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A Patient's Guide to External Beam Radiotherapy for Prostate Cancer

The Prostate Brachytherapy Centre

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Tailoring Technology to Treatment

This is a booklet for men who are either considering treatment, or are being treated, for prostate cancer with external beam radiotherapy. It also provides useful advice and information for their families. It is best read in conjunction with the more general booklet in this series, *A Patient's Guide to Prostate Cancer*, which provides an overview of the subject and introduces terms used in this booklet. This booklet may have already been given to you, or it may be viewed and downloaded from the website: www.prostatebrachytherapycentre.com

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Introduction

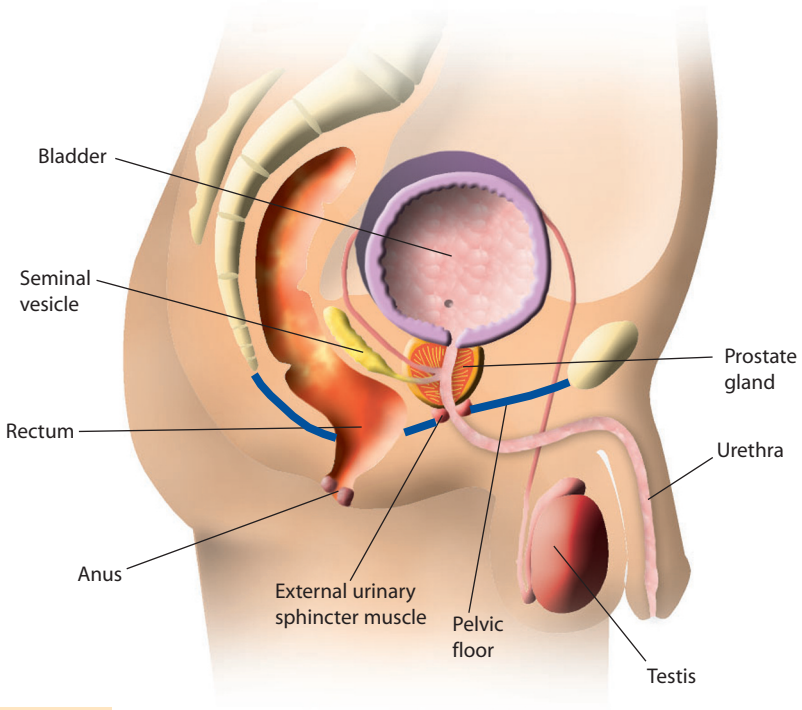

Diagram of the prostate (side view).

External beam radiotherapy is the use of radiation to kill cancer cells. Machines called **linear accelerators** produce high-energy x-ray beams which are directed at the prostate. The x-rays damage the cancer cells, preventing growth and causing their death.

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Radiotherapy can be radical (aimed at cure) or palliative (aimed at symptom control), depending on how advanced the cancer is.

Linear accelerator.

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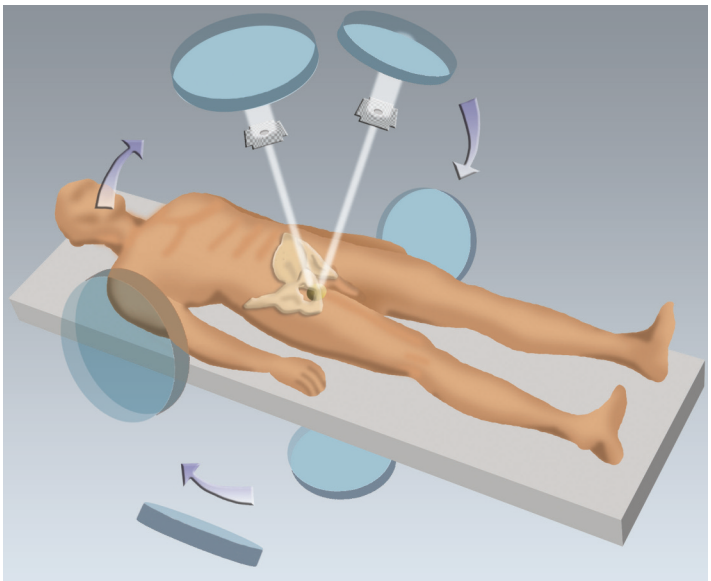
Radical External Beam Radiotherapy

Radiation is directed at the prostate gland and the aim is cure. Patients who are suitable must therefore have a good chance that their cancer is confined to the prostate gland. The radiation can cover a small area surrounding the gland, including the seminal vesicles (pouches that lie behind the gland and provide nutrients for the sperm), so that if there is a possibility of spread to these areas, they can also be encompassed.

