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Brokering Innovation Through Evidence

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# A study investigating a single blood test to screen for prostate cancer (the CAP trial)

**The Cluster Randomized Trial of PSA Testing for Prostate Cancer (CAP) study aimed to see if inviting men to have a single PSA blood test would reduce the number of men dying from prostate cancer.**

Prostate specific antigen (PSA) is a protein that is often raised in men who have prostate cancer. But using a PSA test to screen for prostate cancer is controversial.

Men's PSA levels can be raised for other reasons. Some men don't have cancer even though they have a raised PSA level. And some men with prostate cancer don't have a raised PSA level.

The ideal screening test would find cancers at a high risk of progression so that they could be treated early, but wouldn't result in too many men being identified with low risk cancers that don't need treatment.

At the moment there is no screening programme for prostate cancer in the UK.

The research team wanted to find out if doing a single PSA test for men aged 50-69 would help detect high risk cancers earlier, and could be used to screen for prostate cancer. And if treating these cancers earlier would mean that men would live longer.

Around 200,000 men were offered a PSA test and around 200,000 weren't, although they could have the test if they asked for it.

The research was supported by Cancer Research UK and the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care West (CLAHRC West) at University Hospitals Bristol NHS Foundation Trust.

## What did the researchers conclude?

This study showed there was no benefit in introducing a single PSA blood test screening programme. The one-off test did mean that more men were diagnosed with prostate cancer. But it didn't reduce the number of men dying from prostate cancer after an average of 10 years.

In this study, more men who had a one off PSA test were diagnosed with low risk prostate cancer that would probably not cause harm or need treatment.

The team concluded that there is no benefit in screening for prostate cancer using a single PSA test.

## How did the trial work?

This study recruited over 400,000 men aged 50-69 who had not been diagnosed with prostate cancer. They were put into one of two groups at random, and:

- just under half were offered a PSA blood test (this was the intervention group)
- just over half were not offered a PSA test, but could have one if they asked for one (this was the control group)

The men who were offered the PSA test were invited to a see a nurse to get more information and discuss the test. They then decided if they wanted to have the test or not. More than 70,000 men attended the clinic appointments, and more than 60,000 men decided to have the PSA blood test.

## Summary of results

In the intervention group, the PSA level was raised in around 7,000 men, and just under 6,000 of these men went on to have a biopsy. More than 4,500 were diagnosed with prostate cancer.

The research team analysed how many men in the intervention group compared to the control group were diagnosed with prostate cancer. Out of every 1,000 men it was:

- 43 men in the intervention group who had been offered a PSA test
- 36 men in the control group who were not offered a PSA test

They found that the men who were diagnosed with prostate cancer after having the PSA test as part of the trial, were more likely to:

- be younger when they were diagnosed
- have cancers that were low risk
- have cancer that had not spread

So it was more likely that they had cancer which wouldn't need treatment or cause problems during their lifetime.

The researchers found three out of every 1,000 men in each group had died because of prostate cancer after an average of 10 years. The study, therefore, does not indicate a benefit from screening men for prostate cancer using a single PSA test.

## Read the paper

**Effect of a low-intensity PSA-based screening intervention on prostate cancer mortality**
Richard Martin, Jenny Donovan, Emma Tuner *et al*
Published in the Journal of American Medicine (JAMA)
bit.ly/CAP-JAMA-paper

## Find out more

- https://captrial.blogs.bristol.ac.uk/
- CAP trial video: bit.ly/CAP-trial-video
- Prostate cancer risk management programme bit.ly/PRCMP

CAP was supported by Cancer Research UK, Department of Health & Social Care, the Universities of Bristol, Cambridge and Oxford.

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