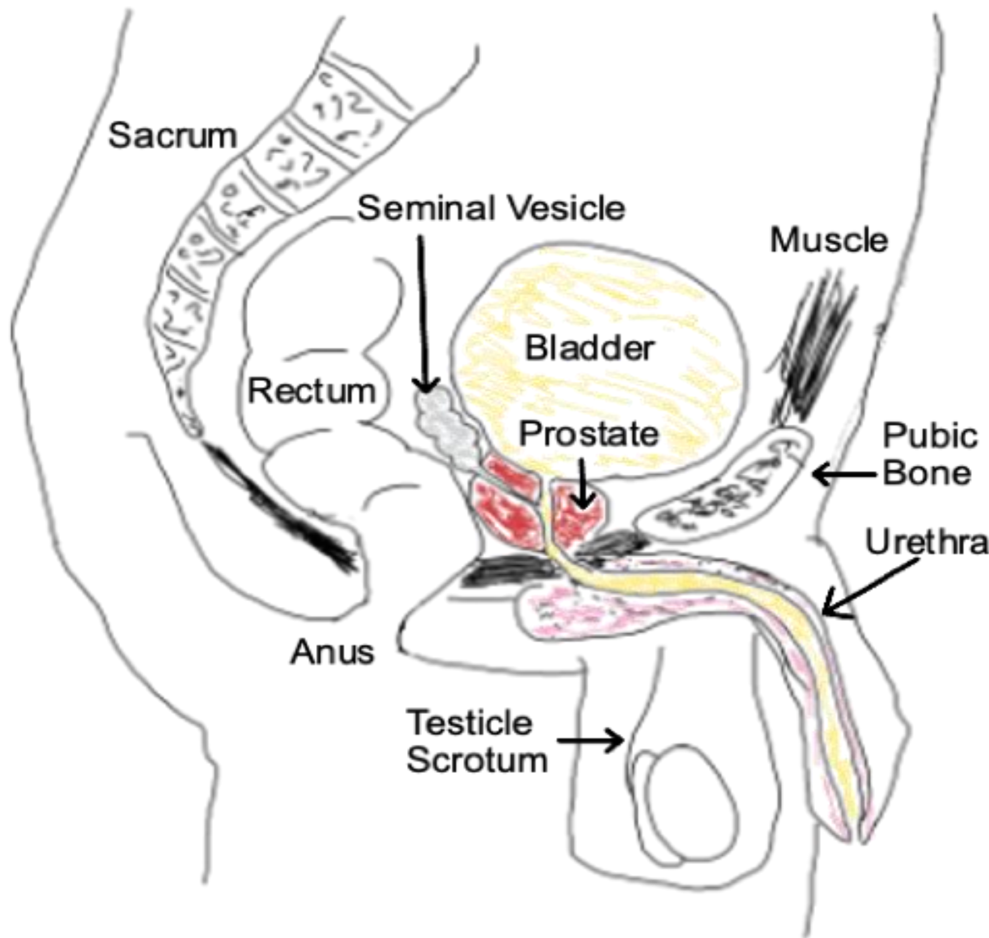
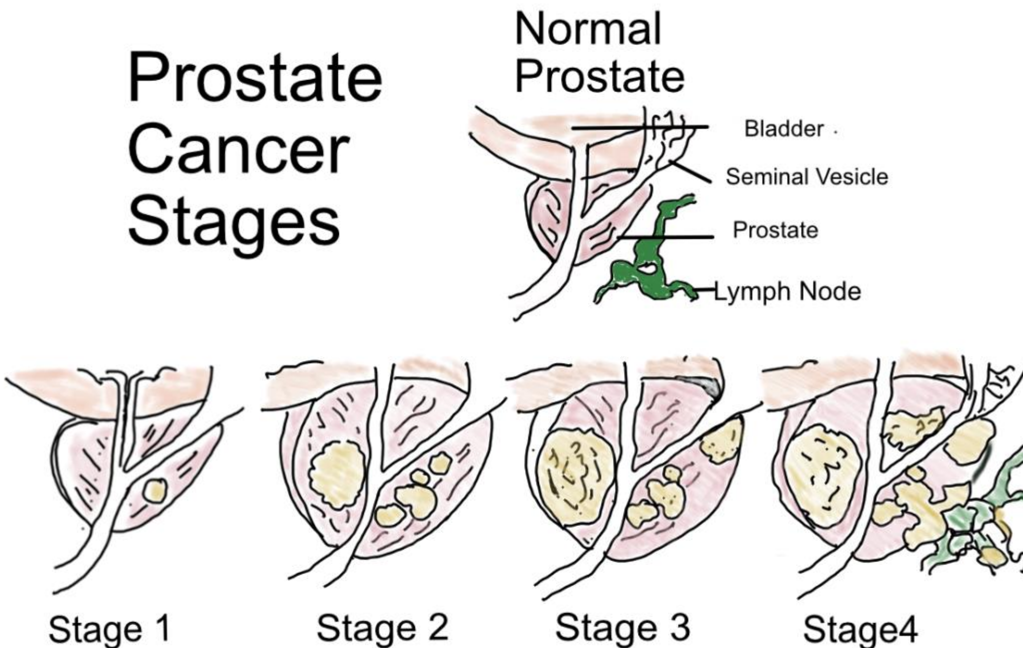
Prostate Cancer "Worksheet"

Review of Basic Anatomy and Physiology



This drawing above is a side view of the male pelvis. My apologies for the 5th grade level of artistry.

