Genomic Prostate Score

MOL.TS.295.A
v1.0.2026

Procedures addressed

The inclusion of any procedure code in this table does not imply that the code is under management or requires prior authorization. Refer to the specific Health Plan's procedure code list for management requirements.

Procedures addressed by this guideline	Procedure codes
Genomic Prostate Score (formerly OncotypeDX Genomic Prostate Score)	0047U

Criteria

Introduction

Requests for Genomic Prostate Score testing are reviewed using the following criteria.

This test is considered Experimental, Investigational, or Unproven.

- Experimental, Investigational, or Unproven (E/I/U) refers to tests, or uses of tests, that have insufficient data to demonstrate an overall health benefit. This typically means there is insufficient data to support that a test accurately assesses the outcome of interest (analytical and clinical validity) and significantly improves patient health outcomes (clinical utility). Such tests are also not generally accepted as the standard of care in the evaluation or management of a particular condition.
- In the case of laboratory testing, FDA approval or clearance is not a reliable standard given the number of laboratory developed tests that currently fall outside of FDA oversight. In addition, FDA approval or clearance often does not include an assessment of clinical utility.

What are gene expression profiling tests for prostate cancer?

Prostate cancer (PC) is the most common cancer in men, and metastatic prostate cancer is a leading cause of cancer-related deaths worldwide. It is considered a heterogeneous disease with highly variable prognosis.[1]

- At the time of diagnosis of localized PC, patients typically undergo a prognostic risk assessment with routine clinical and pathological tests to assess the probability of

730 Cool Springs Blvd, Franklin, TN 37067 (800) 918-8924

subsequent progression or metastasis. These prognostic assessments help to identify lower risk patients with indolent disease who may opt for active surveillance (AS), or higher risk patients with more aggressive disease who may benefit from a treatment intervention.

- High-risk prostate cancer (PC) patients treated with radical prostatectomy (RP) also undergo risk assessment to assess future disease prognosis and determine optimal treatment strategies. Post-RP pathology findings, such as disease stage, baseline Gleason score, time of biochemical recurrence (BCR) after RP, and PSA doubling-time, are considered strong predictors of disease-associated metastasis and mortality. Following RP, up to 50% of patients have pathology or clinical features that are considered at high risk of recurrence and these patients usually undergo post-RP treatments, including adjuvant or salvage therapy or radiation therapy, which can have serious risks and complications. According to clinical practice guideline recommendations, high risk patients should undergo 6 to 8 weeks of radiation therapy (RT) following RP. However, approximately 90% of high-risk patients do not develop metastases or die of prostate cancer, and instead may be appropriate candidates for alternative treatment approaches, including AS. As such, many patients may be subjected to unnecessary follow-up procedures and their associated complications, highlighting the need for improved methods of prognostic risk assessment.[2,3]
- Several genomic biomarkers have been commercially developed to augment the prognostic ability of currently available routine clinical and pathological tests and identify those patients either at the time of diagnosis of localized PC or after radical prostatectomy (RP) most and least likely to benefit from a specific treatment strategy. Prognostic genomic tests, including gene expression profiling tests, may help to avoid overtreatment by reclassifying those men originally identified as high risk, but who are unlikely to develop metastatic disease. Genomic biomarkers may also play a role in assisting clinicians to tailor personalized and more appropriate treatments for subgroups of PC patients, and improve overall health outcomes.[2,3]

Test information

- Gene expression profiles (GEPs) evaluate the expression of several genes using one sample. Gene expression is determined through RNA analysis, using either reverse transcriptase (RT) polymerase chain reaction (PCR) or DNA microarrays.[4]
- The Genomic Prostate Score test (GPS; formerly Oncotype DX GPS) is intended for "men with low-, intermediate-, and high-risk localized prostate cancer to help guide treatment decisions at the time of diagnosis. The test analyzes prostate cancer gene activity to predict disease aggressiveness and provide clinically meaningful endpoints."[5]

730 Cool Springs Blvd, Franklin, TN 37067 (800) 918-8924

- The GPS test uses quantitative RT-PCR for 12 prostate cancer-related genes and 5 control genes (total of 17 genes). It was developed for use with formalin fixed paraffin-embedded (FFPE) diagnostic prostate needle biopsies (≥1 mm prostate tumor).[5]
- Results are expressed as a genomic prostate score, ranging from 0-100, representing tumor aggressiveness. The GPS test provides risk stratification to properly classify patients with regard to their risk of metastasis and death from prostate cancer. This test is designed to help patients with newly diagnosed, early-stage PC make informed treatment decisions, including active surveillance.[5]
- The GPS test reports the following endpoints:
  - "Risk of high-grade (>Grade Group 3) disease
  - Risk of pT3a+ disease
  - Risk of metastasis within 10 years
  - Risk of PCa-specific death within 10 years"

