

Urologic Surgical Associates of Delaware

Specializing in Robotic Surgery

Elevated PSA and Prostate Cancer Screening

Prostate cancer is a cancerous formation within the prostate gland. The prostate is a walnut sized and shaped organ wrapped around the urethra at the bottom of the bladder. Prostate cancer generally does not cause any symptoms until it is extremely late stage and no longer curable. It is because of this silent nature of prostate cancer that screening for prostate cancer is essential. Screening for prostate cancer involves identifying risk factors, performing screening blood tests such as PSA (prostate specific antigen), and performing digital rectal examination. If a patient has enough risk factors or an abnormal PSA or an abnormal digital rectal exam then generally the next level of screening is a prostate needle biopsy. Risk factors for prostate cancer include age, family history, and African American descent.

The prostate needle biopsy is performed with a transrectal ultrasound probe to guide a needle into the prostate. We generally take two biopsy specimens each from six different areas of the prostate for a total of twelve samples. We sample the right and left side of the prostate at the base, mid gland, and apex. This is a very typical biopsy strategy among urologists. Under certain circumstances we may take more than twelve samples. The prostate biopsy specimen results are usually available in one week.

If your prostate needle biopsy is negative you may need a subsequent follow-up prostate needle biopsy. No test or study in medicine is perfect. Prostate needle biopsy can be negative in a patient who has prostate cancer. This situation is unlikely but it can occur. There is no superior test to prostate needle biopsy for identifying prostate cancer short of removing the entire gland surgically. So while prostate needle biopsy is the best method we have for determining whether or not you have prostate cancer there is a small possible error rate. If the biopsy is positive it is not wrong, there is no "false positive." But there can be "false negatives," where the biopsy is negative but it missed the cancer. Therefore, for some patients follow-up biopsies may be required. At USA Delaware we generally recommend for patients with an elevated PSA to have three biopsies performed over the span of one year from when the elevated PSA is first detected. If all three biopsy episodes are negative the PSA then can be followed and subsequent biopsies can be guided by the PSA level. If a patient has a negative prostate needle biopsy for an abnormal rectal exam but a normal PSA then it may be sufficient to simply follow the PSA rather than obtaining three biopsies in the course of one year. This is because PSA is more sensitive than the digital rectal exam in screening for prostate cancer. In general, when a patient has an abnormal PSA but a normal digital rectal exam there is a general risk of 15% for finding prostate cancer on prostate needle biopsy. If a patient has a normal PSA but an abnormal rectal exam the risk of finding prostate cancer on a prostate biopsy is about 5% - 10%.

If the prostate biopsy is positive we will have you come into the office to review the meaning and implications of this positive biopsy and possible treatment options. A positive biopsy is generally described by a gleason score. The gleason score is a way in

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which a pathologist (a doctor who analyzes the appearance of human tissue under a microscope) can numerically describe the appearance of prostate cancer. This scale generally is a five point scale applied to the two most common appearing patterns of cancer growth within the cancerous specimen. That is, a pathologist will score each of these areas with a single number between zero and five and then add these two numbers together for a total number between zero and ten. You can consider a score of zero equivalent to no cancer and a score of 10 rarely occurs. So in practical terms a score of two is the lowest possible score for prostate cancer and a score ten is the highest. Score ten indicates a very aggressive cancer that has a relatively high failure rate with any attempt to cure. A score two cancer indicates a very indolent cancer that is likely to be cured by either of the two major curative treatments. We know from radical prostatectomy specimens that the preoperative gleason scoring is not always accurate. When we remove a prostate during prostate surgery for prostate cancer the pathologist has the opportunity to examine the entire gland for cancerous specimen. This provides a more reliable determination of the true nature of the patients' prostate cancer. When we compare these surgical specimens to the preoperative biopsy information often times we find that the preoperative biopsy information was inaccurate. It is possible for a cancer to be either less aggressive or more aggressive than indicated on the preoperative biopsies. Having a surgical specimen available for the pathologist to use to determine the true nature of a patients' prostate cancer is one potential benefit of surgical removal of the prostate as part of the treatment for prostate cancer.

By using your rectal exam results , your PSA, and your gleason score it is possible to make a general assessment of your likelihood of having cancer that extends outside of the prostate gland. If your cancer extends outside of the prostate gland it can greatly impact your likelihood of being cured by either of the three main treatment options for prostate cancer. It is not possible to know for certain if your cancer extends beyond the prostate gland without removing the prostate. However, using mathematical nomograms and your rectal exam results , PSA, and gleason score it is possible to assess how likely it is that your cancer extends beyond the prostate gland. This assessment is the likelihood that your cancer has started to move beyond the capsule of the prostate and it does not specifically determine your likelihood of spread to more distant areas such as the lymph nodes or bone. Very few people on initial presentation have cancer that has extended to the lymph nodes or bone. However, there is an overall 15% risk of having cancer that will recur after treatment.

To use the nomograms online you can visit the [Memorial Sloan Kettering web site](#) and click the picture with the text stating "[prostate cancer prediction tool](#)." Alternatively, we can enter your statistics into the nomogram with you in the office. The nomogram will ask you for the 1992 and 1997 clinical Tumor Stage. Ignore the 1992 request and enter T1c in the 1997 request. T1c implies that your prostate is benign (no nodules) on rectal exam and that your prostate biopsy was performed for an elevated PSA. Most patients diagnosed with prostate cancer have T1c stage. If you should happen to have a palpable nodule on digital rectal exam your stage is T2 and you can use this stage in the nomogram.

By using the nomograms to assess your risk of extracapsular disease and both of the two major treatment options we can help you identify a treatment plan that best suits you as

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an individual patient. The treatment options for prostate cancer include radiotherapy and surgical removal of the prostate. There are other ways to manage prostate cancer but the only curative treatment options are radiotherapy or surgery. Radiotherapy can be delivered as external beam therapy or as seed implantation or as a combination of both delivery mechanisms. Surgical removal of the prostate can be performed by an open technique or by robotically–assisted laparoscopic radical prostatectomy (the daVinci robotic radical prostatectomy which is our preferred technique at USA Delaware). For a more detailed discussion of treatment options see our patient information brochure, *Treating Prostate Cancer*.

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