- The prostate is found below the bladder near the base of the penis and in front of the rectum. The prostate can be felt during a rectal exam because of its location just above the anus.
- The prostate produces semen and works in conjunction with the pelvic floor and bladder muscles during orgasm and ejaculation.
- The prostate meets the urethra and the level of the pelvic floor and the sphincter muscles. The urethra is a tube that carries urine from the bladder and out of the body. The prostate forms the channel the urine flows through. There is no "tube" running through the prostate.
- Above the prostate and behind the bladder are two seminal vesicles that store the produced semen and are involved with ejaculation. The seminal vesicles are removed along with the prostate during a prostatectomy.
- The nerves that help men get an erection as well as help with the act of ejaculation run along the back side of the prostate within the connective tissue that surrounds the prostate.



2. What is a Clinical Stage?

The Clinical Stage of a Prostate Cancer is the prediction of whether the cancer is contained within the prostate or has some chance of spread beyond the prostate to other places such as lymph nodes or bones.

The expected clinical stage is determined by the clinical parameters below:

Stage 1 is a cancer detected by PSA alone or when a man has a prostate operation for another reason such as a resection of the prostate for enlarged prostate.

Stage 2 cancers can be felt as a nodule or lump. The cancer can be felt distorting the exam but still felt to be contained within the prostate itself.

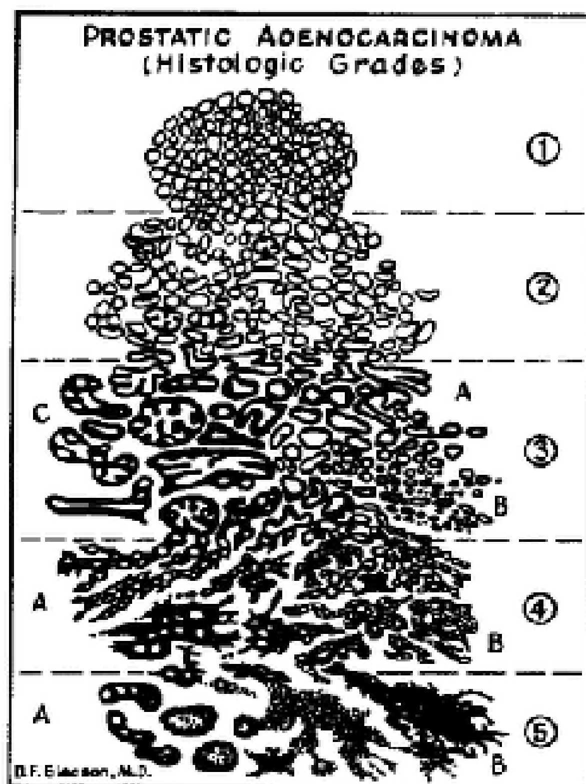
Stage 3 cancers are felt to be through the prostate edge or capsule. The cancer has pushed through the edge of the prostate.

Stage 4 cancer is beyond the prostate to the lymph nodes or other organ systems such as the bones. Exam findings and X-rays can both help determine clinical stage.

Your doctor will help you determine the stage of your cancer.

If your prostate is removed for treatment of your cancer when the pathologist reviews the findings under a microscope a pathologic stage is determined. The pathologic stage of your cancer may be different than your clinical stage of cancer.

3. What is a Cancer Grade?



The Grade of a cancer is a measure of of how fast a cancer will grow. It is based on the way the cancer looks under the microscope by a pathologist.

Historically we use the Gleason Score, an addition of two individual grades of cancer as defined by Donald Gleason in the 1960s. His representation of how cancer cells look under a microscope in a famous drawing is seen to the right.

More recently we are adopting a more accurate system called Grade Grouping. The Grade Group is between a 1 and 5 scale.

Grade group 1 cancers (Gleason score 6) are slow growing. Grade group 2 and 3 (Gleason 7) are moderate growth rates. Grade group 4 and 5 (Gleason 8,9,10) are fast growing, higher risk cancers.

Below is a list of Clinical Parameter that your physician will use to help determine recommendations for you.

PSA:

Prostate Volume:

Prostate Exam:

Gleason Score or Grade Group:

MRI findings:

CT, PET, Bone scan findings (if indicated):

Urinary Symptoms/IPSS:

Sexual activity/Erectile Function/IIEF:

Medical History, Prior Surgery, and Expected Longevity

Your Medical History and expected longevity impact very directly a decision regarding treatment for prostate cancer.

