

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Cryotherapy for Prostate Cancer: Clinical Effectiveness and Guidelines

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Research Questions

1. What is the clinical effectiveness of cryotherapy for early-stage or screen-detected prostate cancer?
2. What are the evidence-based guidelines on the use of cryotherapy for prostate cancer?

Key Findings

Four systematic reviews (including one systematic review with meta-analysis) were identified regarding the clinical effectiveness of cryotherapy for early-stage or screen-detected prostate cancer. In addition, five evidence-based guidelines were identified regarding the use of cryotherapy 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 cryotherapy and prostate cancer. For question #1, search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses, and randomized controlled trials. For question #2, search filters were applied to limit the retrieval to guidelines. Where possible, retrieval was limited to the human population. The search was also limited to English language documents published between January 1, 2018 to September 12, 2019 for question #1, and English language documents published between January 1, 2014 and September 12, 2019 for question #2. 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	People or individuals with screen-detected primary prostate cancer, or localized (T1 or T2) prostate cancer
Intervention	Cryotherapy
Comparator	Q1: Watchful waiting; active surveillance; hormonal therapy (e.g., androgen suppression therapy, orchiectomy surgery); high-intensity focused ultrasonography; radiation therapy via any technique (e.g., brachytherapy, intensity modulated, stereotactic); radical prostatectomy via any technique (e.g., open surgery, laparoscopy, robot assisted) Q2: None required
Outcomes	Q1: Clinical effectiveness and safety (e.g., quality of life, urinary continence, bowel function, erectile function, psychological wellbeing, prostate-specific antigen levels, adverse events, death, surgical complications) Q2: Guidelines

Study Designs

Health technology assessments, systematic reviews, meta-analyses, randomized controlled trials, 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, and meta-analyses are presented first. These are followed by randomized controlled trials and evidence-based guidelines.

Four systematic reviews¹⁻⁴ (including one systematic review with meta-analysis¹) were identified regarding the clinical effectiveness of cryotherapy for early-stage or screen-detected prostate cancer. In addition, five evidence-based guidelines⁵⁻⁹ were identified regarding the use of cryotherapy for prostate cancer. No relevant health technology assessments or randomized controlled trials were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Jung JH, Risk MC, Goldfarb R, Reddy B, Coles B, Dahm P. Primary cryotherapy for localised or locally advanced prostate cancer. *BJU Int*. 2019 Sep;124(3):383-385. [PubMed: PM30113128](#)
2. Canet FD, et al. Cryotherapy versus high-intensity focused ultrasound for treating prostate cancer: oncological and functional results. *Actas Urologicas Espanolas*. 2018 Jul-Aug;42(6):355-364. <https://www.sciencedirect.com/science/article/pii/S0210480617301560?via%3Dihub> Accessed 2019 Sep 17.
3. Faure Walker NA, Norris JM, Shah TT, et al. A comparison of time taken to return to baseline erectile function following focal and whole gland ablative therapies for localized prostate cancer: a systematic review. *Urol Oncol*. 2018 Feb;36(2):67-76. [PubMed: PM29277585](#)
4. Linares-Espinos E, Carneiro A, Martinez-Salamanca JI, et al. New technologies and techniques for prostate cancer focal therapy. *Minerva Urol Nefrol*. 2018 Jun;70(3):252-263. [PubMed: PM29664243](#)

Randomized Controlled Trials

No literature identified.

Guidelines and Recommendations

5. Mottet N, van den Bergh EB, Cornford P, et al. Prostate cancer: guidelines-2019 update. European Association of Urology. Edn. presented at the EAU Annual Congress Barcelona 2019; 2019: <https://uroweb.org/guideline/prostate-cancer/>

Accessed 2019 Sep 17.

