

Update on Prostate Biopsy Guidelines from the EAU

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Bon Secours Hospital, Cork

Chair EAU Prostate Cancer Guidelines

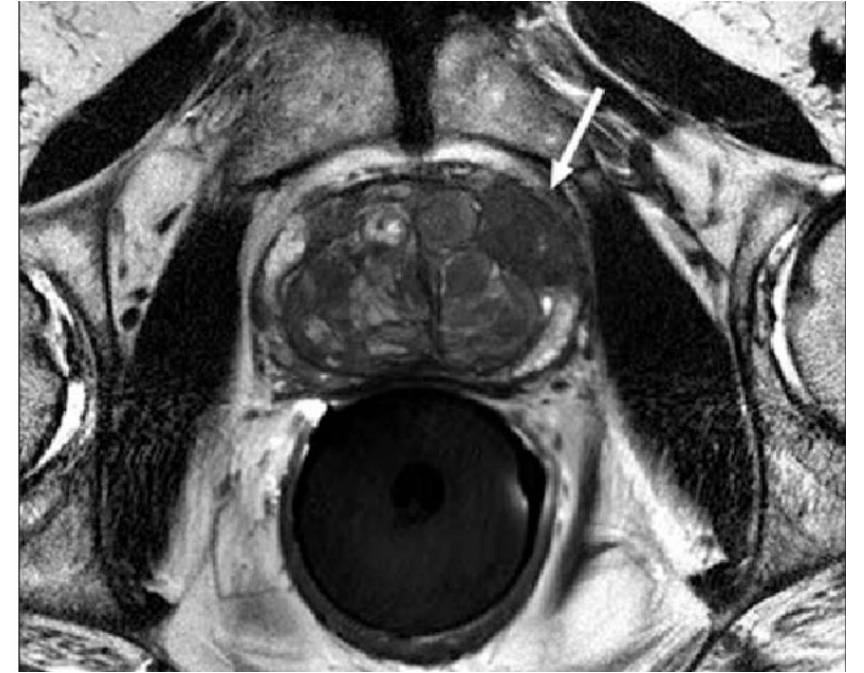
Chair UroEvidence Hub



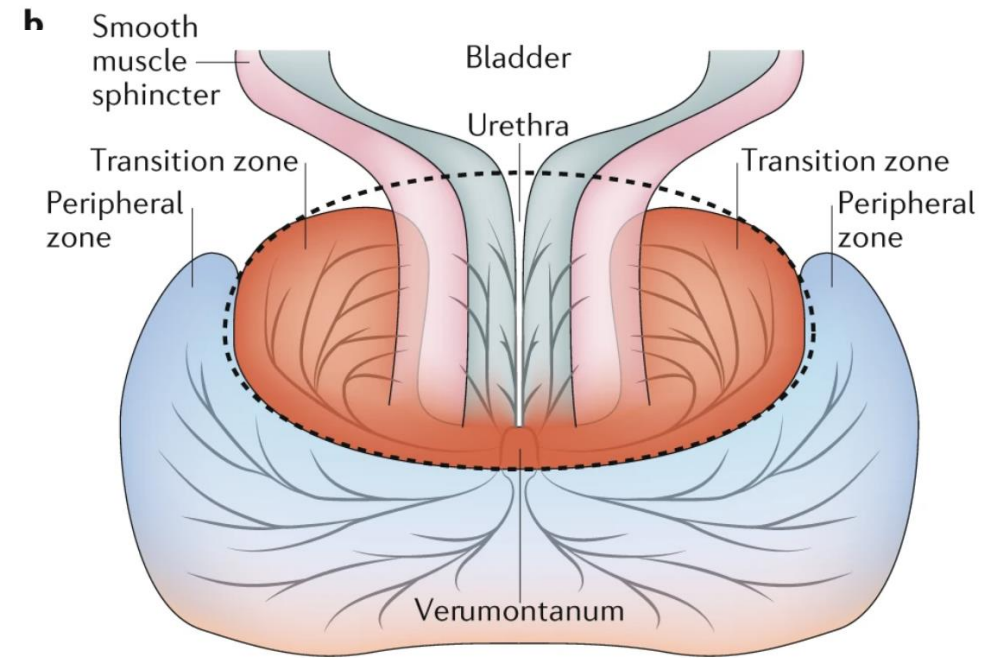
