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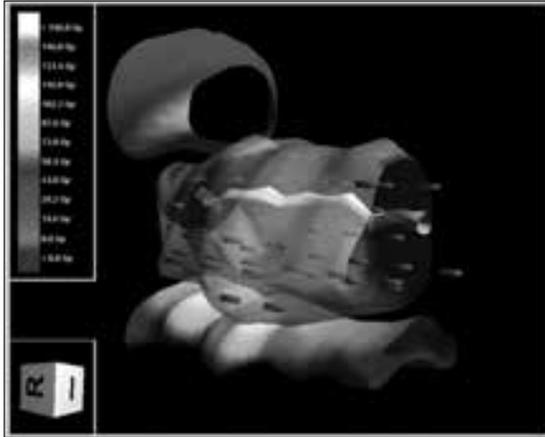
# Low dose rate brachytherapy for the treatment of prostate cancer

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## Low dose rate brachytherapy for the treatment of prostate cancer

This information booklet has been written to give you information about low dose rate brachytherapy for prostate cancer.

This booklet is intended as a guide to your treatment at this hospital. If you have any questions you may want to discuss them further with the urology/oncology nurse specialists who can be contacted on 0121 371 6926 Monday-Friday 08:00-16:00.

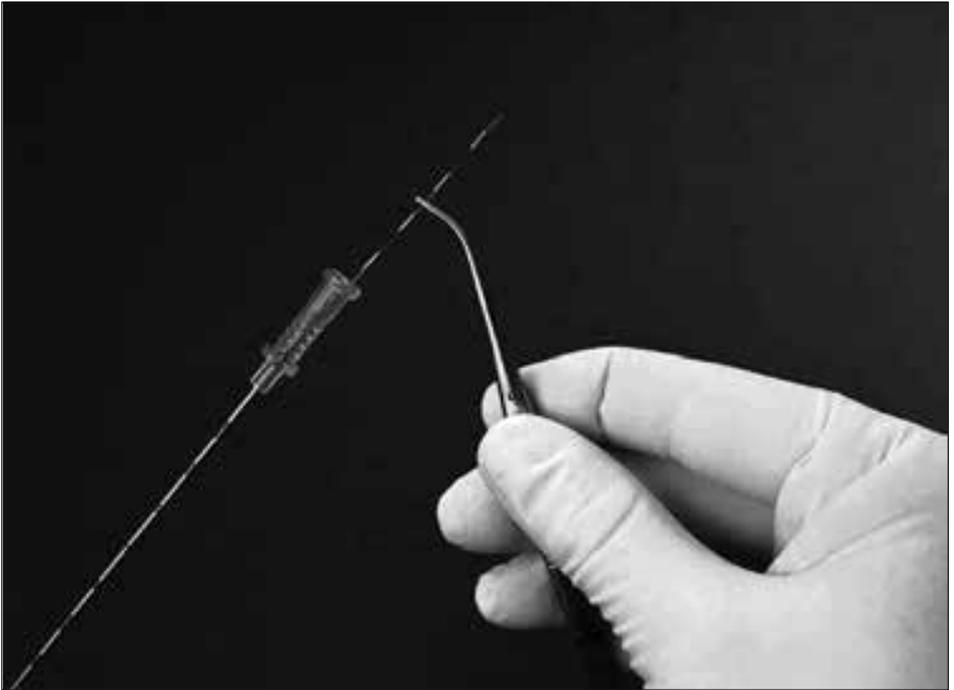
There is also an answer phone available.

### What is brachytherapy?

Brachytherapy is the insertion of radioactive Iodine – 125 ( $I_{125}$ ) seeds directly into the prostate gland. These seeds will slowly give off a low level of radiotherapy to the prostate over a period of 9 months.

The procedure is normally carried out whilst you are anaesthetised as the seeds are inserted through the skin behind the scrotum and in front of the anus. This area is called the perineum.

The seeds measure half a centimetre (5mm) in length and are half a millimetre (0.5mm) thick. They are held together by a strand which allows the seeds to be implanted easier.



