



**Ontario Health**  
Cancer Care Ontario

Guideline 27-2 Version 2

A Quality Initiative of the  
Program in Evidence-Based Care (PEBC), Ontario Health (Cancer Care  
Ontario)

## Multiparametric Magnetic Resonance Imaging in the Diagnosis of Clinically Significant Prostate Cancer

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Diagnosis of Clinically Significant Prostate Cancer Guideline Development Group*

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An assessment conducted in January 2023 deferred the review of Guideline 27-2 Version 2. This means that the document remains current until it is assessed again next year. The PEBC has a formal and standardized process to ensure the currency of each document. ([PEBC Assessment & Review Protocol](#))

Guideline 27-2 Version 2 is comprised of 5 sections. You can access the summary and full report here:

<https://www.cancercareontario.ca/en/guidelines-advice/types-of-cancer/281>

- Section 1: Recommendations
- Section 2: Guideline - Recommendations and Key Evidence
- Section 3: Guideline Methods Overview
- Section 4: Systematic Review
- Section 5: Internal and External Review

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# Multiparametric Magnetic Resonance Imaging in the Diagnosis of Clinically Significant Prostate Cancer

## Recommendations

*This is a quick reference guide and provides the guideline recommendations only. For key evidence associated with each recommendation, the systematic review, and the guideline development process, see the Full Report.*

### Strength of Recommendations for This Guideline

Strength	Definition	Verb wording
Recommendation to use the diagnostic tool	The guideline Working Group* believes the benefits of the diagnostic tool in the target patients clearly outweigh the harms for nearly all patients and the group is confident to support the recommended action.	Be recommended to go for ...; Should be done
Weak recommendation to use the diagnostic tool	The guideline Working Group* believes the benefits and harms of the diagnostic tool in the target patients are closely balanced or are more uncertain but still adequate to support the recommended action.	Be suggested to go for ...; May/can be done; Consider doing ...
No recommendation for the diagnostic tool	The guideline Working Group* is uncertain whether the benefits and harms of the diagnostic tool in the target patients are balanced and does not recommend a specific action.	There is no recommendation for or against ...
Weak recommendation NOT to use the diagnostic tool	The guideline Working Group* believes the benefits and harms of the diagnostic tool in the target patients are closely balanced or are more uncertain but still adequate to support the recommended action.	Be suggested against ...; May/cannot be done; Do not consider doing ...
Recommendation NOT to use the diagnostic tool	The guideline Working Group* believes the harms of the diagnostic tool in the target patients clearly outweigh the benefits for nearly all patients and the group is confident to support the recommended action.	Be recommended to against ...; Should not be done
	<b>The factors considered in the above judgments include desirable and undesirable effects of the diagnostic tool, the certainty of evidence, patient preference, health equity, acceptability, feasibility, and generalizability in Ontario.</b>	

\*The guideline Working Group includes two radiologists, one radiation oncologist, two urologists and one guideline methodologist.

## GUIDELINE OBJECTIVES

To make recommendations with respect to:

1. a) The use of multiparametric magnetic resonance imaging (MPMRI) in patients with an elevated risk of clinically significant prostate cancer (CSPCa) who are biopsy naïve,  
b) The use of MPMRI-targeted biopsy plus transrectal ultrasound systematic biopsy (TRUS-SB) or MPMRI-TB alone for biopsy-naïve patients who have undergone MPMRI;
2. a) The use of MPMRI in patients with an elevated risk of CSPCa who have had a prior negative TRUS-SB for any prostate cancer,  
b) The use of MPMRI-TB plus TRUS-SB or MPMRI-TB alone for patients who have had a prior negative TRUS-SB defined as no prostate cancer on biopsy of any grade group;
3. The minimum acceptable standards in the acquisition, interpretation and reporting of MPMRI and the minimal acceptable standards for performance of MPMRI-TB.

## TARGET POPULATION

Patients with an elevated risk of CSPCa (defined as International Society of Urologic Pathology [ISUP] Grade Group [GG]  $\geq 2$ ), as estimated by available clinical information and tools such as risk calculators and nomograms, of who are A) biopsy naïve or B) have had a prior negative TRUS-SB defined as no prostate cancer on biopsy of any grade group.

