

PROSTATE CANCER: THE ROLE OF PSA THROUGHOUT THE PROSTATE CANCER JOURNEY

PSA's role through the full spectrum of prostate cancer cannot be over-estimated.

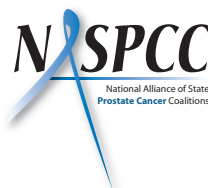
10 QUESTIONS TO ASK YOUR DOCTOR ABOUT PSA AND PROSTATE CANCER

- 1. What is the PSA Test and what causes an elevated PSA?**
The Total PSA test measures the blood levels of Prostate-Specific Antigen (PSA), a protein made by both normal and cancerous tissue in the prostate. Some tests measure PSA in urine, not blood. An elevated PSA can be caused by prostate cancer but also by age, prostate size, prostatitis (inflammation), or BPH. It is not specific to prostate cancer.
- 2. What is "PSA density", "PSA velocity", and "PSA doubling time"?**
"PSA density" is your total PSA divided by your prostate volume (measured by MRI or transrectal ultrasound.) "PSA velocity" is the speed with which your PSA rises between tests over time; "PSA doubling time" calculates the rate of PSA doubling.
- 3. Can Prostate Cancer be diagnosed only on the basis of an elevated PSA?**
No. Prostate Cancer is a tissue-based diagnosis, and an elevated PSA has other potential causes (1, above). PSA is one factor your doctor will consider before recommending a biopsy. If cancer is diagnosed, your biopsy tissue is graded on the likelihood of the cancer to grow and spread quickly (Gleason Grade Group).
- 4. Can you have a low PSA and Prostate Cancer at the same time?**
Yes. High-grade (aggressive or Gleason Grade Group 5) disease can sometimes be found with very low levels of PSA; this is considered high-risk disease.
- 5. How important is PSA during Active Surveillance?**
Periodic PSA testing (i.e. every 6 months) along with a yearly Digital Rectal Exam (DRE) and a prostate biopsy every 2-5 years (after the first biopsy within 6-12 months of the diagnosis) is part of the monitoring protocol recommended by the American Society of Clinical Oncology (ASCO). If test results such as a rising PSA suggest the cancer is progressing, treatment will likely be recommended.
- 6. What generally happens to your PSA level after undergoing surgery or radiation therapy for Prostate Cancer? What is "PSA persistence"?**
PSA "persisting" after treatment may be stressful for patients, but is not necessarily cause for concern. After surgery your PSA should drop to undetectable levels within 6-8 weeks; "PSA persistence" means that within the first 3 months after surgery, your PSA is detectable. After radiation, your PSA can drop more slowly and should remain low indefinitely. While your PSA after radiation therapy may not reach its lowest point for up to 2 years, your physician may follow your PSA to look for upward trends.
- 7. If there is no PSA "persistence", how is PSA used to monitor the success of treatment or to determine another therapy, if needed? What is "biochemical recurrence"?**
PSA is an important tool to monitor success of treatment. When your PSA falls to undetectable after a radical prostatectomy, but later increases twice in a row; or if your PSA falls to near zero after radiation therapy, but later rises by at least 2 ng/mL, cancer may have returned ("biochemical recurrence"). Cancer that returns after surgery will be treated differently than cancer that comes back after radiation therapy.
- 8. How is PSA monitoring used to look for progression of disease throughout the course of prostate cancer?**
PSA is checked periodically during Active Surveillance (5). If there is PSA persistence/recurrence after surgery or after radiation therapy (6,7), treatments may be based upon PSA Doubling Time. With hormonal therapy, a rising PSA means resistance to therapy (CRPC), and new treatments will be added (9).
- 9. What is castrate-resistant prostate cancer (CRPC)? Is PSA monitoring important to guide treatment of castrate-resistant disease?**
Prostate cancer is fueled by testosterone, so hormonal therapy is used to lower testosterone and reduce your PSA. Most prostate cancer eventually becomes resistant to hormonal therapy and PSA starts rising (CRPC). If conventional imaging shows no evidence of spread, the cancer is non-metastatic (nmCRPC). Hormonal therapy is continued. If your PSA Doubling Time is 10 months or less, you may be treated with an anti-androgen such as enzalutamide, apalutamide or darolutamide, to delay or prevent metastases. But if there is evidence of spread, your cancer is metastatic (mCRPC).
- 10. What to ask when your PSA continues to rise after any treatment for Prostate Cancer**
Don't be afraid to ask questions about tests and treatments. Topics may include salvage therapy, hormonal therapy, anti-androgens, genetic testing, immunotherapy, PARP Inhibition, and chemotherapy. Ask about bone health and cardiovascular issues. Ask questions that help you make judgments based upon your personal values.

