Prostate Cancer

- Understanding the diagnosis
- Finding solutions

THE UROLOGY TEAM, p.a.
Dr. Eric Giesler

Experience Matters

I have been passionate about the treatment of prostate cancer since my grandfather was diagnosed over 20 years ago. Since that time, my father has dealt with prostate cancer as well. Both of them conquered it.

Robotic surgery for prostate cancer was approved by the FDA in 2001. I have witnessed the evolution of the surgery from its inception to its current state of the art technique. The first cases took 6-8 hrs to complete. Today, with improved techniques, the average time for surgery is less than 3 hrs. During my training, I participated in over 100 robotic prostatectomies. As an Assistant Professor of Surgery at the University of Cincinnati, I taught laparoscopic and robotic surgery to urology residents and fellows. Most recently, I have further honed my skills by working closely with Dr. Randy Fagin. He has performed over 2000 robotic prostatectomies.

Numerous studies have shown that experienced surgeons more consistently achieve superior outcomes for their patients. Further studies have demonstrated that post operative recovery is hastened by a comprehensive rehabilitative program.

I have established a team of people including nutritionists, physical therapists, pharmaceutical companies and medical device companies to create a state-of-the-art post-operative recovery program. We work with patients to restore urinary control and erectile function as quickly and completely as possible. Our Team strives to achieve the best results possible for our patients.

Additional areas of expertise:
- HIFU for prostate cancer
- General urology for both men and women
- Erectile Dysfunction
- Male sexual dysfunction
- Vasectomies
- Minimally invasive treatment for kidney stones

Credentials:
- Board Certified: American Board of Urology, 2009
- Private Practice: The Urology Team P.A., September 2008 – Present
- Assistant Professor of Surgery, University of Cincinnati, 2007 – 2008
- Urology Residency, University of Cincinnati, 2003 – 2007
- General Surgery Internship, University of Cincinnati, 2002-2003
- Medical Doctorate, University of Texas Health Science Center Houston, 2002
- Bachelor of Arts, University of Virginia, 1998
What is Prostate Cancer?

The prostate gland is located in front of the rectum and underneath the urinary bladder and is found only in men. The size of the prostate varies with age. In younger men, it is approximately the size of a walnut, but it can be much larger in older men. The prostate's job is to make some of the fluid that protects and nourishes sperm cells in semen, making semen more liquid. Just behind the prostate gland are the seminal vesicles that make most of the fluid for semen. The urethra, which is the tube that carries urine and semen out of the body through the penis, goes through the center of the prostate.

In men, the prostate starts to develop before birth and continues to grow until adulthood. This growth is fueled by male hormones (called androgens) in the body. The main androgen, testosterone, is made in the testicles. The enzyme 5 alpha-reductase converts testosterone into dihydrotestosterone (DHT). DHT signals the prostate to grow. The prostate stays at adult size in adults as long as male hormones are present. In older men, the inner part of the prostate (around the urethra) often keeps growing, leading to a common condition called benign prostatic hyperplasia (BPH). In BPH, the prostate tissue can press on the urethra, leading to problems passing urine. BPH can be a serious medical problem, but it is not cancer.

Prostate cancer

Several types of cells are found in the prostate, but almost all of prostate cancers develop from the gland cells. Gland cells make the prostate fluid that is added to the semen. The medical term for a cancer that starts in gland cells is adenocarcinoma.

Other types of cancer can also start in the prostate gland, including sarcomas, small cell carcinomas, and transitional cell carcinomas. These other types of prostate cancer are so rare that if you have prostate cancer it is almost certain to be an adenocarcinoma.

