

Client	HEALTH BENCHMARKS, INC. STANDARD ALGORITHM		
Measure Title	DIAGNOSIS AND FOLLOW-UP OF PROSTATE CANCER		
Disease State	Cancer	Indicator Classification¹	Disease Management
Strength of Recommendation²	B		
Organizations Providing Recommendation	American Society for Therapeutic Radiology and Oncology American Urological Association National Comprehensive Cancer Network		
Clinical Intent	To ensure that all eligible males diagnosed with prostate cancer receive the necessary follow-up monitoring services at a clinically appropriate frequencies.		
Background	<p>Disease Burden</p> <ul style="list-style-type: none"> • In the United States, prostate cancer is the most commonly diagnosed cancer in men, and the second most common cause of cancer death in men.[1] • The American Cancer Society estimated that in 2007, approximately 218,890 men will be diagnosed with prostate cancer, and about 27,050 men will die from it.[1] • Even though there is a 17% lifetime risk of developing prostate cancer, the risk of dying from prostate cancer is only about 3%.[1, 2] • The relative five-year survival rate for patients with prostate cancer diagnosed in the local or regional stages approaches 100%, while the relative 10 and 15-year survival rates are 93% and 77%, respectively.[1] <p>Reason for Indicated Intervention or Treatment</p> <ul style="list-style-type: none"> • Prostate specific antigen (PSA) screening after treatment for prostate cancer can help detect recurrences.[3] • For patients deciding to undergo watchful waiting instead of receiving treatment after being diagnosed with prostate cancer, PSA testing can help differentiate between slower growing cancers and more aggressive ones, for which patients may elect to receive definitive treatment.[4] <p>Evidence Supporting Intervention or Treatment</p> <ul style="list-style-type: none"> • A study of almost 1,800 prostate cancer patients showed that 77% of the 339 patients with recurrences were detected solely by an increase in PSA level, and 98% by an increase in PSA level plus local or distant recurrence.[3] <ul style="list-style-type: none"> ○ Few studies have examined the desired frequency of PSA monitoring, and there is no community standard.[6] A survey of 1,050 American Urological Association members showed 		

appreciable variation in the frequency of PSA testing after radical prostatectomy for localized prostate cancer, though respondents generally recommended serum PSA testing every 3 months in the first year, every 6 months in years 2 to 5, and yearly thereafter.[7]

- There are some current large-scale studies that intend to examine the effects of PSA screening on patient mortality.[9-11] However the follow-up time for many of these studies is too short to provide data on mortality rates. The studies that do provide this data are mixed in opinion.
 - One large randomized controlled trial showed a benefit to PSA screening in a group of 46,486 men aged 45-80 years. A Cox proportional hazards model of the age at death from prostate cancer shows a 62% reduction ($P < 0.002$, Fisher's exact test) of cause-specific mortality in the screened men ($P = 0.005$).[12]
 - In another randomized controlled trial involving 9,026 men aged 50-69 years, there were 85 (5.7%) cancers detected in the screened group (SG), 42 of these in the interval between screenings, and 292 (3.8%) in the unscreened group (UG). In the SG 48 (56.5%) of the tumors and in the UG 78 (26.7%) were localized at diagnosis ($p < 0.001$). In the SG 21 (25%) and in the UG 41 (14%) received curative treatment. However, there was no significant difference in total or prostate cancer-specific survival between the groups.[13]
- However, information gained indicates repeated testing may be more useful in identifying cancers than a single test alone. The velocity with which PSA increases per year may improve specificity of the test; a PSA velocity exceeding $0.75 \text{ ng ml}^{-1} \text{ year}^{-1}$ has been associated with a higher risk of prostate cancer than a slower rise in PSA.[14] Furthermore, PSA velocity may predict time to relapse in patients with previous diagnoses of prostate cancer.[15]

