

Performance of Bladder EpiCheck™ for NMIBC monitoring- updated results of a European multi-center study

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INTRODUCTION & OBJECTIVES

The first goal of NMIBC monitoring is to promptly detect and treat high-grade (HG) tumors. This mandates high negative predictive value (NPV) if a urine biomarker is considered to replace part of standard follow up cystoscopies and cytologies.

Bladder EpiCheck (BE) is a methylation-based urine marker for bladder cancer monitoring that demonstrated outstanding results in non low-grade (LG) tumors in the first analysis of its European multicenter study: sensitivity 91.7% and NPV 99.3% over specificity of 88.0% in 440 patients¹. The study continued recruiting, and this is its 2nd analysis.

METHODS

This was a multicenter, prospective, blinded, single arm, single visit, cohort study performed in 7 centers in Europe and Israel under IRB.

Inclusion criteria: Age ≥22y, urothelial carcinoma undergoing cystoscopic surveillance at 3 months intervals, all UC resected within 12 months, able to produce 10 ml of urine, able to consent.

Exclusion criteria: Planning to undergo radical cystectomy or chemotherapy-radiation for UC.

BE is a urine assay using 15 proprietary methylation biomarkers to assess the presence of bladder cancer.

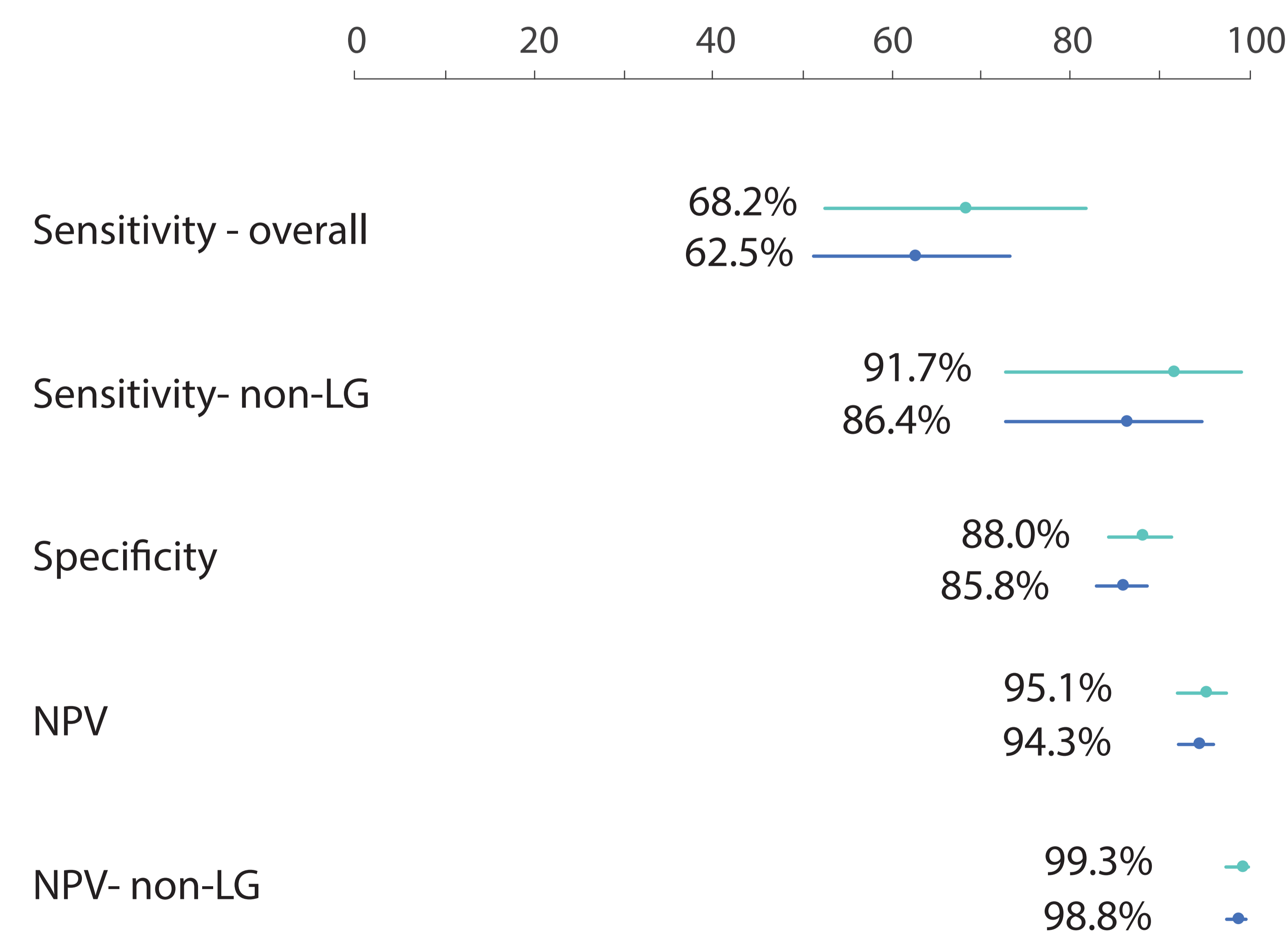
RESULTS

The demographic data was representative of NMIBC patients (Table 1.). Out of 822 patients, 81 did not have BE results and additional 84 did not have a definitive reference standard diagnosis of positive/negative. The final cohort for analysis had 657 patients: 80 positive (36 LG, 40 HG, 4 no path) and 577 negative. Study Endpoints are presented in Figure 1 alongside the results from the first analysis. The results were similar between the two analyses in all parameters. Sensitivity by grade of BE, cytology and cystoscopy are presented in figure 2. BE outperformed cytology in all categories (all-grade, LG and non-LG tumors). Cystoscopy outperformed BE and cytology in all-grades and LG tumors detection.

