



American
Urological
Association

Education & Research, Inc.

AUA VIRTUAL EXPERIENCE



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

Khoo C.C., Eldred-Evans D., Peters M., Hosking-Jervis F., **Connor M.J.**, Reddy D., Bertoncelli Tanaka M., Bhola-Stewart H., Maynard W., Bass E., Shah T.T., Lee J., Sri D., Powell L., Ahmad S., Noureldin M., Joshi S., Pegers E., Wong K., Tam H., Hrouda D., Winkler M., Gordon S., Qazi H., Ahmed H.U.,
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)

