

## High dose-rate (HDR) brachytherapy

### What is HDR brachytherapy?

High dose-rate brachytherapy is also known as HDR brachytherapy, or temporary brachytherapy. It is a type of internal radiotherapy. It involves inserting thin tubes into the prostate gland. A source of radiation is then passed down the tubes into the prostate for a few minutes to destroy cancer cells. The source of radiation is then removed, so no radiation is left in your body. Because the radiation is put directly into the prostate, the healthy tissue nearby gets a smaller dose of radiation. This means healthy tissue is less likely to be damaged than with another type of radiotherapy called [external beam radiotherapy](#).

You may have HDR brachytherapy on its own or, more often, you will have it together with [external beam radiotherapy](#). If you have [external beam radiotherapy](#) with HDR brachytherapy, you will get high doses of radiation to the whole prostate as well as to the area just outside the prostate. You may also have [hormone therapy](#) before and/or after HDR brachytherapy to shrink the prostate and make the treatment more effective.

There is another type of brachytherapy called [permanent seed brachytherapy](#) or [low dose-rate brachytherapy](#), which involves implanting tiny radioactive seeds into the prostate

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## Who can have HDR brachytherapy?

HDR brachytherapy is most suitable for men whose cancer has not spread outside the prostate gland ([localised prostate cancer](#)) and you have a medium or high risk of your cancer spreading outside the prostate or coming back after treatment.

Your cancer may be medium risk if:

- your PSA level is between 10 and 20 ng/ml, or
- your Gleason score is 7, or
- the stage of your cancer is T2b.

Your cancer may be high risk if:

- your PSA level is higher than 20 ng/ml, or
- your Gleason score is 8, 9 or 10, or
- the stage of your cancer is T2c, T3 or T4.

[Read more about low, medium and high risk prostate cancer.](#)

If you have medium or high risk cancer, you will also have [external beam radiotherapy](#) as well as HDR brachytherapy. You may also have [hormone therapy](#) to shrink the prostate and make the cancer easier to treat. Having HDR brachytherapy together with other treatments can help make the treatment more effective, but it can also increase the risk of side effects.

HDR brachytherapy may also be suitable for some men whose cancer is beginning to spread to the area just outside the prostate, such as the seminal vesicles ([locally advanced prostate cancer](#)). You will usually have [hormone therapy](#) or [external beam radiotherapy](#) as well.

HDR brachytherapy isn't suitable for you if your cancer has spread (metastasised) outside the prostate to other parts of the body ([advanced prostate cancer](#)).

HDR brachytherapy is newer than some of the other treatments for prostate cancer and isn't available at all hospitals. If your hospital doesn't do HDR brachytherapy, your doctor may be able to refer you to one that does.

## Other things that might affect whether you can have HDR brachytherapy

HDR brachytherapy may not be suitable for you if you have severe problems urinating, because the treatment can make these problems worse. These can include symptoms of an **enlarged prostate** such as a weak urine flow or not emptying your bladder properly. Before you have treatment, your doctor or nurse will ask you about any urinary problems and you may have some tests.

If you have recently had an operation called a **transurethral resection of the prostate (TURP)**, you may have to wait three to six months before HDR brachytherapy can be considered. TURP is used to relieve symptoms of an **enlarged prostate**. Some hospitals don't offer HDR brachytherapy to men who have had a TURP as there may be a higher risk of urinary problems afterwards.

If you have HDR brachytherapy, you may have a general anaesthetic during treatment which means you will be asleep and won't feel anything. So you may only be able to have HDR brachytherapy if you are fit and healthy enough to have an anaesthetic. Although you may be able to have a spinal anaesthetic (epidural) instead. This may depend on what your hospital offers.

## What other treatments might be available?

You might be able to have other treatments, depending on whether your cancer is localised, locally advanced or advanced. [Read more about other treatment options.](#)

What are the advantages and disadvantages?

- What does treatment involve?
- What happens afterwards?

- Questions to ask your doctor or nurse
- More information
- About us

This fact sheet is for men who are thinking about having a type of internal radiotherapy called temporary brachytherapy to treat their

**How does temporary brachytherapy treat prostate cancer?**

Temporary brachytherapy, also known as high

prostate cancer. Partners and families of men with prostate cancer may also find it useful. We describe how a temporary implant is inserted into the prostate gland to treat the cancer with radiation.

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

High dose-rate brachytherapy, also known as high dose-rate brachytherapy, involves inserting a source of high dose-rate radiation into the prostate gland for a few minutes at a time to destroy cancer cells. Because the radiation is delivered from inside the prostate, the healthy tissue nearby gets a smaller dose of radiation and is less likely to be damaged.

You may have temporary brachytherapy on its own or, more often, you will have it together with external beam radiotherapy (see page 3). If you have external beam radiotherapy with

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## What are the advantages and disadvantages?

