**Reliability of TRUS Calculations of Prostate Volume**

**Introduction and Objective**: Prostate size is an important parameter in the assessment and treatment of prostate cancer. PSA density can influence investigation approach and volume limits are often included in acceptance criteria for template biopsy and brachytherapy. At our trust there were consistent discrepancies between prostate volumes calculated on trans-urethral ultrasound scan (TRUS) vs. magnetic Resonance Imaging (MRI). We felt that because TRUS imaging is operator dependent and slight movements of the rectal probe can drastically alter the size of the image and thus the calculated volume, that one imaging modality would be superior when calculating prostate volume. We aim to assess the accuracy of volumes calculated by TRUS compared with those from MRI.

**Materials and Methods**: All patients undergoing TRUS imaging and prostatic biopsies were identified for the period of twelve months from December 2010 to December 2011. Our standard protocol for potential candidates for curative therapy includes MRI quickly followed by TRUS biopsy. This allows a reasonable time-frame for comparison and our inclusion criteria stipulated that the two investigations must have been performed within six weeks of each other. Patients started on anti-androgen medication or 5-alpha-reductase inhibitors in this interim period were excluded. Prostate volumes were calculated using the standard ellipse method.

**Results:** We identified 240 patients for whom MRI and TRUS volumes were documented within six weeks of each other. As the results were not normally distributed, results were compared with a Wilcoxon-ranked sign test. A significant difference was identified ($p=0.017$) with the Median difference between TRUS and MRI volume being 1.45cc.

**Conclusion:** Our results show that TRUS gives a marginally larger prostate volume than MRI. This is statistically significant but in practice there are few clinical situations where such a small discrepancy will have a significant effect on patient management. Our opinion is that MRI prostate does not offer enough added benefit when it comes to measuring prostate size alone. We feel that consistency between volumes produced by different imaging modalities is more important than absolute precision, as any thresholds will have been derived from the same methods.