# The use of PI-RADSvs2 in pre-biopsy multi-parametric MRI

**Descriptor:**

The aim of this audit is to evaluate reporting practices in accordance with the PI-RADS vs 2 guidance on MRI reporting in Prostate Cancer.

**Background:**

Prostate cancer is the second leading cause of cancer death in men. The development of multi-parametric (mp) MRI has improved the ability to detect and characterise prostate tumours and is part of the routine investigation of patients with suspected prostate cancer.

In order to maintain reporting standards the Prostate Imaging-Reporting and Data System (PI-RADS vs 2) was developed to provide a framework for the acquisition, interpretation and reporting of mpMRI of the prostate1.

More recently there has been a shift in the investigation of men with suspected cancer to performing the mpMRI before biopsy with reports designed to provide probability of cancer presence and targets for biopsy. MRI has now become the first imaging modality where gland volume can be measured, as opposed to at transrectal ultrasound. The PSA density, calculated by dividing PSA by gland volume, is a useful parameter in deciding whether to biopsy patients, particularly those with indeterminate lesions on MRI (PIRADS 3/5)2,3.

## The Cycle

**The standard:**

All reports of pre-biopsy mpMRI should follow the PI-RADS vs 2 guidelines for reporting mpMRI.

The prostate volume should be calculated using the ellipse formula: AP diameter x width x height x 0.52.

PSA density is also another useful parameter to report and is calculated using the formula: PSA/Volume.

All lesions PIRADS 3 or greater should be measured, localised within the gland and assessed for extra-capsular extension and seminal vesicle invasion.

Lymph node and bony status of the pelvis should be assessed for.

**Target:**

PIRADS vs 2 reporting guidelines should be used for 100% of pre-biopsy mpMRI prostate reports.

100% of reports should contain prostate volume and PSA density.

## Assess local practice

**Indicators:**

Was the prostate volume and PSA density calculated?

Was a lesion seen? If so, was it given a PI-RADS score and was the size and location noted?

Was the presence of extra-capsular extension, seminal vesicle invasion, nodal involvement or bony abnormality commented upon?

**Data items to be collected:**

Retrospective data collection of pre-biopsy mpMRI reports.

**Suggested number:**

30 cases to be reviewed.

(The collection of the audit data lends itself to checking the biopsy outcomes of the imaged patients, allowing the reporters to assess their diagnostic accuracy.)

**Suggestions for change if target not met:**

1. Results should be disseminated amongst the prostate MRI reporters.

2. Data could be continually collected as part of a service evaluation as it will lend itself to following up the diagnostic accuracy of the reporter once the biopsies have been performed.

3. A regular meeting of prostate MRI reporters with this data would also allow discussion of difficult cases.

**Resources:**

1. RIS-PACS in obtaining the examinations list and reports of mpMRI prostate

2. Create a data collection template.

3. Data analysis and write-up approximately 2 hours.

**References:**

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2. Brizmohun Appayya M, Sidhu HS, Dikaious N et al. Characterizing indeterminate (Likert-score 3/5) peripheral zone prostate lesions with PSA density, PI-RADS scoring and qualitative descriptors on multiparametric MRI. Br J Radiol.2017 Dec 15:20170645.
3. Brizmohun Appayya M, Adshead J, Ahmed HU, Allen C, Bainbridge A, Barrett T et al. National Implementation of multi-parametric MRI for prostate cancer detection - Recommendations from a UK consensus meeting. BJU International. 2018 Apr 26. Available from, DOI: 10.1111/bju.14361

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