An advantage for one person might not be for someone else. If you are offered HDR brachytherapy, speak to your doctor or nurse before deciding whether to have it. They can help you think about which treatment to have. There's a list of questions on below which you might find helpful. Give yourself time to think about whether HDR brachytherapy is right for you.

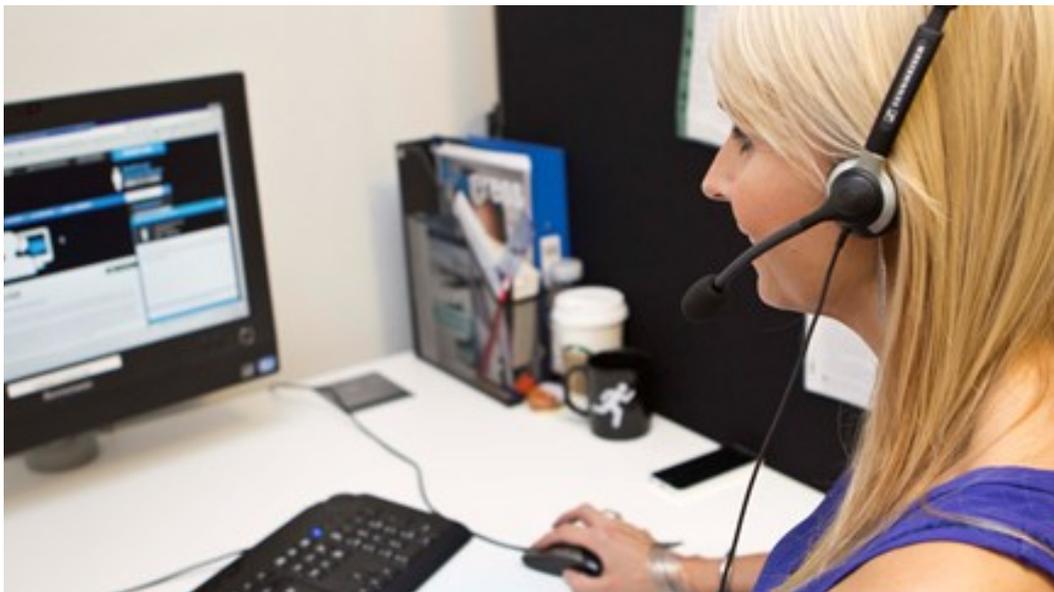
### Advantages

- HDR brachytherapy delivers a high dose of radiation directly into the prostate. This means healthy tissue nearby only gets a small dose of radiation and is less likely to be damaged and cause side effects.
- You will be in hospital for just one or two days for treatment.
- Recovery is quick, which means you can usually return to your normal activities within a week.
- If your cancer comes back, you may be able to have further treatment with hormone therapy.

## Disadvantages

- It can cause side effects such as urinary, bowel and erection problems.
- You will need an anaesthetic.
- At some hospitals, you may need more than one radiation treatment. You may need to stay in the same position between treatments, with the tubes still in your prostate. Some men find this uncomfortable.
- It may be some time before you will know whether the treatment has been successful.

If you are having **external beam radiotherapy** as well as HDR brachytherapy, think about the advantages and disadvantages of both treatments. You may have more side effects if you have HDR brachytherapy and external beam radiotherapy.



## Our Specialist Nurses

Ask all the questions you need answers to, or just talk. Our nurses have time for you.

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# What does treatment involve?

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

If you have a large prostate, you may have [hormone therapy](#) before brachytherapy starts, to shrink your prostate. If you have a higher risk cancer, you may have [hormone therapy](#) before and after treatment. You may also have a short course (three to five weeks) of [external beam radiotherapy](#). You may have this before or after your HDR brachytherapy.

## Before treatment

On the morning of your treatment, you will have an enema to help you empty your bowels. An enema is a liquid medication which is inserted directly into your back passage (rectum). It's important that your bowel is empty so that clear images of your prostate can be taken. The nurse may then give you a tablet to stop you needing to open your bowels when the radiation is being delivered.

You will probably have a general anaesthetic so that you are asleep during the procedure. But you may have a spinal anaesthetic (epidural), so that you are awake but can't feel anything. Talk to your doctor about which type of anaesthetic you will have – it may depend on what your hospital offers.

Once you have had the anaesthetic, an ultrasound probe will be inserted into your back passage. This scans your prostate to make sure the tubes have been inserted in the right place. Thin tubes are then passed through the perineum, which is the area between the testicles and the opening of the back passage (anus), into the prostate and the surrounding tissues. There are normally 10 to 20 tubes, and once they are in the right position, they are secured in place.

You will also have a catheter fitted, which is a thin tube passed through the penis into the bladder to drain urine.