Guidelines and evidence

American Association of Clinical Urologists

The American Association of Clinical Urologists (AACU, 2018) has issued a position statement on genomic testing in prostate cancer that states the following:[6]

- “The AACU supports the use of tissue-based molecular testing as a component of risk stratification in prostate cancer treatment decision making.”

American Society of Clinical Oncology

The American Society of Clinical Oncology (ASCO, 2020) issued a guideline in molecular biomarkers in prostate cancer. This guideline states:[7]

- "Are there molecular biomarkers to diagnose clinically significant prostate cancer?"
  - "Recommendation 2.1. Commercially available molecular biomarkers (ie, Oncotype Dx Prostate [now GPS], Prolaris, Decipher, and ProMark) may be offered in situations in which the assay result, when considered as a whole with routine clinical factors, is likely to affect management. Routine ordering of molecular biomarkers is not recommended (Type: Evidence based; Evidence quality: Intermediate; Recommendation: Moderate)."
  - "Recommendation 2.2. Any additional molecular biomarkers evaluated do not have sufficient data to be clinically actionable or are not commercially available and thus should not be offered (Type: Evidence based; Evidence quality: Insufficient; Strength of recommendation: Moderate)."
- "Are there molecular biomarkers to guide the decision of postprostatectomy adjuvant versus salvage radiation?"

730 Cool Springs Blvd, Franklin, TN 37067 (800) 918-8924

- "Recommendation 3.1. The Expert Panel recommends consideration of a commercially available molecular biomarker (eg, Decipher Genomic Classifier) in situations in which the assay result, when considered as a whole with routine clinical factors, is likely to affect management. In the absence of prospective clinical trial data, routine use of genomic biomarkers in the postprostatectomy setting to determine adjuvant versus salvage radiation or to initiate systemic therapies should not be offered (Type: Evidence based; Evidence quality: Intermediate; Strength of recommendation: Moderate)."
- "Recommendation 3.2. Any additional molecular biomarkers evaluated do not have sufficient data to be clinically actionable or are not commercially available and thus should not be offered (Type: Evidence based; Evidence quality: Insufficient; Strength of recommendation: Moderate)."

American Urological Association and American Society of Radiation Oncology

The American Urological Association and American Society for Radiation Oncology (AUA/ASTRO, 2022) published an evidence-based guideline on localized prostate cancer endorsed by the Society of Urologic Oncology (SGO) that stated:[8]

- "Clinicians may selectively use tissue-based genomic biomarkers when added risk stratification may alter clinical decision-making. (Expert Opinion)"
- "Clinicians should not routinely use tissue-based genomic biomarkers for risk stratification or clinical decision-making. (Moderate Recommendation; Evidence Level: Grade B)"
- "Regarding tissue-based genomic biomarkers, several currently available commercial tests, including Prolaris, Oncotype Dx [now Genomic Prostate Score], and Decipher, variously offer prediction of adverse pathology as well as the risks of biochemical recurrence, metastasis, and prostate cancer death. However, most of the reported studies to date that evaluated the prognostic ability of these genomic tests did not meet inclusion criteria for the systematic review as the studies used surgical (ie, prostatectomy) rather than biopsy specimens."

National Comprehensive Cancer Network

The National Comprehensive Cancer Network (NCCN, 2025) Clinical Practice Guidelines on Prostate Cancer state the following regarding molecular assays:[9]

- "Retrospective case cohort studies have shown that these assays provide prognostic information independent of NCCN or CAPRA risk groups, which include likelihood of death with conservative management, likelihood of biochemical recurrence after radical prostatectomy or EBRT [external beam radiation therapy], likelihood of adverse pathologic features after radical prostatectomy, and likelihood of developing metastasis after operation, definitive EBRT, or post-recurrence EBRT."
- "These molecular biomarker tests have been developed with extensive industry support, guidance, and involvement, and have been marketed under the less rigorous

FDA regulatory pathways for biomarkers. Although full assessment of their clinical utility requires prospective randomized clinical trials, which are unlikely to be done, the panel believes that men with low or favorable intermediate disease and life expectancy greater than or equal to 10 years may consider the use of Decipher, Oncotype DX Prostate [now Genomic Prostate Score], or Prolaris during initial risk stratification. Patients with unfavorable intermediate- and high-risk disease and life expectancy greater than or equal to 10 years may consider the use of Decipher or Prolaris."

