PROSTATE CANCER UK

Research Strategy: Three Priority Areas

Better Diagnosis

Context

There is currently no reliable, widely applicable, and easy way to assess an individual's risk of developing significant prostate cancer. Therefore, it is impossible to develop screening, monitoring and treatment regimes that are tailored to a man's personal risk of developing and living with the disease. We will fund research that aims to turn our knowledge of biological and genetic markers into tools to improve the diagnosis of clinically significant disease, and research to develop tests to determine whether a prostate cancer needs immediate treatment.

We will support research to develop and test a tool that combines a suite of known risk factors to give a more useful indication of a man's risk of significant prostate cancer than current practice. We will also continue to support research that would enhance any such newly developed tool. This is likely to be through discovery, validation and translation of other markers associated with the presence of clinically significant prostate cancer and/or increased risk of developing it.

Men affected by prostate cancer have told us that the single most important issue they want us to address is our current inability to tell whether or not a cancer is clinically significant at the point of diagnosis. Ideally, we want to be in a position where we only diagnose prostate cancers that need to be treated and neither diagnose, nor treat, clinically insignificant cancers.

The ultimate aim of this strand of our strategy is to increase the proportion of men whose clinically significant prostate cancer is detected before it spreads outside the prostate. We also aim to reduce the number of unnecessary biopsies, as well as over-diagnosis and over-treatment of harmless prostate cancers.

We believe that the foundations to help us distinguish clinically significant from insignificant cancers early in the diagnostic pathway already exist. So, in this area, the early focus of our Research Strategy will be on translational research. This is where we envisage building strong collaborative links with other organisations and key stakeholders to help us achieve success.

By 2025 we will have:

- Designed and evaluated a risk-based assessment tool that can be used for first line detection of clinically significant prostate cancer within the NHS. We will have tested its feasibility, and validated that it not only improves early detection of clinically significant prostate cancer, but also reduces the number of unnecessary biopsies, as well as over-diagnosis and over-treatment for men with harmless prostate cancers. We will also have ensured widespread user acceptability for men and healthcare professionals.

- Funded research into the discovery and validation of new biomarkers and molecular changes that could feed into, or complement this risk tool. We will also have ensured that the tool is flexible enough to incorporate additional risk factors and improvements as they emerge.

- Developed imaging as an effective, consistent and accessible tool for prostate cancer diagnosis.

- Helped discover which markers (biological, genetic, epigenetic and imaging) show most promise for use in diagnosis and prognosis of clinically significant prostate cancer. We will also have funded research to build on these discoveries, so that men feel the benefit as quickly as possible.

- Established partnerships to ensure that research results are translated to health benefits for men as quickly as possible.

Better Treatments

Context

We have entered a new era of prostate cancer treatment. There are now a number of treatments available, and more in the pipeline, but there's still much more to do. In the next ten years, we're likely to make the biggest difference to men by making the most of those treatments we already have. This includes optimising drug dosage and delivery, identifying the most effective treatment combinations, and clarifying the benefits or otherwise of sequential drug or treatment use. At the same time, we'll continue to fund high-quality early stage research focussed on discovery and development of new treatments.

Although having a wider range of treatment options is welcome, there's still some uncertainty about which treatments work best for each man. We need to support research that will address this uncertainty and help stratify men according to the treatments that will work best for them. There's increasing evidence that this personalised medicine approach will be achieved by using knowledge of the molecular variations within and between prostate tumours to predict how individuals will respond to different treatments. Ensuring that this evidence is translated as early as possible will be a priority.

There are also still questions about whether some treatments could be even more beneficial if applied earlier in the treatment pathway. For example, we need to discover whether application of treatments for advanced disease in men with high risk localised disease can help increase cure rates. Alongside this, we need to investigate new treatment pathways for prostate cancer, and to exploit ongoing work in other cancer types or disease areas that will help us introduce effective treatments more quickly and more cheaply than if we only developed new treatments completely from scratch.

Finally, we need to explore the possibility of shortening the timeline for clinical trials of either new or existing treatments, for example by investigating whether intermediate measures can replace overall survival as a clinical endpoint.

By 2025 we will have:

- Effective targeted treatments, with minimal side effects, available to all men regardless of age, ethnicity and location.
- Established the optimal use of existing treatments.
- Funded high quality, innovative early-stage research that will eventually lead to new first-in-field treatments for prostate cancer. We will also have ensured the timely transfer of research to other funders to develop, if appropriate.
- Supported the development of new drugs, and the repurposing of existing drugs for use in prostate cancer, that target the androgen receptor in novel ways as well as investigating targets other than the androgen receptor.
- Developed new tests to predict treatment response based on an individual's molecular make-up and that of his prostate cancer.
- Developed imaging as an effective and consistent tool to monitor responses to treatment.
- Ensured that intermediate endpoints are validated, accepted by regulators, and used in clinical trials to help speed up the development and appraisal of new treatments.

Better Prevention

Context

We believe that a successful prevention strategy must be based on a deep understanding of how prostate cancer starts and develops. To get to this stage, we will need further research into the basic biology of the disease. We will fund work in this area, if it's clear that it will add significantly to our understanding and inform future work on prevention. We will also support research into prevention of prostate cancer recurrence after initial treatment.

In general, we need more information about prostate cancer prevention before we can take action. A number of clinical trials are ongoing in this area, and we don't intend to duplicate these efforts by commissioning our own large-scale clinical trials. Instead, we will keep a watching brief for scientific developments, particularly around preventative immunotherapies, dietary and lifestyle interventions, and chemoprevention strategies.

Further research into prostate cancer prevention is a longer-term priority. We will target this research towards men at highest risk of significant prostate cancer. As conclusive evidence emerges, we'll work in partnership with other funders, governments and industry to help men adopt appropriate diet and lifestyle changes that could minimise their risk of prostate cancer.

By 2025 we will have:

- Funded research to investigate whether there are any events that trigger prostate cancer growth and whether those early events may be preventable.

- Collated any strong evidence about modifiable risk factors like diet, exercise or environmental exposure that might reduce prevalence at a population level. Supported research into prevention of prostate cancer recurrence after successful initial treatment.

- Implemented the results of research into prevention of prostate cancer recurrence, to improve cure rates from radical treatments.

- Gained a far greater understanding of the genetic changes (inherited or acquired) that drive prostate cancer to become aggressive, and how we could potentially target these changes to prevent prostate cancer.