Some prostate cancers can grow and spread quickly, but most of them grow slowly. In fact, autopsy studies show that many older men (and even some younger men) who died of other diseases also had prostate cancer that never affected them during their lives. In these studies, 70% to 90% of the men had cancer in their prostate by age 80, but in many cases neither they nor their doctors even knew they had it.
Aside from skin cancer, prostate cancer is the most common cancer in American men. The latest American Cancer Society estimates for prostate cancer in the United States are for 2010:

- About 217,730 new cases of prostate cancer will be diagnosed.
- About 32,050 men will die of prostate cancer.
- About 1 man in 6 will be diagnosed with prostate cancer during his lifetime.
- More than 2 million men in the United States who have been diagnosed with prostate cancer at some point are still alive today.
- Prostate cancer is the second leading cause of cancer death in American men, behind only lung cancer. About 1 man in 36 will die of prostate cancer.
Prostate Cancer Symptoms and Diagnosis

Signs and symptoms of prostate cancer

Early prostate cancer usually causes no symptoms and is most often found by a PSA test. Some advanced prostate cancers can slow or weaken your urinary stream or make you need to urinate more often. In some cases kidney blockage can occur. But non-cancerous diseases of the prostate, such as BPH (benign prostatic hyperplasia) cause these symptoms more often.

If the prostate cancer is advanced, you might have blood in your urine or trouble getting an erection. Advanced prostate cancer commonly spreads to the bones, which can cause pain in the hips, back (spine), chest (ribs), or other areas. Cancer that has spread to the spine can also press on the spinal nerves, which can result in weakness or numbness in the legs or feet, or even loss of bladder or bowel control. Other diseases can also cause many of these same symptoms. It is important to tell your doctor if you have any of these problems so that the cause can be found and treated.

If certain symptoms or the results of the prostate-specific antigen (PSA) blood test suggest that you might have prostate cancer, your doctor will do a prostate biopsy to find out if the disease is present.

What does the PSA test results tell me?

PSA test results show the level of prostate-specific antigen detected in the blood. These results are usually reported as nanograms of PSA per milliliter (ng/mL) of blood. In the past, most doctors considered a PSA level below 4.0 ng/mL as normal. In one large study, however, prostate cancer was diagnosed in 15.2 percent of men with a PSA level at or below 4.0 ng/mL. Fifteen percent of these men, or approximately 2.3 percent overall, had high-grade cancers. In another study, 25 to 35 percent of men who had a PSA level between 4.1 and 9.9 ng/mL and who underwent a prostate biopsy were found to have prostate cancer, meaning that 65 to 75 percent of the remaining men did not have prostate cancer.

Normal

Because normal PSA levels seem to increase with age, age-specific ranges may be used. But the use of age-specific ranges is controversial, and some doctors prefer to use one range for all ages. For this reason, it is important to discuss your test results with your doctor.

<table>
<thead>
<tr>
<th>Total prostate-specific antigen (PSA)</th>
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<tbody>
<tr>
<td>Men age 40-49</td>
</tr>
<tr>
<td>Men age 50-59</td>
</tr>
<tr>
<td>Men age 60-69</td>
</tr>
<tr>
<td>Men age 70-79</td>
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</tbody>
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High values

High levels do not always mean prostate cancer is present. PSA levels may be high if the prostate gland is enlarged or inflamed. PSA levels above 8.0 ng/mL (or 8.0 mcg/L) are likely to mean prostate cancer. More testing will be needed to confirm a diagnosis of cancer.
Prostate Cancer Biopsy and Grading

The prostate biopsy

A biopsy is a procedure in which a sample of body tissue is removed and then looked at under a microscope. A core needle biopsy is the main method used to diagnose prostate cancer. The biopsy itself takes about 10 minutes and is usually done in the doctor's office. You will likely be given antibiotics to take before the biopsy and for a few days after to reduce the risk of infection.

For a few days after the procedure, you may feel some soreness in the area and will likely notice blood in your urine. You may also have some light bleeding from your rectum, especially if you have hemorrhoids. Many men also see some blood in their semen or have rust colored semen, which can last for several weeks after the biopsy, depending on how frequently you ejaculate.

