

## PSA screening for Prostate Cancer

### Incidence

Prostate cancer is now the most common cancer in UK men, and the second most common cause of cancer death in UK men. In 1999, there were over 24,700 new cases of prostate cancer – around 87 cases per 100,000 men. Prostate cancer caused 9887 deaths in 2001.

Prostate cancer is a disease largely affecting older men. Only 1 in 20 cases occur in men under the age of 60, and half of all cases are registered in men over the age of 75. Incidence rates rise steeply with age.

The current and annual cost of treating prostate cancer to the NHS in England and Wales is likely to exceed £55 million.<sup>1</sup>

### Mortality

Although it is estimated that 50 per cent of men will have cancer in the prostate by the age of 80, only 1 in 25 men (4 per cent) will die from the disease. In other words men are much more likely to die *with* prostate cancer than *from* it.

### Key risk factors

- **Age:** risk rises with age from 50 years.
- **Ethnicity:** highest rates are recorded among Afro-Caribbean men and the lowest are in Far Eastern and Asian men.<sup>2</sup>
- **Diet:** increased risk of prostate cancer may be associated with the high animal fat content in western diets – this affects the male sex hormone testosterone, which controls the growth and function of the prostate.
- **Family history:** having a first-degree relative with prostate cancer is a risk factor, especially if the relative is young or if more than one relative is affected. Research is underway to identify the genes that predispose towards familial prostate cancer.<sup>3</sup>

<sup>1</sup> Chamberlain J, Melia J, Moss S and Brown J. The diagnosis, management, treatment and costs of prostate cancer in England and Wales. Health Technol Assess 1 (3) (1997)

<sup>2</sup> Parkin D M, Whelan S L, Ferlay J, Raymond L and Young J. Cancer Incidence in Five Continents Vol VII. IARC Scientific Publications No 143 Lyon (1997)

<sup>3</sup> Dr Doug Easton investigating the role of faults in the BRCA1 and BRCA2 gene in prostate cancer risk. Dr Ros Eeles investigating other faulty genes that increase a man's risk of developing prostate cancer.

## Screening

Screening is an important part of cancer control, prevention and early diagnosis. The aim of screening is to diagnose disease:

- At an early stage
- Before symptoms start
- When it is easier to treat
- When it is more likely to be curable

Although there is an increasing trend towards early detection, many cases of prostate cancer are diagnosed when the disease has spread and has to be controlled rather than cured. We need an accurate method of detecting the disease at an earlier stage, when there is a better chance of successfully treating it.

The Department of Health is under increasing pressure to develop a national screening programme for prostate cancer to detect it at an early stage. However, although breast and cervical cancer screening programmes have been shown to save lives, it is not clear that, using currently available tests, a prostate cancer screening programme would have the same benefits.

## The PSA test

The PSA test involves screening blood for levels of prostate specific antigen (PSA) - a protein produced by both normal and cancerous prostate cells. A high level of PSA can be a sign of prostate cancer but PSA levels can also be raised in benign prostate conditions. The higher the PSA level, the more likely it is that there will be a cancer present. The level of PSA varies from man to man, and it naturally increases with age.

## The PSA test for screening - Cancer Research UK's position

PSA is the most reliable prostate cancer screening test currently available; however there are a number of problems with the PSA testing:

- *Not specific enough* – only a quarter to a third of men with abnormally high PSA levels will have prostate cancer. The two-thirds with raised PSA levels who are found to be clear of cancer will suffer the anxiety, discomfort and risk of unnecessary follow-up investigations.
- *Not sensitive enough* – up to 20 per cent of men with prostate cancer do not have abnormal PSA levels and these cancers will not be detected. Testing cannot always predict reliably which tumours are aggressive and which require no treatment. Some patients may therefore receive unnecessary treatment, some of which will cause significant side effects such as incontinence and impotence.
- *Not standardised* – there are inter-laboratory variations. The Prostate Cancer Risk Management Programme<sup>4</sup> aims to introduce a standardised test with systematic and standardised follow-up for men with raised PSA levels.

There is as yet no evidence that prostate screening reduces mortality. As a result of this uncertainty, population screening of men displaying no symptoms is not recommended. Any man displaying symptoms can currently request a test from his GP. Screening trials are underway in Europe and the USA but it will be some years before the results are known.

Cancer Research UK believes that indiscriminate use of PSA testing should be avoided and that protocols on the widespread use of PSA testing should be put in place.

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<sup>4</sup>The UK Prostate Cancer Programme: <http://www.nelh.nhs.uk/psatesting>

## **Where next in prostate cancer research?**

Cancer Research UK is a major supporter of prostate cancer research in the UK. Our work covers the causes and development of the disease, design and evaluation of new treatments, and the investigation of screening for early detection and prevention. We are also involved in work looking at psychological support for patients and their families.

- Cancer Research UK is a key contributor to the Prostate Cancer Research Programme of the National Cancer Research Institute. Grants from this programme foster collaboration between leading UK prostate cancer research groups, speeding up progress in key areas.
- Cancer Research UK is currently supporting research into developing a more accurate test for screening prostate cancer in Edinburgh. Previous tests have shown a slight variation in a particular gene in males, known as the androgen receptor gene. This inherited genetic variation may relate to a man's risk of prostate cancer.
- Dr Jane Melia in Sutton is investigating the benefits and disadvantages of screening close male relatives of men diagnosed with prostate cancer under the age of 65. The results will establish the feasibility of a larger study into the benefits of screening such men.

We will continue to work closely with the Department of Health and the National Cancer Research Institute in this initiative and would fully support a screening trial when appropriate.

**In-depth, referenced, statistical information is available from Cancer Research UK. For further information please contact the Public Affairs Team at Cancer Research UK on 020 7061 8360 or Email: [publicaffairs@cancer.org.uk](mailto:publicaffairs@cancer.org.uk).**