Poster Session 1: Oncology–Prostate (Part 1)
Saturday, June 28, 2025 • 16:00–17:30

Cite as: *Can Urol Assoc J* 2025;19(6Suppl1):S17-26. http://dx.doi.org/10.5489/cuaj.9252

MP 1.1

Stimulated Raman histology and artificial intelligence provide near real-time prostate cancer diagnosis from MRI-targeted prostate biopsies in prospectively collected 100 cases

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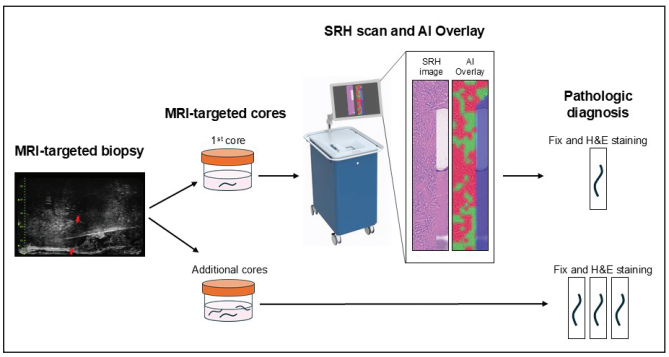
Introduction: The initial core during an MRI-targeted prostate biopsy (TB) have demonstrated higher prostate cancer (PCa) diagnostic value compared to additional cores. Stimulated Raman histology (SRH) creates histologic images, providing near real-time prostate biopsy pathology. This study aimed to evaluate the detection of clinically significant PCa (csPCa) detection with the first MRI TB imaged with SRH interpreted by a convolutional neural network (CNN).

Methods: One hundred men with a PI-RADS 3–5 (n=128 regions of interest [ROI]) undergoing a transperineal TB were prospectively enrolled in an IRB-approved study. The TB were kept fresh before scanning with the SRH microscope using two Raman spectra, 2845 cm-1 and 2930 cm-1. A published CNN, without cluster analysis, was incorporated into the SRH microscope to provide a near real-time prostate cancer risk score (CRS). Following SRH creation, the TB underwent standard pathologic processing and interpretation for ground truth diagnosis. The first TB core was separated for interpretation from other TB cores (Figure 1). The time to SRH diagnosis for csPCa, sensitivity, and specificity of PCa detection with CNN was calculated; csPCa was defined as ≥ISUP grade group 2 (>5% pattern 4).

Results: Time for SRH-AI for the first targeted biopsy was seven minutes. Thirty-eight cases demonstrated csPCa and all csPca was identified in ROI. When a ROI contained csPCa, the first biopsy identified PCa in 84% of cases. With cutoff CRS >15, the CNN analysis of the first TB demonstrated 92% sensitivity and 91% specificity for csPCa identification. With cutoff CRS >20, CNN analysis of the first TB showed 85% sensitivity and 100% specificity for identification of csPCa. Two false negative ROI were from one patient, who had a small volume of discontinuous csPCa. False-positive assessment was due to high-volume benign mimickers of PCa (benign hyperplasia).



MP 1.1. Figure 1. Workflow for simulated Raman histology convolutional neural network identification of prostate cancer in MRI-targeted biopsy.

Conclusions: SRH allowed csPCa to be identified in TB within seven minutes, with the CNN showing high sensitivity and specificity. The cluster analysis may be required for more accurate biopsy interpretation, and further CNN training and testing will be required before clinical application. The clinical implementation may guide biopsy intensity when the ROI contains csPCa.

MP 1.2

Substratification of grade group 1 prostate cancer patients on active surveillance demonstrates similar rates of biopsy reclassification

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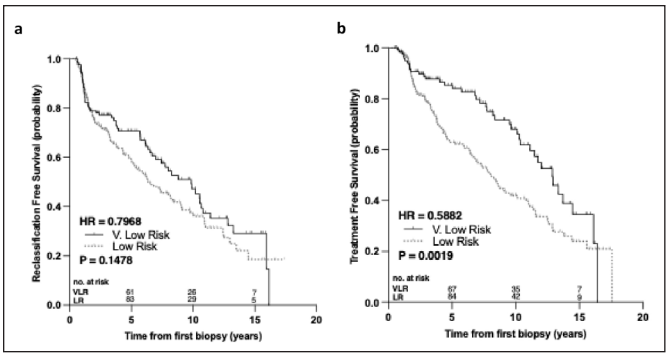
Introduction: The National Comprehensive Cancer Network (NCCN) maintains a very low-risk (VLR) and low-risk (LR) stratification for localized prostate cancer (PCa), while the American Urological Association (AUA) recently combined low-risk into one category. As active surveillance (AS) is recommended for both VLR and LR PCa, we sought to determine whether the subdivision of low-risk PCa leads to differences in biopsy reclassification and definitive treatment.

