, security monitors and eventual disposal of the card.

- Please let your partner, family member or friend know about the card in case you become ill and need to be treated as an emergency
- If you pass away from another illness or in some other emergency situation so your partner, family or friends can let people know about the implants
- Remind your GP when they are referring you to hospital for treatment of another illness to include in your referral letter that you have had LDR brachytherapy treatment and when you had it
- At any hospital or GP practice that you attend show the medical team your information card. If you have to go to hospital or see different doctors or nurses about another medical condition, especially in the first 20 months

after your implant, then you should always let them know that you have had LDR treatment to your prostate. Showing them your brachytherapy information card is essential. If you're having any further surgical treatment to your prostate or around your pelvis you should let the surgical team know, even though your LDR treatment will most likely be in your case notes

- If you pass away for any reason within the first 20 months of having your implants, then your family should be aware that you would have to be buried and not cremated. This is because at high temperatures radiation could be released and would be harmful to funeral workers. Hospital staff who carry out post-mortems also need to know that you've had LDR brachytherapy so it's essential that your family let these people know about your treatment. Then if they're unsure they will be able to contact hospital staff for more information and advice.

Security monitors

- It's essential to carry your BIC with you at all times, especially if travelling away from home or going abroad. Some security monitors, such as at airports, are very sensitive and can detect low levels of radiation. To get over this difficulty, you should show your brachytherapy information card which gives details about your seed implants so you can confirm your treatment with security people, and they may wish to contact the hospital for more information. Always carry your BIC with you for the first 20 months after treatment.

Finally

- After twenty months you no longer need to keep the card but please shred or cut up before throwing out.

What advantages and drawbacks are there to think about

Advantages	Drawbacks
Offers cure rates for low and intermediate-risk disease equivalent to surgery and external beam radiation (EBRT).	If there is a local recurrence despite LDR, then salvage (potentially curative) treatment may still be an option. For some people this may be with re-implantation with more seeds (a focal salvage implant). For others, salvage prostatectomy may be a better option. However, salvage prostatectomy requires an experienced surgeon and specialist referral as it is not as often performed and carries a risk of incontinence, impotence and possible rectal perforation that may require further surgery. Cryotherapy may be considered for recurrent disease for some people. For other people, continued clinical follow up and the use of intermittent cycles of hormone therapy when required may be more appropriate.
Short procedure under general anaesthetic with short hospital stay and catheter removed on the ward when the person wakes up. Minimal time off work and can continue normal activities soon after.	Some discomfort when the implant is done and for a short period afterwards.
Very low risk of incontinence and reasonable chance of maintaining erections.	Not suitable for all people who have poor urinary functions. Discomfort, frequency and urgency in passing urine for a short time. Rarely retention of urine requiring a catheter. Some difficulties with erections but treatments available as with surgery. Infertility – although it has been known for pregnancies to occur following brachytherapy treatment.

Advantages	Drawbacks
Lower risk of bowel problems than with external beam radiation (EBRT).	From the evidence there appears to be a very low risk of secondary cancers from brachytherapy on its own and indeed it is very uncommon.

with brachytherapy?

Before choosing **LDR**, you may have some questions to ask your oncologist or CNS. A full list of possible questions is given below.

Think about what you would like to know, so perhaps you would need only to ask a few of these, or you may have questions of your own.

- Is **LDR** a suitable option for me to think about?
- Is it available in my area?
- If **LDR** is not available in my area, where would I be referred to and how can I be referred?
- What do you expect the **LDR** to do to the cancer? Could it cure my cancer?
- Would I need to have hormone therapy before **LDR**? If I do, how long will this be for and what are the side-effects of hormone therapy?
- Would I also need to have EBRT?
- Why do you think **LDR** or **LDR** and hormone therapy might be the best option for me?
- Could having **LDR** make me feel worse?
- Can you explain what the risks and side-effects are likely to be? Are these likely to affect me in the short term or are they more likely to be longer term?
- Because of the radiation, will it be safe for me to be around pregnant women and children?
- In your unit, after having **LDR** roughly how many people do you find have problems with incontinence, erectile dysfunction and for how long?
- Is there anything I could do to help with the side-effects?
- How does this treatment work?

- How do I have the treatment?
- Are the seeds put into the prostate only where the cancer is or do the seeds cover the whole prostate?
- When would I have the **LDR**?
- Where would I have the treatment?
- How many times would I be in hospital and for how long?
- When and how will we know whether the **LDR** treatment has been successful? What check-ups would I have and how often would I need check-ups? What would be done at the check-ups – PSA , scan, etc?
- If **LDR** is not successful then what would my options be?
- Are there other suitable treatment choices that I could think about?
- Why would **LDR** be better for me than a radical prostatectomy or EBRT?
- What is the outlook for me?
- Is there someone that I can talk to about **LDR** who has already had this treatment?
- What happens if I go through airport security with these seeds in my prostate?

Why might I have to have hormone therapy before LDR brachytherapy?