Knowledge is Power!

www.naspc.org

National Alliance of State Prostate Cancer Coalitions



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PSA has an important role in monitoring throughout the disease spectrum of prostate cancer

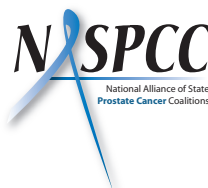
PLEASE REVIEW THE 10 PATIENT QUESTIONS AND ANSWERS ON THE REVERSE SIDE

1. Besides Total PSA, there are now other assays and PSA derivatives to improve specificity, reduce unnecessary biopsies, and allow for improved detection of important prostate cancers.
2. PSA Density (PSAD) measures prostate volume by TRUS (PSA Value (in ng/mL) divided by prostate volume). The lower the PSAD, the greater the chance of BPH versus PCa. PSAD correlates with the presence and aggressiveness of prostate cancer and may predict adverse pathology and biochemical progression after treatment. PSA Velocity (PSAV) is the rate of change over at least 18 months. PSA Doubling Time (PSADT) is the time it takes for a PSA level to double, and a nomogram can be helpful.
mskcc.org/nomograms/prostate/psa_doubling_time
3. The diagnosis of prostate cancer requires a biopsy of prostate tissue. The Gleason Grading System (1966) assigned scores of 1-5 based upon microscopic appearance and glandular architecture of the cells, with one number for the most prevalent finding and a second number for the next-most prevalent, added together for a "score". A new Grading System was adopted in 2014, with Grade Groups 1 to 5, 1 being the lowest grade (previously a 6).
medlineplus.gov/ency/patientinstructions/000920.htm
4. Low PSA (2.5 ng/mL or less) with high-grade disease has been shown to be a hormone-resistant category with a high risk of prostate cancer-specific mortality. PSA is not a reliable marker to detect disease in these men following surgery. Knowing that low-PSA, high-grade disease may be potentially resistant to hormonal therapy should be important in guiding monitoring modalities.
5. The American Cancer Society (ACS) notes that Active Surveillance requires close monitoring of PSA levels about every 6 months, a yearly DRE and imaging tests every 1 to 3 years. NCCN Guidelines recommend assessing PSA every 6 months unless clinically indicated and suggest that PSADT appears unreliable for identification of progressive disease that remains curable. ASCO Guidelines for PSA monitoring appear on the reverse side (5).
6. (and 7.) When PSA remains undetectable after surgery or starts an upward trend after RT, there is "PSA Persistence". 5-20% of men continue to have PSA persistence after RP (greater than 0.1 ng/mL) within 4-8 weeks of surgery.
urotoday.com/conference-highlights/apccc-2019/114603-apccc-2019-management-of-men-with-psa-recurrence-or-persistence-after-prostatectomy.html. PSA kinetics, risk stratification and use of a genomic risk classifier (i.e. Decipher assay) may be helpful. With both "persistence" and "recurrence", [there are NCCN Guidelines that offer a flow chart on what to do next.](#)
nccn.org/professionals/physician_gls/pdf/prostate.pdf.
8. PSA kinetics can detect disease progression as early as possible. In **Active Surveillance**, PSA is followed periodically to rule out progression (5). PSA is monitored **after surgery or RT** to look for PSA persistence/recurrence (6,7). With hormonal therapy, a rising PSA suggests resistance to the therapy (**CRPC**). A short PSA Doubling Time (2) guides the use of additional treatments, i.e. second-generation anti-androgens **enzalutamide** (PROSPER Trial), **apalutamide** (SPARTAN), or **darolutamide** (ARAMIS), to delay or prevent metastases. (9)
9. Resistance to ADT, typically LHRH Agonists (leuprolide, goserelin) or GnRH Antagonists (degarelix, relugolix) is first identified by a climbing PSA in the setting of castrate levels of testosterone (**CRPC**). **nmCRPC** is CRPC with negative conventional imaging (bone scan plus cross-sectional imaging of the abdomen and pelvis, either MRI or CT scan). PSA levels should be checked regularly in nmCRPC patients. A PSA doubling time of 10 months or less is predictive of developing metastases or death. (8)
10. Be prepared to answer questions. The better informed, the better the shared decision-making. Review possible topics on the reverse side of this Laminare (10).

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