Methods: We queried our prospectively maintained active surveillance database at Manitoba Prostate Center. We identified patients who met the NCCN LR criteria (grade group [GG] 1, PSA <10 ng/ml, cT1c-T2a) and VLR criteria (LR criteria and <3 positive biopsy cores, ≤50% cancer per core, PSA density <0.15 ng/ml/g). Grade reclassification on subsequent biopsies was defined as GG ≥2. Intervention was offered for reclassification of disease or patient preference. Statistical analysis included Kaplan-Meier analysis to estimate the disease endpoints, log-rank test to compare groups, and multivariable Cox regression analysis for risk of biopsy reclassification.

Results: A total of 425 patients with GG1 were managed on AS from 2004–2022 with a median followup of 81 months. Of this cohort, 124 and 217 patients satisfied the NCCN VLR and LR criteria, respectively. The median time to confirmatory biopsy was 13 months for both groups. Reclassification-free survival at five years after initial biopsy showed no significant difference between VLR (71%) and LR (58%) (log-rank p<0.12). Treatment-free survival at five years after initial biopsy differed significantly between VLR (85%) and LR (63%) (log-rank p<0.01). Multivariable regression analysis showed no significant association between the volume of disease and the risk of reclassification (Figure 1, Table 1).

Conclusions: No significant association was seen comparing VLR and LR regarding rates of biopsy reclassification. Moreover, volume of disease did not predict risk of biopsy reclassification; however, patients diagnosed with LR PCa were more likely to receive definitive treatment. This suggests differences exist in how patients are counseled, which is dependent on the volume of disease. Thus, the NCCN substratification of GG1 PCa likely remains relevant in patient shared decision-making rather than reflecting differences in oncologic outcomes.



MP 1.2. Figure 1. Survival analysis and Cox proportional hazards regression for predictors of reclassification in very low- and low-risk PCa patients. (A) Reclassification-free survival by risk group. (B) Treatment-free survival by risk group.

MP 1.2. Table 1. Cox proportional hazards regression of prognostic variables

Characteristics	Univariate			Multivariate		
	HR	95% CI	*P*-value	HR	95% CI	*P*-value
Age, years	1.001	0.9809–1.022	0.9097	0.9976	0.9766–1.019	0.8249
No. positive cores	1.072	0.9733–1.166	0.1308	0.9995	0.8860–1.110	0.9929
Positive core (%)	1.008	0.9975–1.017	0.1211	1.006	0.9950–1.016	0.2625
Prostate density (ng/mL²)	2.009	0.7642–3.541	0.0597	1.410	0.2795–3.072	0.5441
Risk group	1.243	0.9106–1.713	0.1765	1.263	0.8737–1.860	0.2224

*p<0.05.

MP 1.3

Preoperative MRI membranous urethral length as a predictor of urinary continence after radical prostatectomy: A systematic review and meta-analysis

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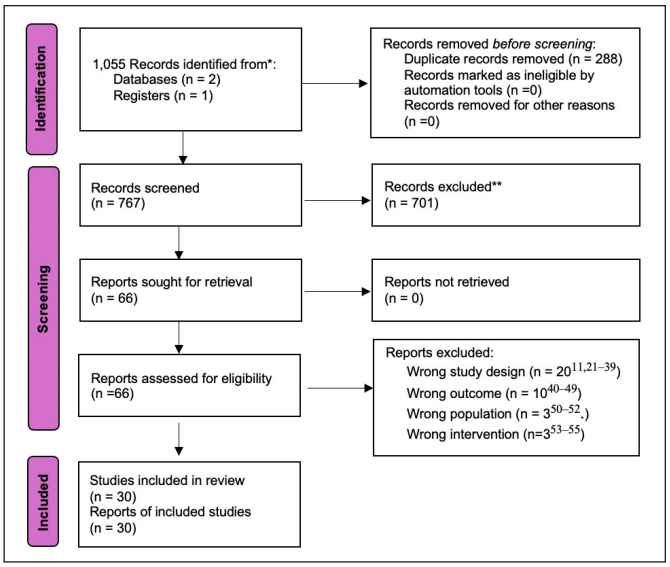
Introduction: We aimed to evaluate the association between membranous urethral length (MUL) and post-prostatectomy continence by systematic review and meta-analysis.