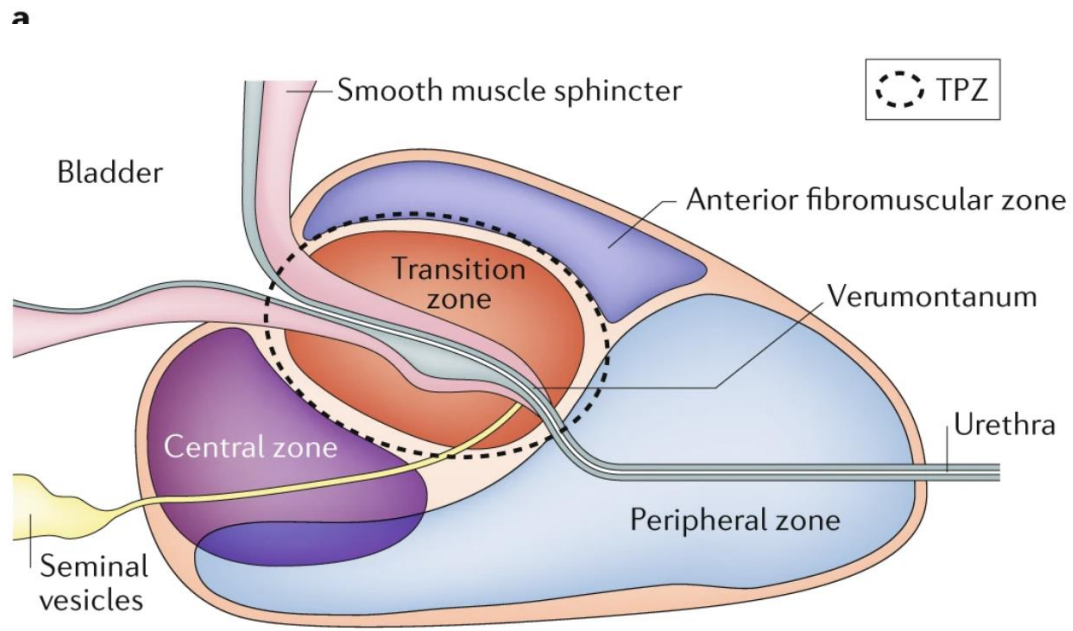
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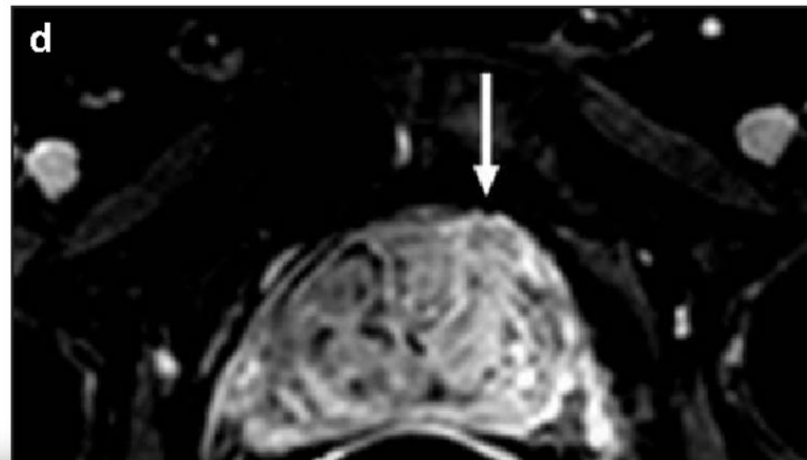
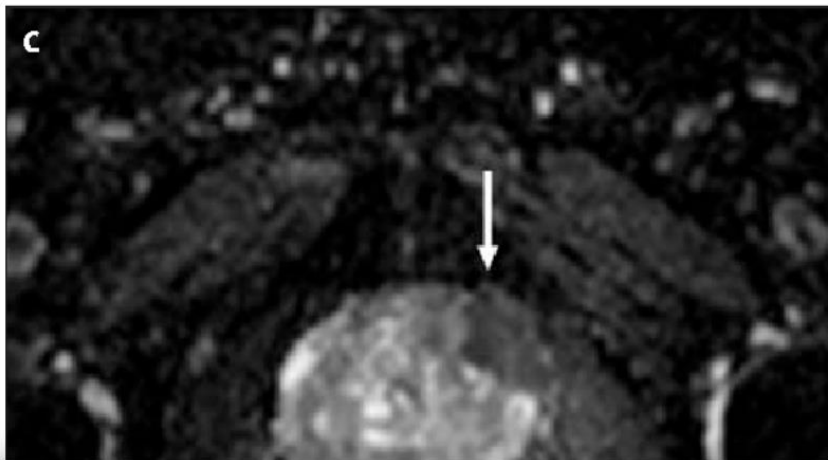
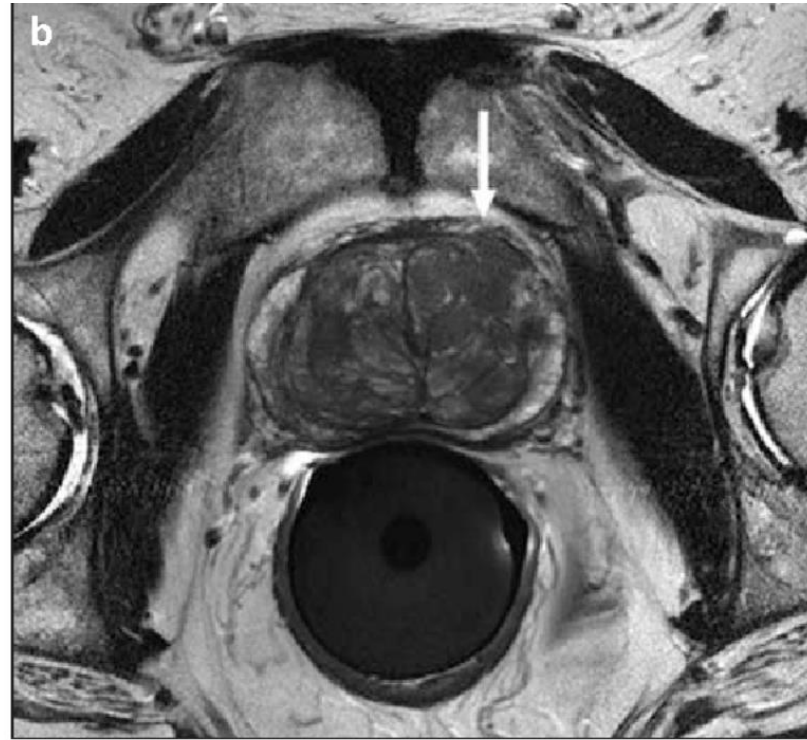
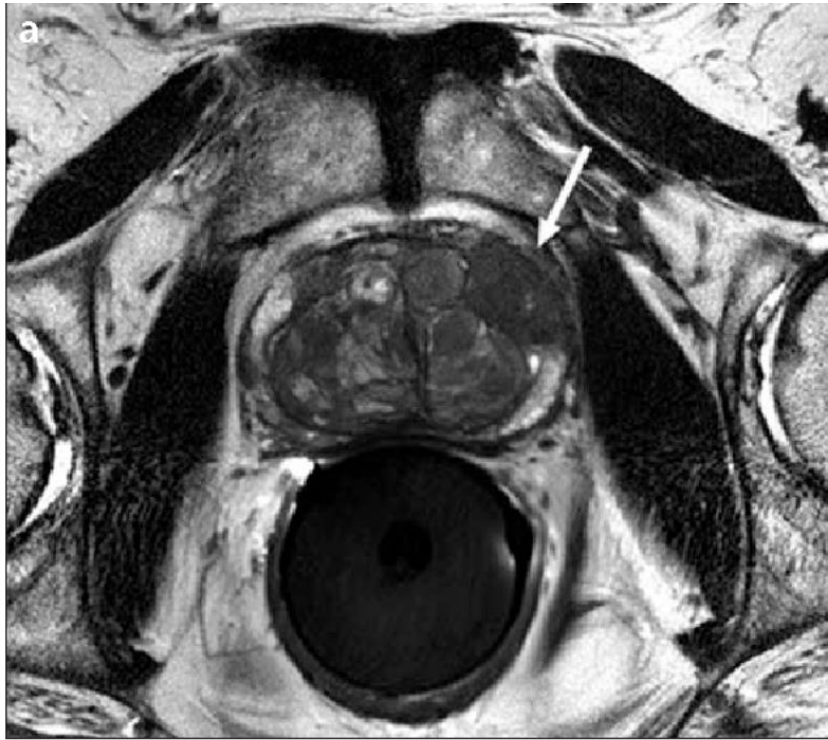
What we will cover

