

Prostate Cancer: Low Dose Rate (Seed) Brachytherapy

**Information for patients,
families and friends**

About this booklet

This booklet is designed to give you information about low dose-rate (seed) brachytherapy for prostate cancer and what to expect.

If you have any questions please speak to your Radiation Oncologist or the other helpful staff at Alfred Health Radiation Oncology during your next visit.

What is brachytherapy?

Brachytherapy is a form of radiation treatment in which a radioactive source is placed inside or near the area that requires treatment.

The radioactive sources used in prostate brachytherapy naturally decay and give off radiation in this process. This radiation is absorbed into the surrounding tissue.

What is seed brachytherapy?

Low dose rate or seed brachytherapy involves placing small radioactive seeds permanently into the prostate to administer radiation.

The seeds are tiny (0.8 mm x 4.5 mm) sealed titanium capsules containing radioactive Iodine-125. The seeds do not cause any allergic, inflammatory or immune reaction in the body and are chemically inactive. The seeds are not affected when having MRI scans.

The size of a seed in comparison to a \$2 coin.



When these seeds are placed in the prostate they can over time give off a high dose of radiation. Although the radiation dose in total can be very high, the rate at which the radiation is emitted is low, so this is why seed implants are sometimes called low dose-rate or LDR brachytherapy.

Who can have seed brachytherapy?

Many men who would be suitable for a radical prostatectomy could have seed brachytherapy but there are certain criteria that need to be met to help make the seed implant a success.

They are:

- Prostate cancer must be confined to the prostate or only spread a few millimetres from the prostate.
- PSA of 10 ng/mL or less.
- A pathology grade (Gleason Score) of 7 or less.

Men with very poor urinary flow are not suitable for seed implants because the urinary flow is affected. If the prostate is very large, a seed implant may be technically impossible.

Why use seed brachytherapy to treat prostate cancer?

Over the last 15 years, seed brachytherapy and surgical removal of the prostate have had the same cure rate for men with prostate cancer. Many men prefer the side effect profile and the convenience of seed brachytherapy, compared with major surgery. Other men might have other medical problems that make surgery a bad choice.

What do I need to do to prepare for a seed implant?

Before we perform the seed implant, we do a volume study. The volume study is an ultrasound of your prostate used to plan your seed brachytherapy treatment. We do the volume study to determine the exact size and shape of your prostate and to ensure the seed implant is technically possible. The ultrasound images we record are used to plan exactly where we need to place the seeds.

Prior to the volume study you will be given medication to help you relax during the procedure. This medication will make you drowsy, so you cannot drive for the rest of the day.

The volume study is done four to eight weeks before your seed implant. You will be in the department for approximately 3 hours on the day of the volume study; however the actual procedure only takes about 45 minutes.

For the seed implant in theatre you will be positioned with your legs up in stirrups, so this is how you are positioned during the volume study. An ultrasound probe is positioned in the rectum (back passage) to get detailed pictures of the prostate gland and the surrounding anatomy.

After the volume study we will work out how many seeds are required to cover your prostate with the radiation dose and where they will be placed. Depending on the size of your prostate, we usually use between 80-120 seeds.

Once the plan is completed, your radiation oncologist will review and approve the plan. This process can take up to a week or so. Once approved, your seeds are ordered from the United States.

The seed implant

The seed implant is done in theatre under general anaesthetic. You will be positioned the same way as the volume study, using a transrectal ultrasound probe to visualise the prostate.

Needles, preloaded with your seeds, are inserted into the prostate according to the specific plan we have created for you.

The seed implant will take about 1-1.5 hours. You will either go home on the day of the procedure or stay overnight.



Staff in theatre during a seed implant.

After the seed implant

Approximately 30 days after your seed implant, you will be required to attend a CT scan appointment. We do this CT scan to calculate the actual radiation dose delivered to the prostate from the seeds. Your radiation oncologist will be there to check up on how you are going after the implant.

You will as be required to have a chest and pelvic x-ray, which helps us to account for all the seeds.

An x-ray image of the pelvis one month after a seed implant.



Side effects

Below is a list of the most common side effects associated with seed brachytherapy to the prostate. Side effects may not be limited to the following, so if you have any concerns please speak to your Radiation Oncologist.

Side effects can be divided into two groups:

- Acute – Those which happen during treatment.
- Late – Those which happen after treatment is completed.

Acute side effects

Discomfort

- Discomfort in the pelvis and the area between the legs.
- Bruising of the scrotum or penis.

Urinary

- Difficulty passing urine.
- Blood in urine.
- Abnormal urine flow – Due to bruising and swelling in the prostate.
- Frequency – Needing to pass urine more often.
- Urgency – Needing to pass urine in a hurry.
- Nocturia – Needing to pass urine at night.
- Occasionally men are unable to pass urine – If this happens you will need a catheter.

Bowel

- Occasional blood in bowel motions.
- Constipation or diarrhoea.

Other

- Nausea – The anaesthetic might make you feel sick like you want to vomit.
- Tiredness – Straight after treatment.
- Muscle aches and pains.
- Blood in semen.
- Infections – Are very uncommon and are prevented by the antibiotics given in theatre.

Late side effects

Urinary

- Urethral stricture – Narrowing of the tube through which the urine flows out from the bladder. This is uncommon but might require stretching by a Urologic surgeon.
- Irritable bladder – The bladder is abnormally sensitive to filling, resulting in the need to pass urine frequently and in a hurry. There can also be associated penile discomfort. This is very uncommon and can be helped with simple medication.
- Urinary leak or incontinence – Is very uncommon and usually associated with irritable bladder.

Bowel

- Serious bowel problems are very uncommon but may increase the frequency and urgency of bowel motions and/or cause mucous or blood to be mixed with bowel motions.
- Rectal ulceration – Very uncommon.
- Rectal fistulas – Very rare.

Sexual

- Impotence – There may be a period after the brachytherapy when men are temporarily impotent. In general terms, men who are fully potent prior to treatment, 60-70% will regain and maintain this.
- Discomfort with ejaculation.
- Decreased volume of ejaculate – Is common.

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If you would like to provide feedback or request a copy of this information in a different format, contact us at patient.information@alfred.org.au



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