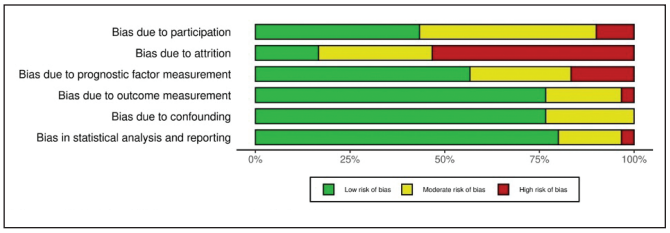
Methods: Multiple databases were searched up to November 13, 2023. Articles evaluating continence 12 months post-radical prostatectomy were included (Figure 1). The risk of bias was assessed using QUIPS. The association between longer MUL and continence was evaluated using meta-analysis with random effects. A sensitivity analysis removing high-risk-of-bias studies was performed. Publication bias was evaluated with Egger's test. Certainty of evidence was determined using a GRADE approach. (PROSPERO protocol: CRD42023483229).

Results: Thirty studies (11 239 patients) were included. The risk of bias was low in more than 75% of the studies regarding measurement, confounding, and statistical analysis/reporting (Figure 2). The risk of attrition bias was high in more than half of the studies. The range of mean MUL between studies ranged from 9.3–15.6 mm. Longer MUL (usually dichotomized at the median) was associated with greater probability of continence (15 studies, 4025 patients; pooled RR 1.30, 95% CI 1.18, 1.44, p<0.0001) (Figure 3). After excluding high-risk-of-bias studies, the association between longer MUL and continence remained significant (pooled RR 1.18, 95% CI 1.08, 1.29, p=0.003). The certainty of the association between MUL and continence was moderate.

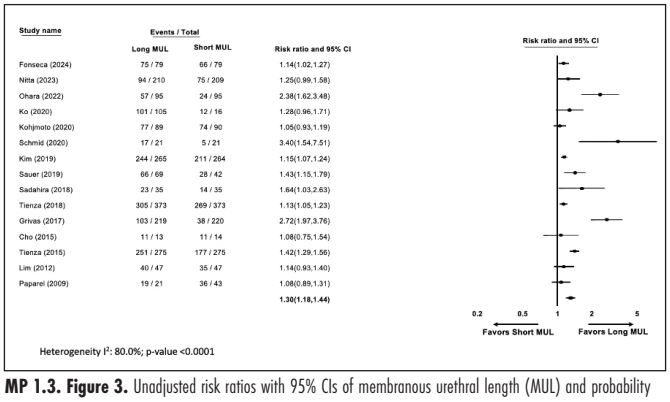
Conclusions: Longer preoperative MRI measured MUL is associated with better postoperative urinary continence by 12 months after radical prostatectomy, regardless of continence definition, assessment method, or risk of bias.



MP 1.3. Figure 1. PRISMA flow diagram of the screened studies.



MP 1.3. Figure 2. Risk of bias assessment of the 30 studies included.



MP 1.3. Figure 3. Unadjusted risk ratios with 95% CIs of membranous urethral length (MUL) and probability of continence 12 months after radical prostatectomy. Studies were arranged based on risk of bias from lowest to highest.

MP 1.4

Real-world analyses of major adverse cardiovascular event and mortality risk after androgen deprivation therapy in prostate cancer patients by luteinizing hormone-releasing hormone agonist

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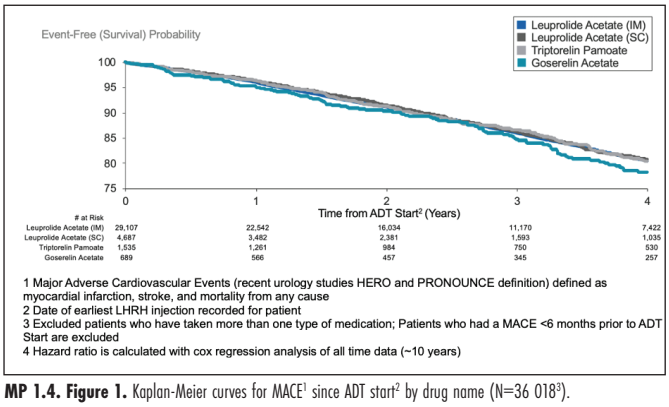
Introduction: Androgen deprivation therapy (ADT) is foundational for advanced prostate cancer (PCa); luteinizing hormone-releasing hormone (LHRH) agonists and gonadotropin-releasing hormone (GnRH) antagonists are widely used. PCa patients treated with ADT may experience major adverse cardiovascular events (MACE). Studies have assessed MACE risk for antagonists vs. agonists; however, to our knowledge, no published studies compared MACE risk between agonists. This study aimed to evaluate MACE risk for individual agonists using real-world data.

