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Permanent seed brachytherapy

This fact sheet is for men who are thinking about having a type of internal radiotherapy called permanent seed brachytherapy to treat their prostate cancer. Partners and families of men with prostate cancer may also find it useful. It describes how prostate cancer is treated using radioactive seeds implanted in the prostate gland. You may also hear this treatment called low dose rate brachytherapy.

Each hospital and specialist team will do things slightly differently so use this fact sheet as a general guide to what to expect and ask your specialist team for more details about the treatment available to you.

In this fact sheet we use the word brachytherapy to describe permanent seed brachytherapy. This fact sheet does not describe external beam radiotherapy or another type of brachytherapy called high dose rate (HDR) brachytherapy. For information on these treatments, please read our other Tool Kit fact sheets or call our confidential Helpline on 0800 074 8383.

In this fact sheet:

- How does brachytherapy treat prostate cancer?
- Who can have brachytherapy?
- What are the advantages and disadvantages?
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How does brachytherapy treat prostate cancer?

Permanent seed brachytherapy, also known as low dose rate brachytherapy, involves having tiny radioactive seeds implanted in your prostate gland. Each radioactive seed is the size and shape of a small grain of rice. The seeds stay in the prostate and give a continuous dose of radiation over a few months.

The radiation damages the cells and stops them from dividing and growing. Cancer cells are not able to recover from this damage and die, but normal healthy cells can repair themselves more easily.

This type of radiation does not travel very far in the body, so the healthy tissue around the prostate gland gets a much smaller dose of radiation than the prostate itself. The seeds stay in your prostate permanently but after around eight to ten months, almost all of the radiation has been released and the seeds are no longer active.

There is another type of brachytherapy called temporary or high dose rate (HDR) brachytherapy. It is less common than permanent seed brachytherapy. You can read more about this in our Tool Kit fact sheet, **High dose rate brachytherapy.**

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Who can have brachytherapy?

Permanent seed brachytherapy is suitable for men whose cancer has not spread outside the prostate gland (localised prostate cancer). Men often have this treatment on its own, but if there is a higher risk of the cancer spreading it can be used together with a short course of another type of radiotherapy called external beam radiotherapy. You may also have brachytherapy together with hormone therapy.

Other treatment options for cancer that has not spread outside the prostate gland (localised cancer) may include:

- Surgery (radical prostatectomy)
- External beam radiotherapy
- Active surveillance
- Watchful waiting
- Temporary or HDR brachytherapy

You may also be offered HIFU (high intensity focused ultrasound) or cryotherapy as part of a clinical trial or through private healthcare. These treatments are newer and we do not know as much about their long term benefits and risks. You can read more about these in our other Tool Kit treatment fact sheets or call our confidential Helpline on 0800 074 8383 for more information.

Brachytherapy is just as good at controlling prostate cancer as other treatments, such as surgery (radical prostatectomy) or external beam radiotherapy. However, there is no evidence that it is any better than these other treatments.

If you are considering brachytherapy as a treatment option, your specialist team will look at the following factors to find out if you are suitable for the treatment.

Stage and grade of the cancer

Brachytherapy is suitable for men who have localised prostate cancer that is low risk. This is because the radiation from the radioactive seeds cannot travel very far.

Your cancer may be described as low risk if:

- Your PSA level is 10ng/ml or less, **and**
- Your Gleason score is 6 or less, **and**
- The stage of your cancer is T1 – T2a.

Our Tool Kit fact sheet **How prostate cancer is diagnosed** explains the Gleason score and cancer staging in more detail.

If you have a PSA of between 10 and 20, and a Gleason score of 7, brachytherapy may still be an option for you as long as tests show that the cancer is unlikely to have spread outside of the prostate. Different treatment centres will set their own criteria so check with your specialist team.

If your PSA level is over 20, then brachytherapy will not be suitable because there is a chance that your prostate cancer has spread outside of the prostate, even if scans suggest that it has not.

Size of the prostate gland

Brachytherapy may not be suitable for men with large prostate glands. If you have a large prostate then you may have hormone therapy for three to six months before treatment to shrink it.

