**The use of PI-RADS v2.1 in pre-biopsy multi-parametric MRI**

**Descriptor:**

The aim of this audit is to evaluate reporting practices in accordance with the PI-RADS v2.1 guidance on MRI reporting in patient with suspected 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 characterize prostate tumors and is part of the routine investigation of patients with suspected prostate cancer.

More recently, a major change to investigative pathway of patients with suspected cancer has been made with all patients to have pre-biopsy mpMRI. The scan reports are designed to provide probability of cancer presence and targets for biopsy. Consequently, MRI has now become the first imaging modality where gland volume can be measured, as opposed to at transrectal ultrasound. The well-known Prostate Imaging-Reporting and Data System PI-RADS scoring is mainly used to give a score reflecting the probability of the presence of malignant lesion.

In order to maintain high standards of reporting, A joint committee from the European Society of urogenital Radiology (ESUR) and the American College of Urology (ACU) has published an update to the PI-RADS v2 which was then modified to PI-RADS v2.1 in March 2019. This updated version is anticipated that the adoption of these PI-RADS v2.1 modifications will improve inter-reader variability, simplify and standardize PI-RADS assessment of prostate magnetic resonance imaging, enhance interdisciplinary communications with referring clinicians and eventually improve the diagnostic quality of the scan for high risk patients.

## The Cycle

**The standard:**

All reports of pre-biopsy mpMRI should follow the updated version PI-RADS v2.1 guidelines for reporting mpMRI.

The prostate volume should be calculated using the ellipse formula: AP diameter x width x height x 0.52. and all lesions PIRADS 3 or greater should be measured localized within the gland and assessed for the following criteria:Extra-capsular extension.Seminal vesicle invasion.Neurovascular bundles invasion.Lymph node involvement.Finally the report should also comment on the bony status of the pelvis.

**Target:**

100% target for the seven PIRADS v2.1 parameters in the pre-biopsy mpMRI prostate reports.

## Assess local practice

**Indicators:**

The audit indicators will be based on the most updated version of the PI-RADS v2.1, which are:

Was the prostate volume (1) calculated?Was a lesion seen? If so, was it given a PI-RADS score (2)?Were the presence of extra-capsular extension (3), neurovascular bundle invasion (4), seminal vesicle invasion (5), nodal involvement (6) or bony abnormality (7) commented upon?

**Data items to be collected:**

Inclusion criteria:

50 consecutive mpMRI prostate reports to be included and assessed for the aforementioned audit parameters/indicators. Reports can come from outpatient referrals.

Exclusion Criteria:

Benign conditions such as prostatitis and active surveillance for previously known prostate cancer patients to be excluded as the definition of a patient with suspected cancer does not apply to them.

**Suggested number:**

50 mpMRI prostate reports

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

1. Results should be disseminated and discussed amongst the prostate MRI reporters. Plans on how to improve compliance with PI-RADS v2.1 guidelines should be put in place. This part will be under taken by the main audit lead.

2. Audit results will be presented in the departmental quality improvement meeting. This step will be presented by the main audit lead or one of the auditors.

3. Plan for re-audit in 6 month time when reporters hopefully adopt the new recommendations into their own reporting practices. This step will be performed by the main audit lead.

**References:**

1. 1) ACR Prostate Imaging Reporting & Data System (PI-RADS) <https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/PI-RADS> Dutruel SP, Jeph S, Margolis DJA, Wehrli N. PI-RADS: what is new and how to use it. Abdom Radiol (NY). 2020 Dec;45(12):3951-3960. doi: 10.1007/s00261-020-02482-x. PMID: 32185445.

2) European Society of Urogenital Radiology website:<http://www.esur.org/esur-guidelines/prostate-mri>

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4) Weinreb JC, Barentsz JO, Choyke PL, Cornud F, Haider MA, Macura KJ, Margolis D, Schnall MD, Shtern F, Tempany CM, Thoeny HC, Verma S. PI-RADS Prostate Imaging - Reporting and Data System: 2015, Version 2. Eur Urol. 2016;69(1):16–40.

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