The iodine seeds have a half life of 60 days which means that after 60 days half of the radioactivity will have left the seeds. After a further 60 days the remaining radioactivity will have halved again. This means there will be some radioactivity from the seeds for approximately 9 months in total. After this period of time the seeds are effectively inactive but remain permanently in the prostate gland. This should not cause you any problems.

The seeds are implanted with a very high degree of accuracy using transrectal ultrasound (TRUS) guidance from a probe inserted in the rectum (back passage) to show images of the prostate gland on a television monitor. The doctors work as a team during the procedure. One doctor (the urologist) uses the ultrasound probe to image the prostate and one doctor (the oncologist) inserts the seeds into the prostate. By working together the doctors can identify where each seed has been placed within the prostate gland.

## Are there any alternatives to brachytherapy?

There are other treatment options available for your prostate cancer, which include:

### **Active monitoring**

This option includes regular Prostate Specific Antigen (PSA) blood tests, Digital Rectal Examination (DRE) and repeat prostate biopsies to monitor the activity of the prostate cancer.

### **Laparoscopic/open radical retropubic prostatectomy**

This is the surgical removal of the prostate gland either via key hole surgery or a larger surgical incision to remove the prostate gland and the cancer in it.

### **Radical external beam radiotherapy**

This option involves high energy X-rays being focused on the prostate gland to kill the prostate cancer cells within the prostate gland. It often follows a 3 month period of hormone therapy (see Hormone Therapy).

There are information booklets on these treatment options available from your doctor, Clinical Nurse Specialist team and The Patrick Room on request.

## Who is brachytherapy suitable for?

Like all treatments for prostate cancer the more information about you and your cancer we have the better advice we can give about the available treatments. The information we will need about your cancer is:

- Your PSA value
- Your cancer grade
- Your cancer stage
- Your cancer volume

There is other information we need to know in addition to this, which includes:

- What is your urinary function like?

- What is your general health like?
- Have you had any prostate surgery?
- How big is your prostate gland?

These are explained in more detail below:

### **Prostate Specific Antigen (PSA)**

A patient with a PSA value of less than 10 ng/ml at diagnosis is ideal although a value of up to 20 ng/ml will be considered for brachytherapy.

### **Grade**

Prostate cancer is graded by a histopathologist to assess how aggressively the cancer may behave. It is given a number measured on the Gleason Scale. The primary pattern of cancer cells and the secondary pattern of cancer cells are given a number between 1 (lowest grade) and 5 (highest grade). These grades are then added together to give the Gleason score which is measured between 2 (lowest score) and 10 (highest score). In practice, there are rarely scores of less than 6 when prostate biopsy specimens are assessed. Ideally the grade of the prostate cancer should be 7 or less for brachytherapy.

### **Stage**

The stage of prostate cancer is an assessment of where the prostate cancer is. Some patients are not suitable for all potential treatments because there is evidence that the prostate cancer has spread (metastasised) to other areas of the body. Brachytherapy is only suitable for patients that have localised (organ confined) disease. To assess the stage of the cancer you will be given a digital rectal examination (DRE). To be suitable for the treatment the assessment of cancer should be T1 or T2 on DRE which means that the urologist can not feel any cancer within the prostate gland.

Further assessment of the stage of the prostate cancer is done with an Magnetic Resonance Image scan (MRI) which will show the structure of the prostate gland, the areas of cancer within

it and if the capsule (edges) of the prostate gland is intact. This is important because prostate cancer that is bulging against or through the prostate capsule may not be effectively treated with the seeds. There is often a number of weeks wait for MRI scans but this is clinically acceptable for low risk prostate cancer. Your team will arrange for your scan to be done as soon as possible.

Some patients will also require an Isotope Bone Scan to assess for potential prostate cancer spread to the bones. If you are unsure whether you need any of these scans please ask your doctor or your specialist nurse.