## INTENDED USERS

Radiologists, oncologists, urologists, and other clinicians who provide care for patients defined by the target population.

## RECOMMENDATIONS

<b>Recommendation 1 (Recommendation to use the diagnostic tool)</b>
For biopsy-naïve patients at elevated risk of CSPCa: <ul style="list-style-type: none"><li>• MPMRI is recommended prior to biopsy in patients who are candidates for curative management with suspected clinically localized prostate cancer.<ul style="list-style-type: none"><li>• <u>If the MPMRI is positive</u>, MPMRI-TB and TRUS-SB should be performed together to maximize detection of CSPCa.</li><li>• <u>If the MPMRI is negative</u>, consider forgoing any biopsy after discussion of the risks and benefits with the patient as part of shared decision making and ongoing follow-up.</li></ul></li></ul>
<b>Qualifying Statements for Recommendation 1</b>
<ul style="list-style-type: none"><li>• Between 8% and 24% of patients with CSPCa may be missed by a negative MPMRI. For this reason, patients should be made aware of the risks and benefits of biopsy avoidance when MPMRI is negative.</li><li>• MPMRI should only be performed if there is availability of high-quality MPMRI interpretation and operators with experience performing targeted biopsies (see Recommendation 3).</li><li>• Due to the limited availability, MPMRI is recommended only for patients where there is intent of curative management should the biopsy be positive for CSPCa.</li></ul>
<b>Recommendation 2 (Recommendation to use the diagnostic tool)</b>
In patients who had a prior negative TRUS-SB and demonstrate a high risk of having CSPCa in whom curative management is being considered: <ul style="list-style-type: none"><li>• MPMRI should be performed,</li></ul>

- If the MPMRI is positive, targeted biopsy should be performed. Concomitant TRUS-SB can be considered depending on the patients risk profile and time since prior TRUS-SB biopsy,
- If the MPMRI is negative, consider forgoing a TRUS-SB only after discussion of the risks and benefits with the patient as part of shared decision making and ongoing follow-up.

#### **Qualifying Statements for Recommendation 2**

- Prior negative TRUS-SB is defined as no cancer of any grade group on prior biopsy.
- MPMRI should only be performed if there is availability of high-quality MPMRI interpretation and operators with experience performing targeted biopsies (see Recommendation 3).
- Due to the limited availability, MPMRI is recommended only for patients where there is intent of curative treatment in the case of a positive biopsy.

#### **Recommendation 3 (Recommendation to use the diagnostic tool)**

- MPMRI should be performed and interpreted in compliance with the current Prostate Imaging Reporting and Data System (PI-RADS) Guidelines (v2.1 as of Summer 2020; see <https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/PI-RADS>).
- MPMRI-TB is recommended for MRI lesions with a PI-RADS score of 4 or 5.
- MPMRI-TB or follow-up is recommended for MRI lesions with a PI-RADS score of 3 depending on the patient's risk profile.
- Biopsy avoidance should be considered when maximum PI-RADS score is 1 or 2 (see Recommendation 1 and 2).
- A structured MPMRI reporting template as recommended by the PI-RADS committee should be used (see <https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/PI-RADS>).
- When a targeted biopsy is being performed a minimum of two cores should be taken per target with recommendation of four cores for the index lesion. If multiple lesions are described on MPMRI, the biopsy operator may distribute the number of biopsies to keep a reasonable overall core count during the biopsy session.
- MPMRI interpretation and MPMRI-TB should be performed by experienced operators.
- A provincial quality assurance program should be developed. Until this is in place, practitioners should have some form of local quality assurance in place.

#### **Qualifying Statements for Recommendation 3**

- Cognitive fusion, TRUS-MRI software-based fusion, and in-bore MPMRI guided biopsy are all acceptable methods of MPMRI-TB. TRUS-MRI fusion and in-bore MRI biopsy may improve target yield in selected patients.
- The use of bi-parametric MRI (BPMRI), meaning omitting the dynamic contrast-enhanced MRI (DCEMRI) may be considered in centres with experienced readers that can demonstrate performance similar to MPMRI.