Prostate Biopsies per Lesion: The Real World Stockholm

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Introduction & Objectives

The Swedish prostate cancer care guideline (Prostatacancer: Nationellt vårdprogram, version 7.0) recommends that at least 3 biopsy cores should target MRI-suspected cancerous areas (limited level of evidence). When lesions are small or technically difficult to access, 4 cores are advised. This study examines how the number of targeted biopsy cores per lesion relates to the risk of missing clinically significant cancer.

Materials & Methods

Data from 2024–25 were collected across the Stockholm and Västmanland regions, and the structured and standardised data was provided by a digital pathology provider with a diagnostic concordance of 97% (Lindh & Ingvar, Urologiveckan 2025):

Biopsies/lesion	**Lesions**
2	196
3	662
4	2017
5	335
Total	3210

Lesions with 6 biopsies were excluded due to the few cases (20 lesions).

In the study, we focus on PI-RADS 5 lesions due to the highest likelihood of cancer:

- The proportions of benign + ISUP 1 results were compared across groups using chi-square tests.
- Longest tumour length was assessed for ISUP > 2 cases.

Results

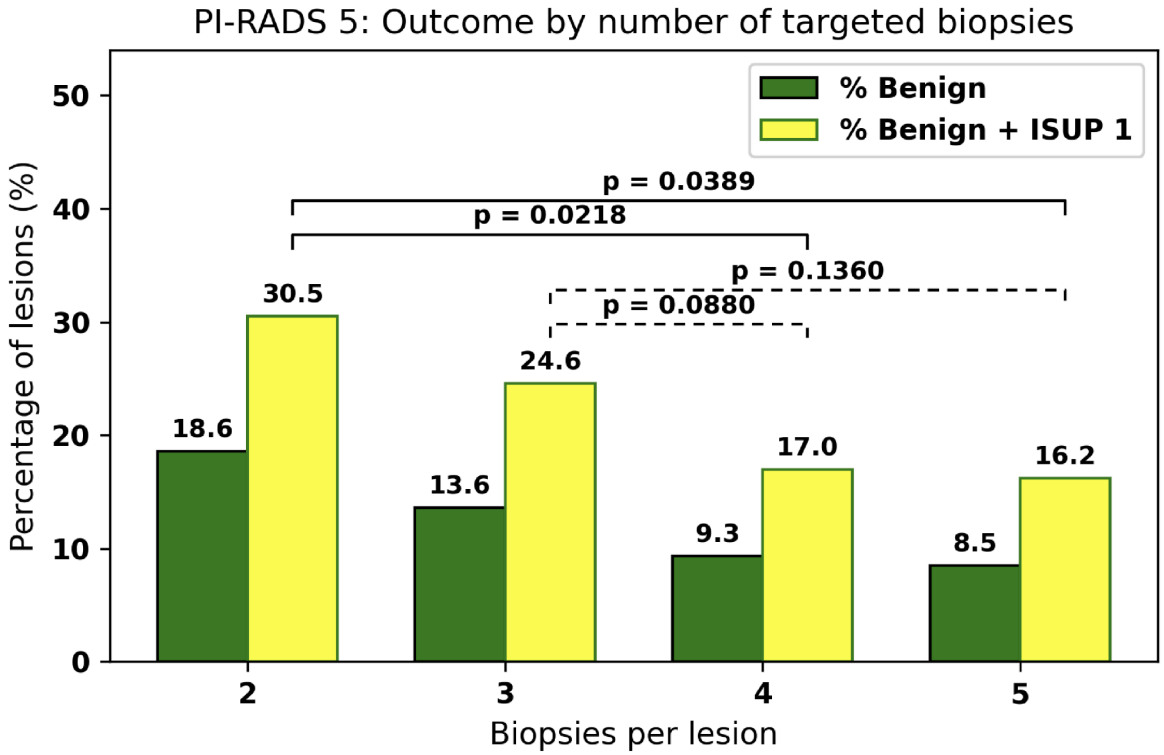
For PI-RADS 5 lesions, the proportion of benign and benign + ISUP 1 diagnoses declined with additional biopsies:

Biopsies/lesion	Benign	Benign + ISUP 1
2	18.6%	30.5%
3	13.6%	24.6%
4	9.3%	17.0%
5	8.5%	16.2%

For Benign + ISUP11 diagnoses, differences were significant for 2 vs 4 (p = 0.0218), 2 vs 5 (p = 0.0389), and for the overall trend (p = 0.0292). Comparisons between 3 and 4 or 5 cores approached significance (p = 0.088 and 0.136).

Prostate misses (no prostatic tissue identified) were similar across all groups: 4.1% (2 biopsies/lesion), 4.7% (3), 4.4% (4), and 5.6% (5).

For lesions classified as PI-RADS 5 and ISUP > 2, mean longest tumour lengths (calculated from biopsies with an ISUP > 2 diagnosis) increased with sampling: 10.2 mm (3 biopsies/lesion), 11.7 mm (4), and 12.1 mm (5). 2 biopsy data excluded due to < 50 cases. The difference between 3 and 4 biopsies/lesion was significant (Mann-Whitney U test, p = 0.0098).



Conclusions

These real-world findings demonstrate that 4 cores per MRI-identified lesion yield fewer benign or ISUP 1 outcomes and longer tumour lengths when compared with three cores, suggesting more complete sampling of clinically significant disease. Two-core targeting should be avoided. The results provide empirical support for updating current national guidance from “three or more” to “at least four” targeted biopsies per lesion.