Clinical Recommendations

- The American Urological Association (AUA), the National Comprehensive Cancer Network (NCCN) and the American Society for Therapeutic Radiology and Oncology (ASTRO) recommend checking PSA during the initial work up of prostate cancer.
- To detect disease recurrence, the AUA recommends periodically offering PSA testing in the post-treatment management of prostate cancer.[16]
- The appropriate frequency of testing is somewhat controversial [6], but most experts and organizations agree that follow-up PSA testing should be performed at least annually. Some experts recommend checking PSA levels every 6 months for the first two years after treatment, and then annually.[17] Others recommend tailoring the frequency of testing to the pathologic grade and stage.[18]
- The NCCN recommends that patients with a life expectancy ≥ 10 years who wish to undergo expectant management with PSA do so up to

every 3 months and at least every 6 months. For patients with life expectancy less than 10 years who wish to undergo expectant management, the NCCN recommends monitoring PSA less frequently. Patients initially treated with intent to cure should have their serum PSA level checked every 6 to 12 months for the first 5 years and then rechecked annually. For patients with locally advanced or metastatic disease, PSA should be checked every 3 to 6 months.[19]

- ASTRO recommends PSA testing every 3 to 4 months during the first two years following radiation therapy for prostate cancer, and every 6 months thereafter.[20]

Source Health Benchmarks, Inc.

Denominator

Denominator Definition Continuously enrolled males ages 18-90 years old by the end of the measurement year, who had a diagnosis of prostate cancer at any point in their available history.

Denominator Index Date N/A

Denominator Encounters/Claims Criteria ICD-9 diagnosis code(s): 185, V10.46

Denominator Exclusion

Denominator Exclusion Definition N/A

Denominator Exclusion Logic N/A

Denominator Exclusion Claims Criteria N/A

Numerator

Numerator Definition Members who had a PSA or free PSA fraction blood test during the measurement year.

Numerator Claims Criteria CPT-4 code(s): 84152-84154
HCPCS code(s): G0103, 3268F

Physician Attribution

Physician Attribution Description Score all physicians (in the selected specialties) who saw the member during the measurement year.

References

1. *Cancer Facts & Figures - 2007*, in *Cancer Facts & Figures*. 2007, American Cancer Society: Atlanta, GA. p. 56.
2. Ries, G., et al., *Cancer survival and incidence from the Surveillance, Epidemiology, and End Results (SEER) program*. *Oncologist*, 2003. **8**(6): p. 541-52.
3. Catalona, W.J. and D.S. Smith, *Cancer recurrence and survival rates after anatomic radical retropubic prostatectomy for prostate cancer: intermediate-term results*. *J Urol*, 1998. **160**(6 Pt 2): p. 2428-34.
4. *Prostate Cancer*, in *NCCN Clinical Practice Guidelines in Oncology*. 2007, National Comprehensive Cancer Network: Jenkintown, PA. p. 48.
5. Lilja, H., et al., *Long-term prediction of prostate cancer up to 25 years before diagnosis of prostate cancer using prostate kallikreins measured at age 44 to 50 years*. *J Clin Oncol*, 2007. **25**(4): p. 431-6.
6. Martin, et al., *Continuing controversy over monitoring men with localized prostate cancer: a systematic review of programs in the prostate specific antigen era*. *J Urol*, 2006. **176**(2): p. 439-49.
7. Oh, J., et al., *Current followup strategies after radical prostatectomy: a survey of American Urological Association urologists*. *J Urol*, 1999. **161**(2): p. 520-3.
8. Aus, G., et al., *Individualized screening interval for prostate cancer based on prostate-specific antigen level: results of a prospective, randomized, population-based study*. *Arch Intern Med*, 2005. **165**(16): p. 1857-61.
9. Makinen, T., et al., *Second round results of the Finnish population-based prostate cancer screening trial*. *Clin Cancer Res*, 2004. **10**(7): p. 2231-6.
10. Hugosson, J., et al., *Results of a randomized, population-based study of biennial screening using serum prostate-specific antigen measurement to detect prostate carcinoma*. *Cancer*, 2004. **100**(7): p. 1397-405.
11. Andriole, G.L., et al., *Prostate Cancer Screening in the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial: findings from the initial screening round of a randomized trial*. *J Natl Cancer Inst*, 2005. **97**(6): p. 433-8.
12. Labrie, F., et al., *Screening decreases prostate cancer mortality: 11-year follow-up of the 1988 Quebec prospective randomized controlled trial*. *Prostate*, 2004. **59**(3): p. 311-8.
13. Sandblom, G., et al., *Clinical consequences of screening for prostate cancer: 15 years follow-up of a randomised controlled trial in Sweden*. *Eur Urol*, 2004. **46**(6): p. 717-23; discussion 724.
14. Catalona, et al., *Comparison of prostate specific antigen concentration versus prostate specific antigen density in the early detection of prostate cancer: receiver operating characteristic curves*. *J Urol*, 1994. **152**(6 Pt 1): p. 2031-6.
15. D'Amico, et al., *Preoperative PSA velocity and the risk of death from prostate cancer after radical prostatectomy*. *N Engl J Med*, 2004. **351**(2): p. 125-35.
16. *Prostate-specific antigen (PSA) best practice policy*. *American Urological Association (AUA)*. *Oncology (Huntingt)*, 2000. **14**(2): p. 267-72, 277-8, 280 passim.
17. Montie, J.E., *Follow-up after radical prostatectomy or radiation therapy*