Methods: Data were collected from an EMR database from Decision Resources Group. The analysis set included approximately 45 000 PCa patients who received ≥1 ADT from 1991–2020 and excluded patients with multiple ADT and/or a MACE <6 months prior to ADT start. MACE was defined as myocardial infarction, stroke, and mortality from any cause. Kaplan-Meier event-free survival curves and Cox regression compared MACE hazard ratio between patients on goserelin acetate, intramuscular (IM) leuprolide acetate (LA), subcutaneous (SC) LA, and triptorelin pamoate.

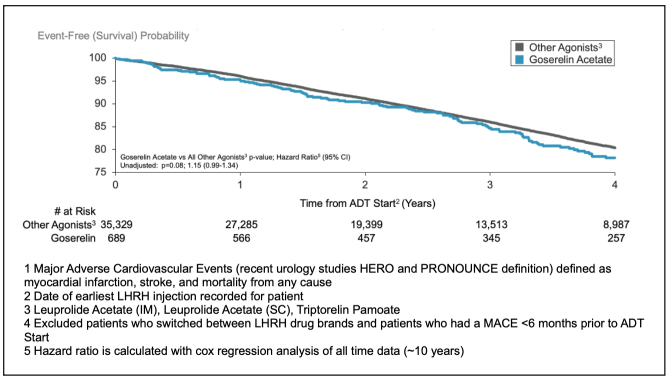
Results: MACE risk associated with individual agonists is shown in Figure 1. One year after ADT start, MACE risk was 3.7% (IM-LA), 4.0% (SC-LA), 3.7% (triptorelin pamoate), and 4.8% (goserelin acetate). At four years after ADT initiation, MACE risk was 19.4%, 19.6%, 19.6%, and 21.8% for the same drugs, respectively. Though patients treated with goserelin had higher absolute MACE rates, unadjusted MACE HR for men treated with goserelin acetate vs. other agonists were not significant (HR 1.15, 95% CI 0.99–1.34, p=0.08) (Figure 2).

Conclusions: Patients using goserelin acetate had increased MACE risk compared to other agonists, but this was not significant. Further research is needed to determine whether cardiovascular safety varies among the different LHRH agonists, and if so, the underlying reasons.

Acknowledgements: Funded by Tolmar, Inc.



MP 1.4. Figure 1. Kaplan-Meier curves for MACE[1] since ADT start[2] by drug name (N=36 018[3]).



MP 1.4. Figure 2. Kaplan-Meier curves for MACE[1] since ADT start[2] by goserelin acetate vs. other agents (N=36 018[3]).

MP 1.5

A realist evaluation of contextual factors and mechanisms underpinning mental health improvement in Prostate Cancer-Patient Empowerment Program (PC-PEP): Insights from a phase 3 RCT

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Introduction: This study presents a realist evaluation of the Prostate Cancer-Patient Empowerment Program (PC-PEP), focusing on the contextual factors and mechanisms that influence mental health outcomes among participants in a phase 3 PC-PEP randomized clinical trial (RCT). By addressing heterogeneity in outcomes, the study aimed to answer two primary research questions: 1) What patient-related contexts and mechanisms explain differences in mental health outcomes between intervention and control groups at six months post-randomization? 2) What contextual factors and mechanisms account for differences in outcomes between early intervention and delayed (control) participants?