### **Cancer volume**

The volume of prostate cancer within the prostate gland can be estimated by the histopathologist when the biopsy is analysed. Ideally patients should have an estimated small volume of prostate cancer although larger volumes can also be treated.

### **Urinary function**

Patients that have a strong urinary flow and are able to empty their bladders well tend to recover better from the treatment rather than patients that have a poor urinary flow or other urinary symptoms.

Other symptoms of poor urinary function include frequency (urinating often), urgency (urinating with little or no warning), nocturia (rising at night to urinate) and a feeling of incomplete emptying of the bladder. These symptoms will be assessed before you have brachytherapy.

You will be expected to complete a short questionnaire about your symptoms and also urinate (at least 150mls) into a special machine (flow rate machine) that measures the strength of your urinary flow.

You will then have an ultrasound scan of your bladder to assess how much urine is left behind in the bladder (post void residual) where ultrasound gel is put on your lower abdomen to assess how empty it is. Patients that have a strong urinary flow

(greater than 15mls/sec) and have a small post void residual (less than 100mls) are less likely to have urinary problems following brachytherapy.

Some patients may be advised to take medication before their brachytherapy to improve the strength of their flow and the bladder's emptying capabilities (see alpha-blockers). In these instances, your General Practitioner (GP) will be informed.

### **General health**

It is important to determine how fit patients are prior to having a general anaesthetic. Your doctor will ask you about any previous or current medical problems that you have. The doctor will want to know if you have any blood clotting disorders, any major operations, your current medications and any chronic disease such as diabetes or breathing problems. For patients whom it is considered unsafe to offer a general anaesthetic, a different treatment option such as external beam radiotherapy or active monitoring may be offered.

### **Previous prostate surgery**

Patients that have had previous surgery to the prostate are usually offered a different treatment such as radical prostatectomy, external beam radiotherapy or active monitoring. When prostate tissue is removed during a Trans Urethral Resection of Prostate (TURP) a cavity is made in the prostate which improves urinary symptoms. It also reduces the accuracy and certainty of placing the seeds during brachytherapy and there is a risk that not all of the prostate gland will be adequately treated with the appropriate radiotherapy dose.

### **Prostate gland size**

Brachytherapy is only suitable for patients that have a prostate gland that is smaller than 50cc (cubic centimetres) when measured with a trans rectal ultrasound probe. This measurement is often routinely done at the same time that prostate biopsies are taken but patients that have a prostate

which appears large may require a repeat TRUS (transrectal ultrasound) measurement.

Brachytherapy is unsuitable for patients with large prostates because a large prostate will be partially shielded by the pelvic bones. This means that access to the prostate is difficult. Patients that have a prostate gland measured greater than 50cc may be offered a 3-6 month period of hormone therapy (see hormone therapy) which may reduce the size of the prostate sufficiently enabling complete access to the whole of the gland.

Once all of the pre-treatment information is available you will receive an appointment to see the oncology (cancer) doctors to discuss whether you are suitable for brachytherapy and a decision on your treatment will be made. A date for the brachytherapy will shortly follow for your admission to the hospital.

## The treatment

Brachytherapy treatment can be carried out either as a one stage procedure or as a two stage procedure. The treatment is the same regardless of which method is offered.

