

FTC Clinic

Biopsy Performance Review

881 patients | MRI-Ultrasound Fusion Targeted Biopsy | Complete Histology

881

Patients

2,235

Targeted Lesions

4

Consultant Surgeons

March 2026

Dataset Overview

881 patients with complete histology from MRI-ultrasound fusion targeted biopsy

Patient Demographics

Category	N	%
Biopsy Naïve	530	60.2%
Prior Biopsy	205	23.3%
Prior Treatment	146	16.6%
Total	881	100%

Procedure Summary

Total targeted lesions biopsied	2,235
Average lesions per patient	2.5

Surgeon Volume

Surgeon	N
Alan Doherty	330
Marc Laniado	268
Tim Dudderidge	157
Raj Nigam	120

Overall Detection Rates

881 patients — all with complete histology

81.3%

716/881

Any Cancer

71.6%

631/881

GG2+ Detection

74.7%

658/881

GG2+ & 3+3>3mm

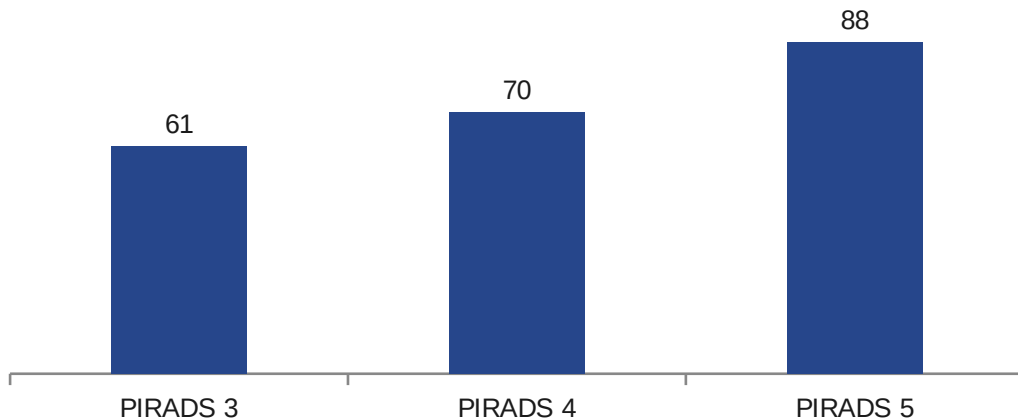
GG2+ = Gleason Grade Group 2 or above (3+4=7 and higher)

GG2+ & 3+3>3mm = GG2+ plus any 3+3=6 with maximum cancer core length >3mm (may warrant clinical attention)

Detection by PIRADS Score — Per-Patient

Maximum PIRADS score across all targeted lesions per patient

Max PIRADS	N	Any Cancer	Cancer %	GG2+	GG2+ %	GG2+&3+3> 3mm	Broad %
PIRADS 3	218	159	72.9%	132	60.6%	136	62.4%
PIRADS 4	426	341	80.0%	297	69.7%	315	73.9%
PIRADS 5	233	208	89.3%	187	80.2%	202	90.6%



Clear PIRADS dose-response

Progressive increase in GG2+ detection from PIRADS 3 → 4 → 5 validates the scoring system.

Even PIRADS 3 shows 60.6% GG2+ — above many published benchmarks.

Detection by PIRADS Score — Per-Lesion

2,235 total targeted lesions biopsied

PIRADS	Lesions	Cancer	Cancer %	GG2+	GG2+ %
PIRADS 3	1,242	539	43.4%	409	32.9%
PIRADS 4	668	442	66.2%	350	52.4%
PIRADS 5	263	230	87.5%	212	80.6%

Why per-lesion rates are lower than per-patient

A patient may have cancer in one lesion but not another. Per-lesion rates measure the diagnostic accuracy of each individual target.

Per-patient = clinical decision-making | **Per-lesion** = diagnostic accuracy

GG2+ Detection by Biopsy History

Stratified by prior biopsy/treatment status and maximum PIRADS

GG2+ Rate	PIRADS 3	PIRADS 4	PIRADS 5
Biopsy Naïve (n=530)	48.6% (53/109)	63.4% (163/257)	86.9% (139/160)
Prior Biopsy (n=205)	72.9% (43/59)	70.9% (73/103)	95.1% (39/41)
Prior Treatment (n=146)	72.0% (36/50)	92.4% (61/66)	86.4% (19/22)
FTC Overall	60.6% (132/218)	69.7% (297/426)	88.3% (197/223)

Interpretation

Prior biopsy and prior treatment patients show higher detection rates — this is **expected selection bias**, as they are a pre-selected population with known risk.

