

## Risk factors for prostate cancer in men with false-negative mpMRI: A retrospective single center cohort study of image quality scores and clinical parameters

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### Study Overview:

Retrospective single-center cohort study at University Hospital Zurich examining patients with negative mpMRI (PI-RADS $\leq$ 2) who subsequently underwent prostate biopsy.

### Methodology:

- N= 96 patients with PI-RADS $\leq$ 2 with subsequent repeat biopsy
- Image quality assessed using two validated scoring systems: PI-QUAL (Prostate Imaging Quality) and PSHS (Prostate MRI Standardization and Quality Control)
- Clinical parameters: Age, BMI, PSA density (PSAD)

### Results:

- 44.8% had prostate cancer and 16.7% had clinically significant cancer ( $\geq$ GG2) despite negative MRI
- PI-QUAL scores were significantly lower in patients with PCa and csPCa
- PSHS scores showed trends but did not reach statistical significance
- In multivariate analysis, lower PI-QUAL score was the only independent predictor of missed csPCa ( $p < 0.004$ )
- Higher age predicted csPCa in univariate analysis but not in multivariate analysis

### Conclusions:

Lower image quality scores are strongly associated with false-negative mpMRI results. PI-QUAL emerged as an independent predictor of failed csPCa detection, highlighting that image quality is critical for accurate prostate MRI interpretation. The authors advocate for standardized inclusion of image quality measurements in prostate MRI reports to identify cases at higher risk of harboring occult clinically significant disease, which may warrant repeat imaging or proceeding with biopsy despite negative findings.

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