Some people may need hormone treatment before **LDR**. If your prostate is too large for the seed implant, your oncologist may decide to give you hormone treatment for around 3 months to shrink your prostate prior to your **LDR**.

What is hormone therapy?

The aim of hormone therapy is to reduce the amount of testosterone. Without testosterone prostate cells, including prostate cancer cells, shrink or grow more slowly. Hormone treatment can be given in two ways, by an injection or taking tablets. At the beginning, you will often have both.

Tablets

By taking a tablet, testosterone can be blocked from getting into the cancer cells. This may be given for a week or two before starting injections and may be continued for a week or so after your injections have started.

By injection

Testosterone production is 'switched off' by having an injection. The site (where on your body) and how often you are likely to have the injection will vary according to individual circumstances. Injections might be given once every 4 weeks or every 12 weeks. You will most likely be given the injection by your GP or practice nurse at your local clinic.

What are the potential side-effects of hormone treatment?

Side-effects vary from person to person and can be similar to those experienced by women going through the menopause. Although you might not have all of those, the most common side-effects are:

- Hot flushes of your face and neck and sweating
- Tiredness and lack of energy
- Not being able to get and keep an erection
- Lack of sexual desire (you may hear this called loss of libido)
- Mood swings – feeling upset or depressed
- Swelling and tenderness around the breast area
- Longer term effects, can include some weight gain especially around your tummy area
- A potential impact on bone density and bone health particularly with the injections. This is called Osteoporosis or bone thinning.

These side-effects should gradually reduce when hormone treatment is stopped.

Heart problems

When your testosterone level drops, your blood pressure and cholesterol level may increase. Some studies suggest that this may put the person at greater risk of developing heart problems. The longer you are on hormone therapy the greater the risk of developing heart disease becomes. The team looking after you will respond to any concerns that might arise.

It may be helpful to think about some healthy lifestyle changes such as stopping smoking, not drinking more alcohol than the healthy guideline limits, having a well-balanced diet and taking exercise.

Ask your oncologist or CNS if it may be necessary for you to have hormone therapy. For more information about hormone therapy, Prostate Scotland has a booklet 'Spotlight on hormone therapy for prostate cancer' which can be downloaded from our website or call us and a copy can be sent to you.

How long might I be on hormone therapy?

After about 3 months your prostate volume (the shape and size of your prostate) will be measured to check if the prostate has shrunk enough to allow the implant to go ahead.

For further information about hormone therapy see our Spotlight on Hormone Therapy booklet.

This is to be found at:

**[www.prostatescotland.org.uk/wp-content/uploads resources/
Hormone Therapy-for-Prostate-Cancer.pdf](http://www.prostatescotland.org.uk/wp-content/uploads/resources/Hormone%20Therapy-for-Prostate-Cancer.pdf)** or give us a call on **0131 603 8660**

or email us at **info@prostatescotland.org.uk** to order a printed copy.

Section 2

High Dose Rate (HDR) brachytherapy

This is sometimes known as temporary implants.
This treatment involves:

HDR prostate brachytherapy (will be referred to as HDR in this section)
External beam radiotherapy (will be referred to as EBRT in this section)
Hormone therapy

Please note HDR is a completely different treatment from **Low Dose Rate (LDR) Brachytherapy** which is covered from page 5 to page 29.

Introduction

This section is to help you, your partner and your family understand more about **HDR** and help you get ready for your treatment. The information is only relevant for/should be read by those who have been offered **HDR** treatment. The section gives information on what it is, who it's suitable for, what happens and the potential side-effects of **HDR** and so may help you chat over this treatment with your consultant oncologist or clinical nurse specialist (CNS).

HDR or high dose rate brachytherapy is suitable for people with intermediate or high-risk prostate cancer.

HDR is given in combination with EBRT and hormone therapy. **HDR** in combination with external beam radiotherapy enables a higher dose of radiation to be delivered to the prostate in a shorter time. This is known as a dose escalation or boost. Combining the 3 treatments **HDR**, EBRT and hormone will have maximum impact on the cancer cells in the prostate. The **HDR** pellet is sent through the special needles into the prostate with the pellet only staying there for a short, very specific amount of time.

While inside the prostate, the pellet emits high doses of radiation to kill cancer cells in the prostate. After a short time, usually only a few minutes, the pellet is taken back up into the machine. This continues until the pellets in all the needles have been used.

A brief explanation about each individual treatment.

Your treatment plan will most likely look a bit like this:

1. A hormone tablet to take twice a day
2. Hormone injections
3. EBRT before HDR
4. HDR brachytherapy
5. Hormone injections usually every 3 months for 12-24 months.

