

PROSTATE SPECIFIC ANTIGEN (PSA)

What is the PSA test?

Prostate-specific antigen, or PSA, is a protein produced by cells of the prostate gland. The PSA test measures the level of PSA in a man's blood. For this test, a blood sample is sent to a laboratory for analysis. The results are usually reported as nanograms of PSA per milliliter (ng/mL) of blood.

The blood level of PSA is often elevated in men with prostate cancer, and the PSA test was originally approved by the FDA in 1986 to monitor the progression of prostate cancer in men who had already been diagnosed with the disease. In 1994, the FDA approved the use of the PSA test in conjunction with a digital rectal exam (DRE) to test asymptomatic men for prostate cancer. Men who report prostate symptoms often undergo PSA testing (along with a DRE) to help doctors determine the nature of the problem.

In addition to prostate cancer, a number of benign (not cancerous) conditions can cause a man's PSA level to rise. The most frequent benign prostate conditions that cause an elevation in PSA level are prostatitis (inflammation of the prostate) and benign prostatic hyperplasia (BPH) (enlargement of the prostate). There is no evidence that prostatitis or BPH leads to prostate cancer, but it is possible for a man to have one or both of these conditions and to develop prostate cancer as well.

Is the PSA test recommended for prostate cancer screening?

Until recently, many doctors and professional organizations encouraged yearly PSA screening for men beginning at age 50. Some organizations recommended that men who are at higher risk of prostate cancer, including African American men and men whose father or brother had prostate cancer, begin screening at age 40 or 45. However, as more has been learned about both the benefits and harms of prostate cancer screening, a number of organizations have begun to caution against routine population screening. Although some organizations continue to recommend PSA screening, there is widespread agreement that any man who is considering getting tested should first be informed in detail about the potential harms and benefits.

Currently, Medicare provides coverage for an annual PSA test for all Medicare-eligible men age 50 and older. Many private insurers cover PSA screening as well.

What is a normal PSA test result?

There is no specific normal or abnormal level of PSA in the blood. In the past, most doctors considered PSA levels of 4.0 ng/mL and lower as normal. Therefore, if a man had a PSA level above 4.0 ng/mL, doctors would often recommend a prostate biopsy to determine whether prostate cancer was present.

However, more recent studies have shown that some men with PSA levels below 4.0 ng/mL have prostate cancer and that many men with higher levels do not have prostate cancer (1). In addition,

various factors can cause a man's PSA level to fluctuate. For example, a man's PSA level often rises if he has prostatitis or a urinary tract infection. Prostate biopsies and prostate surgery also increase PSA level. Conversely, some drugs—including finasteride and dutasteride, which are used to treat BPH—lower a man's PSA level. PSA level may also vary somewhat across testing laboratories.

Another complicating factor is that studies to establish the normal range of PSA levels have been conducted primarily in populations of white men. Although expert opinions vary, there is no clear consensus regarding the optimal PSA threshold for recommending a prostate biopsy for men of any racial or ethnic group.

In general, however, the higher a man's PSA level, the more likely it is that he has prostate cancer. Moreover, continuous rise in a man's PSA level over time may also be a sign of prostate cancer.

What if a screening test shows an elevated PSA level?

If a man who has no symptoms of prostate cancer chooses to undergo prostate cancer screening and is found to have an elevated PSA level, the doctor may recommend another PSA test to confirm the original finding. If the PSA level is still high, the doctor may recommend that the man continue with PSA tests and DREs at regular intervals to watch for any changes over time.

If a man's PSA level continues to rise or if a suspicious lump is detected during a DRE, the doctor may recommend additional tests to determine the nature of the problem. A urine test may be recommended to check for a urinary tract infection. The doctor may also recommend imaging tests, such as a transrectal ultrasound, x-rays, or cystoscopy.

If prostate cancer is suspected, the doctor will recommend a prostate biopsy. During this procedure, multiple samples of prostate tissue are collected by inserting hollow needles into the prostate and then withdrawing them. Most often, the needles are inserted through the wall of the rectum (transrectal biopsy); however, the needles may also be inserted through the skin between the scrotum and the anus (transperineal biopsy). A pathologist then examines the collected tissue under a microscope. The doctor may use ultrasound to view the prostate during the biopsy, but ultrasound cannot be used alone to diagnose prostate cancer.

Source: National Institute of Diabetes and Digestive and Kidney Diseases (May 2012)