Prostate Cancer: Diagnosis

How is prostate cancer diagnosed?

If your healthcare provider thinks you might have prostate cancer, certain exams and tests will be needed to be sure. Diagnosing prostate cancer starts with your healthcare provider asking you questions. You'll be asked about your health history, your symptoms, risk factors, and family history of disease.

A physical exam and maybe a digital rectal exam (DRE) will be done. This is when your provider puts a gloved, lubricated finger into your rectum to feel for hard bumps on your prostate.

Blood tests will also be done. These are used to get an idea of your overall health and to check your PSA level. PSA is prostate-specific antigen. It's a protein made by prostate cells. High PSA levels may be a sign of prostate cancer.

If the DRE and your PSA level suggest you have prostate cancer, the next step is often a prostate biopsy.

What is a biopsy?

A biopsy is the removal of tiny pieces of tissue for testing. The removed tissue is called a sample. A biopsy is the best way to know for sure that a man has prostate cancer. A core needle biopsy is most often done.

What to expect during a biopsy

A core needle biopsy to check for prostate cancer is most often done by a urologist. This is a healthcare provider who is a specialist in diagnosing and treating problems of the urinary and genital tracts. The procedure takes about 10 minutes. It's often done in a healthcare provider's office.

During a prostate biopsy:

- A thin needle is used to inject medicines that numb the area near your prostate.
- An ultrasound probe is put into your rectum. It uses sound waves and a computer to create images on a screen. These are used to see your prostate and guide the needle to the right place.
- A biopsy tool with a thin, hollow needle is used to take the samples from the prostate. The needle may go through the wall of the rectum (called a transrectal biopsy). Or it may go in through the skin between your scrotum and anus (called a transperineal biopsy). The needle moves in and out very fast. Because of this, you may not feel much discomfort.
- About 12 samples are taken from different parts of the prostate.
- To prevent infection, you may be given antibiotics before and after the biopsy.

For after the biopsy, you might have:

- Soreness in the area
- Blood in your urine or semen
- Bleeding from your rectum

Biopsy results

Once the biopsy is done, the tissue pieces are sent to a pathologist. This is a healthcare provider who is a specialist in testing and looking at tissue samples in a lab with a microscope. It often takes a few days to get the results of a biopsy. They may come back as:

- Positive for cancer
- Negative for cancer
- Suspicious (changes are seen, but it's not clear that it's cancer)

Positive biopsy results

Gleason score

When cancer cells are found, the cancer is assigned a grade by the pathologist. The grading system for prostate cancer is called the Gleason score.

This scale uses numbers 1 to 5 to show how much the tissue looks like normal prostate tissue. A grade is given to each of 2 samples of the prostate that have the most cancer cells.

The grades are:

- **Grade 1.** The tissue looks a lot like normal prostate tissue. The cells are abnormal, but still appear to be organized in rings. This may mean a slow-growing cancer.
- **Grades 2 to 4.** The tissue looks in between normal and very abnormal. The cells vary more in size and shape. Fewer rings are visible. These cancer cells may grow more rapidly or still be slow growing.
- **Grade 5.** The tissue looks very abnormal. The cells form irregular closely packed rings or don’t form rings at all. They vary even more in size and shape than lower-grade cells. This grade indicates a fast-growing cancer.

The grades from the 2 areas are added together. The main area of cancer gets the first grade score. The second main area of cancer gets the second grade score. That total number is then the Gleason score.

Gleason scores are between 2 and 10. But scores below 6 are seldom used:

- **Gleason score of 6 or less.** This is low-grade cancer.
- **Gleason score of 7.** This is medium-grade cancer.
- **Gleason scores of 8 to 10.** This is high-grade cancer.

The higher the Gleason score, the more likely the cancer will grow and spread.

Grade groups

Most medical experts use Grade Groups to describe prostate cancer. This is more accurate than the Gleason scores. For instance, not all cancers with a Gleason score of 7 are the same. Cancers with more Grade 3 areas (3 + 4 = 7 Gleason score) are less likely to grow and spread than cancers with more Grade 4 areas (4 + 3 = 7 Gleason score). And Gleason score 8 cancers are less likely to grow and spread than cancers with a Gleason score of 9 or 10.

The Grade Group system breaks up prostate cancers into 5 Grade Groups:

- **Grade Group 1** = Gleason 6 (or less)
- **Grade Group 2** = Gleason 3 + 4 = 7
- **Grade Group 3** = Gleason 4 + 3 = 7
- **Grade Group 4** = Gleason 8
- **Grade Group 5** = Gleason 9 or 10

If your biopsy report shows you have prostate cancer, it might show both the Gleason score and the Grade Group.

Negative biopsy results

Negative biopsy results means no cancer cells were found in samples taken from your prostate.

Sometimes a biopsy doesn't find any cancer when cancer is there. This is called a false negative. This might happen if the biopsy needle misses parts of your prostate with cancer. If your healthcare provider thinks you have prostate cancer (for instance, if your PSA level is really high), but your results are negative, more testing might be done. This might include doing another biopsy.

Suspicious biopsy results

A pathologist may report cells that aren't normal, but aren't cancer. They may call these cells suspicious.

Suspicious cells may be:

- **Prostatic intraepithelial neoplasia (PIN).** This is abnormal growth, but it's not cancer. PINs may be low grade or high grade. Low-grade PIN is not linked to cancer. But men with high-grade PIN have a higher chance of prostate cancer.
- **Atypical small acinar proliferation (ASAP).** ASAP is also called atypia. The cells look like cancer, but there are very few of them. ASAP means there's likely cancer in the prostate.
- **Proliferative inflammatory atrophy.** This means prostate cells that are smaller than normal, and there's inflammation in the area. This may lead to high-grade PIN or prostate cancer.

If you have any of these, your healthcare provider may watch your prostate health more closely. More testing, including another biopsy in a few months, might be recommended.

Next steps

When your healthcare provider has the results of your biopsy, they will talk with you about next steps. This may include treatment choices if cancer is found, doing another biopsy at a later time, or regular checkups.

Talk with your urologist or other healthcare provider if you have questions or concerns after your biopsy. Make sure you understand your results and what follow up is needed.