# External beam radiotherapy

This fact sheet is for men who are thinking about having radiotherapy to treat their prostate cancer. It is also for friends and family who would like to know more about this type of treatment. It is one of a series of fact sheets that have been written to help you decide which treatment is best for you. It describes how prostate cancer is treated using a type of radiation directed at the prostate gland from outside the body. 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 you will have.

This fact sheet does not describe internal radiotherapy (brachytherapy). For information on this treatment, please read our Tool Kit fact sheets, **Brachytherapy** and **High dose rate brachytherapy**. This fact sheet does not cover the use of radiotherapy for pain relief in advanced prostate cancer. If you would like more information about this, you can read our Tool Kit fact sheet, **Palliative radiotherapy**.

# In this fact sheet:

- Who can have radiotherapy?
- How does radiotherapy treat prostate cancer?
- What are the advantages and disadvantages?
- What does treatment involve?
- What happens afterwards?
- What are the side effects?
- Where can I get support?
- Questions to ask your specialist team
- More information

# Who can have radiotherapy?

Radiotherapy is one of the treatments that can be used to treat cancer that is still contained within the prostate gland (localised prostate cancer). Radiotherapy may also be suitable for some men whose cancer has spread to the area just outside the prostate (locally advanced prostate cancer).

Radiotherapy is a suitable treatment for men of any age and is as effective at treating localised prostate cancer as surgery to remove the prostate (radical prostatectomy).

You may be given external beam radiotherapy alongside brachytherapy or high dose rate brachytherapy (internal radiotherapy). This increases the total amount of radiation, which can improve the effectiveness of treatment, but may also increase the risk of side effects.

Radiotherapy can also be used after surgery if your PSA level starts to rise or if not all the cancer was removed with surgery.



Your specialist team should discuss the advantages and disadvantages of all the different treatment options with you. Other treatment options for localised prostate cancer may include:

- Active surveillance
- Radical prostatectomy
- Brachytherapy
- Watchful waiting

You may also be offered high intensity focused ultrasound (HIFU) which heats and destroys the cancer, or cryotherapy which uses freezing and thawing to kill the cancer cells, as part of a clinical trial or through private healthcare. These treatments are not used very often in the NHS as a first treatment because not enough is known about their long term benefits and risks.

For more information on all of the treatments listed above, please read our range of Tool Kit fact sheets or call our confidential Helpline on 0800 074 8383.

# How does radiotherapy treat prostate cancer?

The aim of radiotherapy is to destroy prostate cancer cells, while limiting any damage to normal cells. High energy X-ray beams are directed at the prostate gland from outside the body. These beams damage the cells and stop 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.

The whole prostate is treated. In some cases, the area surrounding the gland may also be treated. This is to try and treat all cancer cells, including any that may have spread to the area just outside the prostate. The treatment is painless but you may experience some side effects (see page 4).

The most common type of external beam radiotherapy for prostate cancer is called 3D conformal radiotherapy (3D-CRT). The radiotherapy machine directs the beams to fit the size and shape of your prostate. This helps to avoid damaging the healthy tissue

surrounding the prostate and so reduces the risk of side effects.

A new type of 3D-CRT called intensity-modulated radiotherapy (IMRT) is available in some treatment centres. With IMRT, the radiation beams can be adjusted to give different doses to different parts of the area being treated. This means that a higher dose of radiation can be given to the prostate gland without increasing the risk of damage to surrounding tissues.

# What are the advantages and disadvantages?

The advantages and disadvantages of radiotherapy will depend on your age, health and the stage of your cancer. Radiotherapy will affect each man differently, and your specialist team will discuss your individual situation and options with you.

# **Advantages**

- It has none of the risks of surgery associated with having a general anaesthetic.
- It is painless.
- It is relatively quick. Daily treatment sessions last about 20 minutes and you do not need to stay in hospital overnight.
- You can carry on with many of your usual activities while you are having treatment.

# Disadvantages

- You will need to go to hospital for treatment five days a week for several weeks.
- There is a risk of side effects which could affect your quality of life such as bowel problems, urinary problems and erectile dysfunction. See page 4 for more information about side effects.
- It may be some time before you will know whether the treatment has been successful (see page 4).

# What does treatment involve?

# Before treatment

If you decide to have radiotherapy you will be referred to a specialist who treats cancer with radiotherapy, known as a clinical oncologist. The treatment itself will be carried out by a therapy radiographer.