- Who needs a biopsy
- How to biopsy -Trans-rectal vs Transperineal
- What to biopsy-Is there and value of systematic biopsy

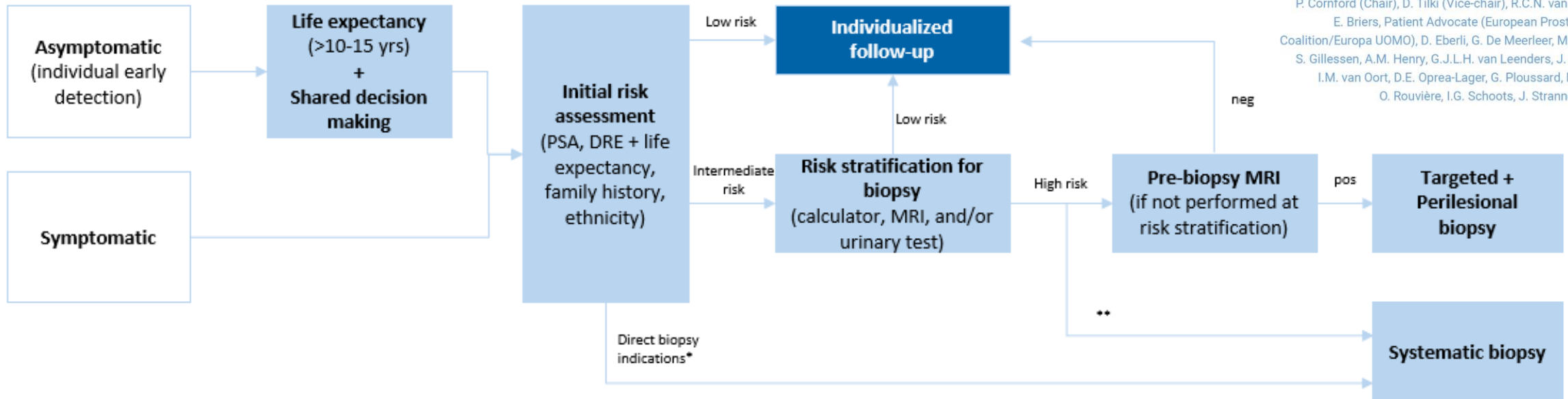


Prostate Anatomy





Who needs a prostate biopsy



P. Cornford (Chair), D. Tilki (Vice-chair), R.C.N. van den Bergh, E. Briers, Patient Advocate (European Prostate Cancer Coalition/Europa UOMO), D. Eberli, G. De Meerleer, M. De Santis, S. Gilllessen, A.M. Henry, G.J.L.H. van Leenders, J. Oldenburg, I.M. van Oort, D.E. Oprea-Lager, G. Ploussard, M. Roberts, O. Rouvière, I.G. Schoots, J. Stranne, T. Wiegel

Recommendations

In asymptomatic men with a prostate-specific antigen (PSA) level between 3 and 10 ng/mL and a normal digital rectal examination (DRE), repeat the PSA test prior to further investigations.