Treatment	Brief explanation
HDR	<p>HDR involves putting specially designed, flexible needles into the prostate. These are called HDR catheters. A small pellet of Iridium-192 is loaded into the HDR catheters by a computer-controlled machine. The pellet is sent through the HDR catheters into the prostate only staying there for a short, very specific amount of time. While inside the prostate, the Iridium-192 pellet emits high doses of radiation to kill cancer cells in the prostate.</p> <p>After a short time, usually only a few minutes, the pellet is taken back up into the machine.</p> <p>You will have one HDR treatment usually 1-2 weeks after your EBRT treatment. Your oncologist will talk to you about the order that you will have your treatment.</p> <p>You may hear your oncologist calling this a 'dose escalation' or 'dose boost'.</p>
EBRT	<p>This involves using high energy X-ray beams. The X-ray beams are produced by a special machine called a Linear Accelerator from outside your body. This machine delivers very accurately focused X-ray beams to the prostate to kill cancer cells in your prostate. You will have an individual plan for your EBRT treatment.</p> <p>Your EBRT will most likely be given before your HDR.</p> <p>Although a brief explanation about EBRT will be given in this section, you can read more about it in our guide 'Spotlight on external beam radiotherapy'.</p>

Treatment	Brief explanation
Hormone Therapy	As testosterone fuels or feeds the growth of prostate cancer the aim of hormone therapy is to remove as much of this testosterone as possible. By reducing the amount of testosterone, cancer cells wherever they are in the body, shrink or don't grow as fast. This can reduce the growth and extent of the tumour.

All 3 treatments are used at varying times which may help the treatment to be more successful. However, as each treatment can cause side-effects the risk of having more side-effects can increase. Your oncologist or CNS will explain more about this type of combination treatment, and you can ask any questions.

Where is this treatment available?

At the time of writing (February 2022) HDR is available to those living in the SCAN network area that is NHS Fife, NHS Borders, NHS Lothian and NHS Dumfries and Galloway. Eligible (those who fit certain criteria/conditions) patients who are interested in having HDR and don't live in these areas should discuss the possibility of having this treatment with their consultant oncologist.

Who is this treatment most suitable for?

People who might benefit from this treatment:

- i. **Have intermediate or high-risk prostate cancer that is still inside the prostate**
- ii. **Have a prognostic grade group of 3 or more or a Gleason score of 7 (4+3) or more**
- iii. **Have a PSA of \leq 50ng/ml**
- iv. **When measured, the prostate is not too bulky (less than 70 cc)**
- v. **Those who are medically fit to have a spinal anaesthetic**
- vi. **Those who have not had a trans-urethral resection of the prostate (TURP). If you have had a TURP, your oncologist will talk over what this might mean for you**
- vii. **For people who don't have severe problems when passing urine, in other words have a strong flow of urine when they pee.**

Before your HDR treatment

Most likely you will have to attend a pre-assessment clinic where you may undergo some tests, find out more about the treatment and sign a consent form to say you will go ahead with the combination treatment. For more information about what may happen at the pre-assessment clinic, please see page **8** in this booklet.

Preparation before HDR

Fasting

Before your operation it's important to have an empty stomach. You may be asked to fast (not eat any food) for around 8 hours before your operation. You can have only clear fluids up to 2 hours before your operation. For more information on what you can and can't do please see page **10** in this booklet.

On the morning of your operation

It's easier for the oncology team if your bowel is empty so that they have clear images of your prostate. You will most likely be given an enema prior to HDR. An enema is a special liquid that is put into your back passage that works to clear the lower part of your bowel.

Stages of HDR

HDR is usually done in two stages.

These are:

- i.** Insertion of **HDR** catheters
- ii.** Treatment stage.

i. Insertion of HDR catheters:

Your anaesthetic

- 1.** The anaesthetist will talk to you about the anaesthetic. The anaesthetic is to help stop you feeling any pain when the special needles go through the perineum (skin between your scrotum and back passage) into your prostate
- 2.** To help you relax and possibly feel a bit drowsy, you might be given a sedative as well as an anaesthetic

3. You will have a small flexible tube called a catheter passed into your bladder to drain urine
4. A small ultrasound probe, about the size of a thumb will be put into your back passage. This will give the oncology team clear pictures of your prostate
5. You will have a special needle attached to a tube (called an IV line) in your arm that will give you fluids, an antibiotic, possibly pain killers or medicine to stop you feeling sick while you're in theatre
6. You will most likely have had to put on special TED stockings that are like long white socks. These help reduce the risk of having a deep vein thrombosis or DVT by increasing blood flow in your legs.

In theatre after your spinal anaesthetic

1. To make sure the special needles (called HDR catheters) reach and focus on the correct area of the prostate, a grid or template is held in place in front of the perineum. (The perineum is the skin behind your scrotum and in front of the back passage). The grid has a very regular pattern of small holes
2. The oncologist inserts around 16-20 **HDR** catheters through the small holes in the grid. The ultrasound probe in your back passage gives the oncology team clear pictures to guide the **HDR** catheters. This procedure usually lasts 90 min
3. Once the catheters are in place, you will move from theatre to CT scan for radiation planning
4. Patients are checked/monitored in the radiotherapy recovery room after this planning scan
5. The oncologists will plan your treatment.

ii. Treatment stage

Using all the information gathered about your prostate and prostate cancer, the oncology team will carefully work out a plan for your **HDR**. The amount of radiation, and the effect it has on the cancer cells, is decided by the amount of Iridium-192 used, having the needles in exactly the right place and working out how much time each iridium pellet will be sent into your prostate. This will vary from patient to patient.