You may be given hormone therapy for three to six months before you begin radiotherapy. This shrinks the prostate and makes the cancer easier to treat. You may also have further hormone therapy throughout your course of radiotherapy. Some men who are at a higher risk of their cancer spreading will continue to have hormone therapy for at least two years after radiotherapy. You can read more about hormone therapy in our Tool Kit fact sheet, Hormone therapy.

Before starting radiotherapy you will be invited to a planning session. You may have more than one session. You will have a CT (computerised tomography) scan to find the exact location, size and shape of your prostate. This is to make sure the treatment is accurate and that the surrounding areas do not receive more radiation than is necessary.

You will then be given three small permanent marks on your lower body. You will barely be able to see them but they help the staff to put you in the right position on the radiotherapy machine each time you are treated.

Some treatment centres may implant a small number of gold seeds, called fiducial markers, into the prostate. These are about the size of a grain of rice. They show up on scans and help the specialist team to locate the prostate during treatment.

Most treatment centres will give you information about how full or empty your bladder and bowel should be. This helps the specialist team to make sure they are treating the right area each time.

Tell your specialist team about any medication you are taking before you start treatment.

## **Treatment**

You will be treated at your hospital radiotherapy unit during the day and you will not have to stay overnight. You will have one treatment (known as a fraction) every day from Monday to Friday, with a rest over the weekend to help your normal cells recover. Treatment normally lasts between seven and eight weeks. Some hospitals may offer a shorter course of about four weeks, with

higher doses per session but a slightly lower total dose.

At the beginning of each treatment, a member of staff will help you into the right position on the radiotherapy machine using the marks on your lower body as a guide. It can take a little while but it is important to get it right. The staff then leave the room. They will be able to see and hear you at all times.

The treatment then starts and the machine moves around your body. It does not touch you and you should not feel anything. You will need to keep still but the treatment itself only lasts a few minutes. The whole session lasts about 10-20 minutes, including the time taken to position you on the machine.

You will have regular scans or X-ray images taken during the course of your treatment to check that the radiotherapy is given to the correct area. The number and type of images taken will vary between treatment centres. Some centres use a method called image guided radiotherapy (IGRT), where the position of the prostate is checked just before treatment. Ask your specialist team about what sort of scans you will have.

It is perfectly safe for you to be around other people, including children, during your course of radiotherapy. You will not give off any of the radiation you have been given.

Treatment affects men differently but many are able to continue with normal activities. Many men continue to work while having radiotherapy but some men find that they need time to rest during treatment. If you have any questions about your treatment, speak to your specialist team. They can give you advice on coping with any side effects. You can also speak to one of our specialist nurses by calling our confidential Helpline on 0800 074 8383.

# Salvage radiotherapy

If you are having radiotherapy after surgery because your PSA level has started to rise, your specialist team will treat the area where the prostate gland was removed from (the prostate bed). This is called salvage or second line radiotherapy. The treatment is carried out in the same way, although you may be given a lower dose of radiotherapy. You may also be given hormone therapy at the same time.

# What happens afterwards?

Your PSA level will be checked six to twelve weeks after your treatment has finished. It will then be checked at least every six months for two years and after that at least once a year. This is to monitor how well the radiotherapy has worked. You will also be asked about any side effects that you may have. Follow up will vary between different centres and your specialist team will tell you how often your PSA level will be tested.

If your treatment has been successful your PSA level should drop. However, how quickly this happens, and how low the PSA level falls, will depend on whether you had hormone therapy alongside radiotherapy. If you had radiotherapy on its own, it may take 18 months to two years for your PSA level to fall to its lowest level. If you had hormone therapy as well, your PSA level may fall more quickly.

Your PSA level may start to rise again after radiotherapy because your prostate will still produce some PSA. 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 find more information about PSA levels after radiotherapy in our booklet, **Recurrent prostate cancer**, or call our confidential Helpline on 0800 074 8383.

# What are the side effects?

Side effects can happen when the normal healthy cells next to the prostate are exposed to radiation. Many of these healthy cells are able to recover and so side effects may only last a few weeks or months. However, some side effects can take longer to develop and can become long term problems.

The most common side effects are described here. There is no way of knowing which, if any, you will get and radiotherapy will affect each man differently. Ask your specialist team about the risk of side effects. You can also ask them to show you their past results.

Your treatment centre may arrange for you to have regular appointments with someone in your specialist team, where you can discuss any symptoms that are worrying you. You will also see a radiographer every time you go for treatment who will be able to give you information and support. Side effects can often be treated so, if you experience anything unusual after having radiotherapy, ask your specialist team about it. You can also call our confidential Helpline on 0800 074 8383.