Key message: FTC achieves excellent detection across all subgroups.

PSA Density Impact — PIRADS 3 Patients

209 PIRADS 3 patients with PSA density data available

PSA Density	N	Cancer	Cancer %	GG2+	GG2+ %
< 0.15 ng/mL/cc	105	64	61.0%	48	45.7%
≥ 0.15 ng/mL/cc	104	88	84.6%	79	76.0%
Difference			+23.6pp		+30.3pp

Clinically Actionable Finding

PSA density ≥ 0.15 nearly **DOUBLES** GG2+ detection in PIRADS 3 patients

(45.7% → 76.0%, +30.3 percentage points)

A PIRADS 3 with high PSA density behaves more like a PIRADS 4.
This supports using PSA density to guide selective systematic biopsy decisions.

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Safety Net Cascade — Layered Detection

How each safety net layer adds to the previous — cumulative effect on GG2+ detection

Detection Layer	Any Cancer	Rate	GG2+	Rate	Additional Found
1. Original MRI report only	644 / 881	73.1%	571 / 881	64.8%	—
2. + Clare & Francesco contouring	686 / 881	77.9%	605 / 881	68.7%	+42 rescued, +34 GG2+
3. + Non-targeted systematic biopsies	716 / 881	81.3%	631 / 881	71.6%	+31 rescued, +26 GG2+
Total lift from safety nets	+72 patients	+8.2pp	+60 patients	+6.8pp	

Contouring delivers 58% of the total safety net lift (42/72 cancer rescues, 34/60 GG2+ finds)

Head-to-Head: Contouring vs NT Biopsies

Metric	Contouring	NT Biopsy
Patients rescued (false-neg → positive)	42	31
Total csPCa impact (GG2+ change)	141	48

Contouring has 3× the csPCa impact

Non-Targeted Biopsy — What NT Finds

Detailed Gleason breakdown of the 63 patients with material NT impact

Rescued Patients (31) — Gleason Detail

Gleason Grade	N	%	Significant?
3+3=6 (GG1)	15	48.4%	No — low grade
3+4=7 (GG2)	10	32.3%	YES
4+3=7 (GG3)	3	9.7%	YES
4+4=8 (GG4)	3	9.7%	YES — high grade
Total GG2+ rescued	16	51.6%	1.8% of cohort

Upgraded Patients (32) — ALL GG2+

Gleason Grade	N	%	Max Core
3+4=7 (GG2)	10	31.3%	10mm
4+3=7 (GG3)	12	37.5%	13mm
4+4=8 (GG4)	10	31.3%	12.5mm
ALL upgraded are GG2+	32	100%	69% GG3+

Clinical Interpretation

Total NT material impact: 63 patients (7.2%). 16 rescued with GG2+ (1.8% of cohort) including 6 with GG3+. 32 upgraded (all GG2+, 69% GG3+) with substantial tumour burden.

The upgraded group is particularly compelling — 22 of 32 are GG3 or GG4 with cores up to 13mm.

NT value varies dramatically by clinician (1.7%-16.6%) — a one-size-fits-all policy is suboptimal.

Summary & Key Takeaways

- 1 81.3% cancer detection, 71.6% GG2+ detection across 881 patients
- 2 Three-layer safety net: MRI (64.8%) → +Contouring (68.7%) → +NT (71.6%) — total +6.8pp lift
- 3 Contouring delivers 58% of the safety net lift and 3× the csPCa impact of NT biopsies
- 4 PSA density is a powerful discriminator in PIRADS 3 patients (+30.3pp GG2+ detection)
- 5 NT value varies dramatically by clinician (1.7%–16.6%) — one-size-fits-all policy is suboptimal
- 6 Clear PIRADS dose-response validates the scoring system across all subgroups

Appendix: Metric Definitions

Term	Definition
GG2+	Gleason Grade Group 2 or above (3+4=7, 4+3=7, 3+5=8, 4+4=8, 4+5=9, 5+4=9, 5+5=10)
GG2+ & 3+3>3mm	GG2+ PLUS any 3+3=6 with maximum cancer core length >3mm
PIRADS	Prostate Imaging-Reporting and Data System (1-5, higher = more suspicious)
PSA Density	PSA (ng/mL) ÷ prostate volume (mL). Threshold: <0.15 vs ≥0.15 ng/mL/cc
Additional Lesion	Lesion identified by Clare/Francesco during contouring, NOT in original report
Upgraded Lesion	Lesion where Clare/Francesco raised the PIRADS score above the original report
Non-Targeted Biopsy	Systematic biopsy of areas without a specific MRI-identified lesion
Rescued	Patient whose ONLY cancer was found in additional/non-targeted lesion