- NCCN does not include Genomic Prostate Score in its table of advanced molecular tools with evidence to support clinical use.

Selected Relevant Publications

Overall, the evidence base for the GPS test is large and of low quality.[10-54] Several studies reported that GPS improved prediction of adverse pathology beyond currently used clinical parameters and nomograms; however, these studies did not consistently report precision estimates, and when reported, wide confidence intervals suggested inadequate precision. Direct evidence of clinical utility for GPS is lacking. Indirect clinical utility studies suggest that GPS has an impact on physician and patient decision-making; however, there is limited evidence regarding whether these changes lead to relevant improvements in overall health. This conclusion is echoed by several systematic reviews.[55-59] Additional well-designed studies are needed that evaluate health outcomes in patients whose clinical management decisions were determined by GPS test results.

Clinical trials may be ongoing. Additional information can be found at **www.clinicaltrials.gov** .

Note:

This benefit/harm statement only applies to those jurisdictions that do not have Medicare guidance. Based upon the guidelines and evidence provided in the clinical policy, following EviCore's criteria for Genomic Prostate Score will ensure that testing will be available to those members most likely to benefit from the information provided by evidence-supported assays. For members or assays not meeting criteria for coverage, it ensures alternate management strategies are considered. However, it is possible that some members who would benefit from the testing will not receive an immediate approval or will experience a delay in care while providers search for an appropriate test with sufficient evidence (analytical validity, clinical validity, and clinical utility).

References

1. Bostrom PJ, Bjartell AS, Catto JW, et al. Genomic Predictors of Outcome in Prostate Cancer. *Eur Urol.* Dec 2015;68(6):1033-1044.