- for prostate cancer. Urol Clin North Am, 1994. 21(4): p. 673-6.*
18. Evans, C.P., *Follow-up surveillance strategies for genitourinary malignancies. Cancer, 2002. 94(11): p. 2892-905.*
 19. *Prostate Cancer, in NCCN Clinical Practice Guidelines in Oncology. 2009, National Comprehensive Cancer Network: Jenkintown, PA. p. PROS-4.*
 20. *Consensus statement: guidelines for PSA following radiation therapy. American Society for Therapeutic Radiology and Oncology Consensus Panel. Int J Radiat Oncol Biol Phys, 1997. 37(5): p. 1035-41.*

CONFIDENTIAL

¹ **Indicator Classification** (Adapted from HEDIS® technical specifications)

Diagnosis	Measures applicable to patients receiving diagnostic workups for a symptom or condition that delineate appropriate laboratory or radiological testing to be performed (e.g. evaluation of thyroid nodule; pregnancy test in patients with vaginal bleeding or abdominal pain)
Effectiveness of Care	
Prevention	Measures applicable to asymptomatic individuals that are designed to prevent the onset of the targeted condition (e.g. immunizations).
Screening	Measures applicable to asymptomatic patients who have risk factors or pre-clinical disease, but in whom the condition has not become clinically apparent (e.g. pap smears; screening for elevated blood pressure).
Disease Management	Measures applicable to individuals diagnosed with a condition that are part of the treatment or management of the condition (e.g. cholesterol reduction in patients with diabetes; radiation therapy following breast conserving surgery; appropriate follow-up after acute event).
Medication Monitoring	Measures applicable to patients taking medications with narrow therapeutic windows and / or potential preventable significant side effects or adverse reactions (e.g. thyroid stimulating hormone (TSH) testing after levothyroxine dose change; hepatic enzyme monitoring for patients using antimycotic pharmacotherapy)
Medication Adherence	Measures applicable to patients taking medications for chronic conditions that are designed to assess patient adherence to medication (e.g. adherence to lipid lowering medication).
Utilization	Measures applicable to patients receiving treatment for a symptom or condition that advocate appropriate utilization of laboratory and pharmaceutical resources (e.g. conservative use of imaging for low back pain; inappropriate use of antibiotics for viral upper respiratory infection).