Urinary problems

Brachytherapy may not be suitable for men who have severe problems passing urine because the treatment can make the problems worse. Before you have treatment, your specialist team will ask you about any urinary problems and you may have some tests. Your specialist will work with you to try to reduce any urinary problems you may have.

Transurethral resection of the prostate (TURP)

Transurethral resection of the prostate (TURP) is surgery to remove prostate tissue. You may have had a TURP in the past to relieve symptoms of an enlarged prostate. If you have recently had a TURP, you may have to wait three to six months before brachytherapy treatment can be considered. Some centres do not offer brachytherapy to men who have had a TURP.

What are the advantages and disadvantages?

Advantages

- Treatment takes just one or two days.
- Recovery is quick so you can return to your normal activities soon after treatment.
- The radiation is inside the prostate gland and does not travel far, so there may be less damage to the urethra, bladder and back passage (rectum).

- It is suitable for men who have bowel problems such as inflammatory bowel disease.

Disadvantages

- It can cause side effects such as urinary and erection problems.
- It requires one or two anaesthetics depending on the method used.

What does treatment involve?

If you decide to have brachytherapy, you will be referred to a specialist who treats cancer with radiotherapy, known as a clinical oncologist. The treatment itself may be planned and carried out by other specialists including therapy radiographers, urologists, physicists and sometimes a specialist nurse.

You will have the treatment during one or two hospital visits. If your treatment is planned for just one visit, you will have a planning session and then your treatment on the same day. You may not need to stay in hospital overnight. If your treatment is spread over two visits, you will have a planning session on your first visit and then the radioactive seeds implanted two to four weeks later.

Planning session

The purpose of the planning session is to measure the size and position of your prostate to work out how many radioactive seeds you need. The planning session is also a final check that the treatment is suitable for you. Very occasionally, the specialist may find that treatment is technically impossible because of the position of your pelvic bones in relation to your prostate gland. If this happens, your specialist will discuss alternative treatment options with you.

Before the planning session, let your specialist know if you are taking any medication, especially medicines that can thin your blood such as aspirin. Do not stop taking any medicines without speaking to your specialist team. You may also need to take a laxative the day before the planning session to clear your bowels.

You will probably have a general anaesthetic so that you are asleep during the procedure. Another option is to have a spinal or epidural anaesthetic, so that you are awake but cannot feel anything. The specialist team will discuss the different options with you.

The specialist will gently insert an ultrasound probe into your back passage (rectum). This is attached to a monitor that displays a three dimensional image of the prostate. The specialist team use this image to work out how many brachytherapy seeds you need and where to place them. The process usually takes an hour to an hour and a half, and you can go home the same day if you are not having the implant straight away. Ask a friend or family member to take you home, as you will not be able to drive for 24 hours after a general anaesthetic.

Implanting the radioactive seeds

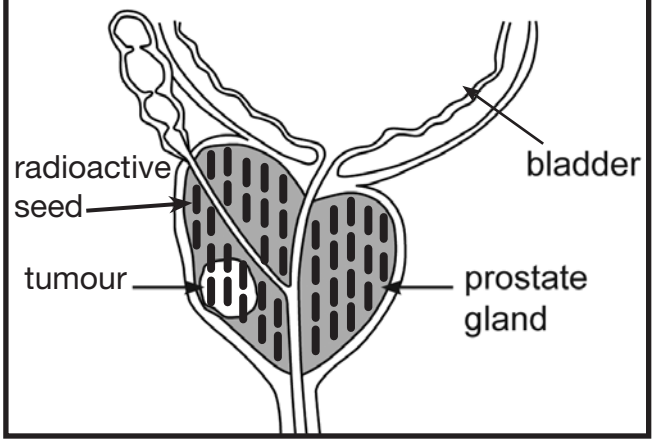
Most treatment centres will give you information about how full or empty your bladder and bowel should be before treatment. You may need to take another laxative at home the day before to clear your bowels or the nurse may give you some medication (an enema) on the day. An enema is a liquid medication which is inserted directly into your back passage (rectum).

You will have a general anaesthetic so that you are asleep during the procedure, or you may have a spinal or epidural anaesthetic, so that you are awake but cannot feel anything. Before the seeds are implanted, the specialist passes a thin tube (catheter) through the penis into the bladder. This drains urine from the body during the procedure. Once the catheter is in position, the specialist places an ultrasound probe into the back passage (rectum) so that they can see where the seeds need to go.

