

Meet the inventor

Dr Vincent Gnanapragasam

Consultant Urological Surgeon

Cambridge University Hospitals NHS Foundation Trust

Innovation: CAMPROBE (Cambridge Prostate Biopsy Device)

Briefly describe your idea

A safer and more accurate device to perform perineal prostate biopsies in an outpatient setting under local anaesthetic as an alternative to the standard transrectal biopsies.

Why is your idea so unique?

The current method of diagnosing prostate cancer is with a needle biopsy of the prostate guided by a transrectal ultrasound probe inserted into the rectum. Tens of thousands of these procedures are performed annually in the UK and the rates are rising. This method however carries a significant risk of side effects including bleeding, fever and severe infections as the needle has to traverse the bowel a number of times. Moreover multiple punctures are needed. Despite this invasive procedure, it is now known that over 30% of cancers will be missed.

A safer and more accurate alternative is to biopsy the prostate through the skin between the rectum and the scrotum (perineal biopsies). This approach results in fewer infections and is more accurate in diagnosing prostate cancer. This method however currently still requires multiple punctures of the perineum and patients usually require a general anaesthetic to tolerate this procedure.

The CAMPROBE will allow us to replicate the safety and accuracy of a perineal biopsy approach but can be undertaken in the outpatient clinic using local anaesthesia.



What gave you the idea?

The idea for the CAMPROBE came about from practical clinical observations where our current standard for prostate biopsies was showing problems in terms of complications for patients and inaccuracies in diagnosis. The alternative, which was more sterile, could only be done in the General Anaesthetic theatre.

The CAMPROBE idea came about from the notion that we could take the best of the outpatient and inpatient procedures and put them together, and allow a more sterile and more accurate method of acquiring prostate biopsies to be taken more cheaply and more rapidly under local anaesthetic. The concept builds upon previous notions which have been around for some ten years, but have not actually been developed into a formal approach.



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What impact has the innovation had or is likely to have?

It is believed that CAMPROBE will reduce infections by at least 80% and lower the number of missed cancers. This improvement will be of potential benefit to the over 50,000 men who have prostate biopsies every year in the UK.

What backing have you received to develop your idea?

The idea for the CAMPROBE was defined towards the end of 2013, and with the help of the Clinical Engineering Department in Addenbrooke's from concept, design, manufacture and first in-man trial took approximately 15 months. We received small grant funding for financial backing from Health Enterprise East, and the Addenbrooke's Charitable Trust to develop our device. In 2017 the project secured funding of nearly £800,000 from the NIHR Invention for Innovation (i4i) programme for the next stage of the innovation pathway towards a CE-marked device.

What have been the major challenges faced?

The major challenge in the development of CAMPROBE has been in changing the status quo in the minds of both clinicians and in terms of the hospital's way in undertaking prostate biopsies. The current method of acquiring biopsies, the trans-rectal prostate biopsy approach, has been entrenched in the NHS for over two decades and the ultrasound probes required for prostate imaging as well as the equipment, are all geared towards that.

Perhaps our greater challenge has been resistance from clinical colleagues who are more comfortable with doing a procedure that they are very used to. I hope, however, that this will change as we are able to show evidence that our CAMPROBE approach is actually beneficial to patients and may in fact improve the diagnostic accuracy of prostate biopsies.

There are also vanishingly few academic funding opportunities for this sort of diagnostic device research in cancer as most monies are channelled to basic sciences and drug development. Having said that there are still opportunities.

From your own experience, what advice would you give to other people?

Probably the best advice I can give is that, if you have something which you think you can develop into an innovation, then you will need to make sure that you can identify the right people to help you bring that idea to fruition. It is clear that innovations that are likely to be expensive and complex are less likely to reach clinical application, particularly as these sorts of areas are best exploited by large companies with huge resources. However, it is also clear to me that the most useful innovations actually come from people at the coalface, and therefore this is something that a working health professional can uniquely bring to the table. More important is perseverance in the face of obstacles which are rife. Having said that, driving innovation and having your own ideas is probably one of the key things that will keep you interested in the job.