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MP65-02 Man vs. Machine: Comparative Effectiveness of Cognitive Targeted and Image-Fusion Targeted Transperineal Prostate Biopsy

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RAPID Study Group



Aim

- To compare targeted prostate biopsy cancer detection rates performed using **visual-estimation (cognitive)** targeting or **MRI-ultrasound image fusion** by a **large number of surgeons of varying expertise**

Patients

- Men undergoing **cognitive** or **image-fusion** (BiopSee® (Medcom)) targeted transperineal biopsy (April 2017 - July 2019)
- mpMRI PI-RADS v2 score of ≥ 3** (a score of 3 required PSA-density $\geq 0.12\text{ng/mL}$)

Methods

- Propensity score matching** (1:1) by age, PSA, PSA-density, prostate volume, number of target lesions, operator grade (senior Urologist, trainee, other), PI-RADS score and number of cores (caliper=0.25).
- Detection of **clinically significant (cs)** (any Gleason $\geq 3+4$) and **insignificant (ci) prostate cancer (PCa)** compared both **overall** and in **subsets** using Fisher's Exact test
- Median number of cores taken** was compared using the Mann-Whitney U test



Results

- Targeted transperineal prostate biopsy was performed for **845 lesions** (cognitive: 261, image-fusion: 584) in **603 patients** (cognitive: 185, image-fusion: 418).
- There was **no overall difference** in cs or ciPCa detection rates between cognitive and image-fusion targeting (242 pairs; $p=1.00$).

Senior urologists detected more clinically significant prostate cancer using image-fusion targeted transperineal biopsy
(cognitive: 27.8%, image-fusion: 55.6%; 54 pairs; $p=0.006$)

Median cores taken was greater when biopsies were performed cognitively
(cognitive: 6 (IQR 5-8), image-fusion: 6 (IQR: 4-6); $p<0.0001$)



- No significant differences between groups were noted by other operator grades, prostate volumes or lesion multiplicity (p all > 0.05)