



Prostate Cancer - The Facts

What is prostate cancer?

- The prostate is the size of a walnut and is situated below the bladder. It surrounds the upper part of the urethra that carries urine and semen out through the penis.
- The prostate gland produces a clear fluid that mixes with sperm to form semen.
- More than 95% of prostate cancers are adenocarcinomas, (a form of cancer which originates from the epithelial cells in the prostate gland).

Prostate cancer epidemiology

- Prostate cancer is the most common cancer in men in developed nations and the fifth most prevalent cancer in the world.¹
- Globally, 670,000 men are diagnosed with prostate cancer and 221,000 men die from prostate cancer each year.²
- Mortality rates have been declining in developed nations which may be due to earlier detection and improved treatment.¹
- Three-quarters of all cases are in men aged 65 or more.¹
- The introduction of the prostate-specific antigen (PSA) test and screening programmes are linked to the increase in detection and the huge surge in incidence of prostate cancer observed in many countries.³

What are the risk factors for prostate cancer?

- **Age**; men under 50 have a very low risk of prostate cancer, beyond that age the risk steadily rises.⁴
- **Ethnicity**; black men have higher incidence and mortality rates than white men, who in turn have rates higher than men of Asian origin.¹
- **Heredity**; men whose fathers and brothers have had prostate cancer are at increased risk, this risk increases further if more than one first-degree relative is affected.⁵
- **Genetics**; it is estimated that 42-57% of all prostate cancer risk may be attributed to inherited genetic factors.⁶
- **Diet**; there is some evidence to suggest that diets high in animal fat may increase the risk of prostate cancer.⁷

What are the symptoms of prostate cancer?

- In its early stages, prostate cancer has no symptoms.
- Other less serious health problems have symptoms similar to those of prostate cancer.

- Men who have any of the following symptoms should seek the advice of their doctor:
 - Lower Urinary Tract Symptoms (LUTS) such as:
 - A need to urinate frequently, especially at night.
 - Needing to rush to the toilet, even leaking urine sometimes.
 - Difficulty starting urination or holding back urine.
 - A weak or reduced urine flow.
 - Pain or burning when urinating.
 - Sense that the bladder has not emptied properly.
 - Difficulty having an erection.
 - Painful ejaculation.
 - Blood in urine or semen.
 - Frequent pain or stiffness in the lower back, hips, or upper thighs.^{7,8}

How is prostate cancer diagnosed?

- The PSA test has revolutionised physicians' ability to diagnose prostate cancer but it is not foolproof.
 - The epithelial cells of the prostate produce PSA and elevated serum levels are associated with all kinds of prostate-associated problems like benign prostatic hypertrophy, prostatitis and other non-malignant conditions, as well as cancer.⁵
 - Up to two thirds of men with abnormally high PSA levels will **not** have prostate cancer.⁹
 - There is no universally accepted lower cut-off value for the PSA test but up to 15% of men with prostate cancer have 'normal' levels of serum PSA.⁹
 - Changes in PSA levels over time appear to be a good indication of the aggressiveness of the prostate cancer.¹⁰
- PSA is usually used in conjunction with a digital rectal examination (DRE).⁷
 - During a DRE examination, the doctor inserts a gloved finger into the rectum and feels the prostate for hard, lumpy or abnormal areas.⁷
- Further examinations include:
 - Ultrasound – to estimate the size of the prostate and detect abnormal growths.⁷
 - Transrectal ultrasonography (TRUS) biopsy – small needles, guided by ultrasound, are used to remove tiny pieces of tissue where abnormalities are looked for. The biopsy results help doctors diagnose disorders and diseases in the prostate.⁷
- Other tests used include computerised tomography (CT), magnetic resonance imaging (MR) and bone scans.

Grading & staging prostate cancer

- Tumours are usually staged using the TNM system, which considers:
 - Size of the primary tumour (T).
 - Lymph node involvement (N).
 - Presence of metastases (M).⁵

- T1 and T2 are early disease where the tumour is confined within the prostatic capsule.⁷
- T3 and T4 are locally advanced disease where the tumour has spread beyond the prostate gland into the surrounding tissue.⁷
- Tumours are graded according to the histology of the malignant cells. The most widely used system is the Gleason system, which assesses the two most common patterns of tumour growth found in a biopsy.⁷

How is prostate cancer treated?