In asymptomatic men with a PSA level between 3 and 20 ng/mL and a normal DRE, use one of the following tools for biopsy indication:

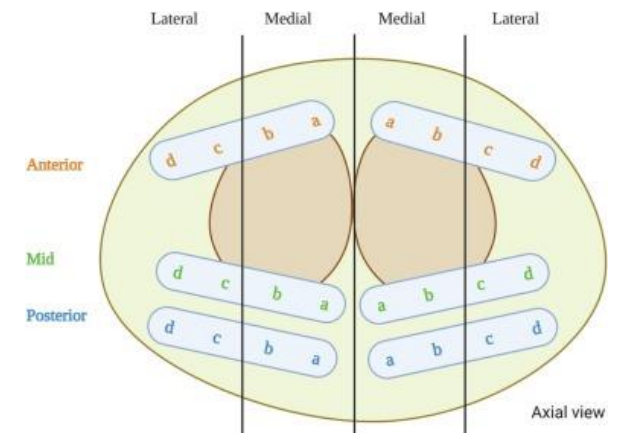
- risk-calculator, provided it is correctly calibrated to the population prevalence;
- magnetic resonance imaging of the prostate.
- an additional serum, urine biomarker test

Strength rating

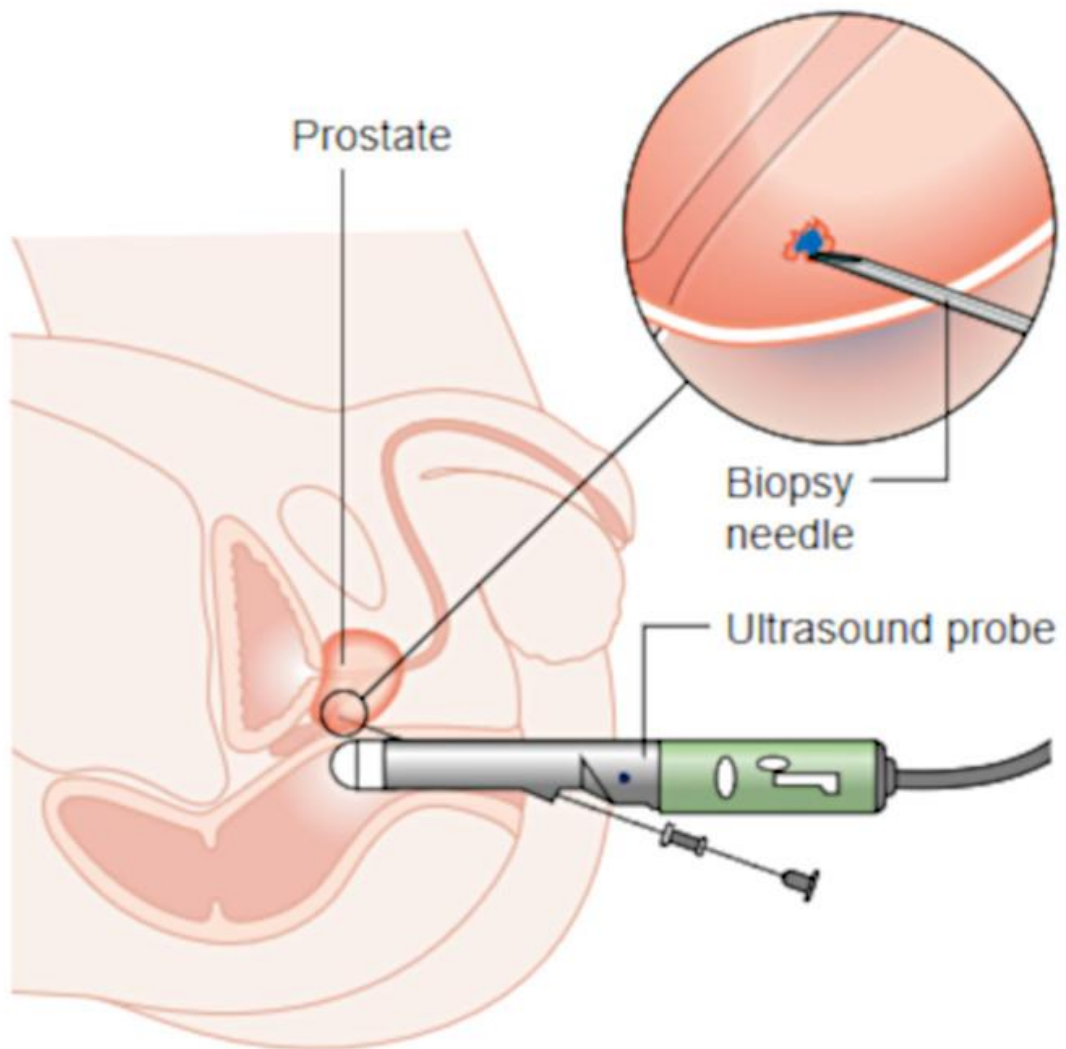
Weak

Strong

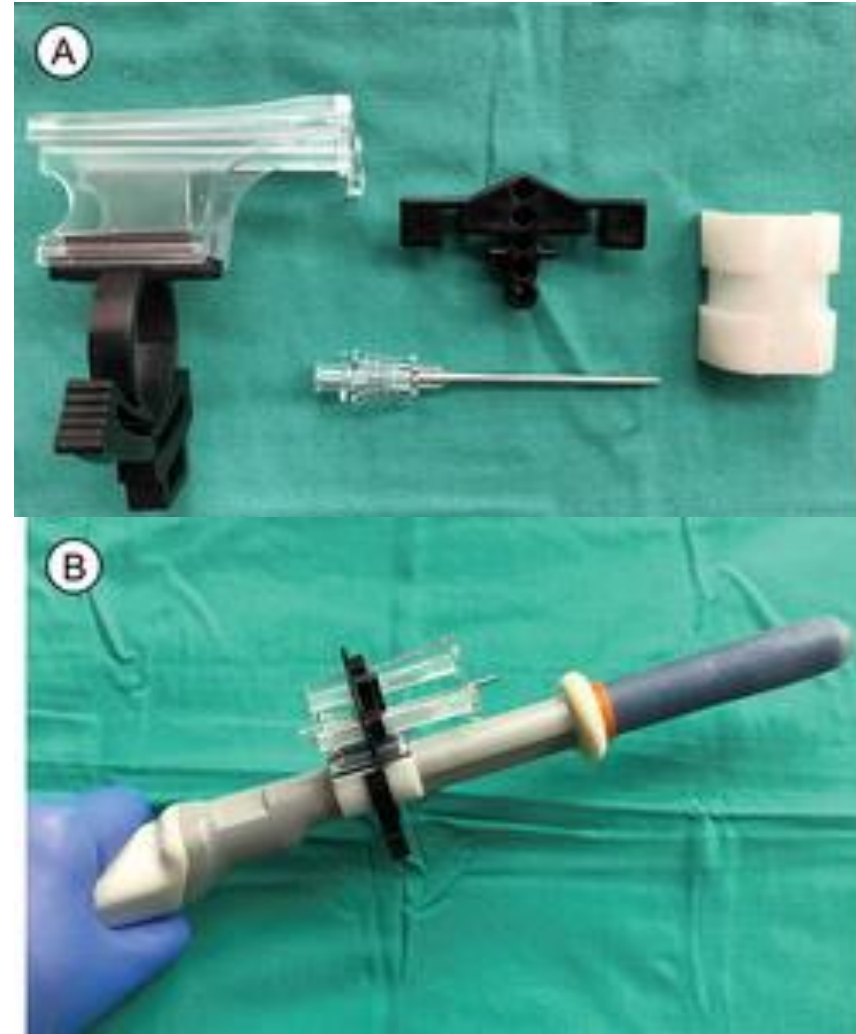
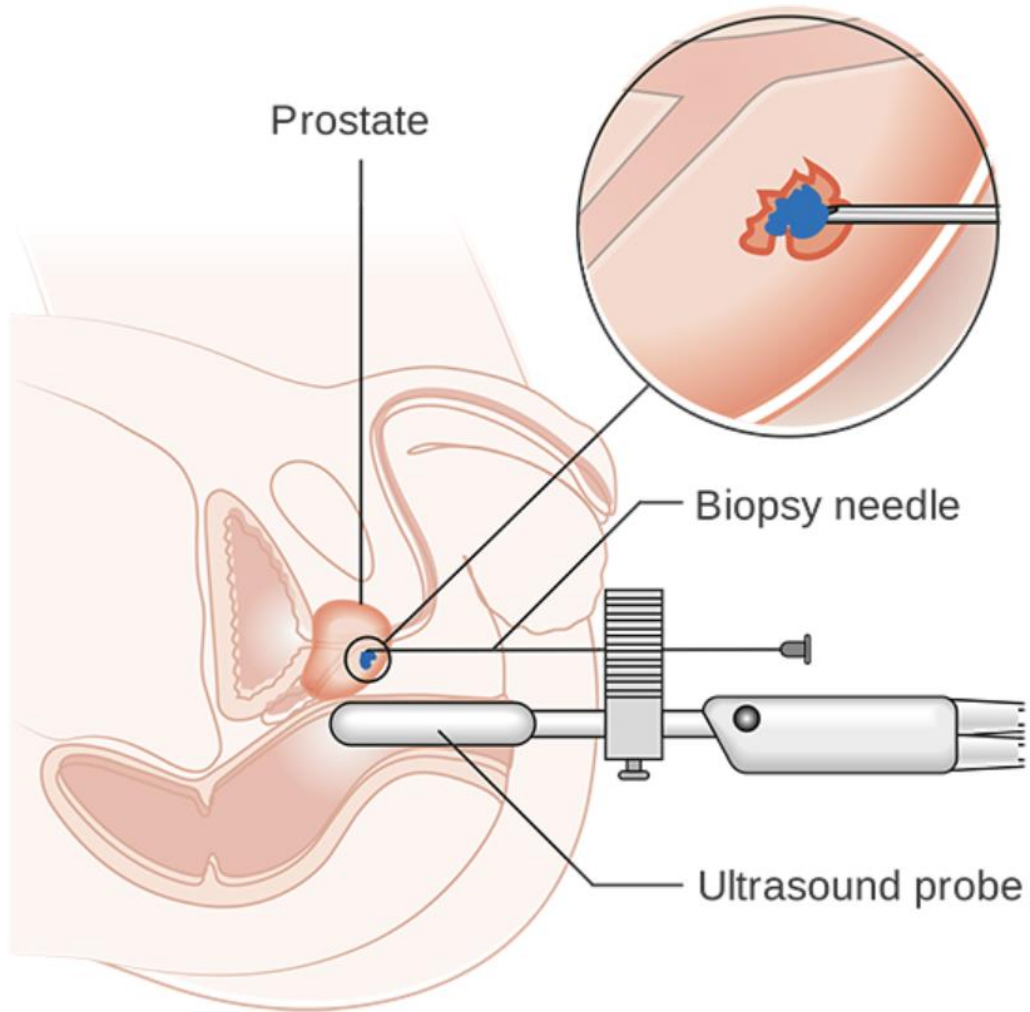
Weak