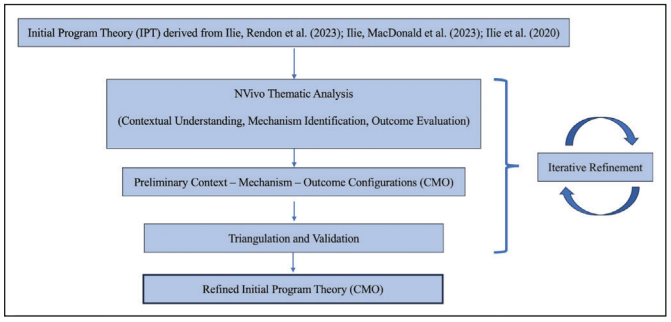
Methods: To overcome the "black box problem" of traditional RCTs, a realist evaluation framework was employed (Figure 1). A total of 128 men aged 50–82 were randomized to either the PC-PEP intervention or a waitlist control group. Psychological distress, the primary outcome, was measured using the Kessler Psychological Distress Scale (K10) at baseline, six months, and 12 months. Additionally, semi-structured qualitative interviews were conducted with 43 participants (33% of the total sample), including 25 from the early intervention group and 18 from the delayed group, to gain deeper insights into mechanisms and contexts influencing outcomes. Quantitative RCT data were integrated with qualitative findings to develop context-mechanism-outcome (CMO) configurations that explain variations in mental health outcomes.

Results: The evaluation identified key mechanisms and contexts contributing to improved mental health outcomes. Psychological contexts, including fear of diagnosis and the program's communication style, were pivotal in reducing distress. Education on sexual health and intimacy further enhanced adherence and emotional well-being. Partner and family involvement emerged as critical facilitators, providing motivation, emotional support, and improving engagement. External factors, such as employment status, cultural beliefs, and the COVID-19 pandemic, also influenced participation. Notably, retired or unemployed participants exhibited higher levels of engagement, whereas time constraints posed barriers for working individuals. Social support elements, such as buddy systems and monthly videoconferences, effectively mitigated feelings of isolation. Early intervention played a crucial role in empowering patients, with clinical expert involvement fostering trust and adherence. The findings underscore the importance of integrating psychosocial support programs like PC-PEP into standard prostate cancer care, particularly early in the treatment process. Policy recommendations include: 1) training healthcare providers in empathetic communication; 2) incorporating sexual health and intimacy education into cancer care;

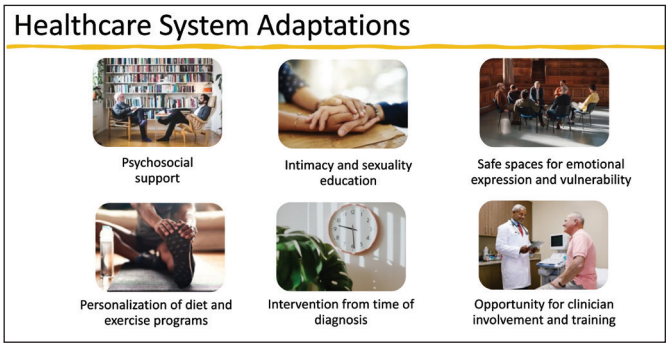
3) promoting family involvement to enhance support; and 4) offering flexible and tailored support mechanisms, such as pre-treatment workshops (Figure 2). The program's success during the COVID-19 pandemic highlights the feasibility of digital and remote delivery methods for expanding access to underserved populations, including rural, minority, and vulnerable groups (Figure 3).

Conclusions: This study highlights the necessity of addressing individual, social, and environmental contexts in designing effective psychosocial interventions for prostate cancer patients. Tailored strategies, including cultural sensitivity and flexible program options for working individuals, are essential for optimizing patient support. The findings point to the need for future research aimed at extending PC-PEP to underserved populations and exploring its relevance for other cancer types, thereby ensuring broader impact and accessibility.

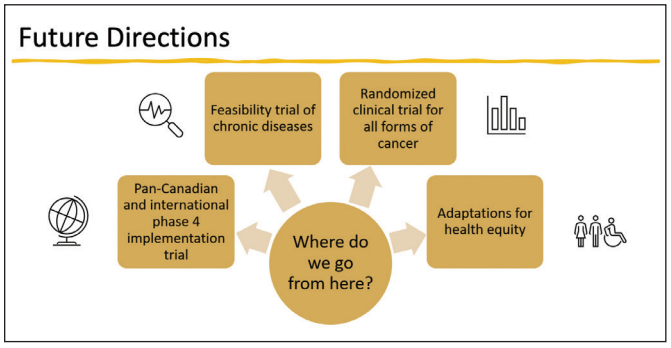
Acknowledgements: The authors thank all who participated in the study. Funding for this study was provided by Research Nova Scotia Establishment Grant #2205/2019 and the Dalhousie's Faculty of Medicine Research Advancement office's Soillse Prostate Cancer Quality of Life Research Fund, supported by Frank and Debbi Sobey. Authors acknowledge the QEII Urology Department staff (Liette Connor, Getty Vasista, Barbara Ross, Jessica Davis, Emmi Champion), exercise physiologist, Jeff Zahavich, and physiotherapist, Erika Burger.