See: *Section 6 – Treatment*

6. National Institute for Health and Care Excellence. Prostate cancer: diagnosis and management (*Clinical guideline CG191*) 2019 May; <https://www.nice.org.uk/guidance/ng131/resources/prostate-cancer-diagnosis-and-management-pdf-66141714312133>
Accessed 2019 Sep 17.
See: *Section 1.3 – Localized and locally advanced prostate cancer – Radical treatment, Locally advanced prostate cancer*
7. Alberta Provincial GU Tumour Team. Local prostate cancer. Edmonton (AB): Alberta Health Services; 2018 Jan: <https://www.albertahealthservices.ca/assets/info/hp/cancer/if-hp-cancer-guide-gu012-local-prostate.pdf>
Accessed 2019 Sep 17.
See: *Sections 5,6,7,9*
8. 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 Apr;71(4):618-629.
[PubMed: PM27568654](#)
9. Sanda MG, Chen RC, Crispino T, et al. Clinically localized prostate cancer: AUA/ASTRO/SUO guideline. American Urological Association; 2017: <https://www.auanet.org/Documents/education/clinical-guidance/Clinically-Localized-Prostate-Cancer.pdf>
Accessed 2019 Sep 17.
See: *Section IV D – Cryotherapy*

Appendix — Further Information

Previous CADTH Reports

10. Cryosurgery for non-metastatic prostate cancer: clinical and cost-effectiveness. (*CADTH Rapid Response report: summary with abstracts*). Ottawa (ON): CADTH; 2015 May: <https://cadth.ca/sites/default/files/pdf/htis/may-2015/RB0860%20Cryosurgery%20for%20Prostate%20Cancer%20Final.pdf>
Accessed 2019 Sep 17.

Systematic Reviews and Meta-analyses

No Comparator

11. Zhou JT, Fang DM, Xia S, Li T, Liu RL. The incidence proportion of erectile dysfunction in patients treated with cryotherapy for prostate cancer: a meta-analysis. *Clin Transl Oncol*. 2019 Sep;21(9):1152-1158.
[PubMed: PM30649710](#)

Alternate Population

12. Ingrosso G, Becherini C, Lancia A, et al. Nonsurgical salvage local therapies for radiorecurrent prostate cancer: a systematic review and meta-analysis. *Eur Urol Oncol*. 2019 Jan 24. pii: S2588-9311(18)30219-0.
[PubMed: PM31411996](#)

Clinical Practice Guidelines

Alternate Population

13. Cornford P, Bellmunt J, Bolla M, et al. EAU-ESTRO-SIOG Guidelines on prostate cancer. Part II: treatment of relapsing, metastatic, and castration-resistant prostate cancer. *Eur Urol*. 2017 Apr;71(4):630-642.
[PubMed: PM27591931](#)

Clinical Guide

14. Emblem Health. Cryosurgical ablation for prostate cancer. New York (NY): 2018 Sep: https://www.emblemhealth.com/~media/Files/PDF/med_guidelines/MG_Cryosurgical_Ablation_for_Prostate_Cancer.pdf
Accessed 2019 Sep 17.

Review Articles

15. de Marini P, Cazzato RL, Garnon J, et al. Percutaneous MR-guided prostate cancer cryoablation technical updates and literature review. *BJR Open*. 2019 Jun;1(1): <https://www.birpublications.org/doi/full/10.1259/bjro.20180043>
Accessed 2019 Sep 17.
16. Lodeizen O, de Bruin M, Eggener S, et al. Ablation energies for focal treatment of prostate cancer. *World J Urol*. 2019 Mar;37(3):409-418.
[PubMed: PM29943219](#)

Additional References

Position Statement

17. Ganzer R, Arthanareeswaran VKA, Ahmed HU, et al. Which technology to select for primary focal treatment of prostate cancer?-European Section of Urotechnology (ESUT) position statement. *Prostate Cancer Prostatic Dis.* 2018 Jun;21(2):175-186. [PubMed: PM29743538](#)

Guideline Endorsement

18. Bekelman JE, Rumble RB, Chen RC, et al. Clinically localized prostate cancer: ASCO clinical practice guideline endorsement of an American Urological Association/American Society for Radiation Oncology/Society of Urologic Oncology Guideline. *J Clin Oncol.* 2018 Sep 5;Jco1800606. [PubMed: PM30183466](#)