Can Multiparametric MRI Improve Our Ability to Predict Early Biochemical Recurrence after Radical Prostatectomy in Contemporary Patients Results from a Multi-Institutional Analysis
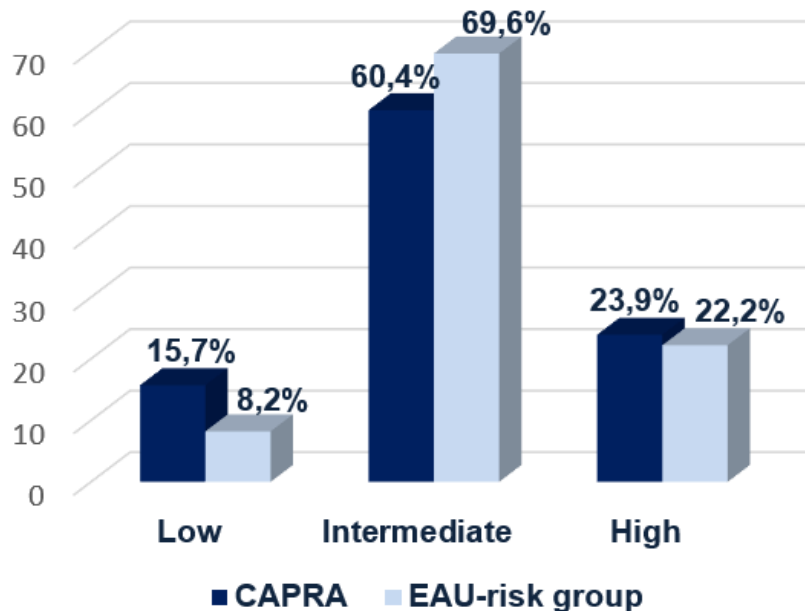
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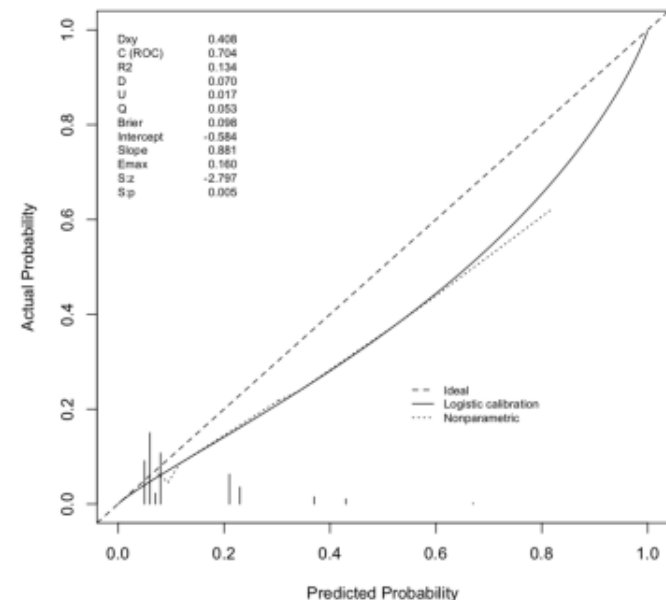
Materials and Methods

Variables	Overall (n=1,176)
Age at surgery	65 (60; 69)
PSA at diagnosis (ng/mL)	7.7 (5.4-11.2)
mpMRI IL max diameter (mm)	12 (9-16)
Extracapsular invasion at mpMRI ECE SVI	175 (14.9) 56 (4.8)
Biopsy Grade Group 1 2 3 4 5	155 (13.2) 556 (47.3) 268 (22.8) 123 (10.5) 67 (5.7)
Clinical T stage T1 T2 T3	773 (65.7) 356 (30.3) 35 (3)
Pathological T stage T2 T3a T3b T4	502 (50.4) 415 (35.4) 164 (13.9) 4 (0.3)
Pathological Grade Group 1 2 3 4 5	53 (4.5) 561 (47.7) 390 (33.2) 62 (5.3) 107 (9.1)
Median follow-up (months)	27
3-year BCR-free survival	84.2%

Bar chart — CAPRA vs EAU-risk group:

	Low	Intermediate	High
CAPRA	15,7%	60,4%	23,9%
EAU-risk group	8,2%	69,6%	22,2%

AIM: To develop a novel risk score predicting biochemical recurrence (BCR) after Radical Prostatectomy (RP) in patients diagnosed with MRI-targeted biopsy
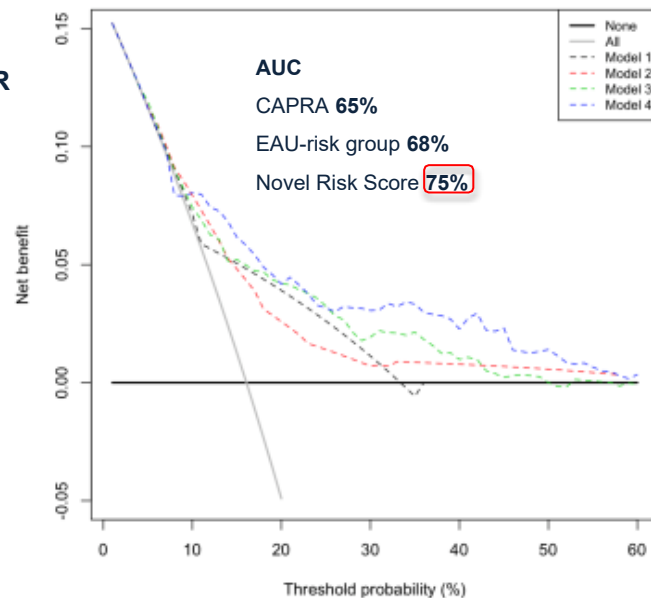
Results

Cox-regression analysis predicting BCR

Predictors	HR (95% CI)	P-value
ECE at mpMRI	1.9 (1.1-2.5)	0.02
SVI at mpMRI	2.04 (1.2-3.5)	0.001
mpMRI IL max diameter	1.06 (1.03-1.08)	0.001
PSA at diagnosis	1.02 (1.01-1.04)	0.001
Biopsy grade group 1 2-3 4-5	 1.73 (0.79-3.79) 4.74 (2.12-10.5)	 0.1 <0.001

AUC

CAPRA **65%**

EAU-risk group **68%**

Novel Risk Score **75%**

Available tools exhibit suboptimal characteristics in predicting BCR after RP in contemporary patients diagnosed with MRI-targeted biopsy. We developed and internally validated a novel accurate risk score that accounts for mp-MRI information in order to identify patients at higher risk of experiencing early recurrence after surgery.