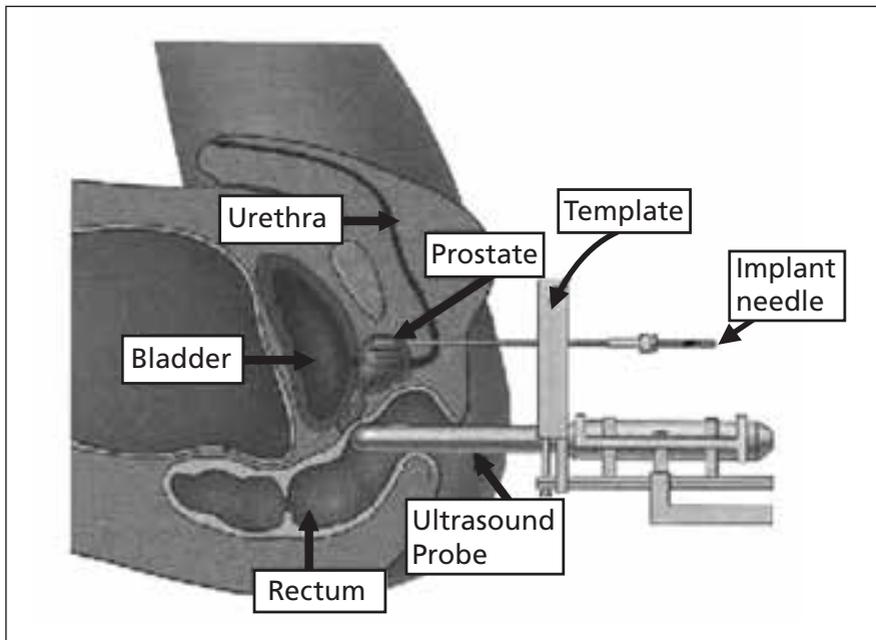
Brachytherapy is divided into two stages which can be done on two separate admissions to the hospital or in a single visit. Both the one stage and the two stage procedure will require bowel preparation (enema to clear the bowel) prior to a general anaesthetic. This allows accurate and clear pictures of the prostate to be taken. A catheter is inserted into your bladder through your urethra to help the urologist identify the structures around the prostate gland. The catheter is removed in the operating theatre before you are woken up.

### **Stage one – the volume study**

In order to make sure that the correct amount of seeds are implanted into the prostate gland and in the correct location, an accurate picture of the prostate gland is needed. This is done with a TRUS in the operating theatre whilst you are anaesthetised. The urologist is able to save pictures of the

shape and size of your prostate gland.

These pictures are then converted to a three dimensional image. This image is then used by physicists (radiotherapy scientists), to plan the exact location of the seeds to ensure all of the prostate gland receives the appropriate radiation dose. Once the location of seeds is known the physicists can calculate how many seeds are needed for the implant stage. The volume study stage takes no longer than half an hour.



### Stage two – the implant

When the physicists have planned the location and amount of seeds required, the oncologist will then be able to start the implant stage. The seeds are loaded inside hollow needles which are then inserted through the skin in the perineum (the area between the testes and the anus). A metal grid attached to the operating table ensures that the needles are inserted into the correct area of the prostate gland.

The urologist will use the TRUS to identify the prostate gland and the location of the needles within the prostate gland. This

teamwork ensures that the correct placement of the seeds is monitored for accuracy throughout the implant procedure.

Most implants will use between 80 and 120 seeds (depending on the prostate size) using 20-30 needles. The implant stage will take between one and a half hours and two hours to complete.

An X-ray of the location of the seeds is also taken in the operating theatre to ensure the seeds are correctly positioned. The doctors will look at the X-ray to ensure this.



An ice pack is placed over the area of the perineum where the seeds have been inserted. This will reduce the swelling and bruising.

Your urine will be monitored for blood content after the implant stage and if there is very little or no blood present it will be removed prior to you being woken up. Sometimes there is blood present in your urine that requires a bladder washout. Warmed sterile water is inserted into your bladder through the catheter and then removed with a syringe until the blood is less obvious. When the doctors are sure the bleeding has reduced sufficiently the catheter is then removed in the operating theatre. For some patients with heavy bleeding the catheter will be removed a few hours later when they are awake and back on the ward.

In most cases patients will be allowed home later on the same day when they have recovered from the anaesthetic or the following morning. You will not be able to drive for 24 hours

after the anaesthetic so alternative travel arrangements will be needed.

After discharge you should avoid heavy lifting and rigorous exercise for 2-3 days. After this period normal activity can be resumed.

## Alpha-blockers

Alpha-blockers is the name of a group of medicines that are useful for men with urinary problems. Alpha-blockers are tablets or capsules that are taken daily. They relax the smooth muscle in the urethra and increase the strength of urinary flow. Tamsulosin (Flomax, Flomaxtra) is commonly used in this hospital. These are taken daily (one dose per day). You will be discharged following your brachytherapy with a week's supply. You will need to take these for 3 months or longer until your symptoms settle. You will need to see your GP who will prescribe you a further supply of the tablets.

