

Table S1 Baseline patient characteristics by number of biopsy cores taken

Variable	Twelve core biopsy group (n=1,326)	Non-twelve core biopsy group (n=1,130)	P-value
Age in years, median (IQR)	61.0 (57.2-64.6)	61.5 (55.7-66.5)	0.68 ^a
Race, n (%)			0.96 ^b
African American	640 (48.3%)	559 (49.5%)	
Caucasian	651 (49.1%)	545 (48.2%)	
Other	32 (2.41%)	29 (2.57%)	
BMI in kg/m ² , median (IQR)	28.9 (26.0-32.7)	28.4 (25.1-32.0)	0.32 ^a
Height in cm, median (IQR)	177.7 (172.4-182.8)	177.7 (172.7-183.0)	0.83 ^a
Age of first shaving in years, median (IQR)	17.0 (16.0-18.7)	17.0 (16.0-18.7)	0.89 ^a
PSA in ng/ml, median (IQR)	5.47 (4.32-7.72)	5.73 (4.19-8.97)	0.47 ^a
% Free PSA, median (IQR)	14.2 (9.90-19.7)	14.9 (9.87-19.7)	0.42 ^a
Clinical T Stage, n (%)			0.52 ^b
≤T1c	913 (68.9%)	757 (67.0%)	
T2	404 (30.5%)	333 (29.5%)	
≥T3	28 (2.11%)	21 (1.86%)	
Prostate volume in cc, median (IQR)	38.9 (29.0-54.1)	37.6 (27.9-52.7)	0.18 ^a
Positive prostate biopsies, n (%)	676 (51.0%)	581 (51.4%)	0.19 ^b
Gleason Score, n (%)			0.25 ^b
≤6 (3+3)	277 (41.0%)	211 (36.3%)	
7 (3+4)	130 (19.2%)	136 (23.4%)	
7 (4+3)	110 (16.3%)	100 (17.2%)	
8 (4+4)	106 (15.7%)	96 (16.5%)	
≥9	53 (7.84%)	38 (6.54%)	
Percent positive cores, median (IQR)	19.7% (9.0%-33.3%)	18.3% (12.0-25.0)	0.19 ^a

^aStudent's *t*-test; ^bChi-square test. BMI, body mass index; IQR, interquartile range; PSA: Prostate specific antigen.

Table S2 Predictors of presence of cancer on prostate biopsy (univariable)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.50	1.18–2.102	0.006
>18	1.30	0.92–1.74	0.15
Height (Reference: <175 cm)			
175-180	0.97	0.82–1.21	0.89
>180	0.98	0.76–1.17	0.68
Age at biopsy (Reference: 50-59)			
<50	0.99	0.72–1.40	0.96
60-69	1.09	0.94–1.28	0.29
70+	0.99	0.77–1.28	0.92
Race (Reference: Caucasian)			
African American	1.94	1.67–2.20	<0.001
Other	1.13	0.55–2.23	0.72
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			0.53
African American * 16-18 years	0.79	0.41– 1.50	0.55
Other * 16-18 years	8.60	0.48–32.0	0.98
African American * >18 years	0.84	0.44–1.58	0.54
Other * >18 years	2.06	0.60–7.23	0.97
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			0.38
African American * 175-180 cm	1.15	0.76–1.60	0.58
Other * 175-180 cm	0.93	0.16–5.06	0.94
African American * >180 cm	1.02	0.68–1.49	0.95
Other * >180 cm	2.08	0.69–6.67	0.37
PSA (Reference: 0-4 ng/ml)			
4-10	2.50	2.07–3.10	<0.001
10-20	2.72	2.00–3.59	<0.001
20+	7.91	5.28–11.87	<0.001
Free PSA (Reference: <10%)			
10-20%	0.40	0.27–0.61	<0.001
>20%	0.24	0.16–0.33	<0.001
Clinical stage (\geq T2 versus \leq T1)	0.92	0.78– 1.12	0.12
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.45	0.43–0.52	<0.001
>80	0.23	0.17–0.29	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.98	0.53–1.88	0.94
25-29.9	0.92	0.76–1.13	0.56
30-34.9	0.90	0.75–1.12	0.40
>35	1.08	0.82–1.39	0.62
Family history (yes vs. no)	1.57	1.19–2.06	<0.001