2. Marrone M, Potosky AL, Penson D, Freedman AN. A 22 Gene-expression Assay, Decipher® (GenomeDx Biosciences) to Predict Five-year Risk of Metastatic Prostate Cancer in Men Treated with Radical Prostatectomy. *PLoS Curr.* Nov 17 2015;7.
3. Moschini M, Spahn M, Mattei A, Cheville J, Karnes RJ. Incorporation of tissue-based genomic biomarkers into localized prostate cancer clinics. *BMC Med.* Apr 04 2016;14:67.
4. AHRQ. Gene expression profiling for predicting outcomes in patients with stage II colon cancer. 2012.
5. Genomic Prostate Score Test. mdxhealth website. Available at: X website. Available at: **https://mdxhealth.com/gps-physician/**
6. American Association of Clinical Urologists, Inc. (AACU) website. Position statement: genomic testing in prostate cancer. Available at: **https://aacuweb.org/wp-content/uploads/2022/02/Position-Statement-Tissue-based-genetic-testing-in-prostate-cancer-Endorsement-02-26-18.pdf**
7. Eggener SE, Rumble RB, Armstrong AJ, et al. Molecular Biomarkers in Localized Prostate Cancer: ASCO Guideline. *J Clin Oncol*. 2020;38(13):1474-1494. doi: 10.1200/JCO.19.02768
8. Eastham JA, Auffenberg GB, Barocas DA et al: Clinically localized prostate cancer: AUA/ASTRO guideline part I: introduction, risk assessment, staging and risk-based management. J Urol. 2022;208(1):10-18. doi: 10.1097/JU.0000000000002757. Epub 2022 May 10
9. Spratt DE, Srinivas S, Schaeffer EM, et al. National Comprehensive Cancer Network (NCCN) Guidelines Version 2.2025 – April 16, 2025. Prostate Cancer, Available at: **https://www.nccn.org/professionals/physician_gls/pdf/prostate.pdf** Referenced with permission from the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Prostate Cancer V2.2025 – April 16, 2025. ©2025 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines® and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN. To view the most recent and complete version of the NCCN Guidelines® , go online to **NCCN.org**
10. Knezevic D, Goddard AD, Natraj N, et al. Analytical validation of the Oncotype DX prostate cancer assay - a clinical RT-PCR assay optimized for prostate needle biopsies. *BMC Genomics* Oct 08 2013;14:690.
11. Klein EA, Cooperberg MR, Magi-Galluzzi C, et al. A 17-gene assay to predict prostate cancer aggressiveness in the context of Gleason grade heterogeneity, tumor multifocality, and biopsy undersampling. *Eur Urol.* Sep 2014;66(3):550-560.
12. Cullen J, Rosner IL, Brand TC, et al. A Biopsy-based 17-gene Genomic Prostate Score Predicts Recurrence After Radical Prostatectomy and Adverse Surgical Pathology in a Racially Diverse Population of Men with Clinically Low- and Intermediate-risk Prostate Cancer. *Eur Urol.* 2015;68(1):123-131.
13. Albala D, Kemeter MJ, Febbo PG, et al. Health Economic Impact and Prospective Clinical Utility of Oncotype DX(R) Genomic Prostate Score. *Rev Urol.* 2016;18(3):123-132.
14. Van Den Eeden SK, Lu R, Zhang N, et al. A Biopsy-based 17-gene Genomic Prostate Score as a Predictor of Metastases and Prostate Cancer Death in Surgically Treated Men with Clinically Localized Disease. *Eur Urol*. 2017;73:129-38.
15. Eure G, Germany R, Given R, et al. Use of a 17-Gene Prognostic Assay in Contemporary Urologic Practice: Results of an Interim Analysis in an Observational Cohort. *Urology*. 2017;107:67-75.
16. Lynch JA, Rothney MP, Salup RR, et al. Improving risk stratification among veterans diagnosed with prostate cancer: impact of the 17-gene prostate score assay. *Am J Manag Care*. 2018;24:S4-s10.
17. Salmasi A, Said J, Shindel AW, et al. A 17-gene Genomic Prostate Score assay provides independent information on adverse pathology in the setting of combined multiparametric magnetic resonance imaging fusion-targeted and systematic prostate biopsy. *J Urol*. 2018;200(3):564-572.
18. Canfield S, Kemeter MJ, Hornberger J, Febbo PG. Active surveillance use among a low-risk prostate cancer population in a large US payer system: 17-gene genomic prostate score versus other risk stratification methods. *Rev Urol*. 2017;19(4)203-212.
19. Dall'era MA, Maddala T, Polychronopoulos L, et al. Utility of the Oncotype DX Prostate Cancer Assay in clinical practice for treatment selection in men newly diagnosed with prostate cancer: a retrospective chart review analysis. *Urol Pract*. 2015;2:343-348.
20. Wilt TJ, Jones KM, Barry MJ, et al. Follow-up of prostatectomy versus observation for early prostate cancer. *N Engl J Med*. 2017;377:132-142.
21. Hamdy F, Donovan J, Lane J, et al. 10-year outcomes after monitoring, surgery, or radiotherapy for localized prostate cancer. *N Engl J Med*. 2016;375(15):1415-24.