² Strength of Recommendation

Strength of Recommendation Based on a Body of Evidence

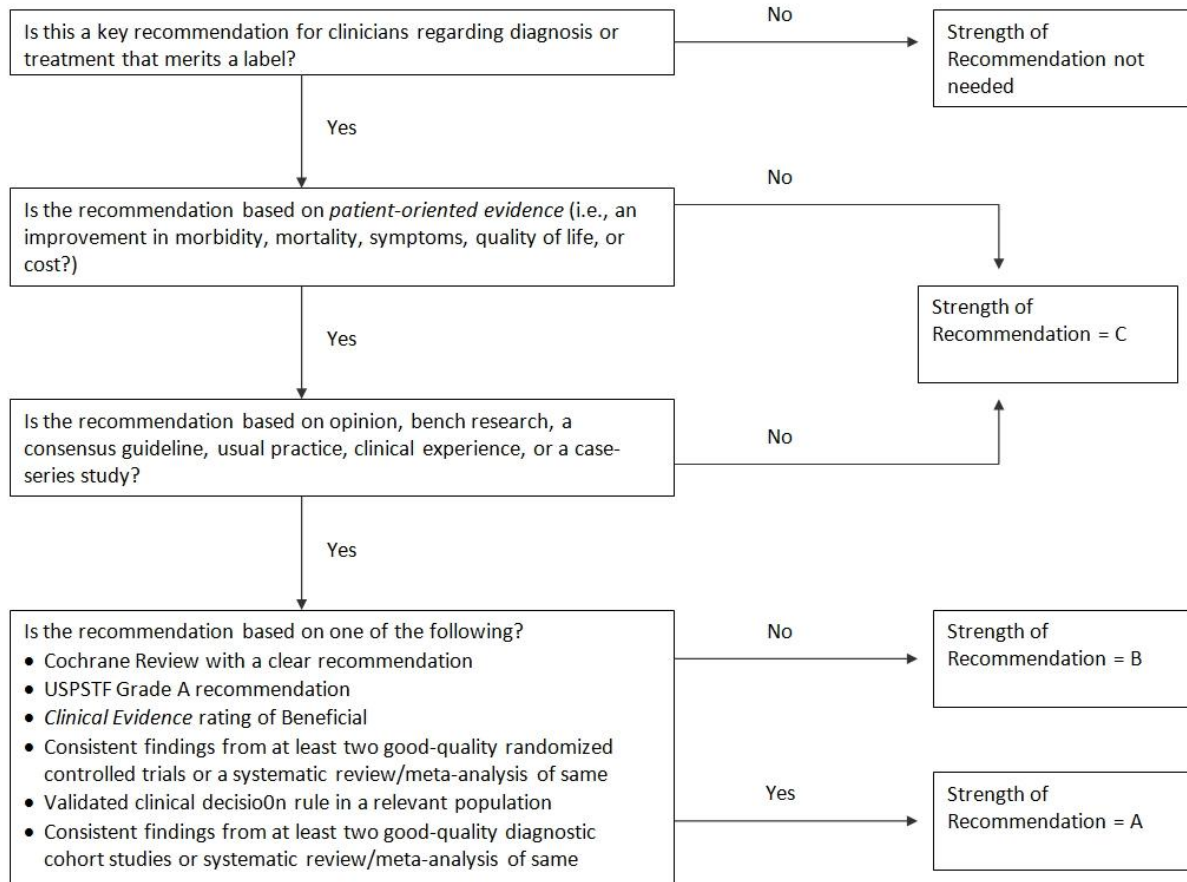


FIGURE 2. Algorithm for determining the strength of a recommendation based on a body of evidence (applies to clinical recommendations regarding diagnosis, treatment, prevention, or screening). While this algorithm provides a general guideline, authors and editors may adjust the strength of recommendation based on the benefits, harms, and costs of the intervention being recommended. (USPSTF = U.S. Preventive Services Task Force)