

12<sup>th</sup> October 2018

Dear colleagues,

Modifications have been made to the previously circulated South West Radiology Standards for MpMRI Prostate imaging, taking into account recommendations made by the recent publication “National implementation of multi-parametric magnetic resonance imaging for prostate cancer detection – recommendations from a UK consensus meeting, BJU Int. 2018 Jul;122(1):13-25 “.

Please see attached document with the latest Radiology Standards.

**Summary of changes made:**

- 1) T2W sequence should be acquired in all three planes - the sagittal plane being useful for pre-surgical planning and improved visualisation of the bladder neck.
- 2) Two-dimensional [2D], fast-spin echo [FSE], multi-slice, instead of single 3D acquisition - until further research on direct comparison of diagnostic quality and cancer conspicuity of 2D vs 3D T2W for both peripheral zone (PZ) and transition zone (TZ) are available.
- 3) Axial sequences (SFOV T2, DWI, DCE) should be acquired in a plane referenced to patient (not to prostate). Orientating axial imaging to the patient was considered helpful for improving consistency and reproducibility of scans and lesion measurements.
- 4) In-plane resolution of T2W sequences should be  $\leq 0.7$  mm
- 5) In-plane resolution of DWI sequences should be  $\leq 2$  mm
- 6) The latest UK Consensus Meeting publication states that DCE-MRI is an **essential** component of prostate mpMRI for detection, staging and treatment planning. For the time being, our local South West Radiology Standards have graded DCE as “recommended” (rather than essential), given the time and cost implications DCE may have. This position could potentially change following the outcomes of our regional database. DCE should however be used in all patients with metallic hip prostheses, as the DWI sequences are compromised by artefact.
- 7) The latest UK Consensus Meeting publication recommends the use of a subjective 5-point Likert-assessment of mpMRI scans in the UK, pending higher-level validation and further

evolution of the PI-RADS scoring system. Given the commitment made by the Trusts in the South West to participate in the regional database, where PI-RADS scoring is being evaluated, we would encourage the continued use of PI-RADS scoring until the results of the database are made available.

8) Indication of reduced confidence score if image quality suboptimal.

9) The latest UK Consensus Meeting publication recommends that radiologists involved in MpMRI prostate reporting should report at least 100 MpMRI examinations per year. Given the challenges that this may pose, especially for smaller Trusts, we have kept the local guidelines at a minimum of 50 reports per year, but stated that the preferred value should be > 100.

Yours faithfully

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## South West Prostate Pathway Group:

### Radiology Standards - MpMRI Prostate

#### Image acquisition:

- Closed bore magnet
- Recent generation scanner < 7years age
- Minimum magnet strength 1.5 T
- For consistency, sequences should be acquired in a plane referenced to patient (not to prostate)
- SFOV T2W 2D sequences in 3 planes through the prostate. 3 mm slice thickness, no gap. The maximum voxel size in-plane resolution of T2 sequences should be  $\leq 0.7$  mm.
- SFOV axial DWI sequences through the prostate.  $\leq 4$  mm slice thickness, no gap. The maximum voxel size in-plane resolution of DWI sequences should be  $\leq 2$  mm.
- Minimum 3 b values. Highest b value  $\geq 1,400$  at 1.5T and 2,000 at 3T.
- Interpretable ADC map
- Dynamic contrast enhanced sequence is recommended, particularly if patients have metallic hip prosthesis.
- Referral to scan time  $\leq 7$  days

#### Report:

- Prostate volume
- PI-RADS V2 score (alternatively a 5 point Likert score is also acceptable).
- Indication of reduced confidence in score if image quality suboptimal.
- Maximum diameter of index lesion
- Identification of index lesion if multifocal disease
- Mapping of tumour (either sectoral map or bookmark with tumour outlined/arrowed for biopsy targeting purposes).
- Provisional T and N stage for PI-RADS 4+5 lesions.
- Report turnaround time  $\leq 3$  working days

#### Radiologist:

- Regular involvement with urology/prostate MDT
- Each Trust should have a nominated uro-radiology lead

- Minimum annual MpMRI prostate reports:  $\geq 50$  per annum (includes nhs/pp/outsourced), preferred  $>100$  per annum.
- Previous attendance at a MpMRI prostate workshop
- Engagement with South West database and further on going audit

### References:

Brizmohun Appayya, M, et al. National implementation of multi-parametric magnetic resonance imaging for prostate cancer detection – recommendations from a UK consensus meeting. BJU Int. 2018 Jul;122(1):13-25

PI-RADS<sup>TM</sup>. Prostate Imaging – Reporting and Data System. 2015 Version 2. American College of Radiology