

# Sup 220: Prostate MRI Structured Reporting

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# Disclosures / Acknowledgments

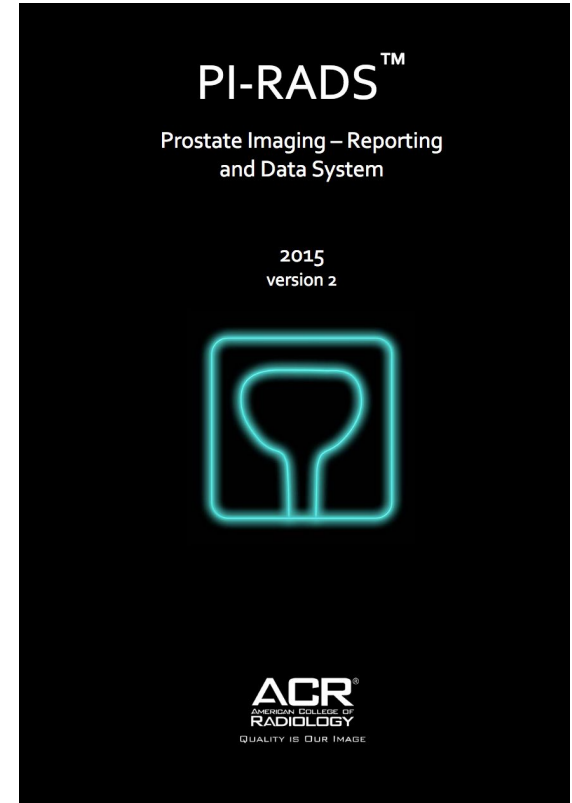
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# Prostate Imaging-Reporting Data System (PI-RADS)

PI-RADS™ v2 is designed to improve detection, localization, characterization, and risk stratification in patients with suspected cancer in treatment naïve prostate glands. The overall objective is to improve outcomes for patients. The specific aims are to:

- Establish minimum acceptable technical parameters for prostate mpMRI
- Simplify and standardize the terminology and content of radiology reports
- Facilitate the use of MRI data for targeted biopsy
- Develop assessment categories that summarize levels of suspicion or risk and can be used to select patients for biopsies and management (e.g., observation strategy vs. immediate intervention)
- Enable data collection and outcome monitoring
- Educate radiologists on prostate MRI reporting and reduce variability in imaging interpretations
- Enhance interdisciplinary communications with referring clinicians



# History of development of PI-RADS

- v1: 2010 - ESUR prostate MR guidelines
- v2: 2015 (MR spectroscopy excluded, differential role of DCE and DWI based on zonal anatomy of the prostate)
- v2.1: 2019 (revisions to acquisition requirements, assessment criteria, role of DCE, sector map of the prostate)

Eur Radiol (2012) 22:746–757  
DOI 10.1007/s00330-011-2377-y

UROGENITAL

## ESUR prostate MR guidelines 2012

Jelle O. Barentsz · Jonathan Richenberg ·  
Richard Clements · Peter Choyke · Sadhna Verma ·  
Geert Villeirs · Olivier Rouviere · Vibeke Logager ·  
Jurgen J. Fütterer

### Key Points

- *This report provides guidelines for magnetic resonance imaging (MRI) in prostate cancer.*
- *Clinical indications, and minimal and optimal imaging acquisition protocols are provided.*
- *A structured reporting system (PI-RADS) is described.*

# mpMRI assessment

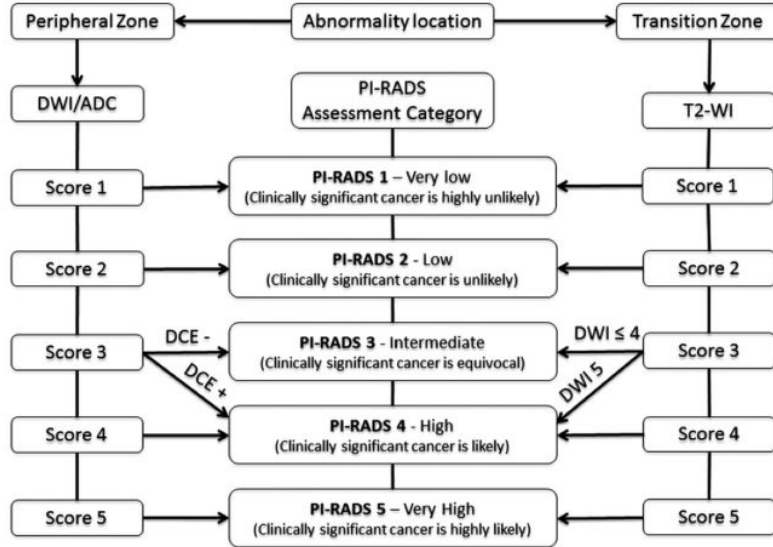


Figure 1. Flowchart showing the PI-RADS version 2 assessment categories. DCE = dynamic contrast-enhanced MR imaging, T2-WI = T2-weighted MR imaging.