How is the treatment done?

- You will need to lie flat on your back for the full procedure
- You may have special supports placed under or around you to keep your body very still while the radiation treatment is given
- Tubes from a special computer-controlled machine are attached to the HDR catheters which are inside your prostate. This machine contains the radioactive pellets
- Once it's confirmed that everything is ready, the oncology team will need to leave the room while you have your treatment but will be able to see you at all times
- The machine will automatically pass a pellet down each tube and into each needle in turn. The amount of time each pellet will be in the prostate will have been very carefully calculated to give you the exact dose of radiation for your particular circumstances
- Once all the radiation has been delivered and pellets returned to the machine, the oncology team can return to the room
- The tubes from the machine are disconnected from the **HDR** catheters. Then the **HDR** catheters are taken out. No radioactive source stays inside your prostate
- A dressing will be put over your perineum.

It will take around 20-30 minutes for the radiation to be delivered.

Will I have an anaesthetic?

Yes. You will usually have a spinal anaesthetic, where you will be numb from the waist down and as explained before you may also be given a sedative to make you relaxed and drowsy. Very occasionally, you might be offered a general anaesthetic which means you will be fully asleep.

What happens after the procedure is done?

Once you're back on the ward, you'll perhaps get something light to eat and something to drink.

The staff will want you to get dressed and up on your feet soon afterwards.

The catheter may be removed once you are settled in the ward, or it may be taken out the following day before you go home. It's important that you are able to pass urine before you go home.

Will I have to take any medicines when I get home?

Painkillers

You may need mild painkillers for a day or two after your operation. If you feel any discomfort, you can take simple painkillers, such as paracetamol or ibuprofen to help. It is beneficial for you take enough painkillers (do not take more than the maximum dose stated on the box) to keep you free of pain so you can go about your day with showering, getting dressed or taking some gentle exercise. As the pain or discomfort gets less then you should reduce the number of painkillers that you take. If you are in any doubt about what you can take or how much you can take, ask the nurses on the ward, CNS, oncologist, GP or your local pharmacist.

Alpha blockers or relaxers

The blocker/relaxer generally used is Tamsulosin.

This medicine relaxes the muscle around the urethra (waterpipe) to help make it easier for you to pass urine. It will most likely be started just after your operation and you may be advised to take it for anything from 3-6 months until your symptoms settle down. A small supply of alpha blockers will most likely be given to you when you are discharged from the ward. Your GP will continue to prescribe Tamsulosin until it is no longer needed.

Antibiotics

Sometimes, after you get home, you will be asked to take antibiotic tablets for 10 days. If you are given these, remember to take all the tablets as labelled on the box.

Your nurse on the ward, CNS or oncologist will let you know if you need to take antibiotics once you get home.

Will I have to stay in hospital?

You will most likely have to stay in hospital overnight or you may be discharged on the day you had the procedure. The ward staff, CNS or oncologist will let

you know when you are likely to get home. It's important that you are able to pass urine before you go home. To feel comfortable for going home, it's a good idea to wear some loose-fitting trousers/joggers.

Will I go home with a catheter?

Usually, the catheter will be taken out after you are settled in the ward and before you go home.

However, a very small number of people (around 5 in every 100) who are having problems passing urine may go home with the catheter still in place. In this case, you will usually have the catheter for around 4 weeks.

Are there any potential side-effects for HDR?

Side-effects vary from person to person so you may possibly not have all of these, and it varies as to how much any of these will affect you. If you are concerned about any of the side-effects that you have then get in touch with your CNS, someone from the oncology team or your GP.

Just after your **HDR** you may:

- Have some bruising or feeling a bit sore or tender between your legs
- Have some discomfort when passing urine
- Need to pee more often and urgently
- See some blood in urine or semen
- Have some difficulties with erections
- Have some difficulties with passing motions.

Problems with passing urine, bowel difficulties and erection problems may settle within 6-12 months of having **HDR**.

However, as your treatment combines **HDR** with EBRT and hormone therapy you may have these difficulties for a longer time.

The table on pages **46** to page **51** shows all the potential side-effects from the combination treatment. For more in-depth information on side-effects following EBRT please see our booklet 'Spotlight on External Beam Radiotherapy' from page **14** to page **19**. For side effects of hormone therapy

there is more information in 'Spotlight on Hormone Therapy' from Page 7 to page 13.

