

Improving Diagnosis and Reducing In-hospital Stay through More Accurate Biopsy

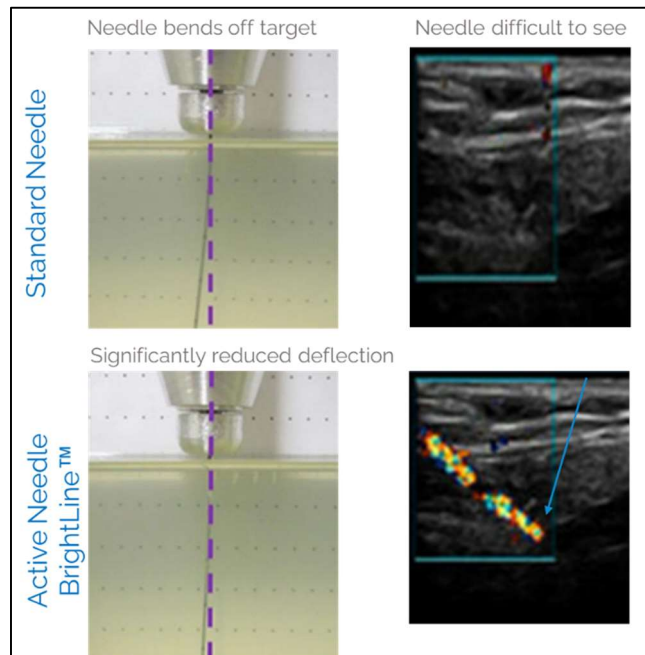
Problem:

In medicine, accurate needle placement is critical to successful diagnosis and treatment of various conditions e.g., cancer. Despite advancements in image-guidance, visibility of needles is poor, especially at deep target locations. As a result, 2 in 10 biopsies and 1 in 10 anaesthetic injections are misplaced with adverse consequences for the patient and economic drawbacks for healthcare providers.

A missed biopsy can cost around £2k to repeat (UK, private) whereas in misplaced needles can result in nerve damage and in the worst cases, paralysis.

Solution:

Active Needle Technology Ltd. (ANT) has developed an innovative ultrasonic technology. The innovation applies microscopic vibrations to the needle-tip which shines brightly when the ultrasound imaging is performed in “colour Doppler mode”. This permits more precise placement of the needle in less time. Conventional needles are not visible in colour Doppler mode.



Furthermore, when vibration is applied, needles are deflected less from their axis than when vibration is not applied (conventional needles) leading to further improvement of the needle-tip placement.



“I think it would really limit our failed biopsy rate and limit our complication rate, and it would reduce the duration of each biopsy as well” - Consultant Radiologist, UK

NIHR i4i – Product Development Award:

ANT has developed a CE-marked minimum viable product (MVP) version of the ultrasound biopsy device, Brightline™ Biopsy System, which has been tested by experienced clinicians in a laboratory setting for feedback on usability and performance.

The work planned in this project will focus on (a) optimisation of the device in accordance with the end-user feedback i.e. develop a minimum marketable product (MMP) that can be soft-launched at selected UK hospitals and (b) generation of health economics data with the help of a clinical evaluation study. The outcomes of the research will be published in medical journals and presented to clinicians and health professionals at medical conferences.

What we are looking for:

We believe this project can greatly benefit from patient and public involvement. We are therefore looking for members of public who would like to make a difference and help us in developing the technology into a clinical product. In particular, we would like the members of the public, particularly those with experience of cancer biopsy or know someone who has experienced cancer biopsy, to be a part of an advisory group. The role will require participation in our quarterly progress meetings, advise on the patient requirements and help us in design, preparation and dissemination of data and study outcome.