Chapter 2. Understanding My Diagnosis

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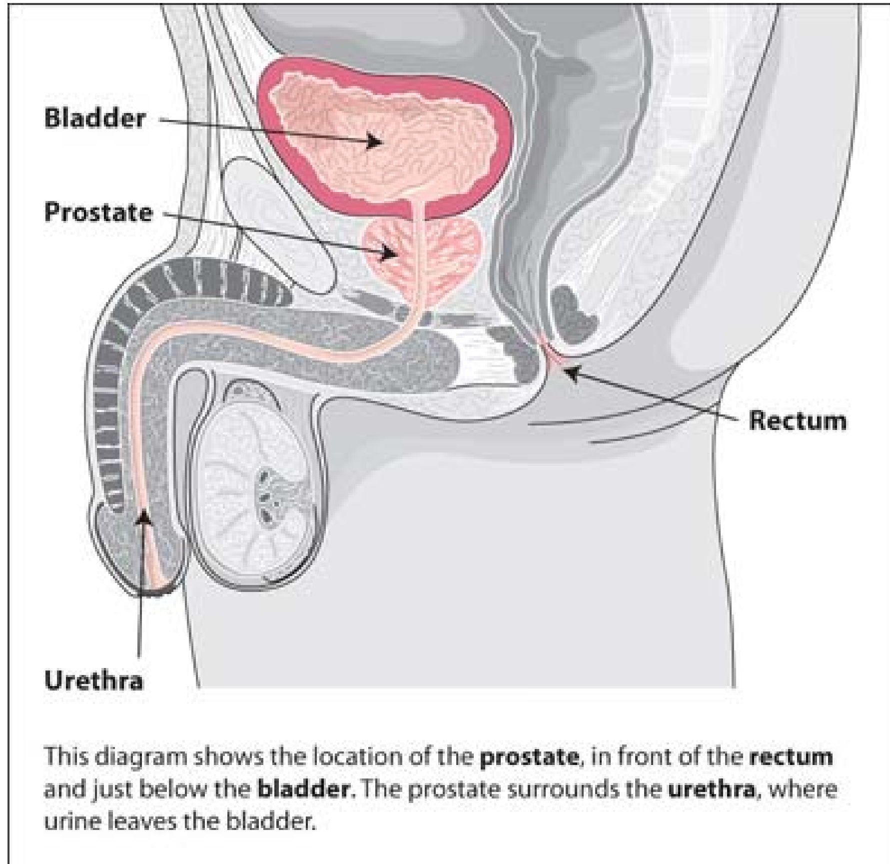
- Facts about the prostate gland



This diagram shows the location of the **prostate**, in front of the **rectum** and just below the **bladder**. The prostate surrounds the **urethra**, where urine leaves the bladder.

General Information on Prostate Cancer (Including Risk Factors)

www.pamf.org/prostate/about

- Prostate cancer is the most common cancer (after non-melanoma skin cancers) among American men and is the second-leading cause of cancer deaths in men after lung cancer.

- The American Cancer Society estimated that about 232,000 new cases of prostate cancer were diagnosed and 30,350 men died of this disease in the United States in 2005.

www.cancer.gov

- In general, the risk of getting prostate cancer is greater with increasing age. Most men over the age of 50 will have some experience with prostate disease with either an enlarged prostate or cancer. Fortunately, the majority of prostate cancers grow slowly and if detected early are highly curable.

- Although the number of men with prostate cancer is large, most men diagnosed with this disease do not die from it.

- Age, race, and family history of prostate cancer can affect the risk of developing prostate cancer.

- Anything that increases a person's chance of developing a disease is called a risk factor. Risk factors for prostate cancer include the following:
    - Being 50 years of age or older.
    - Being black.
    - Having a brother, son, or father who had prostate cancer.
    - Eating a diet high in animal fat.

Test Results (Stage, Grade and PSA)

Stage

The Tumor Node Metastasis (TNM) system is commonly used to "stage" how advanced the cancer is and is based on the size of the cancer, whether it is on one or both sides of the prostate, and whether it has gone beyond the prostate.

The "T" part of the score refers to the tumor itself. The T can be a T1, T2, T3 or T4.

T1 means the cancer is all within the prostate. The doctor probably felt nothing during the digital rectal exam (DRE), but cancer is present.

T2 means the doctor may have felt a lump, and the biopsy says there is cancer, but it probably has not spread.

T3 means the doctor has felt a lump which extends beyond the prostate and may go into the seminal vesicles.

T4 means there is a larger tumor that extends to the bladder and/or other areas of pelvis.

There can be an a, b, or c, after the "T," which is just more information about how the tumor was found, the size, whether or not the tumor is on one or both sides of the prostate, and if it extends past the prostate.

The "N" part of the score refers to whether the cancer has spread to the lymph nodes in your pelvis and may be checked using a CT scan or surgery.