MP 1.5. Figure 1.



MP 1.5. Figure 2. Healthcare system adaptations.



MP 1.5. Figure 3. Future directions.

MP 1.6

The predictive value of lesion density in enhancing multiparametric MRI for detecting clinically significant prostate cancer

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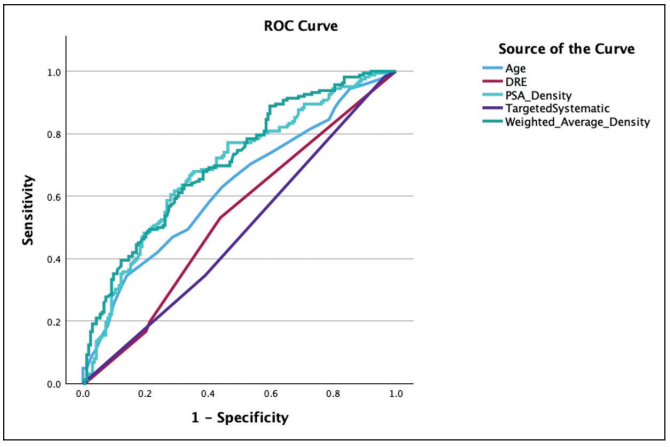
Introduction: Distinguishing clinically significant prostate cancer (csPCa) from indolent forms is critical for patient management. Multiparametric MRI (mpMRI) coupled with the Prostate Imaging Reporting and Data System (PI-RADS) enhances csPCa detection but can lead to unnecessary biopsies. Lesion density, the ratio of lesion diameter to prostate volume, has shown promise in improving mpMRI's predictive accuracy. This study evaluated lesion density's role in predicting csPCa and enhancing mpMRI's diagnostic utility.

Methods: This retrospective, single-center study analyzed 428 patients who underwent MRI fusion or cognitive fusion biopsies (2019–2023). Clinical parameters, including lesion density, were recorded. For multiple lesions, the weighted average density was calculated. Multivariate logistic regression evaluated independent predictors of csPCa. Receiver operating characteristic (ROC) analysis assessed lesion density's diagnostic accuracy.

Results: Of 345 patients with complete mpMRI data, 49% were diagnosed with csPCa. Quartile analysis revealed a 78% positivity rate in the highest lesion density quartile (>0.48 mm/cc) compared to 22% in the lowest (≤0.16 mm/cc) (χ^2=45.13, p < 0.001) (Table 1). Weighted lesion density was an independent predictor of csPCa (OR 11.55, 95% CI 2.49–53.64, p=0.002) alongside age (OR 1.07, 95% CI 1.03–1.10, p<0.001) (Table 2). Weighted lesion density had the highest area under the curve (AUC) (0.71) among predictors, outperforming PSA density (0.69) and age (0.63) (Figure 1).



MP 1.6. Figure 1. ROC curve for lesion density predicting csPCa. Weighted lesion density: AUC=0.71; PSA density: AUC=0.69; age AUC=0.63; DRE: AUC=0.53; biopsy method: AUC=0.48.

MP 1.6. Table 1. Distribution of csPCa by lesion density quartiles

Lesion density quartile	Negative csPCa (N)	Positive csPCa (N)	Total (N)	% positive csPCa
≤0.16 mm/cc	54	15	69	22%
0.16–0.25 mm/cc	39	33	72	45.8%
0.25–0.34 mm/cc	35	31	66	47%
0.34–0.48 mm/cc	32	37	69	53.6%
>0.48 mm/cc	15	54	69	78%
Total	175	170	345	

MP 1.6. Table 2. Multivariate logistic regression analysis for predictors of csPCa

Predictor	B	SE	Wald	df	Sig.	OR	95% CI for OR
Age	0.063	0.018	12.72	1	<0.001	1.07	(1.03, 1.10)
PSAD	0.609	0.844	0.52	1	0.471	1.84	(0.35, 9.60)
DRE	–	–	2.03	4	0.73	–	–
Previous biopsy	–	–	10.18	3	0. 017	–	–
Weight lesion density	2.447	0.784	9.75	1	0.002	11.55	(2.49, 53.64)
Constant	-6.226	1.479	17.71	1	<0.001	0.002	–

Conclusions: Lesion density is an independent predictor of csPCa and, in combination with other risk stratification parameters, may enhance the predictive value of mpMRI, ultimately reducing unnecessary biopsies and improving diagnostic accuracy. Integrating lesion density into clinical workflows is a promising csPCa risk stratification strategy.