## Antibiotics

You have a risk of developing a urinary infection after brachytherapy and to reduce this risk you will be discharged with a course of antibiotics. Ciprofloxacin is an antibiotic tablet that is taken twice daily. After the course of antibiotics has been completed there is no need to arrange a repeat prescription. You will be told if a longer course of antibiotics is required.

## Side effects

There are a number of side effects from the brachytherapy which the doctors will explain to you prior to you having your treatment. Many of the side effects are related to urinary symptoms, that is why you undergo a thorough assessment before the procedure.

The immediate side effects following brachytherapy can be:

- Soreness, bruising and discolouration to the perineal area

- Blood in the urine and semen
- A burning sensation when urinating

There are other side effects that may become more intense or apparent when the radiation reaction from the seeds begins. This is usually after 1 or 2 weeks following the procedure. The urethra becomes inflamed as a response to the radiation. These side effects are:

- Stinging and burning when urinating
- Increased frequency and urgency of urinating

These symptoms can be mild for many patients but some patients may have more severe side effects. Some patients will need medication to help relieve their symptoms. Usually these side effects last for between 4 and 6 weeks. They will gradually reduce in severity over the following months. Other side effects of brachytherapy include:

### **Poor urinary flow**

The prostate becomes swollen as a response to the implantation of the radioactive seeds that then causes a restriction.

It is advised that you drink between 2 and 2.5 litres of clear fluids (combination of water and squashes) to relieve this side effect. Drinking plenty of fluid can also reduce the chances of developing a urine infection. After 2 weeks the amount of fluid can be reduced to 1.5 litres.

### **Urgency and frequency of urination**

Caffeine rich drinks such as tea, coffee and cola can irritate the bladder and cause increased frequency and urgency in wanting to pass urine. Reducing the amount of these drinks or changing to decaffeinated tea and coffee may help.

Urinary patterns will usually return to normal by 6 to 9 months following the brachytherapy.

### **Urinary retention**

Some patients will have more severe side effects after treatment.

1 in 20 patients may be unable to empty their bladder satisfactorily after their treatment and require a catheter.

The symptoms of this are a dull ache in the lower abdomen and a feeling of wanting to urinate but being unable to do so. If this happens you should either contact the nurse specialist (either at your local hospital or at the Queen Elizabeth) or attend your local accident and emergency department to be assessed by the doctors.

A catheter will be inserted into your bladder through your penis to relieve the symptoms. This will need to stay in place for a few weeks until the prostate swelling reduces. It is unlikely that it will need to stay in longer than this.

## **Bowels**

Immediately after brachytherapy some patients feel as though they are constipated. This is possibly due to the swelling of the prostate. A high fibre diet and increased fluid intake can reduce the feeling. Some patients may prefer medicines (Lactulose) to reduce the sensation and should be prescribed by the GP.

Some patients may also have an increase in their bowel frequency and notice that it is a softer motion. This is usually temporary and can be managed with a lower fibre diet or Imodium. Blood from the rectum is noticed by a few patients and although it can be alarming it is usually for a short period and stops on its own. Severe cases may need additional medication such as steroid suppositories which can be prescribed from your GP.

## **Erectile dysfunction**

As with most of the treatments for prostate cancer, brachytherapy has a risk of impotence (inability to achieve satisfactory erections). This can occur in approximately 1 in 4 men and is more common if there are already problems getting an erection before treatment. Older men (over 60) also may be at an increased risk of impotence. There are however medications that are available via your GP's for the treatment

of impotence. Tablets such as Viagra and Cialis may increase the quality of erections.

The quantity of ejaculate (semen) may decrease following brachytherapy and the first few ejaculates may appear a different colour. This is caused by bleeding in the prostate gland. It will return to normal in a few weeks. Some patients experience a painful ejaculation after treatment but this also settles with time.