# Short term side effects

These can develop during or shortly after your treatment.

## **Bowel problems**

The bowel and back passage are exposed to radiation because they are close to the area being treated. This may not cause any problems, but in most men it causes the lining of the bowel to become inflamed (proctitis), which then leads to symptoms. Before you start radiotherapy, tell your specialist team if you have ever had any problems with your bowels because this may increase your risk of further bowel problems after treatment.

Symptoms vary from man to man. Many men will notice that their stools become loose and watery (diarrhoea). They may pass more wind, need to go to the toilet more often, or have 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. You may leak stools (faecal incontinence) or get pain around the abdomen or back passage. You may feel that you have not emptied your bowels properly. Some men get bleeding from the rectum, but this is less common. You should let your specialist team know if this happens.

These symptoms usually start during the first few weeks of treatment. Symptoms usually begin to settle down a few weeks after you have finished your treatment, although some men may find that some of the symptoms last longer. You should tell your specialist team about any changes in your bowel habits and talk to them before taking any medication for your symptoms. They may give you creams or drugs to help.

Your specialist team may give you advice on your diet but usually you should follow a normal diet and drink plenty of fluids. Although a diet high in fibre such as fruit and vegetables is generally healthy, some men may find that too much fibre makes diarrhoea worse. Eating a low fibre diet for a short time may help with these symptoms. Low fibre foods include rice, potatoes (without skins), pasta and meat.

Some men may find that gentle exercise, such as regular walks, can help with bowel problems after radiotherapy.

# **Urinary problems**

Radiotherapy can irritate the lining of the bladder. This can cause a burning feeling when you pass urine, difficulty passing urine, a need to pass urine more often and more at night, and sometimes blood in the urine. This is known as radiation cystitis. Symptoms may appear within a week or two of starting treatment but these usually start to improve once your course of treatment is finished.

Tell your specialist team if you develop any urinary symptoms. They will check whether they are being caused by radiotherapy or by an infection. Drink plenty of fluids but try to reduce coffee, tea and alcohol because they can irritate the bladder.

Some men find that drinking cranberry juice helps. However, avoid it if you are taking the drug warfarin to thin your blood because it can increase the effect of the drug.

#### A personal experience

"I had no side effects for the first few days but towards the end of treatment it became a case of when I had to go, I needed to go straight away."

#### **Tiredness**

Towards the end of your treatment, you may feel more tired than usual. Regular gentle exercise, such as walking, can help to prevent and improve tiredness. Many men continue to work throughout their treatment but if tiredness becomes a problem you may need to take some time off work. Most men recover completely from their tiredness within a couple of months of finishing treatment.

# A personal experience

"One invaluable tip was to take a short rest each day when I got back home after having treatment."

# Skin irritation and hair loss

This is less common than it used to be as radiotherapy techniques have improved in recent years. Towards the end of treatment, the skin between your legs and around your back passage may become a bit darker in colour and sore, like sunburn. Tell your specialist team if you have any of these symptoms. Avoid using any creams, lotions or perfumed soaps unless you are advised to do so by your specialist team. Wear loose, cotton clothes and try to keep the area cool. Avoid hot baths.

You may also notice that you lose some hair in the area that has been treated (pubic hair). This usually grows back but hair loss can be permanent in some men. You will not lose any hair on other parts of your body or your head.

# Painful ejaculation

The tube that you pass urine and semen through (urethra) can become inflamed. This may make ejaculation uncomfortable, but this should improve after you finish treatment. If you are worried about this, speak to your specialist team.

# Long term side effects

Most side effects will settle down after your radiotherapy treatment has finished. However, some side effects can become long term or permanent. These can start to appear several months after you finish your treatment.

Older age, diabetes, previous bowel or prostate surgery, and previous bladder and bowel problems can all increase your risk of getting long term side effects. Speak to your specialist team about your own risk.

## **Bowel problems**

Although bowel problems often improve once treatment has finished, some men will find that their bowel habits change permanently. This may be a minor change, such as having to open your bowels twice a day instead of once a day, or it can be a bigger change that affects your everyday life.

Symptoms may develop months or years after treatment and may be similar to those listed on page 4. If you had bowel problems during treatment, such as diarrhoea or feeling the need to go but not being able to, you may be up to seven times more likely to develop problems later than if you had no problems during treatment.

