

MRI scans improve prostate cancer diagnosis in screening trial

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The REIMAGINE study, published today in *BMJ Oncology*, is the first study to use MRI scans with prostate specific antigen (PSA) density to assess the need for further standard NHS tests. Of the 29 participants

found to have serious prostate cancer, 15 had a 'low' PSA score that would have meant they were not referred for further investigation under the current system.

Currently, men over 50 in the UK can ask for a PSA test if they are experiencing symptoms or are concerned about [prostate cancer](#). Previous screening studies have used a PSA level of 3ng/ml or above as the benchmark for performing additional tests to look for [prostate](#) cancer, such as a biopsy.

Though previous research found that the combination of a PSA test and/or digital rectal examination, followed by a biopsy if disease is suspected, helped to reduce prostate cancer mortality by 20% after 16 years, this approach has also been linked to overdiagnosis and overtreatment of lower risk cancers.

In recent years, the introduction of MRI as a first step in investigating men at higher risk of prostate cancer has spared one in four men from an unnecessary biopsy, which is invasive and can lead to complications.

It is hoped that using MRI as a [screening tool](#) that is offered to men without them needing to ask for it could further reduce prostate cancer mortality and overtreatment.

For this study, researchers invited men aged 50 to 75 to have a screening MRI and PSA test. Of the 303 men who completed both tests, 48 (16%) had a positive screening MRI that indicated there might be cancer, despite only having a median PSA density result of 1.2 ng/ml. 32 of these men had lower PSA levels than the current screening benchmark of 3ng/ml, meaning they would not have been referred for further investigation by the PSA test currently in use.

After NHS assessment, 29 men (9.6%) were diagnosed with cancer that

required treatment, 15 of whom had serious cancer and a PSA of less than 3ng/ml. Three men (1%) were diagnosed with low-risk cancer that did not require treatment.

Professor Caroline Moore (UCL Surgical & Interventional Science and consultant surgeon at UCLH), chief investigator of the study and NIHR Research Professor, said, "The thought that over half the men with clinically significant cancer had a PSA less than 3 ng/ml and would have been reassured that they didn't have cancer by a PSA test alone is a sobering one and reiterates the need to consider a new approach to prostate cancer screening."

"Our results give an early indication that MRI could offer a more reliable method of detecting potentially serious cancers early, with the added benefit that less than one percent of participants were 'over-diagnosed' with low-risk disease. More studies in larger groups are needed to assess this further."

Recruitment for the trial also indicated that [black men](#) responded to the screening invitation at one fifth the rate of white men, something the authors say will need to be addressed in future research.

Saran Green, an author of the study from King's College London, said, "One in four black men will get prostate cancer during their lifetime, which is double the number of men from other ethnicities. Given this elevated risk, and the fact that black men were five times less likely to sign up for the REIMAGINE trial than white men, it will be crucial that any national screening program includes strategies to reach black men and encourage more of them to come forward for testing."

The next step towards a national prostate cancer screening program is already underway, with the LIMIT trial being conducted with a much larger number of participants. The trial will also attempt to recruit more

black men, including through mobile 'scan in a van' initiatives designed to visit communities less likely to come forward for testing in response to a GP invitation.

If LIMIT is successful, a national-level trial would also be required before prostate cancer screening becomes standard clinical practice.

Professor Mark Emberton (UCL Surgical & Interventional Science and consultant urologist at UCLH), senior author of the study, said, "The UK prostate cancer mortality rate is twice as high as in countries like the US or Spain because our levels of testing are much lower than other countries. Given how treatable prostate cancer is when caught early, I'm confident that a national screening program will reduce the UK's prostate [cancer](#) mortality rate significantly. There is a lot of work to be done to get us to that point, but I believe this will be possible within the next five to ten years."

More information: Saran Green et al, Prevalence of MRI lesions in men responding to a GP-led invitation for a prostate health check—a prospective cohort study, *BMJ Oncology* (2023). [DOI: 10.1136/bmjonc-2023-000057](#)

Provided by University College London

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