Sexual intercourse should be avoided for the first 2 weeks post implant and condoms should be worn for the first 5 ejaculations. Always ensure the used condom is double wrapped before being put in a dustbin.

There are dedicated nurse-led clinics for patients that have erectile dysfunction. These are run in the urology department and referral to these clinics can be arranged by the consultants or the specialist nurse.

## Follow-up

You will be reviewed six weeks following your brachytherapy procedure in the cancer centre clinic where the doctors can assess your side effects. A CT scan will be done between discharge from the ward and this clinic appointment (approximately 4 weeks). This scan is to check the location and quality of the implants. With this information the radiotherapy dose can be calculated.

PSA blood tests are not routinely taken until 12 months following the implant. This is because the PSA is expected to be raised after the treatment. However if you are concerned about this you should discuss it with your doctor or nurse specialist.

You will then be reviewed 6 months following your implant and then at 12 months. After this period of time follow up can be arranged at your local hospital.

## Radiation safety information

Brachytherapy seeds do not pose any risks to your family members or friends. Although the seeds are radioactive you are not. There are some precautions that we would recommend for peace of mind.

For the first 2 months you should not sit close to children (under the age of puberty) for longer than a few minutes each day. There is no reason to avoid them completely and it is alright for them to have a brief hug or cuddle. There is no restriction to them staying in the same room as you.

Close contact with pregnant women (less than 0.5m) should also be restricted to a few minutes a day. Contact with other adults need not be restricted.

There are no restrictions to travel although the seeds may affect some security systems at airports, ferry ports and in shops. If this happens, the patient can show the information card to explain why it has been set off.

Sexual intercourse should be avoided for the first 2 weeks post implant and condoms should be worn for the first 5 ejaculations. (see 'Erectile dysfunction').

## Information card

An information card will be sent to you after your implantation which will need to be carried with you at all times for 3 years. The card will have information about the implant treatment and contact telephone numbers. It is important that your next of kin knows about the card, so that in the event of you becoming ill, they can tell other doctors about this treatment.

In the event of death within 20 months of the implant a normal cremation is not allowed due to a radiation hazard. It is also important that hospital staff that carry out post-mortems and funeral directors are aware of the treatment. They will then be able to use the contact information on the card to telephone the hospital for advice.

Security systems at airports, ferry ports and in some shops may be sensitive to the very low dose of radiation from your implant.

## Hormone therapy

Hormone therapy is commonly used in the treatment of prostate cancer. This information is about how it is used in this hospital with brachytherapy. Information about the use of hormone therapy (not in combination with brachytherapy) is available from the information room in the Cancer Centre (The Patrick Room) in the Heritage Building.

Hormone therapy is useful for reducing the size of the prostate gland. In this hospital 2 types of hormone therapy are used.

Firstly, a 2 week supply of an anti-androgen tablet is prescribed and these tablets should be taken according to the dose and frequency on the prescription.

Secondly, an LHRH analogue injection is prescribed and will be administered by the specialist nurse towards the end of the 2 week period.

The appointment for this injection will be arranged by the specialist nurse. The specialist nurse will also explain the frequency and duration of the hormone therapy.

## Anti-androgens

Anti-androgen tablets are taken for 2 weeks. They block the initial increase in testosterone levels when the LHRH analogue injection is administered.

Reported side effects include:

Commonly reported:

- Hot flushes
- Enlarged breast tissue
- Drowsiness
- Itching

Less commonly reported:

- Nausea
- Vomiting
- Diarrhoea
- Abdominal pain

- Dry skin
- Sensitive nipples
- Difficulty sleeping
- Sweating

Most people do not have any problems when taking anti-androgens for a short period.

Rare side effects include: liver damage (jaundice), chest pain, palpitations, dizziness, weight gain, shortness of breath, difficulty passing urine or back pain. Patients should consult the hospital if these occur. Anti-androgens are safe to be taken with most other medications. You should make sure the doctors are aware of all medications you take regularly.