Try not to be embarrassed to tell your specialist or your GP about any new or existing bowel problems. There are often simple treatments available that can help. Bowel problems are common in older men, so it is possible that they are due to something other than the radiotherapy. Your specialist or your GP can arrange simple tests to find out the cause of your symptoms or they may recommend that you are referred to a bowel specialist.

If you have long term bowel problems, you may be offered a test called a flexible sigmoidoscopy. A small tube is inserted into the back passage and the doctor looks at the lining of the bowel. This checks for any damage to the bowel to see whether it is caused by the radiotherapy or by something else.

#### **Urinary problems**

Urinary problems may develop several months or years after treatment. If you had problems during treatment, you may be up to three and a half times more likely to develop urinary side effects later than if you had no urinary problems during treatment.

As well as the urinary symptoms mentioned on page 5, a few men get a narrowing of the urethra (stricture) which makes it difficult to pass urine. This can be treated with surgery.

In rare cases radiotherapy can cause you to leak urine. This is more likely if you have previously had prostate surgery such as a

trans-urethral resection of the prostate (TURP) or radical prostatectomy.

For more information you can read our Tool Kit fact sheet, Urinary problems and prostate cancer, or call our confidential Helpline on 0800 074 8383.

## Sexual problems

Radiotherapy can damage the blood vessels and nerves that control erections and so can affect your ability to get and keep an erection (erectile dysfunction). It can take up to two years for these symptoms to fully appear.

Erectile dysfunction can affect approximately two in five men (40 per cent) treated with radiotherapy. Other things such as tiredness and the stress of living with prostate cancer can also affect your sex life. There are several treatments available for erectile dysfunction.

Some men may notice that they produce less semen when they ejaculate and some will have a 'dry' orgasm where they do not ejaculate any semen.

For more information about sexual problems after radiotherapy, speak to your specialist. You can also read our Tool Kit fact sheet, Sex and prostate cancer or call our confidential Helpline on 0800 074 8383.

#### Infertility

Radiotherapy can damage the cells that make semen and cause fertility problems. 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 in fertility treatment. If this is important to you, ask your specialist team whether sperm storage is available locally.

There is a very small risk that radiotherapy could affect any children you may conceive during treatment, so you may wish to use contraception if there is a chance of your partner becoming pregnant.

#### Other cancers

There is a small chance of developing another cancer after having radiotherapy but this is very rare. The cells in the tissues surrounding the prostate gland, which have

been exposed to the radiation beams, can be damaged, causing a cancer to grow. The types of cancer that may develop include bladder, colon and rectal cancers. It may take at least five years after treatment with radiotherapy for a second cancer to appear.

# 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 the specialist team. Some people find that it helps to talk to other men who have had radiotherapy. There are prostate cancer support groups throughout the country. You can find details of your nearest group on our website or ask your specialist team.

We can also arrange for someone who has experience of radiotherapy to speak to you through our peer 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 at www.prostate-cancer.org.uk

# A personal experience

"It is helpful and relaxing to chat with the other men in the waiting area, a shared experience lets you know that you are not on your own."

# Questions to ask your specialist team

How many radiotherapy sessions will I have?

Will I have hormone treatment? Will this continue after the radiotherapy?

What side effects might I get? Will these be temporary or permanent?

Will I be able to continue as normal during the treatment (go to work etc)?

How will we know how successful the treatment has been?

If the radiotherapy is not successful, which other treatments can I have?

Who should I contact if I have any questions at any point during my treatment?

# More information

# **The Prostate Cancer Charity**

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

#### **UK Prostate Link**

www.prostate-link.org.uk
UK Prostate Link helps you find reliable
information about all aspects of prostate cancer.

## 'Going for a' website

www.goingfora.com

Virtual hospital from the Royal College of Radiologists. Interactive information on cancer treatment and scans. Includes descriptions from both staff and patients.

## **Sexual Advice Association**

www.sda.uk.net

Helpline: 020 7486 7262 Information on treatments for erectile dysfunction. 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 had and will help you to make any decisions you may face. Please contact 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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Certified member

A charity registered in England and Wales(1005541) and in Scotland (SCO39332)

# More information continued CancerHelp UK

www.cancerhelp.org.uk

Freephone helpline: 0808 800 4040

Mon - Fri 9am-5pm

CancerHelp UK is the patient information website of Cancer Research UK. It contains information on radiotherapy and living with cancer.

## **Macmillan Cancer Support**

www.macmillan.org.uk

Macmillan Helpline: 0808 808 00 00

Mon-Fri 9am-8pm

Information on coping with cancer and treatment as well as financial support for people with cancer, family and friends.

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

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