- Prostate cancer often has a good prognosis in many cases.¹
- Treatment decisions are based on the stage of the cancer whether it is:⁷
 - Confined in the prostate, early disease;
 - A large tumour or one that has spread not too far from the primary tumour, locally advanced prostate cancer or;
 - If the cancer has spread through out the body, metastatic prostate cancer.
- Watchful waiting (also known as active surveillance) may be suggested in elderly men, where the tumour is at an early stage, appears to be growing slowly, treatment side effects outweigh the possible benefits, and the natural life expectancy of the man may be limited.⁷
- The treatment goal in early prostate cancer is to cure.¹¹ Options are:
 - Radical prostatectomy, surgery to remove the prostate gland and surrounding tissue;¹¹ or;
 - Radical radiotherapy, often combined with hormonal therapy. The radiation is directed at the tumour¹¹ or;
 - Brachytherapy, in combination with hormonal therapy, which is an alternative form of radiotherapy, but not widely available. Radioactive pellets are implanted into the prostate.¹¹
- Currently there is no cure for metastatic prostate cancer but the key to treatment is controlling the tumour growth by lowering the level of testosterone in the body (androgen deprivation therapy) using hormonal therapy. This can control the cancer for a period of time. When the cancer progresses further palliative chemotherapy and steroids can maintain quality of life.¹¹

What is quality of life like for men with prostate cancer?

- Men with prostate cancer have higher rates of depression than men in the general population.¹²
- Men who have a diagnosis of prostate cancer experience fear and uncertainty, with a desire to receive treatment as quickly as possible.¹³
- Men who are at high risk of their cancer coming back or spreading and who have a number of treatments have diminished quality of life.^{14,15}
- Many of the currently available treatments for prostate cancer have side effects that exacerbate men's pre-existing bowel, urinary and sexual problems.¹⁶

References

¹ Parkin DM, Bray F, Ferlay J et al. Global cancer statistics, 2002. CA Cancer J Clin. 2005;55(2):74-108

² Cancer Research UK. Prostate cancer statistics – key facts. <http://info.cancerresearchuk.org/cancerstats/types/prostate/index.htm>. Accessed February 2010

³ Quinn M, Babb P. Patterns and trends in prostate cancer incidence, survival, prevalence and mortality. Part I: international comparisons. *BJU Int.* 2002;90(2):162-73

⁴ Cancer Research UK. Prostate cancer risk factors. <http://info.cancerresearchuk.org/cancerstats/types/prostate/riskfactors/>. Accessed February 2010

⁵ Aus G, Abbou CC, Pacik D et al. EAU Guidelines in Prostate Cancer.

http://www.uroweb.org/fileadmin/tx_eauguidelines/2001/Full/2001_PROSTATE_CANCER.PDF. Accessed February 2010

⁶ Lessick M and Katz A. A Genetics Perspective on Prostate Cancer

Urol Nurs. 2006;26(6):454-460. http://www.medscape.com/viewarticle/551564_4. Accessed February 2010

⁷ European Association of Urology. Fact sheet 1 Prostate Cancer <http://www.uroweb.org/press/fact-sheets/>. Accessed February 2010

⁸ The Prostate Cancer Charity. Symptoms http://www.prostate-cancer.org.uk/info/prostate_cancer/cancer_symptoms.asp Accessed February 2010.

⁹ Cancer Research UK. Prostate cancer screening and prevention.

<http://info.cancerresearchuk.org/cancerstats/types/prostate/screening/>. Accessed February 2010

¹⁰ Cancer Consultants. Rising Time of PSA Levels Shows Aggressiveness of Prostate Cancer.

<http://www.cancerconsultants.com/prostate-cancertipsrising-time-of-psa-levels-shows-aggressiveness-of-prostate-cancer/>. Accessed February 2010

¹¹ Cancer Research UK. Treatment options for prostate cancer. <http://www.cancerhelp.org.uk/type/prostate-cancer/treatment/types/treatment-options-for-prostate-cancer>.

Accessed February 2010

¹² Korfage IJ, Essink-Bot M-L, Janssens ACJW et al. Anxiety and depression after prostate cancer diagnosis and treatment: 5-year follow-up. *Br J Cancer* 2006;94:1093–8

¹³ Denberg TD, Melhado TV, Steiner JF. Patient treatment preferences in localized prostate carcinoma: The influence of emotion, misconception, and anecdote. *Cancer.* 2006;107(3):620-30

¹⁴ Penedo FJ, Dahn JR, Molton I et al. Cognitive-behavioral stress management improves stress-management skills and quality of life in men recovering from treatment of prostate carcinoma. *Cancer.* 2004;100(1):192-200

¹⁵ Litwin MS. Quality of life following definitive therapy for localized prostate cancer: potential impact of multiple therapies. *Curr Opin Urol.* 2003;13(2):153-6

¹⁶ Chen RC, Clark JA, Manola J et al. Treatment mismatch in early prostate cancer. Do treatment choices take patient quality of life into account? *Cancer.* 2008;112(1):61-8