Anti-androgens are safe to be taken with alcohol but drowsiness may be more apparent.

Further information about anti-androgens is available on request.

## LHRH analogues

LHRH analogues are injections that are administered every 4 or 12 weeks. They are injected under the skin in the abdomen. It is given after a short period of an anti-androgen. LHRH analogues stop the production of testosterone which prostate cancer cells need to grow and it reduces the size of the prostate gland.

Commonly reported side effects include:

- Hot flushes
- Sweats
- Reduction in sex drive (libido)
- Ability to get an erection

Less common side effects include:

- Joint pain
- Skin rashes
- Changes in blood pressure
- Breast swelling and tenderness

These are less common with a short duration of LHRH analogues.

Further information about LHRH analogues is available on request.

**Good Hope Hospital**

Cancer Information Centre

## Local sources of further information

Good Hope Hospital  
Rectory Road  
Sutton Coldfield  
B75 7RR  
0121 424 2000 and ask for the  
cancer information centre.

**Sandwell and West  
Birmingham Hospitals  
(Sandwell and City Hospital)**

The Courtyard Centre  
Sandwell General Hospital  
Lyndon  
West Bromwich  
B71 4HJ  
0121 507 3792

**University Hospitals  
Birmingham (QE Hospital)**  
Heritage Building (QE Hospital)  
The Patrick Room  
Cancer Centre  
Birmingham  
B15 2TH

0121 697 8417/0121 371 3539

**Walsall Primary Care Trust**

Cancer Information Service  
Challenge Building  
Hatherton Street  
Walsall

0800 783 9050

# Prostate Cancer Support Groups

## **Sutton Coldfield Prostate Support Group**

Meet at Good Hope Hospital

2.30pm last Wednesday of the month

Joe Dyke

0121 686 6491

## **Wolverhampton Prostate Cancer Support Group**

Clare Peterson

Urology Outpatients

New Cross Hospital

Wolverhampton

WV10 0ST

01902 694 467

## **Prostate Support Group, Sandwell**

Run by: Sharon Leahy (City) 0121 507 5969

## General Support Services

### **Cancer Support**

The White House  
10 Ednam Road  
Dudley  
DY1 1JX  
01384 231 232

### **Prostate Cancer UK**

Cambridge House  
100 Cambridge Grove  
London  
W6 0LE  
0800 074 8383  
[www.prostatecanceruk.org](http://www.prostatecanceruk.org)

### **Solihull Cancer Support Group**

Solihull Womens Institute  
745 Warwick Road  
Solihull  
B91 3DG  
0121 711 1966

### **Prostate Cancer Support Association**

BM Box 9434  
London  
WC1N 3XX  
0845 601 0766  
[www.prostatecancersupport.info](http://www.prostatecancersupport.info)

### **Bridges Support Group**

SGS House  
John's Lane  
Tividale  
Oldbury  
B69 3HX  
0121 612 2939

# National Support Services

## **Macmillan Cancer Support**

89 Albert Embankment  
London  
SE1 7UQ

0808 808 0000 (Monday-Friday 9am-8pm)

[www.macmillan.org.uk](http://www.macmillan.org.uk)

## **The Prostate Cancer Centre**

Prostate Cancer Centre  
Stirling Road  
Guildford  
Surrey  
GU2 7RF

0845 370 7000

[www.prostatecancercentre.com](http://www.prostatecancercentre.com)

## **Prostate Brachytherapy Advisory Group**

[www.prostatebrachytherapyinfo.net](http://www.prostatebrachytherapyinfo.net)







The Trust provides free monthly health talks on a variety of medical conditions and treatments. For more information visit [www.uhb.nhs.uk/health-talks.htm](http://www.uhb.nhs.uk/health-talks.htm) or call 0121 371 4957.

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**The Urology Department**  
Heritage Building (Queen Elizabeth Hospital)  
Mindelsohn Way, Edgbaston  
Birmingham, B15 2TH  
Specialist Nurse Office Telephone: 0121 371 6926

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