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S3 Predictors of presence of high grade cancer on prostate biopsy (Univariable)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.01	0.62–1.66	0.96
>18	0.79	0.42–1.32	0.33
Height (Reference: <175 cm)			
175-180	0.86	0.60–1.15	0.26
>180	0.90	0.70–1.27	0.70
Age at biopsy (Reference: 50-59)			
<50	0.65	0.28– 1.17	0.19
60-69	1.06	0.78–1.38	0.83
70+	2.42	1.60–3.36	<0.001
Race (Reference: Caucasian)			
African American	1.66	1.32–2.17	<0.001
Other	0.31	0.016–1.35	0.23
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			0.29
African American * 16-18 years	0.61	0.24–1.77	0.28
Other * 16-18 years	0.79	0.35–2.44	0.85
African American * >18 years	0.90	0.61–1.74	0.87
Other * >18 years	1.33	0.59–2.90	0.85
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			0.82
African American * 175-180 cm	1.01	0.55–1.88	0.74
Other * 175-180 cm	0.43	0.12–1.67	0.86
African American * >180 cm	1.03	0.59–1.77	0.69
Other * >180 cm	0.42	0.15–1.40	0.94
PSA (Reference: 0-4 ng/ml)			
4-10	2.60	1.68–4.18	<0.001
10-20	3.98	2.37–6.70	<0.001
20+	19.64	11.9–34.0	<0.001
Free PSA (Reference: <10%)			
10-20%	0.24	0.14–0.545	<0.001
>20%	0.19	0.079–0.40	<0.001
Clinical stage (\geq T2 versus \leq T1)	1.62	1.13–1.68	0.005
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.57	0.49–0.65	<0.001
>80	0.20	0.12–0.39	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.99	0.30–2.46	0.98
25-29.9	0.66	0.47–0.84	0.0043
30-34.9	0.80	0.52–1.10	0.25
>35	1.10	0.75–1.44	0.72
Family history (yes vs. no)	1.13	0.79–1.55	0.59

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S4 Predictors of presence of high volume cancer on prostate biopsy (univariable)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.07	0.72–1.69	0.72
>18	1.04	0.66–1.62	0.88
Height (Reference: <175 cm)			
175-180	1.00	0.79–1.30	0.98
>180	0.98	0.79–1.25	0.89
Age at biopsy (Reference: 50-59)			
<50	0.63	0.42–1.06	0.09
60-69	0.88	0.70–1.09	0.34
70+	1.52	1.14–2.00	0.012
Race (Reference: Caucasian)			
African American	1.58	1.35–1.892	<0.001
Other	1.36	0.54–2.99	0.46
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			
African American * 16-18 years	0.64	0.29–1.41	0.27
Other * 16-18 years	2.88	0.77–5.07	0.96
African American * >18 years	0.93	0.7–2.35	0.85
Other * >18 years	2.43	0.55–4.02	0.96
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			
African American * 175-180 cm	1.30	0.78–2.14	0.37
Other * 175-180 cm	2.16	0.26–6.89	0.46
African American * >180 cm	1.03	0.65–1.65	0.89
Other * >180 cm	1.96	0.25–15.4	0.49
PSA (Reference: 0-4 ng/ml)			
4-10	2.55	1.79–3.70	<0.001
10-20	3.56	2.40–5.46	<0.001
20+	18.9	12.0–30.2	<0.001
Free PSA (Reference: <10%)			
10-20%	0.45	0.28–0.70	0.003
>20%	0.23	0.12–0.44	<0.001
Clinical stage (\geq T2 versus \leq T1)			
	1.53	1.22–1.93	0.001
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.42	0.36–0.56	<0.001
>80	0.10	0.039–0.20	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.73	0.27–1.60	0.43
25-29.9	0.66	0.52–0.81	<0.001
30-34.9	0.75	0.55–0.99	0.043
>35	0.76	0.49–1.06	0.13
Family history (yes vs. no)			
	1.49	1.10–1.95	0.014

