

Home urine test for prostate cancer could revolutionize diagnosis

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A simple urine test under development for prostate cancer detection can now use urine samples collected at home—according to new research from University of East Anglia and the Norfolk and Norwich University

Hospital.

Scientists pioneered the test which diagnoses [aggressive prostate cancer](#) and predicts whether patients will require treatment up to five years earlier than standard clinical methods.

Their latest study shows how the 'PUR' test (Prostate Urine Risk) could be performed on samples collected at home, so men don't have to come into the clinic to provide a urine sample—or have to undergo an uncomfortable rectal examination.

This is an important step forward, because the first urination of the day provides biomarker levels from the prostate that are much higher and more consistent. And the research team hope that the introduction of the 'At-Home Collection Kit' could revolutionize diagnosis of the disease.

Lead researcher Dr. Jeremy Clark, from UEA's Norwich Medical School, said: "Prostate cancer is the most common cancer in men in the UK. It usually develops slowly and the majority of cancers will not require treatment in a man's lifetime. However, doctors struggle to predict which tumors will become aggressive, making it hard to decide on treatment for many men.

"The most commonly used tests for prostate cancer include blood tests, a [physical examination](#) known as a digital rectal examination (DRE), an MRI scan or a biopsy.

"We developed the PUR test, which looks at gene expression in urine samples and provides vital information about whether a cancer is aggressive or 'low risk'.

"Because the prostate is constantly secreting, the collection of urine from men's first urination of the day means that the biomarker levels from the

prostate are much higher and more consistent, so this is a great improvement.

"Being able to simply provide a [urine sample](#) at home and post a sample off for analysis could really revolutionise diagnosis.

"It means that men would not have to undergo a digital rectal examination, so it would be much less stressful and should result in a lot more patients being tested."

The research team provided 14 participants with an At Home Collection Kit, and instructions. They then compared the results of their home urine samples, taken first thing in the morning, with samples collected after a digital rectal examination.

"We found that the urine samples taken at home showed the biomarkers for prostate cancer much more clearly than after a rectal examination. And feedback from the participants showed that the at home test was preferable.

"Using our At Home test could in future revolutionise how those on 'active surveillance' are monitored for disease progression, with men only having to visit the clinic for a positive urine result. This is in contrast to the current situation where men are recalled to the clinic every six to 12 months for painful and expensive biopsies.

"Because the PUR test accurately predicts aggressive prostate cancer, and predicts whether patients will require treatment up to five years earlier than standard clinical methods—it means that a negative test could enable men to only be retested every two to three years, relieving stress to the patient and reducing hospital workload."

The Norfolk and Norwich University Hospital receives more than 800

referrals a year to investigate and treat potential prostate cancers. Prostate cancer usually develops slowly and the majority of cancers will not require treatment in a man's lifetime.

Robert Mills, Consultant Surgeon in Urology at the Norfolk and Norwich University Hospital, said: "This is a very exciting development as this test gives us the possibility of differentiating those who do from those who do not have [prostate](#) cancer so avoiding putting a lot of men through unnecessary investigations.

"When we do diagnose [prostate cancer](#), the urine test has the potential to differentiate those who need to have treatment from those who do not need treatment, which would be invaluable. These patients go on to an active surveillance programme following the diagnosis which may involve repeat biopsies and MRI scans which is quite intrusive. This [urine](#) test has the potential to tell us whether we needed to intervene with these patients."

The research team say that their findings could also help pioneer the development of home-collection tests for bladder or kidney [cancer](#).

"Methodology for the At-Home Collection of Urine Samples for Prostate Cancer Detection" is published in the journal *BioTechniques*.

Provided by University of East Anglia

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