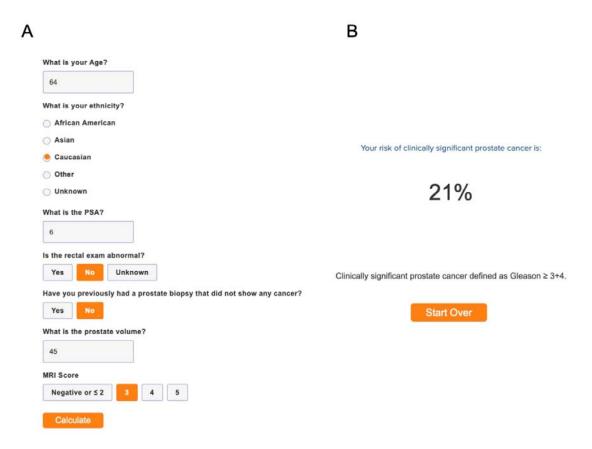
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APPENDIX

Supplementary Fig. 1. Example of online, interactive PCRC-MRI tool for a 64-year-old Caucasian man with PSA 6, normal rectal exam, no previously negative biopsy and a PI-RADS 3 lesion in a 45 cc prostate. (A) Variable input. (B) Calculated risk of clinically significant prostate cancer. MRI: magnetic resonance imaging; PI-RADS: Prostate Imaging Reporting & Data System; PSA: prostate-specific antigen.



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Supplementary Table 1. Baseline characteristics of discovery (n=1885) and validation (n=469) cohorts

	Discovery cohort	Validation cohort	p-value
Age, mean (SD)	65.1 (7.8)	65.0 (7.6)	0.97
Ethnicity (%) Caucasian African American Asian Other Unknown	1204 (64) 112 (6) 135 (7) 88 (5) 346 (18)	287 (61) 29 (6) 36 (8) 28 (6) 89 (19)	0.74
Abnormal DRE (%) Yes No Unknown	173 (9) 1332 (71) 380 (20)	58 (12) 323 (69) 88 (19)	0.11
Previous negative biopsy (%) Yes No	734 (39) 1151 (61)	171 (36) 298 (64)	0.32
PSA (ng/mL) ^a	6.5 (4.7, 9.5)	6.6 (5.0, 9.5)	0.23 ^b
Prostate volume (cc) ^a	48.9 (36, 68.2)	47 (34, 65)	0.13 ^b
PSA density (ng/mL/cc) <0.15 ≥0.15	1088 (58) 797 (42)	256 (55) 213 (45)	0.22
MRI score Negative (≤ 2) 3 4 5	372 (20) 546 (29) 580 (31) 384 (20)	80 (17) 128 (27) 150 (32) 111 (24)	0.27

^aMedian (IQR), ^bWilcoxon rank-sum test. Abbreviations: IQR, interquartile range; SD, standard deviation; DRE, digital rectal exam; MRI, magnetic resonance imaging; PSA, prostate-specific antigen

Supplementary Table 2. Unadjusted odds ratio of clinically significant prostate cancer in the discovery cohort (n=1885)

	OR (95% CI)
Age at biopsy	1.05 (1.04, 1.06)
Ethnicity (African American vs Caucasian)	1.34 (0.91, 1.98)
Ethnicity (Asian vs Caucasian)	0.54 (0.36, 0.81)
Ethnicity (Other vs Caucasian)	1.02 (0.66, 1.59)
Ethnicity (Unknown vs Caucasian)	0.96 (0.75, 1.23)
DRE Abnormality (yes vs no/unknown)	3.70 (2.66, 5.15)
Previous Negative Biopsy (yes vs no)	0.46 (0.38, 0.56)
PSA	1.05 (1.04, 1.07)
Prostate Volume	0.98 (0.98, 0.98)
PSA Density (≥0.15 vs <0.15)	4.03 (3.31, 4.91)
MRI score (3 vs Negative)	1.35 (0.96, 1.90)
MRI score (4 vs Negative)	3.73 (2.71, 5.13)
MRI score (5 vs Negative)	22.00 (15.13, 31.99)

Abbreviations: OR, odds ratio; CI, confidence interval; DRE, digital rectal exam; MRI, magnetic resonance imaging; PSA, prostate-specific antigen

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Supplementary Table 3. Parameters of Clinical and Clinical+MRI models at various thresholds for biopsy (n=2354)

	10%		1	15%		20%	
	Clinical	Clinical+MRI	Clinical	Clinical+MRI	Clinical	Clinical+MRI	
Sensitivity	100%	98%	99%	94%	95%	90%	
Specificity	2%	28%	7%	42%	17%	54%	
False positive	98%	72%	93%	58%	83%	46%	
PPV	40%	47%	41%	52%	43%	57%	
NPV	96%	94%	87%	91%	83%	89%	

Abbreviations: PPV, positive predictive value; NPV, negative predictive value; MRI, magnetic resonance imaging