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S5 Association between patient characteristics and prostate volume on ultrasound at biopsy (univariable)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	0.99	0.88–1.12	0.77
>18	0.99	0.90–1.10	0.89
Height (Reference: <175 cm)			
175-180	1.10	1.04–1.14	0.022
>180	1.11	1.05–1.16	<0.001
Age at biopsy (Reference: 50-59)			
<50	1.29	1.19–1.44	<0.001
60-69	1.47	1.36–1.60	<0.001
70+	1.72	1.55–1.90	<0.001
Race (Reference: Caucasian)			
African American	1.04	0.99–1.07	0.10
Other	1.01	0.85–1.22	0.92
PSA (Reference: 0-4 ng/ml)			
4-10	1.20	1.14–12.4	<0.001
10-20	1.45	1.35–1.55	<0.001
20+	1.55	1.40–1.68	<0.001
Free PSA (Reference: <10%)			
10-20%	1.36	1.23–1.50	<0.001
>20%	1.70	1.52–1.91	<0.001
Clinical stage (\geq T2 versus \leq T1)			
	0.87	0.84–0.91	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	1.20	1.01–1.42	0.030
25-29.9	1.33	1.10–1.57	0.004
30-34.9	1.48	1.23–1.75	<0.001
>35	1.49	1.22–1.75	<0.001
Family history (yes vs. no)			
	0.99	0.93–1.06	0.68

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen.

Table S6 Association between patient characteristics and prostate volume on ultrasound at biopsy (multivariable*)

Age of first shave (categorical, reference: <16)	OR	95% CI	P
16-18	1.08	0.91–1.40	0.35
>18	1.12	0.88–1.45	0.34
Height (categorical, reference: <175 cm)			
175-180 cm	0.95	0.82–1.14	0.50
>180 cm	1.00	0.84–1.18	0.97

*Controlling for patient age, race, prostate specific antigen, % free prostate specific antigen, clinical stage, body mass index, family history.

Table S7 Baseline patient characteristics for the subcohort of patients with no missing data (n=1,176)

	Value
Age in years, median (IQR)	61.0 (57.0–66.0)
Race, n (%)	
African American	572 (48.6%)
Caucasian	574 (48.9%)
Other	30 (2.6%)
BMI in kg/m ² , median (IQR)	28.6 (25.5–32.4)
Height in cm, median (IQR)	177.8 (172.7–182.9)
Height in cm, n (%)	
<175 cm	359 (30.6%)
175-180 cm	306 (26.0%)
>180 cm	511 (43.4%)
Age of first shaving in years, median (IQR)	17.0 (16.0–19.0)
Age of first shaving in years, n (%)	
<16 years	239 (20.3%)
16-18 years	623 (53.0%)
>18 years	314 (26.7%)
PSA in ng/ml, median (IQR)	5.7 (4.4–8.2)
% Free PSA, median (IQR)	14.8 (10.0–19.0)
Clinical T Stage, n (%)	
≤T1c	823 (70.0%)
T2	328 (27.9%)
≥T3	25 (2.1%)
Prostate volume in cc, median (IQR)	38.0 (28.0–53.3)
Positive prostate biopsies, n (%)	599 (50.9%)
Gleason Score, n (%)	
≤6 (3+3)	233 (39.0%)
7 (3+4)	125 (20.9%)
7 (4+3)	100 (16.7%)
8 (4+4)	97 (16.2%)
≥9	44 (7.3%)
Percent positive cores, median (IQR)	18.6% (4.2–30.0%)

Table S8 Predictors of presence of cancer on prostate biopsy, high grade cancer, and high volume cancer (multivariable*) in the subcohort of patients with no missing data (n=1,176)

Variable	OR	95% CI	P value
Predictors of presence of cancer on prostate biopsy			
Age of first shave (categorical, reference: <16)			
16-18	1.88	0.55–4.71	0.32
>18	5.36	1.13–9.53	0.03
Height (categorical, reference: <175 cm)			
175-180 cm	1.30	0.51–3.37	0.59
>180 cm	1.82	0.80–4.24	0.16
Predictors of high-grade cancer on prostate biopsy			
Age of first shave (categorical, reference: <16)			
16-18	0.45	0.05–4.30	0.48
>18	0.17	0.008–2.36	0.21
Height (categorical, reference: <175 cm)			
175-180 cm	7.41	4.25–9.48	0.038
>180 cm	2.62	0.82–8.19	0.21
Predictors of high-volume cancer on prostate biopsy			
Age of first shave (categorical, reference: <16)			
16-18	11.56	0.98–18.46	0.055
>18	8.97	0.89–11.32	0.080
Height (categorical, reference: <175 cm)			
175-180 cm	2.34	0.82–4.12	0.13
>180 cm	1.82	0.78–4.93	0.21