The specialist then puts thin needles into the prostate through the perineum, which is the area between the testicles and back passage (rectum). The seeds are already loaded into the needles. The specialist passes the seeds through the needles into the prostate.

Between 60 and 120 seeds are implanted into the prostate, using around 20 to 25 needles.

Where the seeds go in the prostate



The seed implant takes 30 to 45 minutes if you have already had your planning session (two-stage method) or one and a half to two hours if you are having the planning session at the same time (one-stage method).

After the procedure

You will wake up from the anaesthetic in the recovery room, before going back to the ward or discharge area. The nurse may remove your catheter before you wake up, or it may be left in for a few hours and taken out before you go home. You can go home when you have recovered from the anaesthetic and are passing urine normally. This may be on the same day as treatment or you may need to stay in hospital overnight. Your specialist team will give you any medicines that you need at home. These may include painkillers, drugs to help prevent urinary problems (such as tamsulosin) and antibiotics to prevent infection.

What happens afterwards?

Precautions to take

The radioactive seeds in the prostate only give off a very low amount of radiation to the people around you and it is safe to be near others. As a precaution, you should avoid sitting very close to pregnant women or young children for long periods of time during the first two months after treatment. You should also avoid letting young children sit on your lap or holding them for more than a few minutes each day. Your specialist team will discuss this in more detail with you.

It is possible, but rare, for you to pass a seed in your urine. Ask your specialist team what to do if this happens. Some hospitals advise you to flush the toilet twice if you think you have passed a seed. Never pick up a seed directly with your fingers. Always let your specialist team know if you think you have passed a seed. It does not mean your treatment will stop working because the amount of radiation left in the prostate will still be enough to treat your cancer.

Some men may decide against having brachytherapy because of personal or religious beliefs. This is because if a man dies soon after treatment, for whatever reason, the radioactive seeds mean that cremation may not be possible. Please speak to your specialist team if you are worried about this.

Going back to work

You should be able to return to your normal activities within a few days. You can go back to work as soon as you feel able, and this will depend on how much physical effort your work involves.

Travel

Your specialist team may give you an advice card which states that you have had treatment with internal radiation. Take this card with you whenever you travel, especially by air, as the radiation in the brachytherapy seeds can set off the airport radiation sensors. Ask your specialist team if you have any concerns about holidays and travel plans.

Sexual activity

Some men find that they do not want to have sex for some time after treatment. It may be because they feel tired and have some pain or swelling in the area where they had treatment. Or they may have some of the side effects discussed on pages 5 and 6, such as urinary or erection problems, that affect their desire to have sex.

It is rare for men to pass any seeds when they ejaculate but, as a precaution, you should use a condom during sex for the first six weeks after treatment.

Your follow-up appointment

Four to six weeks after the treatment, or sometimes sooner, your specialist team will invite you back to the hospital for a CT or MRI scan. This allows your specialist team to check the position of the seeds. Use this opportunity to tell the team if you are having any side effects.

You will have your PSA level checked regularly after your treatment to monitor how well the

brachytherapy has worked. You will also be asked about any side effects that you may have. In most centres, your specialist will check your PSA level six to twelve weeks after your treatment has finished. You will then have it checked at least every six months for two years and at least once a year after that. Follow-up will vary between different centres. Your specialist team will tell you how often your PSA level will be measured.

If your treatment has been successful, your PSA level should drop. However, how quickly this happens, and how low the PSA level falls, varies between men. Your PSA level may start to rise again after brachytherapy because your prostate will still produce some PSA.

Sometimes men may experience a rise and fall in PSA at around one to two years after treatment. This is called 'PSA bounce' and does not mean that cancer has returned.

However, a significant rise in your PSA level may be a sign that your cancer has returned and you may need further treatment. If your PSA level does start to rise, talk to your specialist team about what treatment might be suitable for you. You can also read our booklet, **Recurrent prostate cancer.**

What are the side effects?

You may not have any side effects for several days until the radiation from the seeds begins to take effect. Side effects are generally at their worst a few weeks after treatment, when the radiation dose is strongest, but should then improve over the following months as the seeds lose their radiation.