At your follow-up appointments, your oncologist or CNS will ask about your side-effects. Remember to tell them about any side-effects that are getting worse or any new side-effect(s) that you haven't had before. Prostate Scotland will shortly have a free App available where you can track some of the side-effects of your treatment as well as noting any questions you want to ask your oncologist or CNS at your next appointment.

Once you get home after HDR

- It might help to sit down to pee for about a couple of weeks rather than stand up
- As the HDR catheters went through the perineum you may find riding a bike, using a stationary exercise bike, going on a motorbike, or horse riding may hurt/be uncomfortable initially, so just take it easy at first until it feels comfortable.

If you can't pass urine when you get home

For about 1 in 100 people after HDR urine flow may stop completely so you are not emptying your bladder.

If you:

- Haven't been able to pee for about 4 hours or more
- Can pee but still feel a fullness and discomfort in your bladder or lower back.

You should contact your GP, CNS, the ward where you had your procedure or go to an A&E department. This is called a urinary obstruction and needs to be treated urgently.

If you develop the following symptoms

- You have a high temperature
- A burning feeling when you pee
- Need to pee frequently
- Your urine doesn't smell very nice or looks cloudy

- You feel feverish or have chills
- Your urine has a pink or red colour, and you see blood in your urine.

Although it doesn't happen very often, you may have developed a urine infection. Get in touch with your GP, CNS, pharmacist or the ward where you had your procedure for more advice. You may be prescribed an antibiotic.

Looking after your wound

You will have small, pinhole wounds in your perineum where the HDR catheters went through the skin. You will most likely have had a dressing over these at first.

If you notice that:

- The skin around the area looks red and angry
- The area feels hot to touch compared with the rest of your skin
- The area seems swollen
- There seems to be a bad/unpleasant smell from the area
- There seems to be pus or fluid in your underpants or dressing from the wound.

These may be a sign that the small wounds have developed an infection. You should get in touch with your GP, CNS, the ward where you had your procedure or go to an A&E department.

Pelvic floor exercises (PFE)

To help with any leakages of urine or for some problems with erections, you may be advised to start PFE before your combined HDR treatment starts. After treatment and whenever your catheter is taken out you should be able to start your PFE once again. Ask ward staff, your CNS or oncologist if PFE would be beneficial for you and when you can start these.

For more information on what these are and how to do PFE see our booklet 'Spotlight on Pelvic floor exercises before and after prostate surgery'. There are 2 very helpful films on our website taking you through how to do PFE. In 2022, we shall have a free App available where you can set reminders on when to do PFE.

Drinking

Drinking about 8-10 glasses of water each day helps flush out the bladder and so helps reduce the risk of blood clots. Having a glass of cranberry juice each day may help reduce the risk of infection but if you're on Warfarin you shouldn't drink cranberry juice. Caffeine irritates the bladder and can affect how much urine you pass so if having tea or coffee, decaffeinated types are better. Cola type drinks also contain caffeine so try to buy those without caffeine. Remember, too, that some energy drinks or shots contain large amounts of caffeine so it may be better to avoid these meantime.

Alcohol

Unless you've been advised not to have alcohol in the past, it's usually fine to have a small amount of alcohol, but it can irritate the lining of the bladder making you pee more often. Ask the CNS or someone for the oncology team if it's safe for you to have a couple of drinks.

Constipation

Keeping your bowel movements regular and not straining to pass a motion helps to prevent any discomfort because of the swelling in your prostate. If you find that constipation is a difficulty, then include at least 5 portions of fruit and vegetables every day and have wholemeal bread and cereals. If constipation becomes a real difficulty your GP may be able to prescribe something to help or have a word with the pharmacist. Fybogel is often suggested to help keep your bowel movements regular and help with any diarrhoea.

Intimacy

It's quite safe to sleep in the same bed as your partner right after your HDR. Although you are advised not to have sexual intercourse for at least a week, possibly 2 weeks. You will notice that your ejaculate may well be discoloured, possibly dark red or brown because of bleeding during the operation.

Recent consultations/consensus suggest that you should wait 2 months before having anal sex after **HDR**.

Going back to work

You should be able to go back to work in a few days. If you have a very strenuous job ask the nurses on the ward, your CNS, oncologist or GP when you can go back.

Follow up appointments and check-ups

After **HDR** you will still have regular check-ups with your oncologist or urologist.

When you go to the clinic after **HDR**, let the CNS or someone from the oncology team know of any problems or if you have been having any troublesome side-effects.

After HDR

Year 1	PSA every 3 months in clinic
Year 2&3	PSA every 4-6 months in clinic
At the end of year 3	Postal follow-up will continue every 4-6 months

As **HDR** is a combined treatment with EBRT and hormone therapy, PSA should be undetectable.

Salvage treatment using HDR

Salvage treatment using **HDR** is not available as yet, but it is anticipated that it will be available possibly towards the end of 2022.

It is a different indication for using **HDR**. It means that **HDR** is given to a small area (focal) of cancer recurrence if you had EBRT in the past.

