Prostate Cancer - Diagnosis [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 01/2016

ON THIS PAGE: You will find a list of the common tests, procedures, and scans that doctors can use to find out what is wrong and identify the cause of the problem. To see other pages, use the menu on the side of your screen.

Doctors use many tests to diagnose cancer and find out if it has spread to another part of the body, called metastasis. Some tests may also determine which treatments may be the most effective. For most types of cancer, a biopsy is the only way to make a definitive diagnosis of cancer. If a biopsy is not possible, the doctor may suggest other tests that will help make a diagnosis, but this situation is rare for prostate cancer. For example, a biopsy may not be done when a patient has another medical problem that makes it difficult to do a biopsy, or when a person has a very high PSA level and a bone scan that indicates cancer. Imaging tests may be used to find out whether the cancer has spread.

This list describes options for diagnosing this type of cancer, and not all tests listed will be used for every person. Your doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of cancer suspected
- Signs and symptoms

- Previous test results

Preliminary tests

In addition to a physical examination, the following tests may be used to diagnose prostate cancer:

- **PSA test.** As described in the Overview [3] and Screening [4] sections, PSA [5] is a type of protein released by prostate tissue that is found in higher levels in a man's blood. Levels can be raised when there is abnormal activity in the prostate, including prostate cancer, BPH, or inflammation of the prostate. Doctors can look at features of the PSA value, such as absolute level, change over time, and level in relation to prostate size, to decide if a biopsy is needed. In addition, a version of the PSA test allows the doctor to measure a specific component, called the “free” PSA, which can sometimes help find out if a tumor is noncancerous or cancerous.

- **DRE.** A doctor uses the DRE test [6] to find abnormal parts of the prostate by feeling the area using a finger. It is not very precise; therefore, most men with early prostate cancer have normal DRE test results. See the Screening [4] section for more information.

Confirming the diagnosis

If the PSA or DRE test results are abnormal, the following tests can help confirm a diagnosis of cancer:

- **PCA3 test.** The Prostate CAncer gene 3 (PCA3 [7]) Assay is a gene-based [8] test performed in a urine test. Unlike PSA, *PCA3* is only found in prostate cancer cells. Using a urine test, a doctor can detect whether this gene is present in the body. This test does not replace PSA. It is used along with a PSA to help decide if a prostate biopsy is needed.

- **Transrectal ultrasound (TRUS).** A doctor inserts a probe into the rectum that takes a picture of the prostate using sound waves that bounce off the prostate. A TRUS [9] is usually done at the same time as a biopsy.

- **Biopsy.** A biopsy [10] is the removal of a small amount of tissue for examination under a microscope. Other tests can suggest that cancer is present, but only a biopsy can make a definite diagnosis. To get a tissue sample, a surgeon most often uses TRUS and a biopsy tool to take very small slivers of prostate tissue. A pathologist then analyzes the sample(s). A pathologist is a doctor who specializes in interpreting laboratory tests and evaluating

cells, tissues, and organs to diagnose disease. A patient usually can have this procedure at the hospital or doctor's office without needing to stay overnight. The patient is given local anesthesia beforehand to numb the area and usually receives antibiotics before the procedure to prevent infection.

- **MRI fusion biopsy.** An MRI fusion biopsy combines an MRI test with TRUS. The patient first receives an MRI to identify suspicious areas of the prostate that require further evaluation. The patient then undergoes an ultrasound of the prostate. Computer software combines these images to produce a 3D image that helps target the precise area to be biopsied. Although it may not eliminate the need for repeat biopsies, an MRI fusion biopsy can better identify areas that are more likely to be cancerous than other methods.

Finding out if the cancer has spread

To find out if cancer has spread outside of the prostate, doctors may perform the imaging tests listed below. Doctors are able to estimate the risk of metastasis based on PSA levels, tumor grade, and other factors. Learn more about when these tests are recommended to find out if the cancer has spread [11].

- **Bone scan.** A bone scan [12] uses a radioactive tracer to look at the inside of the bones. The tracer is injected into a patient's vein. It collects in areas of the bone and is detected by a special camera. Healthy bone appears gray to the camera, and areas of injury, such as those caused by cancer, appear dark.

- **Computed tomography (CT or CAT) scan.** A CT scan [13] creates a 3-dimensional picture of the inside of the body with an x-ray machine. A computer then combines these images into a detailed, cross-sectional view that shows any abnormalities or tumors. A CT scan can also be used to measure the tumor's size. Sometimes, a special dye called a contrast medium is given before the scan to provide better detail on the image. This dye can be injected into a patient's vein or given as a liquid to swallow.

- **Magnetic resonance imaging (MRI).** An MRI [14] uses magnetic fields, not x-rays, to produce detailed images of the body. MRI can also be used to measure the tumor's size. A special dye called contrast medium is given before the scan to create a clearer picture. This dye can be injected into a patient's vein or given as a liquid to swallow.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is cancer, these results also help the doctor describe the cancer; this is called staging.

The next section in this guide is Stages and Grades [15]. It explains the system doctors use to

describe the extent of the disease and how the cancer cells look under a microscope. Or, use the menu on the side of your screen to choose another section to continue reading this guide.

Links
[1] http://www.cancer.net/cancer-types/prostate-cancer/diagnosis
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/19562
[4] http://www.cancer.net/node/34546
[5] http://www.cancer.net/node/27651
[6] http://www.cancer.net/node/24500
[7] http://www.pca3.org/public/glossary/prostate-cancer-gene-3-pca3
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