Table S9 Predictors of presence of cancer on prostate biopsy (univariable) in the subcohort of patients with no missing data (n=1,176)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.56	1.15–2.11	0.005
>18	1.26	0.90–1.78	0.18
Height (Reference: <175 cm)			
175-180	0.98	0.81–1.20	0.88
>180	0.96	0.80–1.14	0.64
Age at biopsy (Reference: 50-59)			
<50	0.99	0.70–1.41	0.97
60-69	1.10	0.93–1.30	0.26
70+	0.99	0.75–1.30	0.94
Race (Reference: Caucasian)			
African American	1.92	1.65–2.23	<0.001
Other	1.15	0.59–2.19	0.68
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			0.53
African American * 16-18 years	0.82	0.44–1.52	0.53
Other * 16-18 years	8.34	0.52–31.0	0.97
African American * >18 years	0.82	0.41–1.64	0.57
Other * >18 years	2.04	0.59–7.32	0.97
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			0.38
African American * 175-180 cm	1.10	0.73–1.66	0.66
Other * 175-180 cm	0.93	0.15–5.08	0.94
African American * >180 cm	1.01	0.71–1.46	0.94
Other * >180 cm	2.00	0.65–6.61	0.40
PSA (Reference: 0-4 ng/ml)			
4-10	2.52	2.04–3.12	<0.001
10-20	2.69	2.03–3.57	<0.001
20+	7.85	5.21–12.06	<0.001
Free PSA (Reference: <10%)			
10-20%	0.41	0.26–0.64	<0.001
>20%	0.22	0.13–0.37	<0.001
Clinical stage (\geq T2 versus \leq T1)			
	0.82	0.68–0.99	0.040
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.48	0.40–0.56	<0.001
>80	0.22	0.16–0.30	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.98	0.50–1.91	0.95
25-29.9	0.94	0.76–1.15	0.55
30-34.9	0.91	0.72–1.14	0.41
>35	1.07	0.82–1.38	0.63
Family history (yes vs. no)			
	1.54	1.16–2.07	<0.001

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S10 Predictors of presence of high grade cancer on prostate biopsy (Univariable) in the subcohort of patients with no missing data (n=1,176)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.02	0.65–1.63	0.95
>18	0.74	0.43–1.28	0.29
Height (Reference: <175 cm)			
175-180	0.84	0.61–1.15	0.28
>180	0.91	0.72–1.24	0.68
Age at biopsy (Reference: 50-59)			
<50	0.62	0.30–1.15	0.16
60-69	1.03	0.79–1.34	0.84
70+	2.30	1.59–3.28	<0.001
Race (Reference: Caucasian)			
African American	1.69	1.33–2.14	<0.001
Other	0.28	0.016–1.31	0.21
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			0.29
African American * 16-18 years	0.61	0.21–1.83	0.30
Other * 16-18 years	0.77	0.32–2.35	0.82
African American * >18 years	0.93	0.59–1.76	0.90
Other * >18 years	1.29	0.56–2.98	0.88
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			0.82
African American * 175-180 cm	1.01	0.52–1.95	0.79
Other * 175-180 cm	0.39	0.09–1.73	0.89
African American * >180 cm	1.03	0.59–1.82	0.72
Other * >180 cm	0.37	0.12–1.45	0.98
PSA (Reference: 0-4 ng/ml)			
4-10	2.57	1.65–4.20	<0.001
10-20	3.92	2.34–6.78	<0.001
20+	19.48	11.55–34.11	<0.001
Free PSA (Reference: <10%)			
10-20%	0.27	0.15–0.50	<0.001
>20%	0.18	0.064–0.41	<0.001
Clinical stage (\geq T2 versus \leq T1)	1.49	0.10–0.68	0.0071
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.54	0.41–0.70	<0.001
>80	0.22	0.097–0.42	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.99	0.33–2.41	0.98
25-29.9	0.63	0.45–0.87	0.0043
30-34.9	0.82	0.59–1.16	0.26
>35	1.06	0.72–1.53	0.78
Family history (yes vs. no)	1.10	0.76–1.57	0.62

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S11 Predictors of presence of high volume cancer on prostate biopsy (univariable) in the subcohort of patients with no missing data (n=1,176)