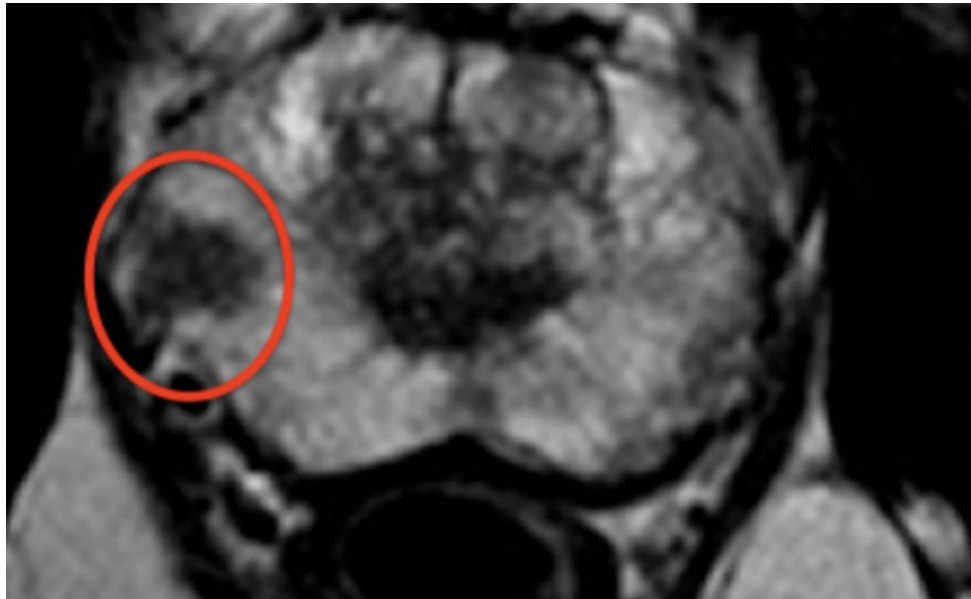


Transrectal

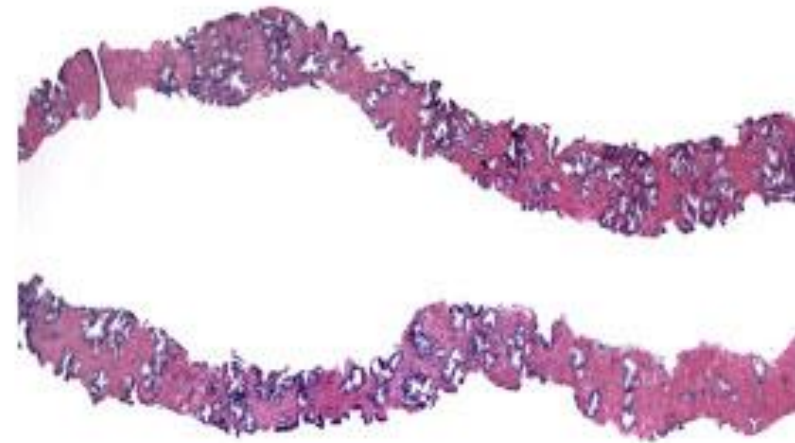
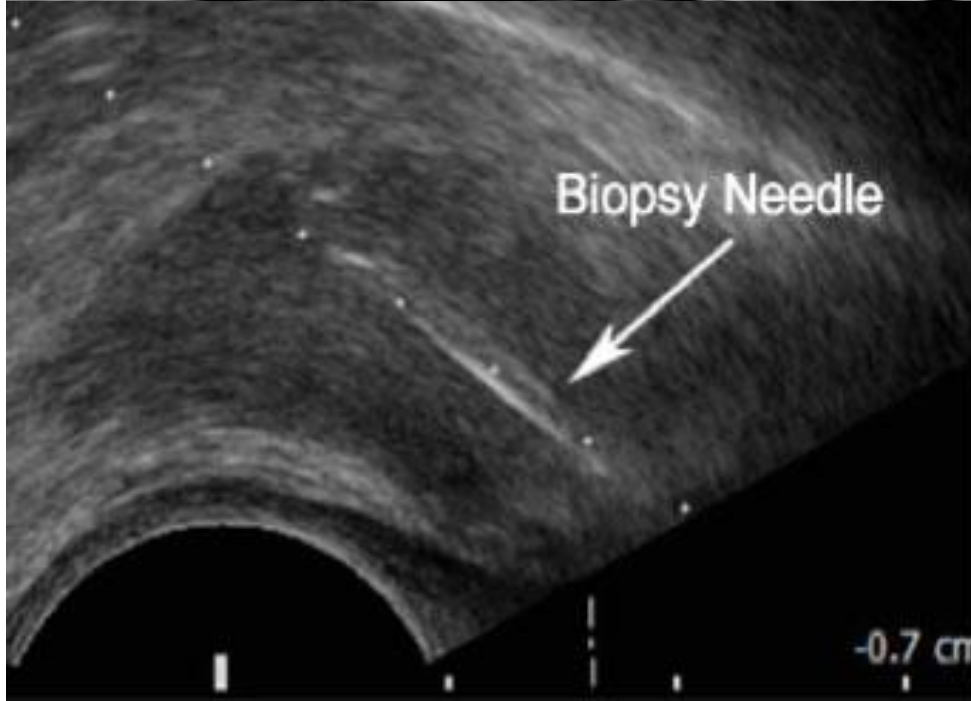


LA Transperineal





MRI results in targeted biopsy



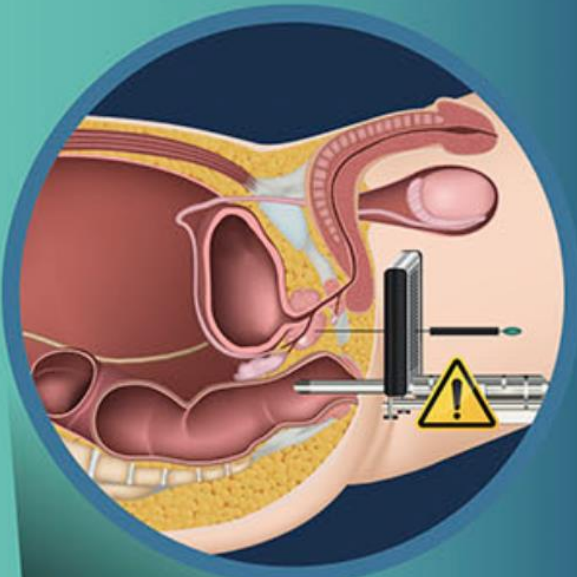
EAU - EANM - ESTRO - ESUR - ISUP - SIOG Guidelines on Prostate Cancer

P. Cornford (Chair), D. Tilki (Vice-chair), R.C.N. van den Bergh, E. Briers, Patient Advocate (European Prostate Cancer Coalition/Europa UOMO), D. Eberli, G. De Meerleer, M. De Santis, S. Gillessen, A.M. Henry, G.J.L.H. van Leenders, J. Oldenburg, I.M. van Oort, D.E. Oprea-Lager, G. Ploussard, M. Roberts, O. Rouvière, I.G. Schoots, J. Stranne, T. Wiegel

Recommendations	Strength rating*
Perform prostate biopsy using the transperineal approach due to the lower risk of infectious complications.	Strong
Use routine surgical disinfection of the perineal skin for transperineal biopsy.	Strong
Use rectal cleansing with povidone-iodine prior to transrectal prostate biopsy.	Strong
Use either target prophylaxis based on rectal swab or stool culture; or augmented prophylaxis (two or more different classes of antibiotics); for transrectal biopsy.	Weak
Ensure that prostate core biopsies from different sites are submitted separately for processing and pathology reporting.	Strong

Comparing Safety: Transrectal vs Transperineal Prostate Biopsy

The risk of biopsy-related infections has been in the spotlight, but comparative effectiveness studies are lacking



This study compared transrectal (TR-Bx) and transperineal (TP-Bx) prostate biopsy techniques for post procedure complications

A prospective, parallel-group, randomized clinical trial to test if TP-Bx resulted in fewer infections compared to TR-Bx

763 men underwent biopsy



TP-Bx/TR-Bx groups

Primary outcome



30-day composite infectious complications

Secondary outcome



30-day composite noninfectious complications



TR-Bx, n = 351



TP-Bx, n = 367

2.6%

Infection rates

Odds ratio, 1.06, P = .99

2.7%

1.7%

Other complications

Odds ratio, 1.28, P = .79

2.2%





Sepsis events in either group: 0



Hospitalizations/other interventions: 0

TR-Bx and TP-Bx show no difference in major or minor complications and remain viable and safe approaches

Transperineal Versus Transrectal Magnetic Resonance Imaging–targeted and Systematic Prostate Biopsy to Prevent Infectious Complications: The PREVENT Randomized Trial

Jim C. Hu   • Melissa Assel • Mohamad E. Allaf • ... Michael A. Gorin • Anthony J. Schaeffer • Edward M. Schaeffer • [Show all authors](#)

Published: January 11, 2024 • DOI: <https://doi.org/10.1016/j.eururo.2023.12.015>

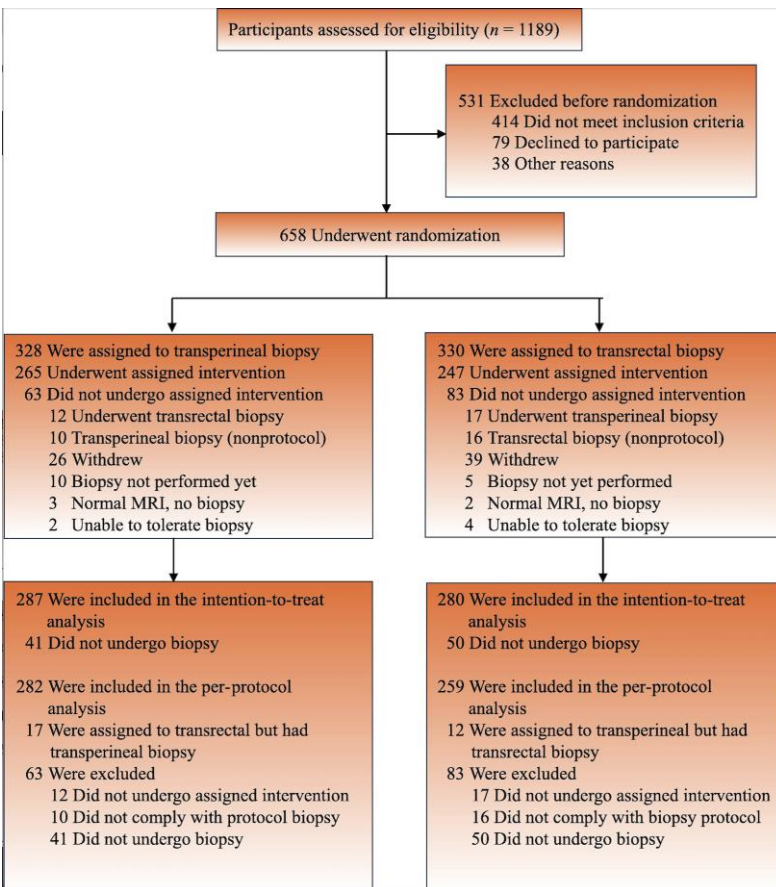


Table 2 Adverse events by randomization arm where differences are calculated as the difference in the transrectal arm subtracted from the transperineal arm

Characteristic	Transperineal (N = 287), n (%)	Transrectal (N = 280), n (%)	Difference (%)	95% Confidence interval (%)	p value
Infection	0 (0)	4 (1.4)	-1.4	-3.6, 0.2	0.059
Urinary retention	1 (0.3)	3 (1.1)	-0.7	-2.8, 1.0	
Bleeding requiring intervention	0 (0)	1 (0.4)	-0.4	-2.0, 1.0	
Gleason grade group 2–5	151 (53)	141 (50)	2.0	-6.0, 10	
Gleason grade group 1	49 (17)	62 (22)	-5.1	-12, 1.7	

CI = confidence interval.