22. Herlemann A, Washington SL, 3rd, Eapen RS, Cooperberg MR. Whom to treat: postdiagnostic risk assessment with gleason score, risk models, and genomic classifier. *Urol Clin North Am*. 2017;44(4):547-555.
23. Whalen MJ HV, Rothberg MB, et al. Prospective correlation between likelihood of favorable pathology on the 17-Gene Genomic Prostate Score and actual pathological outcomes at radical prostatectomy. *Urol Pract*. 2016;3(5):379-386.
24. Canfield S, Kemeter MJ, Febbo PG, Hornberger J. Balancing confounding and generalizability using observational, real-world data: 17-Gene Genomic Prostate Score assay effect on active surveillance. *Rev Urol*. 2018;20(2):69-76.
25. Steven C, Michael JK, John H, Phillip GF. Active surveillance use among a low-risk prostate cancer population in a large US payer system: 17-Gene Genomic Prostate Score versus other risk stratification methods. *Rev Urol*. 2017;19(4):203-212.
26. Fine ND, LaPolla F, Epstein M, et al. Genomic classifiers for treatment selection in newly diagnosed prostate cancer [published online ahead of print, May 4, 2019]. *BJU Int*. doi: 10.1111/bju.14799.
27. Martin DT, Ghabili K, Levi A, et al. Prostate cancer genomic classifier relates more strongly to gleason grade group than prostate imaging reporting and data system score in multiparametric prostate magnetic resonance imaging-ultrasound fusion targeted biopsies. *Urology*. 2019;125:64-72.
28. Kornberg Z, Cowan JE, Westphalen AC, et al. Genomic prostate score, PI-RADS version 2 and progression in men with prostate cancer on active surveillance. *J Urol*. 2019;201(2):300-307.
29. Greenland NY, Zhang L, Cowan JE, et al. Correlation of a commercial genomic risk classifier with histological patterns in prostate cancer. *J Urol*. 2019;202(1):90-95.
30. Eggener S, Karsh LI, Richardson T, et al. A 17-gene panel for prediction of adverse prostate cancer pathologic features: prospective clinical validation and utility. *Urology*. 2019;126:76-82.
31. Chang EM, Punglia RS, Steinberg ML, Raldow AC. Cost effectiveness of the Oncotype DX genomic prostate score for guiding treatment decisions in patients with early stage prostate cancer. *Urology*. 2019;126:89-95.
32. Hu JC TJ, Ji Q, et al. Clinical utility of gene expression classifiers in men with newly diagnosed prostate cancer. *JCO Precis Oncol*. 2018;2:1-15.
33. Lin DW, Zheng Y, McKenney JK, et al. 17-gene Genomic Prostate Score test results in the Canary Prostate Active Surveillance Study (PASS) cohort. *J Clin Oncol*. 2020;38(14):1549-1557. doi: 10.1200/JCO.19.02267
34. Murphy AB, Carbunaru S, Nettey OS, et al. A 17-gene panel Genomic Prostate Score has similar predictive accuracy for adverse pathology at radical prostatectomy in African American and European American men. *Urology*. 2020. doi: 10.1016/j.urology.2020.01.052
35. Creed JH, Berglund AE, Rounbehler RJ, et al. Commercial gene expression tests for prostate cancer prognosis provide paradoxical estimates of race-specific risk. *Cancer Epidemiol Biomarkers Prev*. 2020;29(1):246-253. doi: 10.1158/1055-9965.epi-19-0407
36. Greenland NY, Zhang L, Cowan JE, et al. Correlation of a commercial genomic risk classifier with histological patterns in prostate cancer. *J Urol*. 2019;202(1):90-95. doi: 10.1097/ju.0000000000000175
37. Kaye DR, Qi J, Morgan TM, et al. Pathological upgrading at radical prostatectomy for patients with Grade Group 1 prostate cancer: Implications of confirmatory testing for patients considering active surveillance. *BJU International*. 2019;123(5):846-853. doi: 10.1111/bju.14554
38. Kornberg Z, Cooperberg Matthew R, Cowan Janet E, et al. A 17-gene genomic prostate score as a predictor of adverse pathology in men on active surveillance. *J Urol*. 2019;202(4):702-709. doi: 10.1097/JU.0000000000000290
39. Covas Moschovas M, Chew C, Bhat S, et al. Association between Oncotype DX Genomic Prostate Score and adverse tumor pathology after radical prostatectomy. *Eur Urol Focus*. 2021. doi: 10.1016/j.euf.2021.03.015
40. Cullen J, Kuo H-C, Shan J, et al. The 17-Gene Genomic Prostate Score test as a predictor of outcomes in men with unfavorable intermediate risk prostate cancer. *Urology*. 2020;143:103-111. doi: 10.1016/j.urology.2020.05.045
41. Cullen J, Lynch JA, Klein EA, et al. Multicenter comparison of 17-Gene Genomic Prostate Score as a predictor of outcomes in African American and Caucasian American men with clinically localized prostate cancer. *J Urol*. 2021;205(4):1047-1054. doi: 10.1097/ju.0000000000001484
42. Murphy AB, Abern MR, Liu L, et al. Impact of a genomic test on treatment decision in a predominantly African American population with favorable-risk prostate cancer: A randomized trial. *J Clin Oncol*. 2021;39(15):1660-1670. doi: 10.1200/jco.20.02997