Your biopsy samples will be sent to a pathology lab. There, a pathologist will see if there are cancer cells in your biopsy by looking at the samples under the microscope. If cancer is present, the pathologist will also assign it a grade. Getting the results usually takes at least 10 to 14 days, but it can take longer.

Grading the prostate cancer

Almost all pathologists grade prostate cancers according to the Gleason system. This system assigns a Gleason grade, using numbers from 1 to 5 based on how much the cells in the cancerous tissue look like normal prostate tissue.

Other elements of a biopsy report

The pathologist's report contains the grade of the cancer (if it is present) but it also often contains other pieces of information that may give a better idea of the scope of the cancer. These can include:

• The number of biopsy core samples that contain cancer (for example, "7 out of 12")
• The percentage of cancer in each of the cores
• Whether the cancer is on one side (left or right) of the prostate or both sides (bilateral

Gleason Score Grading

The *Gleason Grading system* is used to help evaluate the prognosis of men with prostate cancer. Together with other parameters, it is incorporated into a strategy of prostate cancer staging which predicts prognosis and helps guide therapy. A Gleason score is given to prostate cancer based upon its microscopic appearance. Cancers with a higher Gleason score are more aggressive and have a worse prognosis.

Assigning Grades

If the cancerous tissue looks much like normal prostate tissue, a grade of 1 is assigned.

If the cancer lacks these normal features and its cells seem to be spread haphazardly through the prostate, it is called a grade 5 tumor.

Grades 2 through 4 have features in between these extremes.

Cancers with Gleason scores of 6 or less are called low-grade or well-differentiated

Cancers with Gleason scores of 7 may be called moderately-differentiated or *intermediate-grade*.

Cancers with Gleason scores of 8 to 10 may be called poorly-differentiated or high-grade.

*The higher your Gleason score, the more likely it is that your cancer will grow and spread quickly.*
Prostate Cancer Staging

How is prostate cancer staged?

The stage (extent) of a cancer is one of the most important factors in choosing treatment options and predicting a patient’s outlook. If your prostate biopsy confirms that you have cancer, more tests may be done to find out how far it has spread within the prostate, to nearby tissues, or to other parts of the body. This process is called staging.

Medical history and physical exam

The physical exam, especially the digital rectal exam (DRE), is an important part of prostate cancer staging. By doing a DRE your doctor can sometimes tell whether the cancer is only on one side of the prostate, whether it is present on both sides, or whether it is likely to have spread beyond the prostate gland to nearby tissues. Your doctor may also examine other areas of your body to see whether the cancer has spread.

Imaging tests used for prostate cancer staging

Not all men with prostate cancer need to have imaging tests, but for those who do, the following tests are sometimes used.

Radionuclide bone scan
When prostate cancer spreads to distant sites, it often goes to the bones first. A bone scan can help show whether cancer has reached the bones.

Computed tomography (CT)
The CT scan is a special kind of x-ray that gives detailed, cross-sectional images of your body. Instead of taking one picture, like a standard x-ray, a CT scanner takes many pictures of the part of your body being studied as it rotates around you. A computer then combines these pictures into images of slices of the part of your body being studied. This test can help tell whether prostate cancer has spread into nearby lymph nodes.

Magnetic resonance imaging (MRI)
MRI scans use radio waves and strong magnets instead of x-rays. The energy from the radio waves is absorbed by the body and then released in a pattern formed by the type of body tissue and by certain diseases. A computer translates the pattern into a very detailed image of parts of the body. MRI scans can be helpful in looking at prostate cancer. They can produce a very clear picture of the prostate and show whether the cancer has spread outside the prostate into the seminal vesicles or the bladder.

ProstaScintTM scan
Like the bone scan, the ProstaScint scan uses an injection of low-level radioactive material to find cancer that has spread beyond the prostate. Both tests look for areas of the body where the radioactive material collects, but they work in different ways.