Values are presented as n (%); differences along with Newcombe hybrid score 95% confidence intervals and p values were calculated using Fisher's exact test for the primary outcome of infection. For cancer detection outcomes, Gleason grade group differences adjusted for site along with 95% confidence intervals were calculated using the logistic regression least-squares adjusted mean difference (95% CI).

(Severe) Biopsy pain at the time of the procedure 33(12%) vs 19(7%) (95%CI -0.1-10%)

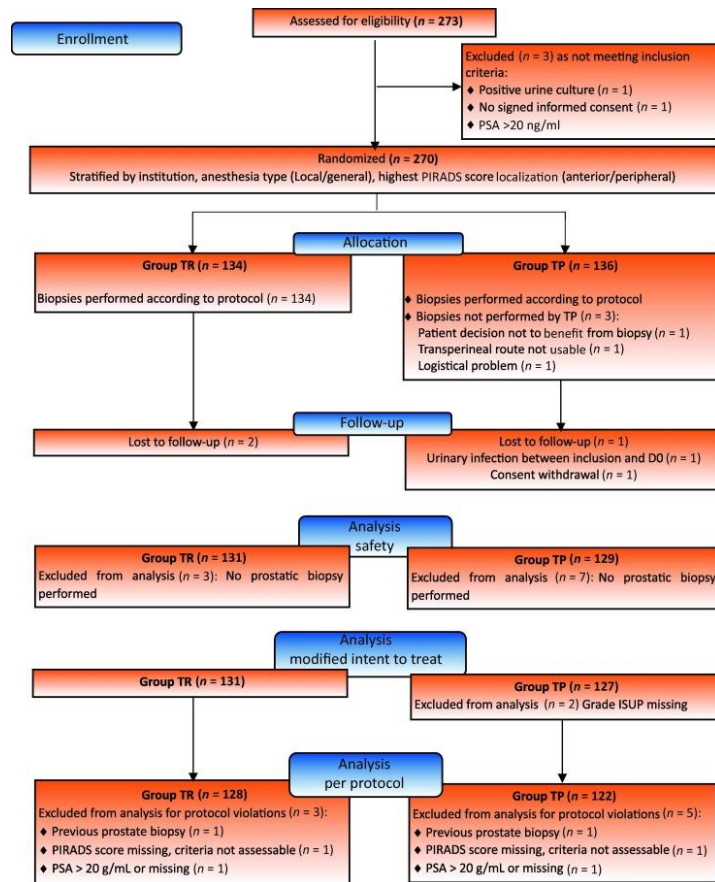
No episode of sepsis

-targeted prophylaxis vs no antibiotics

(23% Fluroquinolone resistance @ NYP-WCM)

Transperineal Versus Transrectal Magnetic Resonance Imaging-targeted Biopsies for Prostate Cancer Diagnosis: Final Results of the Randomized PERFECT trial (CCAFU-PR1)

Guillaume Ploussard^{a,*}, Eric Barret^b, Gaëlle Fiard^c, Louis Lenfant^d, Bernard Malavaud^e, Gianluca Giannarini^f, Christophe Almeras^g, Richard Aziza^e, Raphaële Renard-Penna^d, Jean-Luc Descotes^h, François Rozet^b, Jean-Baptiste Beauvalⁱ, Ambroise Salin^a, Morgan Rouprêt^d



	TP (n=122)	TR (n=128)	Difference	P value
ISUP 2+ in targeted Bx	59 (48.4%)	70 (54.7%)	-6.3%	0.58
Anterior tumours	12/27 (44.4%)	9/30 (30%)		0.26
Posterior tumours	47/95 (49.5%)	61/98 (62.2%)		0.07
ISUP 3+ in targeted Bx	32/122 (26.2%)	30/128 (23.4%)		0.61

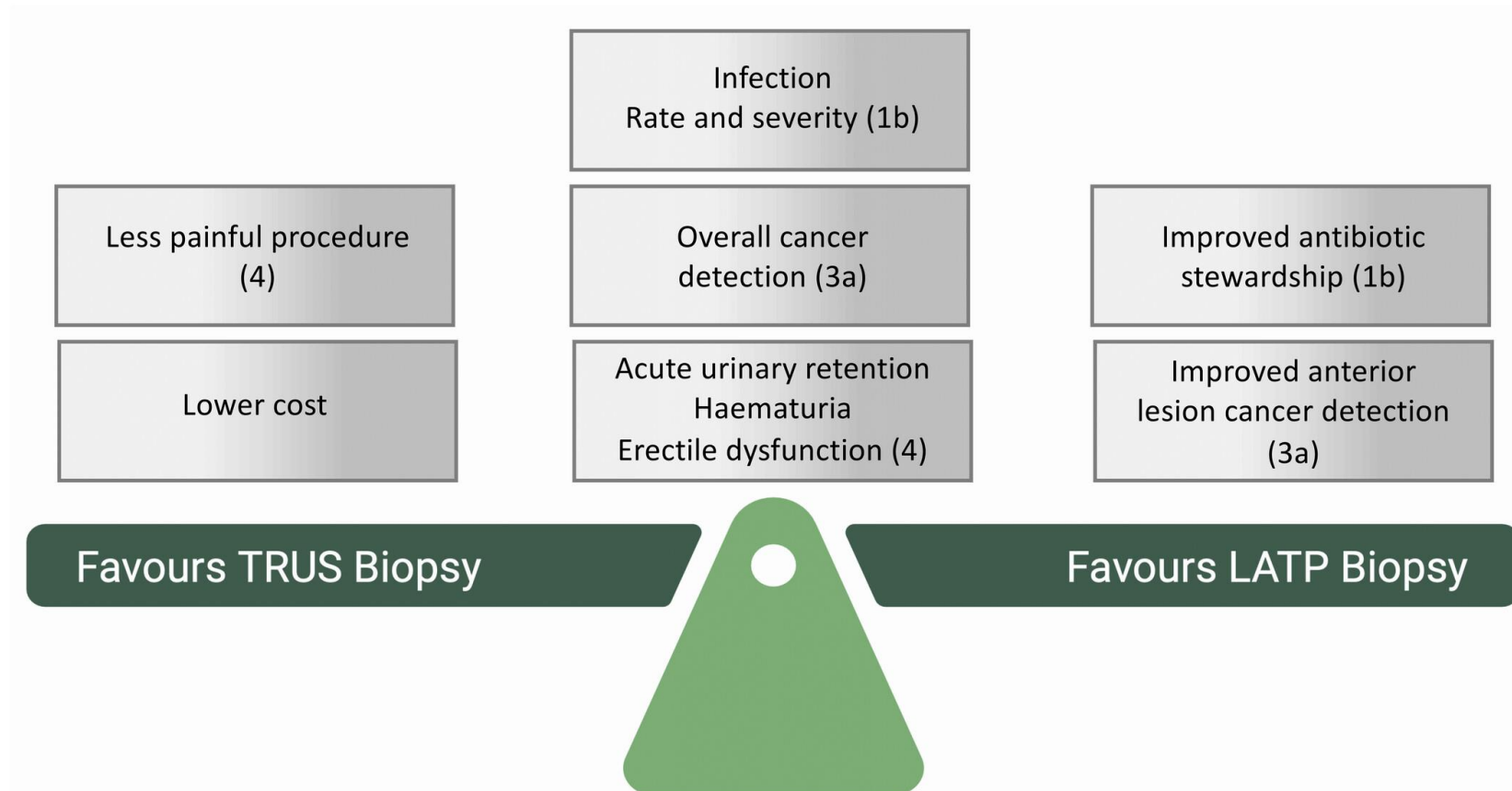
SOC	PT	Intensity	TP N=129		TR N=131		Total N=260	
			No. events	No. (%) patients	No. events	No. (%) patients	No. events	No. (%) patients
Infections and infestations	Urinary tract infection	Grade 2	3	3 (2.3%)	2	2 (1.5%)	5	5 (1.9%)
	Sepsis	Grade 3	-	-	1	1 (0.8%)	1	1 (0.4%)