MP 1.7

Use and implementation of prostate MRI in biopsy-naive patients in a publicly funded healthcare system

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Introduction: MRI for the detection of prostate cancer (PCa) in biopsy-naive men has been demonstrated to improve the detection of clinically significant (cs) PCa, decrease overdiagnosis of clinically insignificant PCa, and avoid biopsy for low-risk individuals. Despite regulatory approval, MRI is resource-intensive and the demand is difficult to meet in a universal healthcare setting. In order to develop a risk-based strategy to prioritize patients who would benefit most from MRI and optimize resource use, we assessed the clinical profile of biopsy-naive patients undergoing MRI and the triaging effect of theoretical risk thresholds.

Methods: We identified biopsy-naive patients being investigated for PCa who underwent pre-biopsy prostate MRI at three Ontario, Canada hospitals (regional cancer center, community hospital, and academic center) following MRI guideline introduction. Chart review included age, PSA, family history, DRE, ethnicity, PCPT-RC score, MRI, and biopsy results if applicable. We applied empiric thresholds for low- and high-risk patients to assess the corresponding effect on MRI use and cancer detection.

Results: A total of 499 patients were identified (age 66, PSA 5.9, 24% DRE+, 27% family history). Almost half (44%) had PI-RADS 1/2 lesions, 16% had PI-RADS 3, and 37% had PI-RADS 4/5. Biopsy was performed in 265 (53%), resulting in 57 (22%) grade group (GG)1 and 126 (48%) GG2+ PCa. At low-risk thresholds, where patients may not require MRI or biopsy, a risk calculator score <5% would avoid 16% of MRIs but miss csPCa in 8%. At a PSA <2 and <4 ng/mL, these would save 9% and 18% of MRIs at a cost of missing 11% and 10% of csPCa in their respective groups. At higher-risk thresholds, where patients could proceed directly to biopsy (and thereby avoid MRI use), 11% had a risk calculator score >20%, 4% were PSA>15, and 24% had positive DRE (Table 1). Another 11% underwent biopsy despite negative MRI results.

Conclusions: Low-risk thresholds decreased MRI use but were associated with (relatively) high rates of missed csPCa. Various high-risk thresholds represented patient subgroups of 4–24% who could be streamlined to bypass MRI and proceed straight to biopsy. A further subset underwent biopsy irrespective of negative MRI results and may represent additional patients in which MRI is not decision-changing and avoidable.

Acknowledgements: Funded by the Canadian Cancer Society #2020-707044.

MP 1.7. Table 1. Low- and high-risk clinical thresholds in biopsy-naive men being evaluated for prostate cancer

Low-risk thresholds*

Variable	PCPT <5 n=78	PSA <2 n=44	PSA <4 n=88
Number of MRI avoided (% of total MRIs)	78 (16%)	44 (9%)	88 (18%)
Number of biopsies (%)	27 (35%)	13 (30%)	29 (33%)
Benign (% of group)	16 (21%)	6 (14%)	14 (16%)
GG1 (% of group)	5 (6%)	2 (5%)	6 (7%)
GG2+ (% of group)	6 (8%)	5 (11%)	9 (10%)

High-risk thresholds**

Variable	PCPT ≥20 n=56	PSA >15 n=21	Positive DRE n=46
Number of MRI avoided (% of total MRIs)	56 (11%)	21 (4%)	46/189 DREs performed (24%)
Negative MRI (%)	9 (16%)	4 (19%)	18 (39%)

*Patients who may not require MRI or biopsy workup. **Patients who may be sent directly to biopsy, thereby avoiding MRI use.

MP 1.8

Real-world treatment patterns and outcomes in patients with metastatic castration-resistant prostate cancer: A Canadian, multicenter, prospective cohort study

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Introduction: Several positive clinical trials have demonstrated the efficacy of life-prolonging therapies for patients with metastatic castration-resistant prostate cancer (mCRPC); however, real-world data on the patterns of use and effectiveness of these treatments are limited. Here, we report the results of a prospective, multicenter, non-interventional, longitudinal cohort study of Canadian men with mCRPC.

Methods: Patients from 25 sites across Canada participated in this study from 2018–2023. Baseline patient characteristics, treatment patterns, and real-world survival were described. Treatment patterns included treatment type, duration, and sequencing of agents. Real-world survival of mCRPC patients from the start of first-line therapy was modeled using Kaplan-Meier analysis.