NX means not tested/status unknown.
N0 means the cancer has not spread to the pelvic lymph nodes.
N1 means the cancer has spread to the lymph nodes in the pelvis.

The "M" part of the score tells us if the cancer has spread beyond the lymph nodes of the pelvis, or metastasized. The M score is determined mostly by imaging studies, such as bone scans.

MX means not tested/status unknown
M0 means no metastasis.
M1a means the cancer has spread to the lymph system outside the pelvis.
M1b means the cancer has spread to the bones.
M1c means the cancer has spread beyond the lymph system and the bones, to other organs.

Grade

The cancer is “graded” using the Gleason score.

The lowest number on the grade scale is a 1 and the highest is 5. Gleason was a pathologist who developed a grading system with two numbers because not all areas of the pathology specimen look alike. One number is given for the most common grouping of cells and the other is for the second most common. The Gleason grade numbers then are determined adding up the two numbers to get the final Gleason score, which can only be 2 to 10 (for example, 4+3 or 7).

Here is how it works: The pathologist looks at the tissue taken from the prostate during the biopsy and then determines the most prominent grade (first number in score) and the second most prominent grade (second number in score). The two numbers together give the total Gleason score.

The lower the score, the better, suggesting there is more time before a treatment needs to start and that treatment will be successful (meaning that the cancer will be gone). A number beyond 6 should lead to prompt consideration of the diagnostic and therapeutic alternatives.

Here is how the scores break down:

- Scores from 2 to 4 are very low and have low risk.
- Scores from 5 to 6 are fairly low risk.
- Scores of 7 indicates an intermediate risk; and
- Scores from 8 to 10 indicate high risk.

Prostate-Specific Antigen (PSA) Test

The third piece of information that is important is the PSA score from your last blood test. Your doctor will look at the trend of your PSA results over time. The rate of rise of PSA over time is also an important consideration.

Prostate-specific antigen is a protein substance produced by the prostate and combined with fluid from the seminal vesicles and testicles during orgasm. PSA thins out the ejaculate and makes it easier for sperm to travel during intercourse.

A PSA test is a test that measures the level of PSA in the blood. PSA is a substance that may be found in an increased amount in the blood of men who have prostate cancer. PSA levels may be high in men who have an infection or inflammation of the prostate or benign prostatic hyperplasia (BPH) − an enlarged, but non-cancerous, prostate − as well as patients who have cancer.

Risk Groups

It is helpful to put all these pieces of information together and look at the individual patient as being in different "risk groups," depending on what his chance is that his cancer may have spread beyond the prostate gland to nearby or distant parts of the body. These groupings can help the patient decide if his disease is something that needs to be taken care of very quickly or if he has more time to make decisions. The groupings also help the patient know what his best treatment options might be. Many prostate cancers progress slowly, so unlike certain other cancers, urgent treatment may not be required. Some prostate cancers, however, are more aggressive, and can spread more rapidly, or may have already spread by the time of the biopsy. It is helpful to understand where the individual patient is in terms of the risk, since it will affect the treatment options offered.

The significance of these tests that determine the risk groups may vary according to different physicians, and these items will change as more information is gathered over time, but most doctors agree that the PSA level, the Gleason score and the clinical stage are the key factors for prognosis. In addition, the percentage of biopsies that show cancer (number of positive biopsies/total number of biopsies) and the rate of rise of PSA are noteworthy.

A low-risk group includes patients whose PSA is less than 10, the Gleason score is 6 or less, the stage is T1 or T2a. Some doctors also feel that the percentage of biopsies that show cancer should be less than 50 percent. These patients tend to have more slowly growing tumors with low risk that the cancer has already spread beyond the capsule of the prostate.

A high-risk group includes those patients with a PSA greater than 20, a Gleason score of 8,9 or 10, or stage T3 or T4 disease. These patients have a greater chance that the cancer may have already spread to lymph nodes or beyond, and will require more extensive treatment than those with low risk disease. There is more urgency in the need to decide how to treat these high risk patients.

An intermediate-risk group consists of those patients whose disease falls between low and high risk. Those in between the other groups are patients who have a PSA in the 10-20 range, a Gleason score of 7, and T2b disease or >50 percent of their biopsies showing disease. Their risk of spread is less than the high risk group, but higher than the low risk group.

In looking at outcomes of treatment, it is important for the patient to compare results with patients in similar risk groups.

How to Read Your Pathology Report, by Patrick Swift, M.D.

Pathology reports vary from hospital to hospital. Some will provide a great deal more information than others. The important items that will be covered include the patient's name, the date of the biopsy and the surgeon that performed the biopsy. The report may include a brief statement about the reason for the biopsy.

