# EP012 Real time high-resolution micro-ultrasound guided biopsy: A new strategy to overcome systematic prostate biopsy

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**Introduction & Objectives:** MpMRI has been shown to improve the detection of clinically significant PCa (csPCa), yet the consistent number of csPCa missed at MRI-target biopsy prevents us from omitting systematic biopsies (SBx). Micro-Ultrasound (mUS) has emerged as a new imaging modality providing real-time stratification of prostate tissue according to the PRI-MUS protocol, that has been developed to standardize the likelihood of PCa risk. We evaluated the reliability of mUS in identifying Pca-free regions, potentially avoiding the SBx of such areas without decreasing csPCa detection.

**Materials & Methods:** We prospectively collected data on 199 patients imaged with the ExactVu mUS system at our center from February 2019 to January 2019. All patients were scheduled for prostate biopsy due to clinical suspicion of PCa (abnormal DRE or elevated PSA). Prostate was systematically divided in 12 regions. The PRIMUS (1-5 score) protocol was used to stratify for likelihood of PCa risk. At least one biopsy core was obtained for each area and all lesions identified and classified as PRIMUS score ≥3 were targeted. The presence of overall PCa and csPCa (defined as GS ≥7 PCa) was determined. The diagnostic accuracy of mUS was determined.

**Results:** Median patient age was 63.9 (IQR 57-69) yr. Median total PSA was 8,6 (IQR 5.1-9.6) ng/mL and median prostate volume was 57 (IQR 35-72)mL. Overall, 51 (25.6%) patients had positive DRE, while 81 (40.7%) patients were in the repeat biopsy setting. Overall PCa and csPCa detection rates were 56.8% (n=113) and 41.2% (n=82), respectively. A PRIMUS 1 score was assigned to 391 (16.4%) regions: 370 (94,6%) were negative for PCa and 9 (2.3%) positive for csPCa. Hence, PRIMUS 1 score provided a negative predictive value for csPCA of 97.7%. A PRIMUS 2 score was assigned to 968 (40.5%) areas: 853 (88.1%) were negative for PCa and 61 (6.3%) were positive for csPCa. In 80/82 csPCa patients the core with the highest GS was located in a PRIMUS ≥3 area. 5 patients diagnosed with GS6 Pca were identified on random biopsy alone, while having only PRI-MUS 1-2 regions on mUS. Overall, we could virtually avoid the biopsy of 1359 out of 2388 (56.9%) prostate regions missing only 2 (2,4%) csPCa diagnoses while reducing the diagnoses of non-csPCa.

**Conclusions:** According to our preliminary results, mUS could represent a valid tool to overcome the systematic randomized biopsy of the whole prostate. Given its high accuracy in identifying cancer-free regions, it could be used to provide a real-time targeting of any suspicious area, while avoiding the SBx when mUS is negative.