Variable	OR	95% CI	P-value
Age of first shave (Reference: <16 years)			
16-18	1.08	0.72–1.66	0.71
>18	1.03	0.64–1.66	0.90
Height (Reference: <175 cm)			
175-180	1.00	0.76–1.30	0.99
>180	0.98	0.78–1.25	0.89
Age at biopsy (Reference: 50-59)			
<50	0.65	0.38–1.07	0.11
60-69	0.90	0.73–1.12	0.35
70+	1.51	1.08–2.08	0.014
Race (Reference: Caucasian)			
African American	1.53	1.26–1.89	<0.001
Other	1.39	0.56–3.03	0.44
Race*Age of first shave (Race reference: Caucasian, Age of first shave reference: <16 years)			
African American * 16-18 years	0.64	0.27–1.47	0.29
Other * 16-18 years	2.87	0.73–5.12	0.98
African American * >18 years	0.92	0.35–2.39	0.86
Other * >18 years	2.46	0.51–4.12	0.98
Race*Height (Race reference: Caucasian, Height reference: <175 cm)			
African American * 175-180 cm	1.27	0.73–2.19	0.39
Other * 175-180 cm	2.13	0.23–6.84	0.47
African American * >180 cm	1.03	0.64–1.67	0.90
Other * >180 cm	1.98	0.22–15.6	0.51
PSA (Reference: 0-4 ng/ml)			
4-10	2.57	1.80–3.76	<0.001
10-20	3.49	2.28–5.42	<0.001
20+	18.68	11.76–30.28	<0.001
Free PSA (Reference: <10%)			
10-20%	0.47	0.28–0.76	0.002
>20%	0.23	0.11–0.46	<0.001
Clinical stage (\geq T2 versus \leq T1)			
	1.50	1.17–1.91	0.001
TRUS Volume (Reference: <40 cc)			
40-80 cc	0.44	0.35–0.56	<0.001
>80	0.09	0.037–0.20	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	0.71	0.26–1.62	0.45
25-29.9	0.65	0.50–0.84	0.001
30-34.9	0.74	0.55–0.98	0.039
>35	0.78	0.56–1.09	0.15
Family history (yes vs. no)			
	1.45	1.07–1.95	0.016

BMI, body mass index; CI, confidence interval; OR, odds ratio; PSA, prostate-specific antigen; TRUS, transrectal ultrasound.

Table S12 Association between patient characteristics and prostate volume on ultrasound at biopsy (univariable) in the subcohort of patients with no missing data (n=1,176)

Variable	OR	95% CI	P value
Age of first shave (Reference: <16 years)			
16-18	0.99	0.91–1.07	0.73
>18	0.99	0.91–1.09	0.90
Height (Reference: <175 cm)			
175-180	1.07	1.01–1.13	0.024
>180	1.10	1.04–1.15	<0.001
Age at biopsy (Reference: 50-59)			
<50	1.26	1.15–1.39	<0.001
60-69	1.51	1.38–1.65	<0.001
70+	1.69	1.51–1.89	<0.001
Race (Reference: Caucasian)			
African American	1.03	0.99–1.08	0.11
Other	1.01	0.85–1.21	0.93
PSA (Reference: 0-4 ng/ml)			
4-10	1.18	1.12–12.4	<0.001
10-20	1.43	1.33–1.54	<0.001
20+	1.56	1.42–1.73	<0.001
Free PSA (Reference: <10%)			
10-20%	1.35	1.21–1.50	<0.001
>20%	1.67	1.48–1.90	<0.001
Clinical stage (\geq T2 versus \leq T1)			
	0.87	0.83–0.92	<0.001
BMI (Reference: 18.5-24.9 kg/m ²)			
<18.5	1.22	1.01–1.46	0.033
25-29.9	1.30	1.08–1.55	0.004
30-34.9	1.46	1.21–1.74	<0.001
>35	1.44	1.19–1.72	<0.001
Family history (yes vs. no)			
	0.99	0.92–1.06	0.70

BMI, body mass index; CI, confidence interval; OR: odds ratio; PSA, prostate-specific antigen.

Table S13 Association between patient characteristics and prostate volume on ultrasound at biopsy (multivariable*) in the subcohort of patients with no missing data (n=1,176)

Age of first shave (categorical, reference: <16)	OR	95% CI	P
16-18	1.11	0.89–1.39	0.36
>18	1.13	0.86–1.47	0.37
Height (categorical, reference: <175 cm)			
175-180 cm	0.94	0.80–1.11	0.48
>180 cm	1.00	0.86–1.15	0.96

*Controlling for patient age, race, prostate specific antigen, % free prostate specific antigen, clinical stage, body mass index, family history.