You will then have a scan – either a computerised tomography (CT) scan, magnetic resonance imaging (MRI) scan or ultrasound scan. Each hospital does things slightly differently and you may need more than one scan. Your doctor will use the scan to plan the doses of radiation needed for your treatment. [Read more about scans.](#)

You may still be asleep during the scan, or you may be awake. If you are awake, you will need to lie still during the scan and your treatment. Some men find this uncomfortable.

## Treatment

During treatment, the tubes in your prostate are attached to the brachytherapy machine. A source of radiation attached to a wire is inserted into each tube in turn. The radiation source stays in each tube for a set period of time. The machine automatically removes the source of radiation at the end of the treatment.

Most hospitals just do one treatment, but you may have more than one. This will depend on your hospital. Check with your doctor or nurse how many treatments you will have, and whether you will be asleep or awake during treatment.

### One treatment

In some hospitals, you will have the treatment while you are asleep in the operating theatre and the tubes will be removed before you wake up. In other hospitals, you will have the treatment in the brachytherapy room while you're awake. The treatment itself is completely painless. The tubes are removed after the treatment has finished.

### Two or three treatments in total

If you have more than one treatment, there will be a gap of at least six hours between each one. You will have each treatment in the brachytherapy room while you are awake.

Some hospitals will leave the tubes in place in between each treatment. Some men find this uncomfortable. You normally have to lie on your back and keep still to make sure the tubes don't move. Some men find it a long time to lie still.

Other hospitals will remove the tubes after each treatment, and insert new ones for the next treatment. Ask your doctor or nurse how they will carry out the treatments.

## After treatment

After the treatment has finished, the nurse will take your catheter out. This might be uncomfortable but should not be painful. Some hospitals will leave the catheter in overnight, until the blood starts to clear from your urine.

Many people feel fine after anaesthetic but some people have side effects such as feeling sick or dizzy. Some men find it difficult to urinate after treatment. You can go home when you have recovered from the anaesthetic and can urinate normally. This may be on the same day as treatment but some men need to stay in hospital overnight.

You shouldn't drive for 24 to 48 hours after the anaesthetic. Ask a family member or friend to take you home.

Your doctor or nurse will give you any medicines that you need at home. These may include drugs to help prevent urinary problems (such as tamsulosin) and antibiotics to prevent infection. You may be given pain-relieving drugs such as paracetamol or ibuprofen.

You may notice some blood in your urine for a few days after your treatment. You may also have some discomfort and bruising in the area where the tubes were placed. Your bowel movements may also feel a little uncomfortable. This should settle down after a few days.

No radioactive material is left in the prostate, and you won't give off any radiation. So it's safe for you to be around other people, including children and pregnant women.

If you are having [external beam radiotherapy](#) after the HDR brachytherapy, you will start this around two weeks after your brachytherapy.

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• [Questions to ask your doctor or nurse](#)

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

### How does temporary brachytherapy treat prostate cancer?

Temporary brachytherapy, also known as high dose-rate brachytherapy, involves inserting a source of high dose-rate radiation into the prostate gland for a few minutes at a time to destroy cancer cells. Because the radiation is delivered from inside the prostate, the healthy tissue nearby gets a smaller dose of radiation and is less likely to be damaged.

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## What should I look out for after treatment?

Your doctor or nurse will give you a telephone number to call if you have any questions or concerns. Contact them or go to your local accident and emergency (A&E) department if any of the following happen.

- If your urine is very bloody or has clots in it, this could mean you have bleeding in your prostate. This may need treatment as soon as possible.
  - If you are suddenly not able to urinate, this could be acute urinary retention. This will need 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.
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## What happens afterwards?

### Going back to normal activities

You should be able to return to your normal activities a few days after treatment. You can go back to work as soon as you feel able – this will depend on how much physical effort your work involves. Speak to your doctor or nurse about your own situation.

### Your follow-up appointment

You will have an appointment with your doctor or nurse a few weeks after your treatment. They will monitor how well you are recovering from the treatment and ask about any side effects. [Read more about what to expect at a follow-up appointment.](#)

Your PSA level should gradually drop to its lowest level (nadir) after 18 months to two years. How quickly this happens, and how low your PSA level falls, varies between men. If you have [hormone therapy](#) as well as HDR brachytherapy, your PSA may fall more quickly. Some PSA will still show up in tests because healthy prostate cells may still produce small amounts of PSA.

A sign that your cancer may have come back is if your PSA level has risen by 2ng/ml or more above its lowest level, or if it has risen for three or four PSA tests in a row.

If your PSA level does start to rise, talk to your doctor or nurse about what treatment might be suitable for you. [Read more about treatment options if your cancer comes back.](#)



## Follow-up after prostate cancer treatment

In this booklet, we describe the care and support you can expect after your treatment.