The technique of delivering **HDR** will be the same as the **HDR** information above. It will mean having 2 **HDR** treatments one week apart.

External Beam Radiotherapy (EBRT)

Only a brief explanation of EBRT is given in this section. You will find more information in 'Early prostate cancer explained' pages **68 - 75** or in our booklet

‘Spotlight on External Beam Radiotherapy’ which will give an even more in-depth explanation of EBRT.

Your oncologist will decide whether you will have EBRT a week or so before your HDR.

What is EBRT?

A special machine called a linear accelerator produces high energy x-ray beams which are then very carefully and accurately focused on the prostate. The treatment can also cover a small area around the gland including seminal vesicles, in case the cancer has spread to these areas.

The beam from the linear accelerator is shaped by the use of multi-leaf collimators within the head of the linear accelerator to shape the beam to conform to the target shape. These beams kill the cancer cells inside the prostate.

Before starting radiotherapy, your treatments need to be carefully planned. This is to find out the exact position of your prostate and to make sure the same area(s) are treated each time.

Gold marker (fiducial) seeds/markers will be inserted into your prostate any time prior to or just before the planning scan. These seeds are not radioactive but are used to ensure that the radiotherapy beams are very accurately focused on the prostate and minimise the dose to the bowel or bladder.

You will have a special CT planning scan that takes many detailed pictures of different views inside your body. To make sure the same area is treated every time, the radiographer will mark a number of pinpoint dots on your skin. So these tiny dots won't wash off they will be permanently marked onto your skin. The oncologist will plan your treatment timetable and how much radiation to use – that is the dose of radiation you will have.

For those having EBRT alongside HDR this could be:

15 fractions over 3 weeks. You will have to attend treatment sessions Monday to Friday at the out-patient clinic.

If pelvic nodes need to be treated this will be:

23 fractions over 4½ weeks. You will have to attend treatment sessions Monday to Friday at the out-patient clinic.

Your oncologist will explain your treatment plan to you.

A brief explanation of what happens

- You will be given suppositories/enema to get rid of any gas in your bowel
- As you need to have a comfortably full bladder before treatment, you may be asked to empty your bladder then drink an exact amount of water
- You will lie down on the bed and the radiographers will get you into the exact position. You will need to lie very still
- The radiographers will need to leave the room before the machine starts to deliver the treatment
- You will hear a ticking noise as the machine moves around you, perhaps into 3 or 4 different positions
- Once the treatment is finished the radiographers will come back into the room and when you feel ready, you can go home.

You won't have an anaesthetic and you shouldn't feel sore after your treatments. As you won't be radioactive it is quite safe to be around your family at home.

A full explanation of side-effects from EBRT is given on pages **46 to 51**.

Hormone therapy

Only a brief explanation of hormone therapy is given in this section. You will find more information in 'Early Prostate Cancer Explained' page **96-99** or in our booklet 'Spotlight on Hormone Therapy' which will give an even more in-depth explanation of hormone therapy and the medicines that are used.

As testosterone fuels or feeds the growth of prostate cancer the aim of hormone therapy is to remove as much testosterone as possible. By reducing the amount of testosterone, cancer cells wherever they are in the body,

shrink or don't grow as fast. This can reduce the growth and extent of the tumour and help make treatment more successful.

You will have 2 types of hormone therapy:

Neo adjuvant. This means that hormone therapy is given as a first step to help shrink the tumour before EBRT and HDR start to help make these treatments more successful.

You will have what is called a combined androgen blockade where 2 types of hormone therapy are given.

You will be given medicine called Bicalutamide which is an anti-androgen. This is a tablet that you take twice a day. It works by blocking the action of testosterone and the ability of the cancer cells to use testosterone.

You will be given a 3 monthly injection of a GnRH agonist. This may be started in hospital then continued by your GP at your GP Practice. This very quickly switches off testosterone production.

Adjuvant means that the hormone therapy is continued for 12-24 months after the radiotherapy and HDR treatments have finished. This will continue as a 3 monthly injection of GnRH agonist.

Being on hormone therapy may cause some side-effects:

- Hot flushes and sweating. Sudden hot feelings and sweats in your neck, face, chest and back
- Loss of libido. Having a reduced desire to have intercourse
- Erectile problems. Not having an erection firm enough to have intercourse
- Fatigue and tiredness. You may feel completely and utterly drained of energy
- Changes to your body shape. You may find that you start to gain weight, especially around your middle
- Breast swelling. One or both breasts swell or become tender to the touch

- Mood swings. You may feel much more emotional, get upset easily and perhaps a bit teary
- Bone thinning. Because bones need testosterone to keep them healthy over time hormone therapy can cause bones to thin and become brittle, so they may break more easily
- Hair loss. Long term hormone therapy may lead to loss of hair on the arms, legs, underarms and genital area
- Risk of developing heart problems. By reducing testosterone blood pressure and blood cholesterol may increase. The team looking after you will monitor any changes.

A full explanation of side-effects from hormone therapy is given on pages **46 to 51**.