## 2. PI-RADS Assessment for T2W

| Score | Peripheral Zone (PZ)                                                                                                                          |
|-------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1     | Uniform hyperintense signal intensity (normal)                                                                                                |
| 2     | Linear or wedge-shaped hypointensity or diffuse mild hypointensity, usually indistinct margin                                                 |
| 3     | Heterogeneous signal intensity or non-circumscribed, rounded, moderate hypointensity<br><br>Includes others that do not qualify as 2, 4, or 5 |
| 4     | Circumscribed, homogenous moderate hypointense focus/mass confined to prostate and <1.5 cm in greatest dimension                              |
| 5     | Same as 4 but ≥1.5cm in greatest dimension or definite extraprostatic extension/invasive behavior                                             |

Purysko, A. S., Rosenkrantz, A. B., Barentsz, J. O., Weinreb, J. C. & Macura, K. J. PI-RADS Version 2: A Pictorial Update. *Radiographics* 150234 (2016). doi:10.1148/rg.2016150234

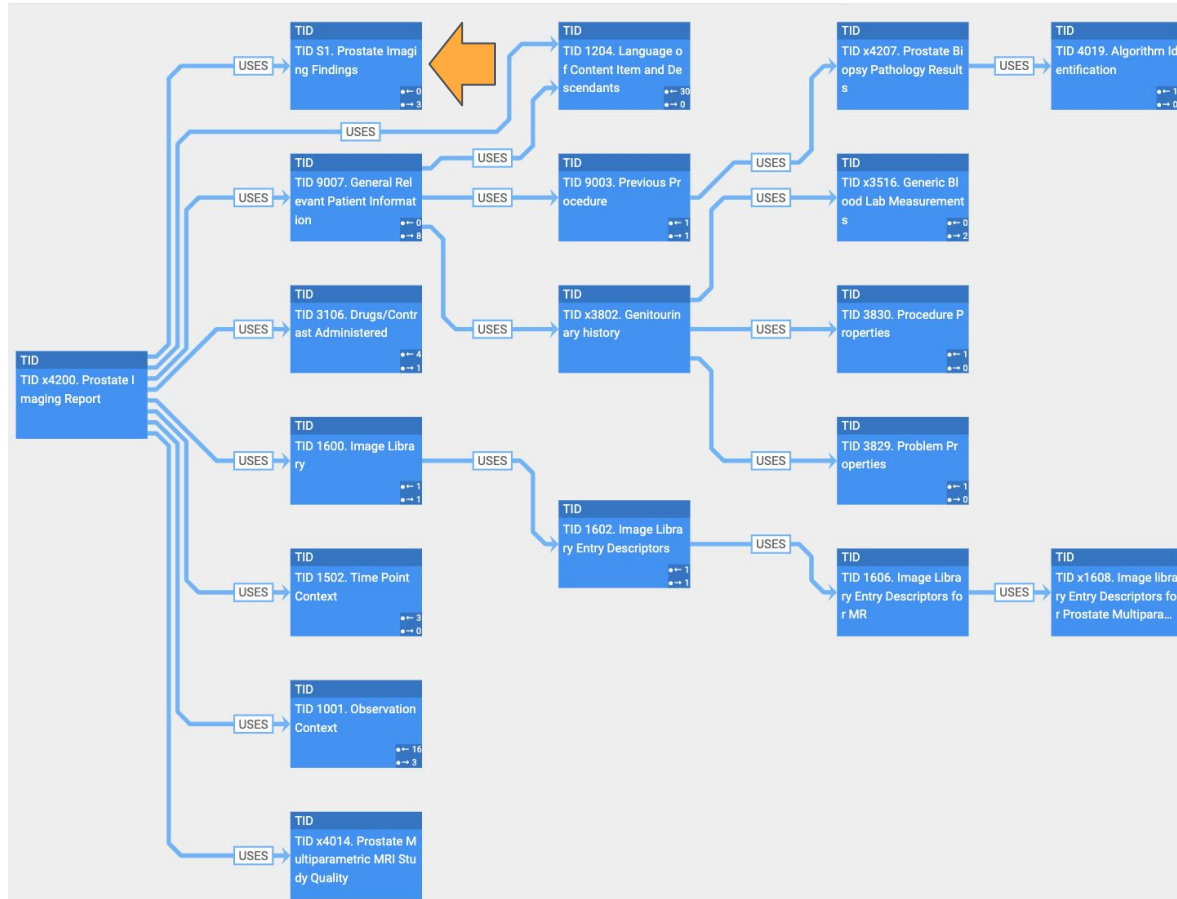
# PI-RADS is more than defining the lesion score

- Clinical consideration (e.g., prior tests, family history of PCa)
- Technical specifications of the acquisition
- Prostate anatomy definition
- Staging of the lesions
- Prostate gland and lesion measurement
- High-level report organization and lexicon
  - Most of the lexicon and PI-RADS terms are available in RadLex

# Motivating use cases for Sup 220 development

- Structured representation of PI-RADS reports for training AI tools
- Interchange of reports and image annotations between the radiology review workstations and biopsy systems
- Integration of AI tools producing structured PI-RADS reports into the radiology/interventional workflows
- Aggregation of structured clinical evidence documents across institutions for more robust evidence collection
- Integration of structured information annotating clinical findings longitudinally and across radiology, urology and digital pathology sub-specialties

# Top-level template organization





# Findings containers