The next section will describe the number of specimens (or actual biopsies) delivered to the pathologist, and a description of how these biopsies were received and what they looked like to the pathologist. The biopsy is a short piece of the tissue pulled out of the needle (called a "core"). For some prostate biopsies, this section of the report will tell the exact area of the prostate that the biopsy came from (for example, left lateral mid-gland or right apex). Other hospitals and surgeons do not include this information in the report. Urologists differ in the number of actual needle

biopsies they obtain from the patient, from a low of 6 (three from either side of the gland, often labeled only right or left) to as many as 20 to 22 biopsies (each one labeled carefully as to the part of the prostate from which the biopsy came). The greater the number of biopsies obtained, the better the understanding of the distribution of the cancer throughout the gland and the less the chance that cancer may be missed with these limited biopsies.

The next section will describe what the pathologist observed under the microscope when looking at each individual biopsy. It will state whether or not cancer was seen. If cancer is present, the report will state the Gleason score and may describe the actual length of the cancerous part of the biopsy. The biopsy is looked at lengthwise. It has a measured length, and the pathologist can tell the length of the cancerous part, and may describe it as a percentage of the biopsy core. For example, the entire core length may be 10 mm, and the cancer is 3 mm long, or 30 percent of the core. This section will also tell if there is perineural invasion, which means that the cancer appears to be growing into and around small nerves on the surface (or just outside) the prostate.

The report may also describe high-grade PIN (prostatic intra-epithelial neoplasia), which is considered to be a precursor of actual cancer. Other statements may be made about chronic inflammation, a non-cancerous condition that can be seen in patients who have a long history of an inflamed or irritated prostate.

Prognosis (Using the Partin Tables)

With the age of the patient, stage, grade and PSA score, it is possible to use some very helpful tables to predict the chance the cancer is localized or of it has spread. It may, in fact, help you and your doctor make a decision about the best treatment option.

Many different tables and nomograms have been created that may be helpful to the patient who has been diagnosed with cancer to get a better understanding of what his chances are that the cancer may have already extended beyond the prostate gland or into the pelvic lymph nodes. Since no radiologic studies can clearly show microscopic disease beyond the gland, these statistical prediction models (based on surgical data from other patients) can be helpful.

The Partin tables refer to one such database run by the James Brady Urological Institute at Johns Hopkins University. It is based on information on hundreds of men who underwent prostatectomies for prostate cancer. The tables combine the information from the initial diagnostic tests of these patients prior to their surgery (PSA level, clinical stage and Gleason score) with pathology findings from these surgeries to calculate the probability that the cancer will be confined to the prostate only (organ confined), extend just outside the capsule (covering) of the gland (extraprostatic extension), invade the seminal vesicles, or if the cancer has already spread to lymph nodes (lymph node invasion).

There are tables and computer programs to help with the estimate. The patient will go either to a series of tables or enter data into the computer program. One must us the individual patient data that best fits his clinical stage of disease. On the table, look down the left column to find the PSA range, and then go across to the column that shows his Gleason score. In that column of the table, he will find the percentage chance that his cancer is confined to the prostate or spread locally to nodes, seminal vesicles or just outside the prostate. The first number is the actual percentage of the likelihood of the specific finding, and the numbers in parentheses are the 95 percent confidence

intervals (a statistical range of the likelihood, rather than an absolute number). These tables do not take into account such pieces of information as the number of biopsies that show cancer or other pathologic findings besides the Gleason score. Similar calculations are available through this Web site: http://urology.jhu.edu/prostate/partintables.php.

At this Web site, you will be asked to enter a PSA score, a Gleason score and a clinical stage. For example, if you enter a PSA between 6.1 and 10; a Gleason score of 4+3 = 7; and a clinical stage of T1c, you will get a little report that looks like this:

Organ Confined: 43(35-51)
Extraprostatic Extension: 47(40-54)
Seminal Vesicle Invasion: 8(4-12)
Lymph Node Invasion: 2(1-4)

You can also look at the actual tables, and in this case, we can look at Table 1 and find the numbers in that report. What they mean is that there is a 43 percent chance that the cancer is confined to the prostate (or has not spread); there is a 47 percent chance that the cancer is also located outside the prostate gland; there is an 8 percent chance that cancer cells will be found in the seminal vesicles; and a 2 percent chance that the cancer has spread into the lymph nodes.

Please note that every man is different, and these tables are just approximations for any particular man.

Treatment Goals

Ideally, treatment for prostate cancer should effectively arrest or cure the disease while limiting side effects.

Armed with as much information about the disease as possible, every man has to identify his goals related to treating prostate cancer. The most important goal to one person may not be important to another.

One of the processes you will complete with the nurse navigator is identifying what are the most important considerations for you.

Some of those goals may include:

- Avoiding side effects
- Maintaining quality of life
- Ridding yourself of the cancer
- Making treatment as convenient as possible

Below are several different concerns we heard from men who participated in the development of this notebook.

- “I am the primary caretaker for … and I have a job that requires my presence. I have to be able to miss zero days of work.”

- "If it was just me, I am not sure I would start treatment, but I have to think about my family."
- "I am a young, sexually active gay man … I am unwilling to consider living the rest of my life without [unassisted] erections."
- "The only thing that matters to me is knowing that the cancer is gone, forever."