This is to be found at:

**[www.prostatescotland.org.uk/wp-content/uploads resources/
Hormone Therapy-for-Prostate-Cancer.pdf](http://www.prostatescotland.org.uk/wp-content/uploads/resources/Hormone%20Therapy-for-Prostate-Cancer.pdf)** or give us a call on **0131 603 8660**

or email us at **info@prostatescotland.org.uk** to order a printed copy.

Short-term side-effects	Radiotherapy (HDR brachytherapy and EBRT) For more information on HDR see pages 30-41 For more information on EBRT see pages 41-43 or Spotlight on External Beam Radiotherapy
Bruising/tenderness	Between your legs for a few weeks where the needles went in.
Tiredness/fatigue	Over the course of treatment tiredness can build up and energy levels reduce.
Urine changes	Blood in urine makes urine look slightly red or pink for around a week.
Urine infection	You may develop a urinary tract infection (UTI).
Urine retention	If you are unable to pass urine, are in a lot of pain – contact your hospital, GP or NHS 24 urgently.
Urethral stricture (narrowing of the urethra)	This is caused by scar tissue forming and can happen in the first few years but can happen many years later.
Bleeding from back passage	Possibly some blood in urine at a later date when radiotherapy has finished.
Blood clots	Very rare complication.
Bladder problems	<ul style="list-style-type: none"> • Burning feeling when you pee • Discomfort when you pee • Pee more often and urgently • Have a slower stream when you pee • Pee more often during the night • Not able to control when you pass urine (incontinence).
Cystitis	Quite common.
Bowel difficulties	<ul style="list-style-type: none"> • Urgent and frequent bowel movements • Small amount of blood or mucus in motions • Sore back passage • Bloating, cramping or spasms in the bowel and passing a lot of wind.
Diarrhoea	Yes, possibly.
Constipation	Yes, possibly.

Hormone therapy

For more information see Spotlight on hormone therapy or pages **43** to **45** in this booklet.

No

You may get more tired more easily and some men feel completely drained of energy.

No

No

No

No

No

No

No

No

No

No

No

Proctitis	<ul style="list-style-type: none"> ▪ Continuous feeling of fullness in the bowel like you need to have a bowel movement ▪ Diarrhoea ▪ Bleeding from back passage ▪ Pain in your bottom or with bowel movements.
Rectal fistula	Although not very common a rectal fistula can develop after radiotherapy treatment. A fistula is an opening or joining between 2 organs that are not normally open or joined to each other.
Skin problems	Not usually. May have some redness or swelling in the first few days where the needles have gone through the perineum. Skin around the area where you had EBRT may become, red, sore, a bit dry and itchy.
Sweats and hot flushes	No
Changes to your body shape	No
Breast swelling	No
Mood swings	No
Bone thinning	No
Hair loss	You will most likely lose hair only around the EBRT treatment area which may never grow back.
Heart problems	No

● HDR PROSTATE BRACHYTHERAPY, EBRT AND HORMONE THERAPY

No
No
No
Around 70-80% of people may get hot flushes and sweats. These can last for a few minutes or can last a few hours. These may also happen during the night.
You may have some weight gain especially around your middle. Some people lose some muscle mass.
For some one or possibly both breasts swell, become tender or can be painful.
You may find you are more emotional, a bit teary and get upset more easily.
Over time bones can become more brittle or thin and may break more easily.
Over time you may notice that your hair thins, you lose hair on all areas of your body and you may not need to shave as often.
Reducing testosterone can increase blood pressure, increase cholesterol and you may gain weight. Taken together these can put you at greater risk of developing heart problems.

Longer-term side-effects	Radiotherapy (HDR brachytherapy and EBRT) For more information on HDR see pages 30-41 For more information on EBRT see pages 41-43 or Spotlight on External Beam Radiotherapy
Erection difficulties	Difficulties in getting and keeping an erection may occur in up to 60% of people after radiotherapy. This may take up to 2 years to appear. There are treatments to help with this difficulty.
Dry orgasm	A reduction or absence of fluid at the point of ejaculation.
Loss of libido	Yes, possibly.
Bladder changes	<ul style="list-style-type: none"> • Burning feeling when you pee • Discomfort when you pee • Pee more often with an urgency to pee • Less able to control your bladder or have a small leak of urine when you cough, laugh or sneeze • You may have a very small leak of blood from blood vessels in your bladder that will make urine look slightly pinkish • If you are unable to pass urine, are in a lot of pain – contact the oncology team, GP, NHS 24 or national cancer helpline urgently 0800 917 7711.
Bowel changes	<ul style="list-style-type: none"> • Urgent need to open your bowels with looser bowel movements • Pain when opening your bowels • Some bleeding when passing a motion • Diarrhoea • Constipation • Less control over opening your bowels with perhaps some leakage of motions • Pass more wind • If you have bleeding from your bottom, contact the oncology team, your GP or national cancer helpline as soon as possible 0800 917 7711.
Developing a secondary cancer	Very small increased risk of radiation induced cancer 5-10 years after treatment.