Most centres in the UK now use **3D conformal external beam radiotherapy** to treat prostate



3D conformal external beam radiotherapy. Lead blocks shape the x-ray beams to the shape of the prostate and shield the surrounding normal tissue. The beams can be directed from any position around the patient.

cancer. CT scan images are used by a specialised computer to accurately target the prostate gland. The x-ray beams are then shaped to the target, using lead blocks to shield the normal tissue. This reduces the dose of radiation to the normal tissues around the prostate, enabling a higher dose of radiation to be delivered to the prostate to kill the cancer.

Radiotherapy is given daily, Monday to Friday, over 4-8 weeks. Each daily dose is called a **fraction**. By splitting up the dose in this way, normal tissue in the target zone that cannot be avoided has time to recover between treatments, limiting damage to it. The cancer cannot recover as easily, as it does not have the mechanisms to do so. Your exact schedule will be determined by your oncologist.

Radiotherapy planning

Before you start radiotherapy, your treatment needs to be planned. The initial hospital appointment will be for a specialised CT scan. You will lie on the scanner bed on your back with your arms above your head, which is the same position you will be in for your treatment. To ensure that your position is the same at each treatment visit, pinpoint dots are marked on the skin in the centre at the level of your pubic bone and at each side at this level. To prevent the marks washing off, they are tattooed and become permanent. These marks are used to line you up accurately.

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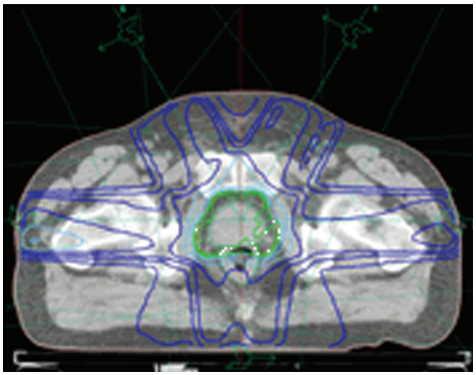
The CT scan is downloaded into a specialised planning computer and your oncologist will localise the prostate and any surrounding tissue to be targeted. A planning team produces a treatment plan which is authorised by your oncologist.



You may need to visit the **radiotherapy simulator**. This is where we check that your position and the treatment plan are correct. Here, you lie on a couch in the treatment position and the simulator, which looks like a treatment machine, takes a series of x-rays.

This planning process can take up to 4 weeks. You are now ready to start your treatment.

Treatment

The radiotherapy is given by **radiographers**. They are responsible for positioning you for treatment and operating the radiotherapy machines (linear accelerators). They are also there to answer any treatment-related concerns and if they are unable to help, will direct you to the right place.

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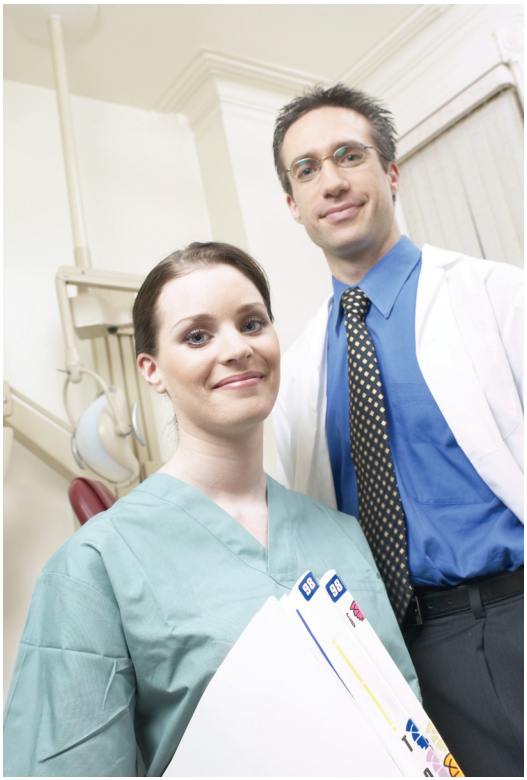
During treatment, you are in the treatment room on your own, but are watched through cameras. The machine rotates into place and switches on. You will hear a ticking noise. It usually moves into 3-4 positions. Each daily treatment takes approximately 15 minutes, which includes time to position you on the couch. The machine is on for less than 5 minutes in this period. You do not feel anything whilst having treatment: it is like having an x-ray.



Side-Effects

People react differently: most will be able to continue their usual daily activities, and some continue to work. Patients can feel tired. More specific side-effects relate to the normal tissue close to the prostate that receives a dose of radiation and can become irritated and inflamed, e.g. the bladder and bowel.