Many prostate cancers do no need treatment. Some prostate cancers are found small. Others are slow growing. Many are both.

Small, slow growing cancers may be monitored for growth. As a cancer grows to a size or speed where they will impact quality or quantity of life the cancer will need treatment.

A frank discussion in the office with your physician will help you determine what your life expectancy is. There are many online calculators that can help you determine your life expectancy. Here are the main contributors to longevity.

- Weight. Maintaining a healthy weight improves longevity.
- Smoking History. Quitting smoking now or having never smoked improves longevity.
- Diabetes. Controlling your diabetes improves your lifespan.
- High Blood Pressure/High Cholesterol. Controlling blood pressure and cholesterol
- Exercise. Stay active. Light active daily is better than infrequent, heavy physical activity.
- Diet. Eat healthy. Fruits and Vegetables. Stay hydrated. Balance fat, protein, and carbohydrates

A Comment on Sexual Activity and Urinary Symptoms

In addition to the stage and grade of cancer men need to consider their current level of urinary symptoms as well as level of sexual activity when deciding on a treatment option. All treatments potentially impact both urinary and sexual function. The main concern because of surgery is the small, but real, risk of severe urinary incontinence.

Men with moderate to severe urinary symptoms should consider treating their prostate cancer even if it is currently low grade and low stage simply to improve quality of life from improved urination. Men should always be weighing the concern for urinary incontinence as a risk of prostate removal.

Men who are sexually active and have good erection quality with aggressive or advanced disease unfortunately need to be aware of the risk to erections and sexual function with any of the treatment choices. Surgery and radiation both pose a risk to erectile quality in the case of higher grade and stage of disease. In the case of surgery, a less aggressive "nerve-sparing" approach is needed to make sure the cancer is removed, and in the case of radiation a longer course of androgen deprivation (lower testosterone) is needed along with a wider field of radiation to make sure the cancer is treated.

Your physician will want to know your current level of urinary complaints and erectile function. Your physician may ask you to fill out symptoms scores–the IPSS for urinary symptoms and the IIEF for erectile function–to help determine your level of function.

Treatment Options

While it is nearly impossible to capture all of the treatment options available in a small table, I make an attempt in the grid below.

Treatment Options	What is it?	Benefits	Potential Risks
Active Surveillance	Monitor the cancer over time for potential growth. Treat when appropriate to prevent spread or symptoms.	No immediate complications experienced for men who don't have symptoms, or the cancer is small and slow growing.	**Progression of cancer** while being monitor, spread of cancer. **Anxiety** related to "just waiting for cancer to grow."
Radical Prostatectomy	Removal of the entire prostate and seminal vesicles. Most often includes a lymph node dissection	Removes the prostate so decreases local recurrence risk. Best long-term cure for most men. Improves urinary obstruction.	**Surgery risks** infection, bleeding, anesthesia; **Incontinence**: leaking urine, diapers; **Impotence**: loss of erections
Radiation	Many forms of radiation exists. Most deliver radiation to prostate and surrounding tissue to kill the cancer.	Leaves prostate intact. No surgery. Less incontinence. Less immediate risk for erections.	Radiation damage long term risk for bladder, colon Urinary and sexual dysfunction exist. Limits options if cancer returns
Less Common Options I do not perform			
Cryotherapy	Freeze the prostate to kill the cancer	Leaves prostate intact. Less incontinence risk.	Not as good as cancer control. Impotence. Imprecise method
High Frequency Ultrasound	Intense ultrasound beams burn the prostate.	Leaves prostate intact. Less incontinence risk. Less risk of potency.	Scarring of urethra. Not as good cancer control.
Interstitial Lasers	Lasers beams in the prostate kills the cancer cells	Leaves prostate intact. Less incontinence risk. Less risk of potency.	Not as good cancer control. Requires heavy surveillance.
Other Options			
Focal Therapy	Focal therapy options treat only the area of the prostate with known cancer.	Limits the risk of urinary and sexual function changes. Good for men with very localized cancer.	Currently unknown what the long term risk is for some men with longer life expectancy. Should be performed using very strict criteria.
Treatment for Advanced Prostate Cancer	Men with advanced prostate cancer will need hormonal, chemotherapy and immunotherapy not listed here	Excellent quality and quantity of life can be gained using available treatments although not curative.	There are risks associated with hormonal, chemotherapy and immunotherapy beyond the scope here.

Finally,

Treating prostate cancer is a personal decision. Your individual health and expected longevity, the cancer's grade and stage, as well as your current urinary symptoms and level of sexual activity all factor into the treatment decision. Above all, your personal goals and expectations for your care and your comfort with any individual option's risks and benefits will directly impact your choice. Research. Discuss. Get second opinions. Ask lots of questions. You are not alone.

Good luck on your journey,

Dr Brandt