Lymph node biopsy
In a lymph node biopsy, one or more lymph nodes are removed to see if they contain cancer cells. These procedures, known as lymph node dissection, lymphadenectomy, or lymph node biopsy, are sometimes done to find out whether the cancer has spread from the prostate to nearby lymph nodes.

Surgical biopsy
The surgeon may remove lymph nodes through an incision in the lower part of your abdomen. This is often done in the same operation as the radical prostatectomy.

Laparoscopic biopsy
A laparoscope is a long, slender tube with a small video camera on the end that is inserted into the abdomen to let the surgeon see making a cut about the size of width of a finger. Other small incisions are made to insert long instruments to remove the lymph nodes. This procedure is not common, but it is sometimes used when it's important to know the lymph node status and radical prostatectomy is not planned (such as for certain men who choose treatment with radiation therapy).

Fine needle aspiration (FNA)
If your lymph nodes appear enlarged on an imaging study (CT or MRI) a specially trained radiologist may take a sample of cells from an enlarged lymph node by using a technique called fine needle aspiration (FNA).
Prostate Cancer Staging continued

The AJCC TNM staging system
A staging system is a standard way in which the cancer care team describes the extent to which a cancer has spread. While there are several different staging systems for prostate cancer, the most widely used system is the American Joint Committee on Cancer (AJCC) TNM System.

The TNM System describes the extent of the primary tumor (T category); whether the cancer has spread to nearby lymph nodes (N category); the absence or presence of distant metastasis (M category); the overall stage takes all 3 categories into account, along with the Gleason score and the PSA level.

There are actually 2 types of staging for prostate cancer. The clinical stage is your doctor’s best estimate of the extent of your disease, based on the results of the physical exam (including DRE), lab tests, prostate biopsy, and any imaging tests you have had. If you have surgery, your doctors can also determine the pathologic stage, which is based on the surgery and examination of the removed tissue. This means that if you have surgery, the stage of your cancer might actually change afterward. Pathologic staging is likely to be more accurate than clinical staging, as it allows your doctor to get a firsthand impression of the extent of your disease.

Both types of staging use the same categories (but the T1 category is not used in the AJCC system for pathologic staging).

T categories (clinical)
There are 4 categories for describing the local extent of the prostate tumor, ranging from T1 to T4. Most of these have subcategories as well.

T1: Your doctor can’t feel the tumor or see it with imaging such as transrectal ultrasound.
  T1a: The cancer is found incidentally (by accident) during a transurethral resection of the prostate (often abbreviated as TURP) that was done for benign prostatic hyperplasia (BPH). Cancer is present in less than 5% of the tissue removed.
  T1b: The cancer is found during a TURP but is present in more than 5% of the tissue removed.
  T1c: The cancer is found by needle biopsy that was done because of an increased PSA.
T2: Your doctor can feel the cancer when a digital rectal exam (DRE) is done, but it still appears to be confined to the prostate gland.
  T2a: The cancer is in one half or less of only one side (left or right) of your prostate.
  T2b: The cancer is in more than half of only one side (left or right) of your prostate.
  T2c: The cancer is in both sides of your prostate.
T3: The cancer has begun to grow and spread outside your prostate and may involve the seminal vesicles.
  T3a: The cancer extends outside the prostate but not to the seminal vesicles.
  T3b: The cancer has spread to the seminal vesicles.
T4: The cancer has grown into tissues next to your prostate (other than the seminal vesicles), such as the urethral sphincter (muscle that helps control urination), the rectum, and/or the wall of the pelvis.

N categories
N0: The cancer has not spread to any lymph nodes.
N1: The cancer has spread to one or more regional (nearby) lymph nodes in the pelvis.

