

Prostate Biopsy using Micro-Ultrasound and Fusion Biopsy of the Prostate - True Precision?

BACKGROUND:

The PRECISION study was able to show that sole targeted fusion biopsy is superior to systematic biopsy. However, the combination of an MRI / US fusion biopsy with a systematic biopsy results in a maximized detection rate of significant carcinomas. The use of a micro-ultrasound system with improved resolution allows the evaluation of additional tumor-related foci, offering the option of further optimizing fusion biopsy.

METHODS:

- **178** consecutive men presenting for prostate biopsy between February and December 2018
- Biopsy using **ExactVu™** 29MHz Micro-ultrasound system (Figure 1)
 - Micro-ultrasound targets
 - 10-core systematic samples
 - MRI targets (sampled separately)
- Analysis for added value of each biopsy strategy.

Age (years)	70 [64-74]	
PSA (ng/mL)	7.8 [5.7-11.9]	
Volume (cc)	35.5 [27-50]	
pre-biopsy mpMRI	159 (89%)	
Max PI-RADS	"normal" / 1	3
	2	4
	3	15
	4	74
	5	63
Prev. Biopsies	99 (46% negative)	

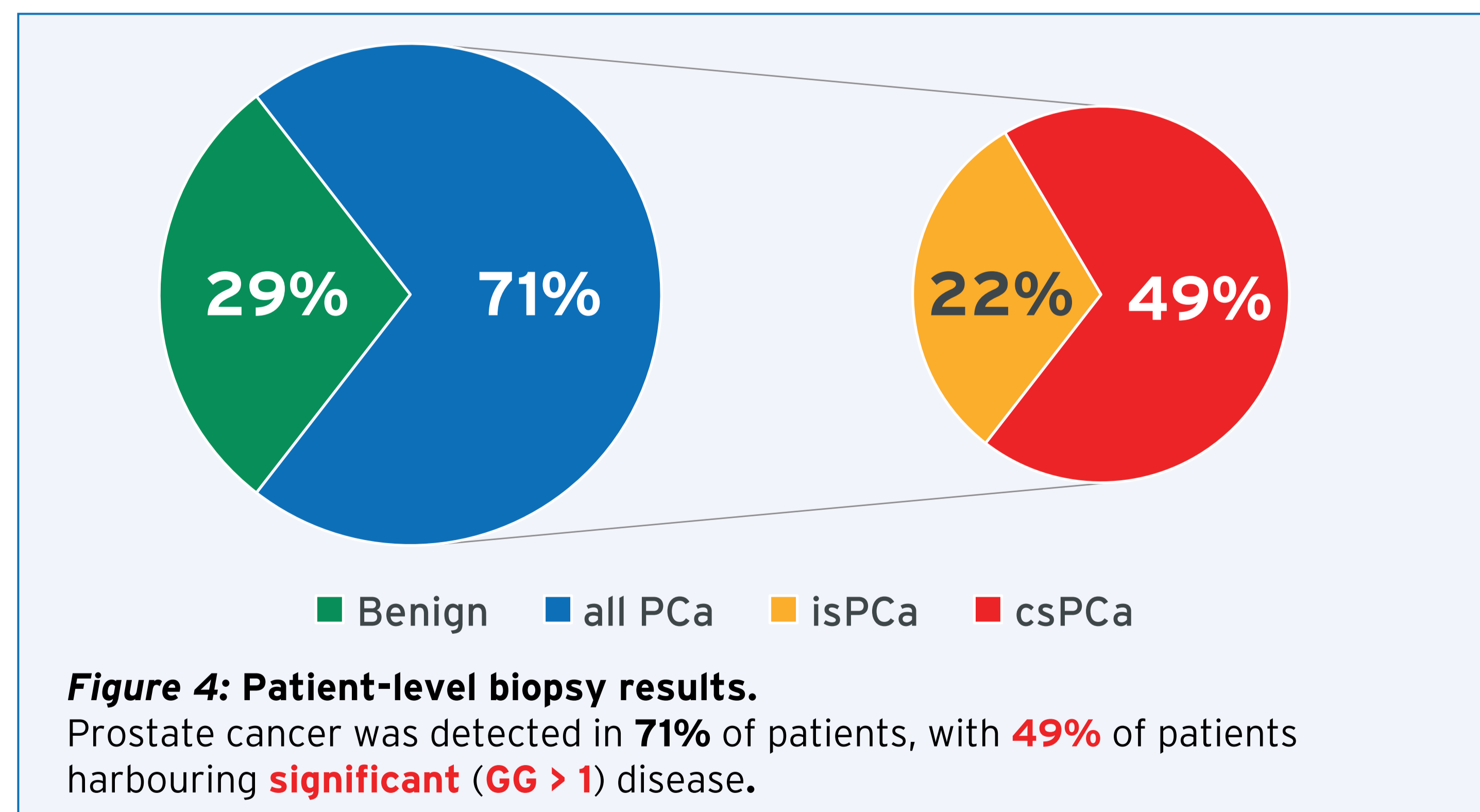


Figure 1: Exact Imaging's ExactVu™ 29 MHz Micro-Ultrasound System

Table 1: Demographics

RESULTS:

- + Prostate cancer found in **126/178 (71%)** patients
 - **88/178 (49%) GG > 1**
 - **42/178 (24%) GG > 3**
- + Of the 159 cases with MRI results:
 - MRI targets **upgraded** the Grade Group in **34 cases (21%)** including **11 cases not found with micro-ultrasound (7%)**
 - **Micro-ultrasound** targets **upgraded** the Grade Group in **46 cases (29%) including 26 not found on MRI (16%)**
- + Only in 5 cases (3%), systematic biopsy alone revealed evidence of significant prostate cancer



CONCLUSIONS:

- ▶ **Micro-ultrasound** leads to an **improvement in diagnostic accuracy** as a supplement to an MR fusion biopsy
- ▶ Future studies will examine whether an entirely targeted approach MRI+Micro-US is feasible and effective.

REFERENCES

1. Ghai S, Eure G, Fradet V, et al: *Assessing Cancer Risk on Novel 29 MHz Micro-Ultrasound Images of the Prostate: Creation of the Micro-Ultrasound Protocol for Prostate Risk Identification*. J. Urol. 2016; 196: 562-569.