Hormone therapy

For more information see Spotlight on Hormone Therapy or pages **43** to **45** in this booklet.

Difficulties in getting and keeping an erection firm enough to have intercourse may occur. There are treatments to help with this difficulty.

No

You may lose interest in or have a reduced desire to have intercourse. Some people lose their desire completely.

No

No

No

Section 3

More information

This section is relevant for those who have had either LDR or HDR brachytherapy treatment.



COMPASS

Prostate Scotland is currently developing a range of support and wellbeing services to help people across Scotland navigate prostate cancer. It's called our COMPASS project and in time it will cover information, courses, exercise programmes, workshops and support services for people with prostate cancer and disease. Visit **www.prostatescotland.org.uk/help-and-support-for-you** to see what's available.

We currently offer:

- The opportunity to speak to a Cancer Support Specialist through a joint initiative with Maggie's in some areas of Scotland. The Cancer Support Specialists have expert knowledge of prostate cancer, and you can speak to them face-to-face at a Maggie's centre, on the phone or by video call. Whether it's talking through being diagnosed with prostate cancer, chatting about your treatment options, speaking about your symptoms and side-effects or the impact it's had on your life, this service can help.
- A 'Living Well with Prostate Cancer' course for those undergoing treatment or when treatment has finished. We take a look at side-effects and how to minimise them, the practicalities of having prostate cancer along with many other topics.

- Our special online exercise programmes for those living with prostate cancer are particularly relevant for those on hormone therapy. Please check with your CNS, oncologist, urologist or GP that these programmes are suitable for you before starting to exercise.
- We shall also later in 2022 be starting a 12 week Exercise course for people living with prostate cancer. For further details please see our website.
- Prostate Scotland App. This will include information on treatment decision making, the ability to record your consultation with your consultant, appointment diary and living with prostate cancer trackers and much more. This will be free to download. Check our website as to when this will be available.
- There will shortly be a 'Treatment decision making' workshop. Check our website as to when this will be available.

For more information visit

prostatescotland.org.uk/help-and-support-for-you

Maggie's Centres in Scotland

Maggie's Centres provide support for anyone diagnosed with cancer and also for their family.

To find a Maggie's Centre near you visit: www.maggies.org/our-centres/

Prostate Scotland works in partnership with some Maggie's Centres to run the Prostate Scotland COMPASS service providing the one-to-one support service or the 'Living well with prostate cancer' course.

Please note Prostate Scotland is not responsible for the content of any of the external websites.

Prostate Scotland

Other booklets from Prostate Scotland that you may find useful:

- **'Early prostate cancer explained'**
- Spotlight on **'Pelvic floor exercises before and after radical prostatectomy'**
- Spotlight on **'Prostate conditions and erectile dysfunction'**
- Spotlight on **'Incontinence as a symptom of prostate problems'**
- Spotlight on **'Hormone therapy for prostate cancer'**
- Spotlight on **'Caring for your indwelling Catheter at home'**
- Spotlight on **'Prostate conditions and erectile dysfunction'**
- **'Advanced prostate cancer explained'**

Useful contacts

For more information:

If you have any questions, then you can speak to your CNS, oncologist or GP. It may also help to look at the following websites or contact the organisation by phone or email. These organisations also have information leaflets available and some offer telephone helplines which you can contact for support or to answer your questions. There may be a prostate cancer support group in your area where you can talk to other people (and often their family) who have been diagnosed with prostate cancer. These support groups may provide you with additional information. Often these people share their experiences when they were diagnosed with prostate cancer, how they decided on treatment and about the various types of treatment they are having or have had.

Organisation	Website	Contact number	Helpline available
Prostate Scotland (includes support group details)	www.prostatescotland.org.uk	0131 603 8660	Telephone information service (not a helpline) 0300 666 0236
NHS 24	www.nhs24.com	111	✓
Prostate Link UK	www.prostate-link.org.uk		
Prostate Cancer UK (includes some support group contact details)	www.prostatecancer.org.uk	0141 314 0050	✓ 0800 074 8383
Macmillan Cancer Support Support Nurses	www.macmillan.org.uk	020 7840 7840 0808 808 0000	✓
Cancer Research UK Cancer Information Nurses	www.cancerresearchuk.org	020 7242 0200 0808 800 4040	✓
National Cancer Treatment Helpline		0800 9177711	✓

Our work

All our awareness materials, introductory guides, explanatory guides and 'Spotlight on' guides such as this booklet are available free of charge to people and their families and all healthcare settings.

If you found the booklet helpful, you can help us reach many more people with awareness and information about prostate disease and prostate cancer by:

- Obtaining and wearing a [Prostate Scotland badge](#)
- [Volunteering](#) some of your time
- Taking part in or organising a [fundraising event](#) or making a [donation](#).





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