M categories
M0: The cancer has not spread beyond the regional lymph nodes.
M1: The cancer has spread beyond the regional nodes.
  M1a: The cancer has spread to distant (outside of the pelvis) lymph nodes.
  M1b: The cancer has spread to the bones.
  M1c: The cancer has spread to other organs such as lungs, liver, or brain (with or without spread to the bones).
Risk Factors for Prostate Cancer

A risk factor is anything that affects your chance of getting a disease such as cancer. However, many people with one or more risk factors never get cancer. We don’t completely understand the causes of prostate cancer, but researchers have found several factors that may change the risk of getting it.

Age is the strongest risk factor for prostate cancer. Prostate cancer is very rare before the age of 40, but the chance of having prostate cancer rises rapidly after age 50. Almost 2 out of 3 prostate cancers are found in men over the age of 65.

Prostate cancer is most common in North America, northwestern Europe, Australia, and on Caribbean islands. It is less common in Asia, Africa, Central America, and South America. More intensive screening in some developed countries likely accounts for at least part of this difference, but other factors like lifestyle and diet are likely to be important as well.

Prostate cancer seems to run in some families, which suggests that in some cases there may be an inherited or genetic factor. Having a father or brother with prostate cancer more than doubles a man's risk of developing this disease. The risk is much higher for men with several affected relatives, particularly if their relatives were young at the time the cancer was found.

Scientists have found several inherited genes that seem to raise prostate cancer risk, but they probably account for only a small number of cases overall. Recently, some common gene variations have been linked to the risk of prostate cancer. Studies to confirm these results are needed to see if testing for the gene variants will be useful in predicting prostate cancer risk.

The exact role of diet in prostate cancer is not clear, but several different factors have been studied. Men who eat a lot of red meat or high-fat dairy products appear to have a slightly higher chance of getting prostate cancer. These men also tend to eat fewer fruits and vegetables. Doctors are not sure which of these factors is responsible for raising the risk.
Risk Factors for Prostate Cancer

Most studies have not found that being obese is linked with a higher risk of getting prostate cancer. Some studies have found that obese men have a lower risk of getting a low-grade (less dangerous) form of the disease, but a higher risk of getting more aggressive prostate cancer. Studies have also found that obese men may be at greater risk for having more advanced prostate cancer and of dying from prostate cancer, but this was not seen in other studies.

Exercise has not been shown to reduce prostate cancer risk in most studies. But some studies have found that high levels of physical activity, particularly in older men, may lower the risk of advanced prostate cancer. More research in this area is needed.

A recent study linked smoking to a small increase in the risk of death from prostate cancer. This is a new finding, and will need to be confirmed by other studies.

Some studies have suggested that prostatitis (inflammation of the prostate gland) may be linked to an increased risk of prostate cancer, but other studies have not found such a link. Inflammation is often seen in samples of prostate tissue that also contain cancer. The link between the two is not yet clear, but this is an active area of research.

Researchers have also looked to see if sexually transmitted infections (like gonorrhea or chlamydia) might increase the risk of prostate cancer, possibly by leading to inflammation of the prostate. So far, studies have not agreed, and no firm conclusions have been reached.

Some earlier studies had suggested that men who had a vasectomy -- especially those younger than 35 at the time of the procedure -- may have a slightly increased risk for prostate cancer. But most recent studies have not found any increased risk among men who have had this operation. Fear of an increased risk of prostate cancer should not be a reason to avoid a vasectomy.
What is a Prostatectomy?

Prostate cancer is a disease in which malignant (cancer) cells form in the tissues of the prostate, a gland in the male reproductive system located just below the bladder and in front of the rectum.

Prostatectomy is the removal of the prostate gland, seminal vesicles, and sometimes lymph nodes. The primary goal of prostatectomy is removal of the cancer. A secondary goal is to preserve urinary function and erectile function.

