

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Risk Calculators for Prostate Cancer: Clinical Utility and Guidelines

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Research Questions

1. What is the clinical utility of prostate cancer risk calculators for prostate cancer?
2. What are the evidence-based guidelines on the use of prostate cancer risk calculators for prostate cancer?

Key Findings

One systematic review was identified regarding the clinical utility of prostate cancer risk calculators for prostate cancer. Additionally, four evidence-based guidelines were identified regarding the use of prostate cancer risk calculators for prostate cancer.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were prostate cancer and risk calculators. Filters were applied to limit the retrieval to health technology assessments, systematic reviews, and meta analyses, randomized controlled trials, and guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2014 and October 23, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Q1,2: Asymptomatic people or individuals at risk of prostate cancer
Intervention	Q1,2: The use of prostate cancer risk calculators (e.g., prostate cancer prevention trial risk calculator, European randomized study of screening for prostate cancer risk calculator, Sunnybrook prostate cancer risk calculator, Foggia prostate cancer risk calculator), with or without additional screening methods (e.g., digital rectal examination)
Comparator	Q1: No screening, or usual care Q2: Not applicable

Outcomes	Q1: Clinical utility (e.g., morbidity and mortality, downstream effects of false positives and false negatives, unnecessary treatment, physical harms [e.g., bruising, bleeding, complications], psychological harms) Q2: Guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, and evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, meta-analyses are presented first, followed by randomized controlled trials and evidence-based guidelines.

One systematic review was identified regarding the clinical utility of prostate cancer risk calculators for prostate cancer.¹ Four evidence-based guidelines were identified regarding the use of prostate cancer risk calculators for prostate cancer.²⁻⁵ No relevant health technology assessments or randomized controlled trials were identified regarding the clinical utility of prostate cancer risk calculators for prostate cancer.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Fenton JJ, Weyrich MS, Durbin S, Liu Y, Bang H, Melnikow J. Prostate-specific antigen-based screening for prostate cancer: a systematic evidence review for the U.S. Preventive Services Task Force. (*Evidence synthesis no. 154*). Rockville (MD): Agency for Healthcare Research and Quality (US); 2018: <https://www.ncbi.nlm.nih.gov/books/NBK518890/>. Accessed 2019 Oct 30.

Randomized Controlled Trials

No literature identified.

Guidelines and Recommendations

2. Prostate cancer - early detection. Plymouth Meeting (PA): National Comprehensive Cancer Network; 2019: https://www.nccn.org/professionals/physician_gls/pdf/prostate_detection.pdf. Accessed 2019 Oct 30. (*Registration required*)
See: MS-14: Risk Calculators
3. Final recommendation statement - prostate cancer: screening. Rockville (MD) : U.S. Preventive Services Task Force; 2018: <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/prostate-cancer-screening1>. Accessed 2019 Oct 30.
See: Screening

4. Mottet N, Bellmunt J, Bolla M, et al. EAU-ESTRO-SIOG guidelines on prostate cancer. Part 1: screening, diagnosis, and local treatment with curative intent. *Eur Urol*. 2017;71(4):618-629.
[PubMed: PM27568654](#)
5. Rendon RA, Mason RJ, Marzouk K, et al. Canadian Urological Association recommendations on prostate cancer screening and early diagnosis. *Can Urol Assoc J*. 2017;11(10):298-309. <https://www.cua.org/themes/web/assets/files/4888.pdf>. Accessed 2019 Oct 30.
See: Prostate risk calculators (pg.304)

Appendix — Further Information

Systematic Reviews and Meta-analyses

Alternative Population (Patients with Prostate Cancer)

6. Lorent M, Maalmi H, Tessier P, Supiot S, Dantan E, Foucher Y. Meta-analysis of predictive models to assess the clinical validity and utility for patient-centered medical decision making: application to the CAncer of the Prostate Risk Assessment (CAPRA). *BMC Med Inform Decis Mak.* 2019;19(1):2.
[PubMed: PM30616621](#)
7. Thurtle D, Rossi SH, Berry B, Pharoah P, Gnanapragasam VJ. Models predicting survival to guide treatment decision-making in newly diagnosed primary non-metastatic prostate cancer: a systematic review. *BMJ Open.* 2019;9(6):e029149.
[PubMed: PM31230029](#)

Alternative Outcome (Diagnostic Accuracy)

8. Louie KS, Seigneurin A, Cathcart P, Sasieni P. Do prostate cancer risk models improve the predictive accuracy of PSA screening? A meta-analysis. *Ann Oncol.* 2015;26(5):848-864.
[PubMed: PM25403590](#)

Review Articles

9. Hanna B, Ranasinghe W, Lawrentschuk N. Risk stratification and avoiding overtreatment in localized prostate cancer. *Curr Opin Urol.* 2019;29(6):612-619.
[PubMed: PM31469662](#)
10. He BM, Chen R, Sun TQ, et al. Prostate cancer risk prediction models in Eastern Asian populations: current status, racial difference, and future directions. *Asian J Androl.* 2019 Jun 11.
[PubMed: PM31187780](#)
11. Brawley OW, Thompson IM, Jr., Gronberg H. Evolving recommendations on prostate cancer screening. *Am Soc Clin Oncol Educ Book.* 2016;35:e80-87.
[PubMed: PM27249774](#)