

## **TCS/23/21 - Digital Camera-based Uroflowmetry: Early Diagnosis and Monitoring of Lower Urinary Tract Symptoms (LUTS) for Community and Home Use**

One in two men in their lifetime will attend their doctor due to Lower Urinary Tract Symptoms (LUTS), usually caused by benign prostatic enlargement (BPE) and other conditions such as bladder dysfunction and prostate cancer (PCa). Urology units struggle with an accessible method to assess and triage such patients. A vital test for a poor flow is uroflowmetry, a weight-based measurement of urine using a weighing scale. However, uroflowmetry takes place only in a Urology unit (only 11 in Scotland), with an average waiting time more than 8 weeks and most patients (>95%) being men. Leveraging successes from our pilot studies, we will investigate the effectiveness of our novel camera-based uroflowmetry method in a clinical study involving 150 men at two NHS sites against the gold standard (weight-based) to show agreement between the two methods.

Our headline vision is to create an accessible, affordable and clinically validated digital technology to revolutionise how poor urinary flow is diagnosed and monitored for various urological diseases. This would result in huge, practice changing benefits for the patients and NHS across Scotland and beyond – increasing patient uptake, enabling accurate assessment of patients virtually, aiding patient triaging with worst flows, allowing virtual patient monitoring and potentially patient self-monitoring pathway – all leading to improved patient outcomes, reduced pressure on GPs and Urology Units across Scotland and cost savings on staffing and healthcare provision for Urology.