43. Brooks MA, Thomas L, Magi-Galluzzi C, et al. GPS assay association with long-term cancer outcomes: Twenty-year risk of distant metastasis and prostate cancer–specific mortality. *JCO Precis Oncol*. 2021;5:442-449. doi: 10.1200/po.20.00325
44. Greenland NY, Cowan JE, Chan E, et al. Prostate biopsy histopathologic features correlate with a commercial gene expression assay's reclassification of patient NCCN risk category. *Prostate*. 2020;80(16):1421-1428. doi: 10.1002/pros.24072
45. Brooks MA, Thomas L, Magi-Galluzzi C, et al. Validating the association of adverse pathology with distant metastasis and prostate cancer mortality 20-years after radical prostatectomy. *Urol Oncol*. 2022;40(3):104.e101-104.e107. doi: 10.1016/j.urolonc.2021.10.005
46. Beksac AT, Ratnani P, Dovey Z, et al. Unified model involving genomics, magnetic resonance imaging and prostate-specific antigen density outperforms individual co-variables at predicting biopsy upgrading in patients on active surveillance for low risk prostate cancer. *Cancer Reports*. 2021. doi: 10.1002/cnr2.1492
47. Seiden B, Weng S, Sun N, et al. NCCN risk reclassification in black men with low and intermediate risk prostate cancer after genomic testing. *Urology*. 2022;163:81-89. doi: 10.1016/j.urology.2021.08.055
48. Helfand BT, Paterakos M, Wang C-H, et al. The 17-gene Genomic Prostate Score assay as a predictor of biochemical recurrence in men with intermediate and high-risk prostate cancer. *PLoS One*. 2022;17(9):e0273782. doi: 10.1371/journal.pone.0273782
49. Janes JL, Boyer MJ, et al. The 17-Gene Genomic Prostate Score Test is prognostic for outcomes after primary external beam radiation therapy in men with clinically localized prostate cancer. *Int J Radiat Oncol Biol Phys*. 2023 Jan 1;115(1):120-131. doi: 10.1016/j.ijrobp.2022.06.101
50. Renavikar PS, Lagrange CA, Lele SM. Pathology data-based risk group stratification is equivalent to that obtained by Oncotype DX testing in prostatic adenocarcinoma. *Arch Pathol Lab Med. 2023*. doi: 10.5858/arpa.2022-0225-oa. Online ahead of print.
51. Belkacemi Y, Debbi K, Coraggio G, et al. Genomic Prostate Score: A new tool to assess prognosis and optimize radiation therapy volumes and ADT in intermediate-risk prostate cancer. *Cancers*. 2023;15(3):945. doi: 10.3390/cancers15030945
52. Braun AE, Chan JM, Neuhaus J, et al. The impact of genomic biomarkers on a clinical risk prediction model for upgrading/upstaging among men with favorable-risk prostate cancer. Cancer. 2024 The impact of genomic biomarkers on a clinical risk prediction model for upgrading/upstaging among men with favorable-risk prostate cancer. *Cancer*. 2024;130(10):1766-1772. doi: 10.1002/cncr.35215.
53. Carbunaru S, Sun Z, McCall C, et al. Impact of genomic testing on urologists' treatment preference in favorable risk prostate cancer: A randomized trial. *Cancer Med*. 2023 Oct;12(19):19690-19700. doi: 10.1002/cam4.6615
54. Canter DJ, , Branch C, Shelnutt J, et al. The 17-Gene Genomic Prostate Score Assay Is Prognostic for Biochemical Failure in Men With Localized Prostate Cancer After Radiation Therapy at a Community Cancer Center. *Adv Radiat Oncol*. 2023 Mar 27;8(4):101193. doi: 10.1016/j.adro.2023.101193
55. Boyer MJ, Carpenter D, Gingrich JR, et al. Prognostic value of genomic classifier testing for prostate cancer: A systematic review In: VA Evidence-based Synthesis Program Reports. Washington (DC): Department of Veterans Affairs (US); 2023: **https://www.ncbi.nlm.nih.gov/books/NBK594816/**
56. Boyer MJ, Carpenter DJ, Gingrich JR, et al. Genomic classifiers and prognosis of localized prostate cancer: A systematic review. *Prostate Cancer Prostatic Dis*. 2024. doi: 10.1038/s41391-023-00766-z
57. Sood A, Kishan AU, Evans CP, et al. The impact of positron emission tomography imaging and tumor molecular profiling on risk stratification, treatment choice, and oncological outcomes of patients with primary or relapsed prostate cancer: An international collaborative review of the existing literature. *Eur Urol Oncol*. 2024;7(1):27-43. doi: 10.1016/j.euo.2023.06.002
58. Tabriz AA, Boyer MJ, Gordon AM, et al. Impact of Genomic Classifiers on Risk Stratification and Treatment Intensity in Patients With Localized Prostate Cancer : A Systematic Review. *Ann Intern Med*. 2025;178(2):218-228. doi: 10.7326/ANNALS-24-00700
59. Cui F, Tang X, Man C, et al. Prognostic value of 17-Gene genomic prostate score in patients with clinically localized prostate cancer: a meta-analysis. *BMC Cancer*. 2024;24(1):628. doi: 10.1186/s12885-024-12389-1