The most common side effects are described here but there is no way of telling which of these you may get or how bad they will be.

Some men who have had brachytherapy and external beam radiotherapy together find that they have worse side effects.

You might also get more side effects if you had problems before the procedure. For example, if you already had urinary, erection or bowel problems, these may be worse after treatment.

After the procedure you may have:

- Blood-stained urine or discoloured semen for a few days or weeks.
- Bruising and pain in the area between your testicles and back passage which can spread to your inner thighs and penis. This will disappear in a week or two.
- Discomfort when you pass urine and needing to pass urine more often, especially at night.

Some side effects may take several weeks to develop and may last for a while longer. These may include problems passing urine, erection problems, bowel problems and tiredness.

Problems passing urine

Brachytherapy causes the prostate gland to swell. This can make the tube you pass urine through (urethra) narrow and may irritate your bladder. This may cause symptoms such as:

- Needing to pass urine often
- Feeling like you need to pass urine urgently
- Hesitating before starting to pass urine
- A weak flow of urine
- Discomfort or burning sensation when you pass urine

These problems can get worse in the first few weeks after treatment but usually start to improve after a few months.

Medicines called alpha blockers and non-steroidal anti-inflammatory drugs (NSAIDs) may help ease problems with passing urine. You can help yourself by drinking enough liquid (two litres or three to four pints a day) and by cutting down on drinks that may irritate the bladder such as fizzy drinks, caffeine based drinks (tea, coffee and cola) and alcohol.

Some research suggests that between one and 20 out of 100 men (one to 20 per cent) will get acute urinary retention after brachytherapy. This means that you have a sudden and painful inability to pass urine. If this happens, you should contact your specialist team straight away or visit your hospital's accident and emergency (A&E) department as soon as possible. You may be more likely to get urinary retention if your prostate is large. Ask your specialist team about your risk of getting urinary retention.

Some men find that they leak urine (urinary incontinence) after brachytherapy. Some research suggests that this happens in up to 20 out of 100 men (20 per cent).

If you have previously had a transurethral resection of the prostate (TURP) then you may be more likely to have problems with leaking urine. Ask your specialist team about your risk of getting urinary incontinence. Problems with leaking urine may improve with time.

Read our Tool Kit fact sheet **Urinary problems and prostate cancer** for more information about ways to manage urinary problems.

Erection problems

Brachytherapy can damage the blood vessels and nerves that control erections, which may make it difficult for you to get and keep an erection (erectile dysfunction). This damage may gradually get worse over several years.

The risk of long-term erectile dysfunction (ED) after brachytherapy varies from man to man. Your risk will increase if you already had problems with ED before treatment or if you are also having hormone therapy or external beam radiotherapy.

You could ask your specialist team for the rates of ED after brachytherapy in the men treated at your hospital. For more information about treatments for erectile dysfunction read our Tool Kit fact sheet, **Sex and prostate cancer.**

Fertility

You may find that you ejaculate less fluid than before the treatment. This is a permanent side effect of brachytherapy. However, you still might be able to make someone pregnant. Changes to your sperm during brachytherapy could affect any children you may conceive during this time but the risk of this happening is very low. You may wish to avoid fathering a child during treatment and for a while after having treatment, for example by using a condom or other form of contraception. If you are planning to have children, you should seek further information from your GP or specialist team.

Bowel problems

Brachytherapy can cause the lining of the bowel to become inflamed (proctitis). If you are also having external beam radiotherapy, you are more likely to experience bowel problems. You may have symptoms such as loose and watery stools (diarrhoea), passing more wind, needing to go to the toilet more often, or having to rush to the toilet (rectal urgency). Some men feel the need to have a bowel movement but then find that they are unable to go.

Most of these bowel problems tend to be mild and affect less than one in five men (20 per cent) in the first year after brachytherapy. You may find that you get bowel problems as late as two to three years after treatment. Some men may find that they get bleeding from their back passage at this time. You should tell your specialist team or GP about any symptoms as there are treatments available that can help.

Tiredness

The effect of radiation on the body can make some men tired. The brachytherapy seeds will continue to release radiation for several months so you may find that you continue to feel tired during this time. If you are getting up a lot during the night to pass urine, this can also make you feel tired in the day.