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## What are the side effects?

Like all treatments, HDR brachytherapy can cause side effects. These will affect each man differently, and you may not get all the possible side effects. Before you start treatment, talk to your doctor, nurse or radiographer about the side effects. Knowing what to expect can help you deal with them.

You may have more side effects if you have HDR brachytherapy and [external beam radiotherapy](#) together – although this doesn't always

happen. External beam radiotherapy can cause side effects months or even years after treatment.

You might also get more side effects if you had problems before treatment. For example, if you already had urinary, erection or bowel problems, you may find these are worse after HDR brachytherapy.

## Tiredness and fatigue

You may feel tired for the first few days after treatment as you recover from the anaesthetic. The effect of radiation on the body may make you feel tired for longer, especially if you are on hormone therapy as well. If you are getting up a lot during the night to urinate, this can also make you feel tired in the day.

Fatigue is extreme tiredness that can affect your everyday life. It can affect your energy levels, your motivation and your emotions. Fatigue can continue after the treatment has finished and may last several months.

If you are also having [external beam radiotherapy](#), this can also cause tiredness.

There are things you can do to help manage fatigue. [Read more about fatigue and managing fatigue](#). Or [contact our Specialist Nurses](#).

## Urinary problems

HDR brachytherapy can cause urinary problems, including:

- irritation of the urethra and bladder (radiation cystitis)
- needing to urinate more often (urinary frequency)
- needing to urinate urgently (urinary urgency)
- difficulty emptying the bladder properly (urine retention).

[Read more about urinary problems after brachytherapy and what might help](#).

## Erection problems

HDR brachytherapy and [external beam radiotherapy](#) can both affect the blood vessels and nerves that control erections. This may cause problems getting and keeping an erection (erectile dysfunction). This may gradually get worse over several years, especially if you have [external beam radiotherapy](#) as well.

You may be more likely to have problems getting an erection if you had any erection problems before treatment, or if you have [hormone therapy](#) or [external beam radiotherapy](#) alongside brachytherapy.

There are ways to manage erection problems. [Read more about erection problems and what might help.](#)

## Other sexual problems

Some men notice a reduced sensation along the penis immediately after HDR brachytherapy. This may slowly improve but it can occasionally be permanent.

You may find that you ejaculate less semen. Or you may have a 'dry orgasm' where you have the sensation of an orgasm, but don't produce any semen.

## Having children

Brachytherapy may make you infertile, which means you won't be able to have children naturally. But there is still a chance that you could make someone pregnant after brachytherapy. It's possible that the radiation could change your sperm and this might affect any children you conceive, although the risk of this is very low. If this is relevant to you, use contraception to avoid having a child for a while after treatment.

If you are planning on having children you may be able to store your sperm before you start treatment so that you can use it later for fertility treatment. If this is relevant to you, ask your doctor or nurse whether sperm storage is available locally.

## Bowel problems

The risk of bowel problems is low in men who have HDR brachytherapy. But you are more likely to have problems if you are also having [external beam radiotherapy](#).

Bowel problems can include:

- passing more wind
- loose and watery bowel movements (diarrhoea)
- inflammation, pain and bleeding in the back passage (proctitis).

Bleeding from the back passage is a rare side effect of HDR brachytherapy. It can also be a sign of other bowel conditions such as bowel cancer, so tell your nurse or GP about any bleeding. They may do some tests to find out what is causing it. They will also be able to tell you about treatments that can help.

## If you are gay or bisexual

If you are gay, bisexual, or a man who has sex with men, some of the side effects of HDR brachytherapy may cause specific issues for you.

If you are the active partner during anal sex you normally need a strong erection. If you have problems with erections, there are treatments that may help keep your erection hard enough for anal sex. [Read more about erection problems and what might help](#).

If you are the receptive partner during anal sex, then bowel problems may be a particular issue. If you do have bowel problems, wait until these have improved before trying anal play or sex. Ask your doctor or nurse for more information or [speak to our Specialist Nurses](#).





## Our online community

Confront prostate cancer together. Join our online community and talk about what's on your mind - your questions, your ups and your downs.

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## Questions to ask your doctor or nurse

- Will I have [external beam radiotherapy](#) before or after temporary brachytherapy?
  - Do I need [hormone treatment](#) before and/or after temporary brachytherapy?
  - What are the chances of side effects such as urinary problems, erection problems and bowel problems with this treatment?
  - How many treatments will I have?
  - Will I be asleep or awake during treatment?
  - How long will I need to stay in hospital for the treatment?
  - How will we 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?
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## Living with prostate cancer

Dealing with side effects of prostate cancer, practical tips and how to manage.

[Read this next](#)

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## References

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 [Full list of references used to produce this page](#)