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**Inter-observer Variability in the Interpretation of HistoScanning™ Characterisation of Prostate Cancer**

van den Heuvel S<sup>1</sup>, Simmons L<sup>2</sup>,  
Autier P<sup>3</sup>, Verhagen P<sup>1</sup>, Moore C<sup>2</sup>,  
Emberton M<sup>2</sup>, Bangma C<sup>1</sup>

*<sup>1</sup>Erasmus University Medical Centre, Rotterdam, The Netherlands; <sup>2</sup>University College, London, UK; <sup>3</sup>International Agency for Research on Cancer, Lyon, France*

**Introduction and Objective:** Considerable utility could be derived from an imaging platform that is able to accurately detect and characterise prostate cancer with minimal inter-observer variability. Prostate HistoScanning™ has demonstrated accuracy for detection of lesions  $\geq 0.5$  cc, sensitivity  $>90\%$ . We examined the inter-observer variability of HistoScanning™ reporting.

**Materials and Methods:** Patients managed by active surveillance and who had undergone HistoScanning more than once, were eligible for this study. Two indepen-

dent observers processed and analysed the HistoScanning outputs for each acquisition. Observers first contoured the prostate gland, then HistoScanning automatically defined the prostate volume, sextants and the probable cancer volumes (unrefined); the observer then deselected volumes deemed unlikely to represent prostate cancer and recalculated volumes (refined). The kappa statistic was used to estimate the inter-observer agreement for presence of a focus  $>0.5\text{cc}$  in any one sextant. The HistoScanning™ focus volumes estimated by the two observers were compared using the least square linear regression. The average HistoScanning volumes were calculated by summing the sextant volumes from each scan and computing the average from multiple scans for each of the twelve patients.

**Results:** There were 198 sextants generated by 33 scans from twelve patients analyzed independently by two observers. Both observers found a refined focus  $>0.5\text{cc}$  in 40 sextants and no such focus in 138 sextants (Table 1). Hence, both observers agreed on the presence or absence of focus in 90% of sextants, achieving a kappa statistic of 0.73.

**Conclusions:** Inter-observer agreement is high when two trained observers progress through the HistoScanning workflow to determine prostate cancer volume and presence of focus within a sextant. HistoScanning has already demonstrated high sensitivity for cancer detection, with minimal inter-observer variation between reporters it may prove a useful imaging modality for prostate cancer diagnosis.

POD-07.06, Table 1. Observer agreement.

	Observer 2		Total
	Focus yes	Focus no	
Observer 1			
Focus yes	40	11	51
Focus no	9	138	147
Total	49	149	198