**Positive pre-dictive value of pre-biopsy prostate MRI using PI-RADS v2.1**

**Descriptor:**

The aim of this audit is to assess the positive predictive value of pre-biopsy Prostatic MRI using PI-RADS v2.1 guidance

**Background:**

Prostate magnetic resonance imaging (MRI) reporting using the Prostate Imaging-Reporting and Data System (PI-RADS) v2.1 has been promulgated as the standard for prostate cancer detection and risk stratification (1).

The updated version of PI-RADS v2.1 is anticipated to improve inter-reader variability, simplify and standardise the assessment of prostatic MRI, improve interdisciplinary communications and the detection and risk stratification of prostate MRI. However, the latest version of PI-RADS has been reported to have poorer specificity than its predecessor for diagnosing clinically significant malignancy (2) . This audit aimed to assess the local prostate MRI reporting accuracy as a way to improve its performance.

## The Cycle

**The standard:**

There is an absence of nationally agreed standard for the positive predictive value of MRI prostate reporting.

Westphalen et al’s multicentre study was chosen as the benchmark as it is a large multinational study (3449 men) with comparable patient demographics and relatively recent publication (2).

In the study, the positve positive predictive value (PPV) of PI-RADS score of 3, 4, 5, and ≥4 was 15%, 39%, 72% and 49%, respectively.

**Target:**

The standard for the positive predictive value of pre-biopsy MRI prostate is to be within 10% of each stratum of the benchmark for the PI-RADS category.

## Assess local practice

**Indicators:**

The audit indicators will be based on the biopsy results and MRI reports:

Type of biopsy (1),  biopsy results (2) ? If abnormal, the nature of abnormality (e.g. malignancy ?inflammatory change ?atypia? (3), primary Gleason grade (4), secondary Gleason grade (5), total Gleason grade (6).

 MRI report on prostatic volume (1), prostate specific antigen density (2), highest PI-RADS score in either side of the transition and peripheral zone (3,4,5,6), breakdown of the PI-RADS score (7) neurovascular bundle involvement (8), lymphadenopathy (9).

**Data items to be collected:**

Inclusion criteria :

100 consecutive prostatic biopsies and the corresponding mpMRI prostate reports from the local radiology department with collection of the aforementioned audit indicators.

Exclusion criteria :

Patient with known prostate cancer

**Suggested number:**

100 consecutive patients in department

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

1. The results of this audit should be disseminated and discussed amongst the MRI reporters. Plans on how to improve compliance and consistency with PI-RADS v2.1 guidelines taken by the main audit lead.

2. Audit results will be presented in the departmental quality improvement meeting by the one of the audit team member with a plan for re-audting in 6 months post introduction of the new recommendation or intervention.

[**pi-rads\_audit\_template\_.xlsx**](https://www.rcr.ac.uk/sites/default/files/audit_template/pi-rads_audit_template_.xlsx)EXCEL - 11.78 KB

**References:**

1. (1) Turkbey B, Rosenkrantz AB, Haider MA, Padhani AR, Villeirs G, Macura KJ, et al. Prostate Imaging Reporting and Data System Version 2.1: 2019 Update of Prostate Imaging Reporting and Data System Version 2. Eur Urol 2019 September 01;76(3):340-351.

(2) Westphalen AC, McCulloch CE, Anaokar JM, Arora S, Barashi NS, Barentsz JO, et al. Variability of the Positive Predictive Value of PI-RADS for Prostate MRI across 26 Centers: Experience of the Society of Abdominal Radiology Prostate Cancer Disease-focused Panel. Radiology 2020 July;296(1):76-84.

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