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Side-effects can be divided into short- and long-term ones.

Short-term side-effects usually become apparent towards the end of treatment and resolve by six weeks after treatment is completed. They are not usually severe and medication can be of help when necessary.

Long-term side-effects become apparent months to years after treatment and are due to the normal tissue not recovering completely and becoming scarred.

Short-term side-effects

Urinary symptoms

Typically, towards the end of treatment, you may notice that you pass urine more frequently or urgently and need to get up more often at night to pass urine. You may also experience burning when passing urine (cystitis) – cranberry juice may be helpful in resolving this.

Bowel symptoms

During treatment, some patients open their bowels more frequently and with greater urgency. Motions may be looser and associated with colic pains and wind. Dietary changes, to reduce fibre intake, may be helpful and medication to reduce bowel motions can be used if necessary. Constipation can also occur.

Rectal bleeding may be experienced due to irritation of the lining of the rectum by the radiation. You need to let your team know if this happens.

These side-effects will usually resolve in the 4-6 weeks following treatment.

Nausea

This is rarely a problem and can be treated with medication.

Skin soreness

You may find that the skin between the buttocks will become reddened and sore. Advice on skin care can be obtained by your radiographers. Again, this will resolve after treatment.

Hair loss

You will lose hair that is within the treatment field, i.e. pubic hair – this may not grow back, but you will not lose the hair on your head.

Long-term side-effects

Bowel habit

A few patients will find that their bowel motions remain a little more frequent or looser than prior to treatment. However, this has a significant impact on quality of life in less than 5% of patients.

Urinary symptoms

Very occasionally, patients can have chronic difficulties in passing urine or persistent urgency or frequency. There are often ways to improve this.

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Impotence

40-60% of men are impotent after radiotherapy. This depends on a number of factors. Impotence rates are lower in younger men and those with better potency pre-treatment. The use of hormones also reduces potency, but this is reversible once they are stopped.

Hormones

Prostate cancer growth is controlled by the male hormone, testosterone. You may be started on medication to stop the production or block the action of testosterone before radiotherapy.

Testosterone production is stopped using an injection that is given just under the skin, either in the upper arm or the abdomen. This injection can be given every month or three-monthly.

Testosterone can also be blocked using a daily tablet. This hormone therapy is often given for 3-4 months before, and during, radiotherapy. The aim is threefold:

1. To shrink the prostate gland (and cancer), so that the area needed to be treated with radiation is smaller.
2. To make the radiation more effective.
3. To kill cancer cells that may have escaped into the bloodstream and reduce the chance of the cancer returning.

Your oncologist may recommend continuing hormonal therapy for 2-3 years in total.

Side-effects of hormonal therapy commonly include loss of sexual desire, impotence and hot flushes. These are reversed when the treatment is stopped.

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Palliative Radiotherapy

If your cancer is more advanced, and cure is not possible, treatment is aimed at relieving any symptoms from the cancer.

Radiotherapy can be particularly helpful at improving pain from secondary bone cancers. This involves a short visit to the radiotherapy simulator and only one, or perhaps a few, fractions of radiation to be effective. Side-effects are minimal. Occasionally, there is a small increase in pain the following day, before the pain starts to improve. Improvement can start within a few days and maximum benefit is felt by four weeks.

Commonly Asked Questions
(taken from The Prostate Cancer Charity Toolkit)

- Is the aim of this treatment curative or for symptom control of the prostate cancer?
- Why is it better than radical prostatectomy or brachytherapy?
- Will the radiotherapy be given by a 3D conformal technique? If not, why not?
- Will I require hormone therapy before the treatment starts? If so, for how long and what are the side-effects?
- When will the radiotherapy start?
- How long will the treatment last? How many sessions?
- What are the likely side-effects of the treatment and what can be done to ease them?
- How will I know if it has been successful?

Useful website addresses and support networks

The Bladder and Bowel Foundation **www.bladderandbowelfoundation.org**
'For people with bladder and bowel problems.'

The Prostate Brachytherapy Centre **www.prostatebrachytherapycentre.com**
'The UK's largest centre for prostate brachytherapy, with experience of over 1400 successful procedures.'
Tel: 0845 50 50 560

The Prostate Cancer Charity **www.prostate-cancer.org.uk**
'Prostate cancer is our sole concern.'

The Sexual Dysfunction Association **www.impotence.org.uk**
'To help sufferers of impotence (erectile dysfunction) and their partners.'

The Prostate Project **www.prostateproject.org.uk**
'A local charity promoting male health.'

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