<https://doi.org/10.1016/j.euo.2024.01.019>

Perspectives on technology – prostate cancer: is local anaesthetic transperineal prostate biopsy really better than transrectal biopsy?

Christopher Berridge, Altan Omer, Francisco Lopez, Richard J. Bryant ✉, Alastair D. Lamb ✉

First published: 08 April 2024 | <https://doi.org/10.1111/bju.16349>



EAU - EANM - ESTRO - ESUR - ISUP - SIOG Guidelines on Prostate Cancer

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Recommendations	Strength rating
Adhere to PI-RADS guidelines for MRI acquisition and interpretation and evaluate MRI results in multidisciplinary meetings with pathological feedback.	Strong
Where MRI has shown a suspicious lesion, MR-targeted biopsy can be obtained through cognitive guidance, US/MR fusion software or direct in-bore guidance.	Weak
Perform MRI before prostate biopsy in men with suspected organ confined disease.	Strong
In men with suspicion of locally advanced disease on digital rectal examination (DRE) and/or prostate-specific antigen (PSA)>50 ng/mL, or those not for curative treatments, consider limited biopsy without MRI.	Weak
When MRI is positive (i.e. PI-RADS \geq 4), combine targeted biopsy with perilesional sampling.	Weak
When MRI is negative (i.e., PI-RADS \leq 2), and clinical suspicion of PCa is low (PSA density < 0.20 ng/mL/cc, negative DRE findings, no family history), omit biopsy and offer PSA monitoring; otherwise consider systematic biopsy.	Weak
When MRI is indeterminate (PI-RADS = 3), and clinical suspicion of PCa is very low (PSA density < 0.10 ng/mL/cc, negative DRE findings, no family history), omit biopsy and offer PSA monitoring; otherwise consider targeted biopsy with perilesional sampling.	Weak
If MRI is not available, use a risk calculator and systematic biopsies if indicated.	Strong
When performing systematic biopsy only, at least 12 cores are recommended.	Strong

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When performing systematic biopsy only, at least 12 cores are recommended.	Strong

Absolute added values of targeted and systematic biopsies for ISUP 2+ and 3+ cancer detection

		ISUP grade group ≥ 2			ISUP grade group ≥ 3		
ISUP grade		Cochrane meta-analysis [1]	MRI-FIRST trial [2]	4M trial [3]	Cochrane meta-analysis [1]	MRI-FIRST trial [2]	4M trial [3]
Biopsy naive	Added value of MRI-TBx	6.3% (4.8–8.2)	7.6% (4.6–11.6)	7.0% (ND)	4.7% (3.5–6.3)	6.0% (3.4–9.7)	3.2% (ND)
	Added value of systematic biopsy	4.3% (2.6–6.9)	5.2% (2.8–8.7)	5.0% (ND)	2.8% (1.7–4.8)	1.2% (0.2–3.5)	4.1% (ND)
	Overall prevalence	27.7% (23.7–32.6)	37.5% (31.4–43.8)	30% (ND)	15.5% (12.6–19.5)	21.1% (16.2–26.7)	15% (ND)
Prior negative biopsy	Added value of MRI-TBx	9.6% (7.7–11.8)	-	-	6.3% (5.2–7.7)	-	-
	Added value of systematic biopsy	2.3% (1.2–4.5)	-	-	1.1% (0.5–2.6)	-	-
	Overall prevalence	22.8% (20.0–26.2)	-	-	12.6% (10.5–15.6)	-	-

[1] Drost FH et al Cochrane Database Syst Rev 2019; 4: CD012663 [2] Rouviere O et al Lancet Oncol 2019; 20: 100-9. [3] van der Leest M et al Eur Urol 2019; 75: 570-8.

Detection rates of ISUP grade group 1

Study	Targeted biopsy	Systematic biopsy	p-value
PRECISION [1]	9%	22%	<0.001
PRECISE [2]	10.1	21.7	<0.001
MRI-FIRST [3]*	5.6%	19.5%	<0.0001
4M [4]	14%	24.7%	<0.0001
Cochrane meta-analysis [5]	13.5%	22.4%	<0.01