Although all patients undergoing prostatectomy will be sterile following the procedure, preservation of the nerves necessary for erections and climax can be an extremely important goal for patients. These nerves run alongside the prostate and can be damaged when removing the prostate. A nerve-sparing prostatectomy attempts to preserve these nerves so that the patient may be able to return to his prior erectile function.
daVinci Robotic Surgery

daVinci ® Prostatectomy is a minimally-invasive, laparoscopic robot-assisted surgical procedure. Approved by the U.S. Food and Drug Administration (FDA) in 2000, it is being used routinely in over 1,300 locations world-wide and is the fastest growing treatment for prostate cancer today. It is not considered experimental. Each daVinci ® system is rigorously maintained, tested, and upgraded as necessary by Intuitive Surgical.

daVinci ® Prostatectomy incorporates a state-of-the-art surgical system which helps Dr. Giesler see vital anatomical structures with clarity and operate with precision. Use of this system requires specialty training.

The robot which cannot be programmed and cannot make decisions on its own. It is under the control of Dr. Giesler at all times. He is seated at a console in a natural, comfortable position while operating. In the unlikely event of a malfunction, or if Dr. Giesler feels it is not safe to continue with the robot, the da Vinci ® system would be withdrawn, and he would continue the surgery laparoscopically or in an open fashion. The instruments necessary to perform the surgery are always kept on hand, allowing a seamless conversion, if necessary.

Advantages of daVinci Robotic Prostate Surgery

• There is less blood loss than traditional open surgery and rarely need for blood transfusion
• There is less pain after daVinci surgery (many patients do not require any pain medication)
• Patients typically require a hospital stay of only 23 hours
• Patients are back to daily activities in a matter of days
• Urinary control often begins to return as soon as a weeks after surgery
• Gives patients an excellent opportunity to return to full erections when the nerves are spared
• The abdominal scar is minimized giving an improved cosmetic result

Complications Associated With daVinci Robotic Prostate Surgery

• 1% chance of delayed return of bowel function
• 1% chance of bowel injury
• 1% chance of injury to bladder or ureters requiring additional surgery
• 1% chance of prolonged urinary leak requiring extension of the hospital stay by a few days or continued catheter drainage for a slightly longer period
• 1% chance of bleeding resulting in hematoma or blood transfusion
• 1% chance of wound infection or hernia formation
• 3% chance of urethral stricture
• 5% of patients have incomplete return of urinary control 12 months after surgery.
High Intensity Frequency Ultrasound (HIFU)

Cutting Edge Technology ...
A Minimally Invasive Way to Treat Prostate Cancer

High Intensity Focused Ultrasound, or HIFU, is a therapy that destroys tissue with rapid heat elevation—which essentially “cooks” the tissue. Ultrasound energy, or sound waves, is focused at a specific location and at that “focal point,” the temperature raises to almost 90 degrees Celsius in a matter of seconds. Any tissue at the “focal point” is destroyed; however, any tissue outside of the focal point remains unharmed. HIFU has produced oncological results, in studies performed outside the United States, that are broadly comparable to standard therapies and HIFU is a minimally invasive prostate cancer therapy that does not use ionizing radiation, which can be potentially harmful.

Advantages of HIFU
No blood loss
Quick recovery
Non surgical
Radiation free
An outpatient procedure

Disadvantages of HIFU
No long term (20-30 years) outcome data
Potential risk of impotence
Potential risk of incontinence
Not yet approved by the FDA for use in the United States
Additional Prostate Cancer Treatments

**Cryotherapy**
This treatment is a minimally invasive procedure using controlled freeze and thaw cycles to destroy cancerous cells.

**Radical Prostatectomy**
This is a major surgery to remove the prostate. It can be open retropubic, laparoscopic or robotic.

**Brachytherapy (Internal Radiation Seeds)**
This is a minimally invasive implantation of radiation seeds into the prostate.

**External Beam Radiation**
This is a 6 to 8 week treatment of beaming radiation through healthy tissues.
Contacting The Urology Team

Three Convenient Locations:

**North Austin**
11410 Jollyville Road  
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Phone: **512.231.1444**

**Westlake**
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**Round Rock**
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For additional information visit
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