Where can I get support?

As well as getting medical help to treat your cancer, you may find that it helps to talk to family or friends about how you are feeling. Sharing concerns can make any decisions about your treatment easier to deal with. You could also speak to your specialist team or call our confidential Helpline on 0800 074 8383.

Partners and family also often worry about their loved one, and may find it helpful to talk to your specialist team.

Some people find that it helps to talk to other men who have had brachytherapy. There are prostate cancer support groups throughout the country. You can ask your specialist team for details, or you can find a list of support groups on our website at www.prostate-cancer.org.uk.

We can also arrange for someone who has experience of brachytherapy to speak to you through our one-to-one support service. Please call the Helpline on 0800 074 8383 for more information. If you have access to the internet, you can sign up to The Prostate Cancer Charity message boards where you can share your views and experiences with others affected by prostate cancer. Our website address is www.prostate-cancer.org.uk.

When to call your specialist team

Your specialist team will give you a telephone number to call if you have any questions or worries. Contact your team or visit your hospital's accident and emergency (A&E) department:

- If your urine is very bloody, has clots in it or you are suddenly not able to pass urine. This could mean that you have bleeding in your prostate or acute urinary retention, which needs treatment as soon as possible.
- If you have a high temperature (more than 38°c or 101°f) with or without chills. This may be a sign of infection.
- If you are passing urine more often, or you feel that your bladder has not emptied properly after passing urine. This may be a sign that you are not passing all the urine in your bladder. You may need a catheter to drain your bladder.

Questions to ask your specialist team

Which type of permanent seed brachytherapy will I have? The one-stage or two-stage procedure?

Will I have external beam radiotherapy as well as brachytherapy?

What are the chances of side effects such as urinary problems, erection problems and bowel problems with this treatment?

How will I know if the treatment has worked?

What should my PSA level be after treatment and how often will you measure it?

If my PSA continues to rise, what other treatments are available?

More information

The Prostate Cancer Charity
This fact sheet is part of the Tool Kit. Call our Helpline on 0800 074 8383 or visit our website at www.prostate-cancer.org.uk for more Tool Kit fact sheets, including an **A to Z of medical words,** which explains some of the words and phrases used in this sheet.

Bladder and Bowel Foundation
www.bladderandbowelfoundation.org
Continence nurse helpline 0845 345 0165
SATRA Innovation Park, Rockingham Road, Kettering, Northants, NN16 9JH
Provides information and support for all types of bladder and bowel problems.

Health Talk Online
www.healthtalkonline.org
Watch, listen to, or read personal experiences of cancer diagnosis and treatment.

The Prostate Cancer Charity makes every effort to make sure that its services provide up-to-date, unbiased and accurate facts about prostate cancer. We hope that these will add to the medical advice you have already been given and will help you to make any decisions you may face. Please do continue to talk to your doctor if you are worried about any medical issues.

The Prostate Cancer Charity funds research into the causes of, and treatments for, prostate cancer. We also provide support and information to anyone concerned about prostate cancer. We rely on charitable donations to continue this work. If you would like to make a donation, please call us on 020 8222 7666.

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Confidential Helpline
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* Calls may be monitored for training purposes. Confidentiality is maintained between callers and The Prostate Cancer Charity.

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Maggie's Cancer Caring Centres
www.maggiescentres.org
Provide information and support to anyone affected by cancer. Their website holds a list of centres across the UK and has an online support group.

Prostate Brachytherapy Advisory Group
www.prostatebrachytherapyinfo.net
This website is written by health professionals and provides information about brachytherapy treatment.

Sexual Advice Association
www.sda.uk.net
Helpline 020 7486 7262 (Mon, Wed & Fri 9am - 5pm)
Suite 301, Emblem House, London Bridge Hospital,
27 Tooley Street, London SE1 2PR
Provides a helpline service for advice and information about sexual problems including erectile dysfunction.

Tell us what you think

We hope you have found this information useful. If you have any comments or suggestions about any of our publications, you can email literature@prostate-cancer.org.uk or write to The Information Team at The Prostate Cancer Charity, 100 Cambridge Grove, London W6 0LE

References to sources of information used in the production of this fact sheet are available on our website.

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THE PROSTATE CANCER CHARITY