



Prostate cancer research at the Cambridge Research Institute

Prostate cancer is the second leading cause of cancer death in men in the UK, with around 10,000 deaths every year. A quarter of all new cases of cancer diagnosed in men are prostate cancers. Cancer Research UK is leading the way in prostate cancer research, spending just over £19million on the disease last year alone.

Professor David Neal took up one of the first professorial posts in the new Cambridge Research Institute. He is an eminent surgeon and scientist whose research is principally focused on prostate cancer.

Professor Neal is using his extensive knowledge and expertise to direct and oversee a diverse range of research into prostate cancer to improve the outlook of men affected by the disease. Examples of his work are outlined below.



Screening for prostate cancer – is it effective?

Many prostate cancers produce a chemical called **PSA**, which can be detected in the blood. Some researchers think that testing PSA levels in the blood may be a good test for prostate cancer. However, sometimes men may have cancer without having high levels of PSA, or they may have high levels for another reason, without having prostate cancer. Furthermore, it is difficult to tell if a cancer detected using the PSA test is growing rapidly and needs treatment, or if it is a slow growing one that can be left untreated but closely monitored.

Currently, we don't know if testing PSA levels in the general male population will help to save lives from prostate cancer, or if it will lead to men having unnecessary treatment. We also don't know how many cases of prostate cancer might be missed by the test, and we don't know if screening the whole population is cost-effective. Professor Neal is involved in a national trial (**Protect**) to help answer these questions.



Protect- "Prostate testing for cancer and treatment"- is a large-scale clinical study, funded by the NHS, which aims to discover the best treatment for early prostate cancer. Around 233,000 men aged 50 to 69, are being invited for a PSA test. They have been recruited from 800 GP practices around the UK, including Sheffield, Newcastle, Bristol, Birmingham, Cardiff, Edinburgh, Leeds, Cambridge and Leicester. If they are found to have cancer, they will be offered treatment or active monitoring.



Professor Neal is carrying out an extra part of this study, recruiting a further 233,000 men who will not be given a PSA test. The researchers will compare the number of men in this group and in the ProtecT trial group that are diagnosed with prostate cancer, and their treatment and outcome. This will show whether there are any differences in survival between the men who were screened in the main ProtecT trial and those who weren't. The researchers will also analyse the cost-effectiveness of PSA testing as a screening programme for the male population in the UK.

Hormones and growth factors

Professor Neal's team are also investigating how growth factors and hormones can affect prostate cancer. The growth of prostate cancer cells is often fuelled by testosterone, a male sex hormone. Many treatments for the disease aim to cut off the hormone supply to the tumour, slowing its growth. But sometimes the cancer cells stop responding to hormone treatment and start growing again. By understanding how this happens, Professor Neal and his team hope to discover new ways to treat these unresponsive tumours. He also hopes to identify molecules that are "hallmarks" of aggressive prostate cancer. Testing for such molecules might help doctors to decide whether a man's cancer needs treating or if it can be safely left untreated. The researchers are also looking for new molecules that could be targets for anti-cancer drugs in the future.

An important tool in Professor Neal's prostate cancer research is the **Syngene Diversity**, high resolution camera system, which is housed in the Equipment Park.

This equipment cost £35,000 and is used not only by Professor Neal's group of researchers at the institute but by one or two others to help with their research.



Cancer Research UK is very grateful to Spider's Appeal for sponsoring the Syngene Diversity at the Cambridge Research Institute.