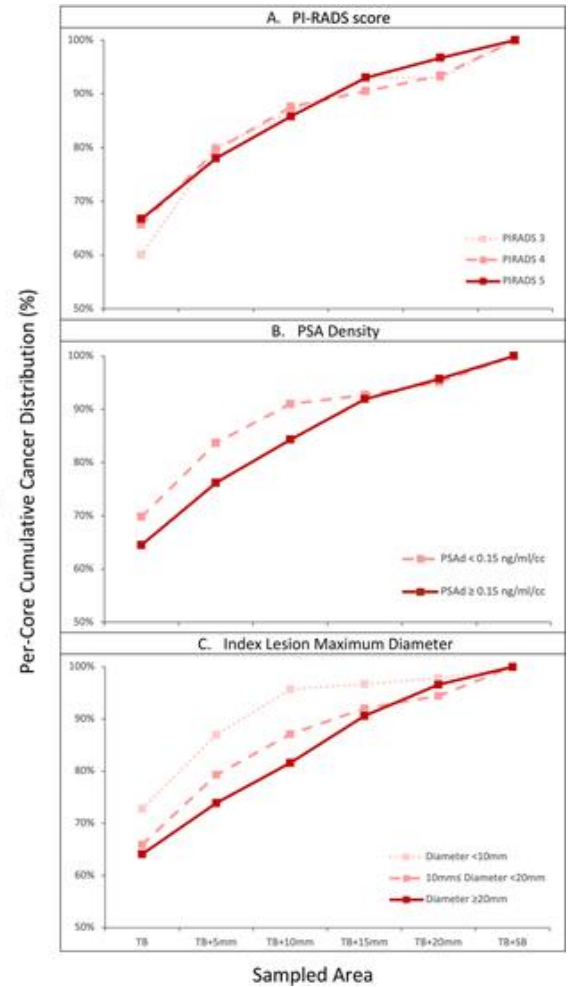
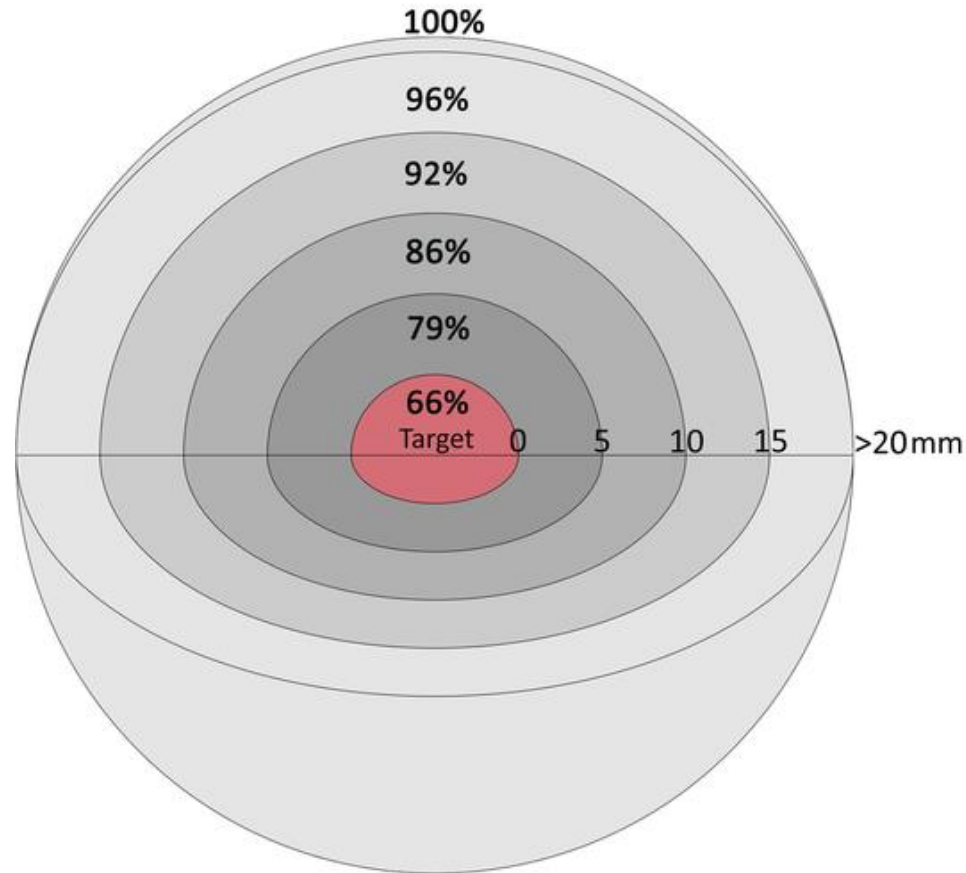
[1] Kasivisvanathan V et al NEJM 2018; 2018:1767-77. [2] Klotz L et al. JAMA Oncol 2021; 7(4):534-42. [3] Rouviere O et al Lancet Oncol 2019; 20: 100-9. [4] van der Leest M et al Eur Urol 2019; 75: 570-8. [5] Drost FH et al Cochrane Database Syst Rev 2019; 4: CD012663

Detection rates for ISUP grade group 2+

	Type of study	N	Targeted biopsy with perilesional sampling versus Combined systematic and targeted biopsy		Targeted biopsy with perilesional sampling versus Targeted biopsy	
			Ratio of detection rates	Median number of cores	Ratio of detection rates	Median number of cores
Hagens MJ [1]	Meta-analysis	2603	0.95 (0.90 – 1.01), p=0.09	9.5 [7.5-12.3] vs. 16.5 [15.3 – 12.3]	1.18 (1.1 – 1.25), p<0.001	9.5 [7.5 – 12.3] vs. 3.5 [3 – 4]
Hagens MJ [2]	Retrospective, single centre	235	0.968 (0.91 – 0.993)	7 [6 – 9] vs. 12 [10 – 15]	-	-
Hsieh PF, J 18:127 [3]	Prospective, single centre	100	1	15 [12.8 – 18] vs. 26 [23 – 28]	1.20, p=0.008	15 [12.8 – 18] vs. 6 [4 – 7]

Added value from perilesional biopsy

Noujeim J-P et al Prostate Cancer and Prostatic disease 2022; 26(3) doi; 10.1038/s41391-022-00620-8

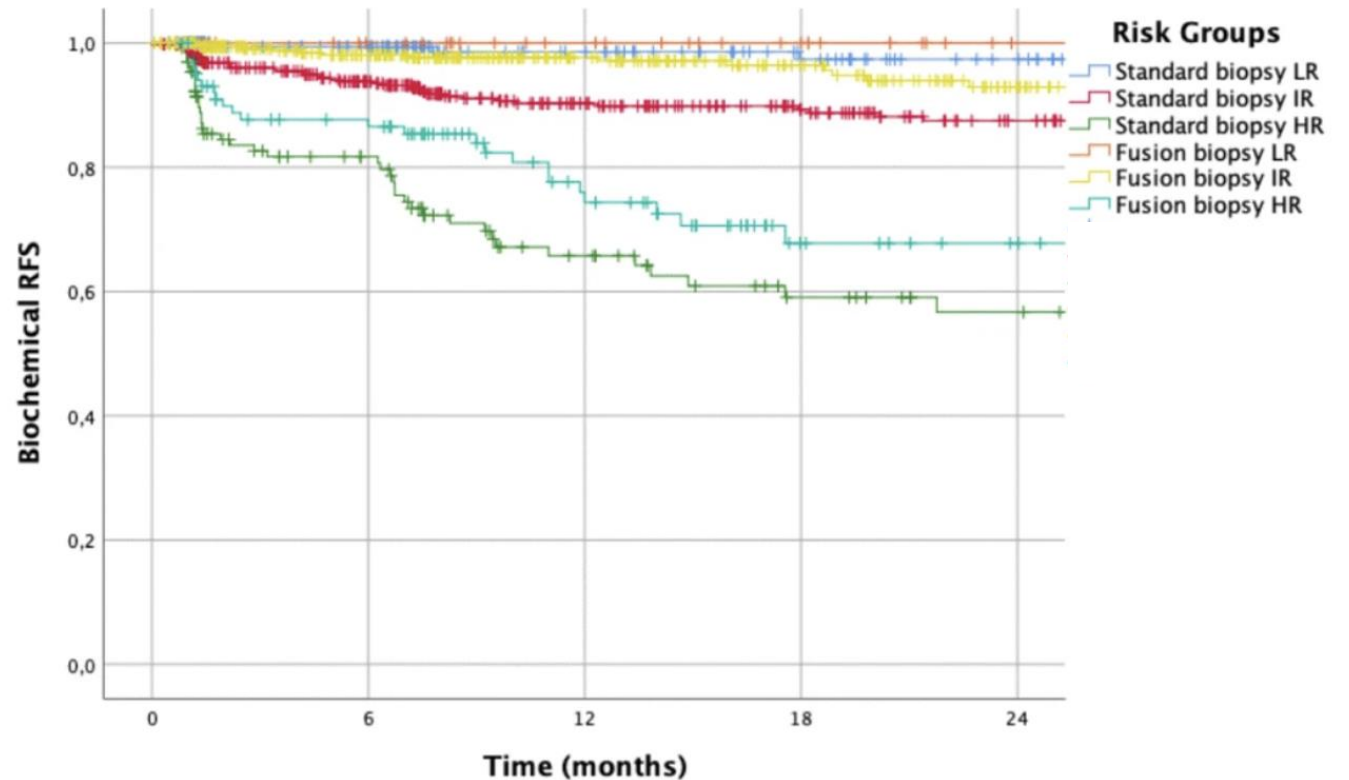


MRI and targeted biopsy improved outcome

1345 patients consecutively undergoing RP

61% of low-risk Pca cases defined by standard Bx were reclassified as intermediate risk by adding MRI-TB

Across all risk groups patient's risk of Biochemical recurrence was lower after MRI_TB



Conclusions

- Do they really need a biopsy?
- Transrectal biopsy needs targeted antibiotic prophylaxis whilst
Transperineal biopsy doesn't need and antibiotics
- Don't take more cores than you have too