Table 1. Subject characteristics

	Range	Median
Age	31-92	70
	N	%
Gender		
Male	662	80.5
Female	159	19.3
Unk	1	0.1
Stage and grade of last recurrence		
PUNLMP	38	4.6
Ta LG	345	42.0
Ta HG	117	14.2
T1	212	25.8
T2/3	3	3.6
CIS	101	12.3
Unk	5	0.6
Primary tumor		
Yes	400	48.6
No	395	48.0
Unk	27	3.3

Figure 1. Study endpoints of the 1st and 2nd analyses

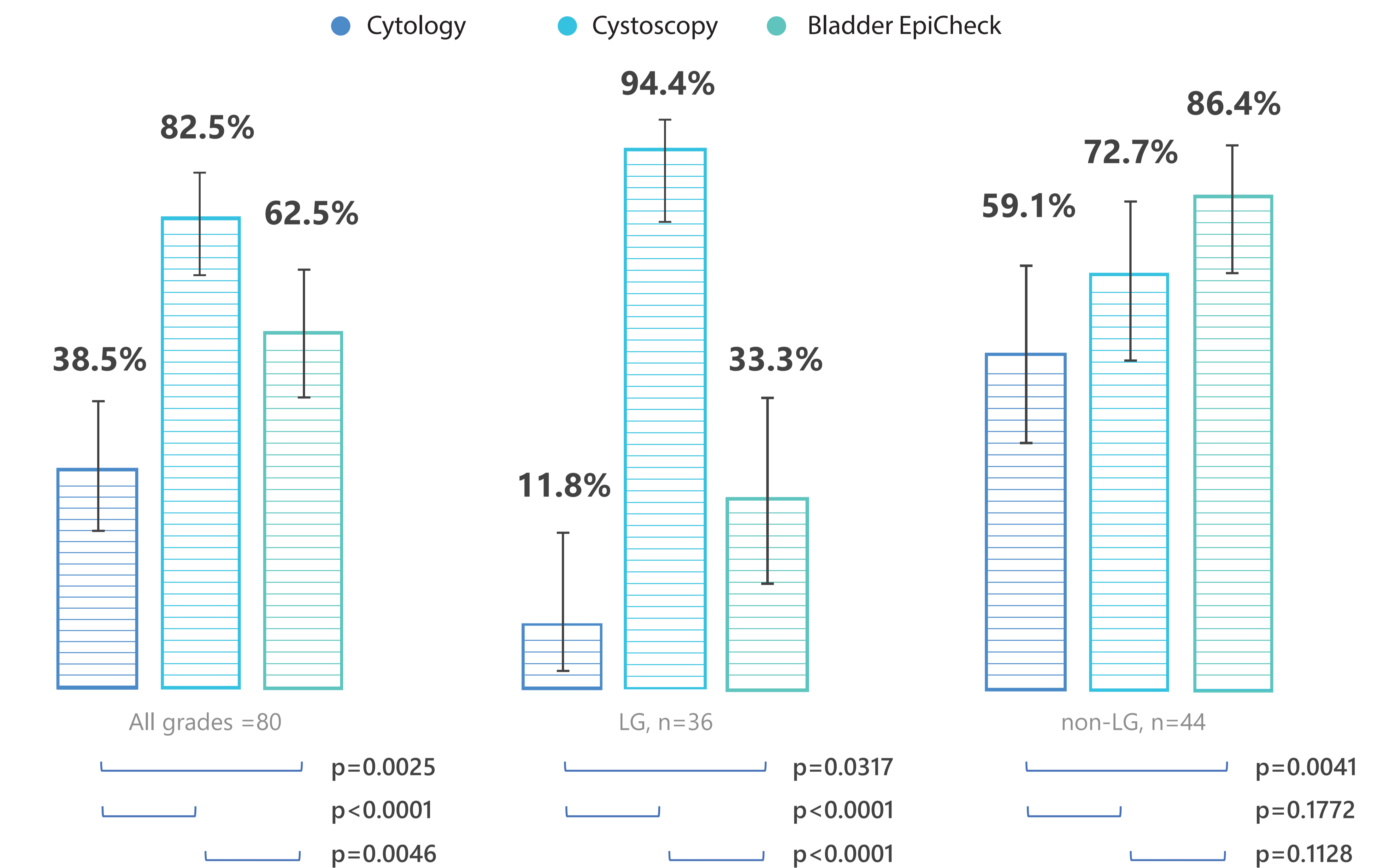


1st analysis (n=353)

2nd analysis (n=657)

Figure 2. Comparison of sensitivity by grade between Bladder EpiCheck, Cytology and Cystoscopy

SENSITIVITY BY GRADE



CONCLUSIONS

Consistent outstanding results with NPV of 99% in a large cohort further substantiates the evidence of BE as a robust rule-out test for high-grade cancers. Such high NPV with high specificity allows to safely utilize BE in NMIBC monitoring, even as an alternative to the standard methods that demonstrated inferior (cytology) or similar (cystoscopy) performance in this cohort.