Results: A total of 136 mCRPC patients were enrolled in this study, including patients with prior ADT alone (n=102) and patients with prior ADT intensification (n=34) in mCSPC disease state. Most patients (99%) received life-prolonging therapy for mCRPC (including ARPI, chemotherapy, and PARPi), among whom, 48.2% (n=65) of patients received first-line treatment, followed by 26.7% (n=36), 14% (n=19), and 10.3% (n=14) who received second-line, third-line, and fourth-line treatment, respectively. Overall, ARPI accounted for 88% (n=119) of first-line therapies, with docetaxel as the most common second-line therapy. At the time of data cutoff, the median overall survival was 40.7 months (95% CI 29.7–49.6), with a five-year survival rate of 53.8% (95% CI 44.2, 62.5). PSA response in first-line mCRPC was identified as a predictor of survival in this cohort.

Conclusions: This study highlights a significant adherence to mCRPC treatment guidelines, with 99% of patients receiving life-prolonging treatment for mCRPC. ARPI was the preferred therapy first-line, and real-world survival was consistent with randomized control trials. Further research is needed, as treatment patterns will change with the introduction of ARPI and docetaxel earlier in the disease continuum.

MP 1.9

Comparing NCCN-based risk groups to the PROTEUS definition of high-risk localized prostate cancer to inform perioperative care

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Introduction: There are varying definitions of high-risk prostate cancer. The most commonly used is the NCCN definition, which defines patients as having high- or very high-risk disease if they have any of clinical T3 or greater disease, Gleason grade group 4 or 5, or PSA >20 ng/mL. While each of these characteristics may be used to define a patient as high-risk, prior analyses have shown that they do not have comparable associations with disease aggressivity. Thus, recent studies of androgen receptor signaling inhibitors have employed alternative definitions of baseline risk. Herein, we compared patient distributions and oncologic outcomes for patients undergoing radical prostatectomy according to two definitions of high-risk disease.

Methods: Using an institutional database of patients undergoing radical prostatectomy, we characterized patients as having high-risk disease either by using NCCN risk groups (any of Gleason grade group [GGG] 4 or 5; or clinical T3 or T4; or PSA >20 ng/mL) or using the definition employed in the PROTEUS trial (overall GGG ≥3 and at least one of the following: GGG5 in at least one core; or GGG4 in at least two cores, each with >80% involvement; or GGG3+ in ≥6 systematic cores; or GGG3+ in ≥3 systematic cores and PSA ≥20 ng/mL). Descriptive statistics were used to compare patient distributions. The area under the receiver operating curve (AUC) was compared between NCCN- and PROTEUS-based definitions of high-risk disease for oncologic outcomes, including extraprostatic extension, positive surgical margins, and PSA >0.1 or >0.2 at 12 months postoperatively.

Results: Among 424 patients undergoing radical prostatectomy in the dataset, 358 had complete pathological biopsy data allowing for nuanced preoperative risk stratification. Of these, 62 (17%) were classified as high-risk per NCCN criteria while 44 (12%) were classified as high-risk per PROTEUS criteria. Among 62 patients classified as high-risk per NCCN criteria, 38 met the PROTEUS criteria and 24 did not. Conversely, among 44 patients classified as high-risk per PROTEUS criteria, 38 met the NCCN high-risk criteria and six did not. Assessing surrogates of oncologic outcomes, 38 of 62 (61%) patients meeting NCCN high-risk criteria and 30 of 44 (68%) patients meeting PROTEUS high-risk criteria had extraprostatic extension; 26 of 62 (42%) patients meeting NCCN high-risk criteria and 18 of 44 (41%) patients meeting PROTEUS high-risk criteria had positive surgical margins; eight (13%) of 62 patients meeting NCCN high-risk criteria and nine (20%) of 44 patients meeting PROTEUS high-risk criteria had PSA >0.1ng/mL or >0.2ng/mL at one year following surgery. Using AUC, the two definitions were comparably predictive of extraprostatic extension (NCCN 0.56, 95% CI 0.52–0.60; PROTEUS 0.56, 95% CI 0.53–0.60; p=0.96), positive surgical margins (NCCN 0.54, 95% CI 0.49–0.58; PROTEUS 0.52, 95% CI 0.49–0.56; p=0.44), PSA >0.1 at 12 months postoperatively (NCCN 0.54, 95% CI 0.46–0.62; PROTEUS 0.59, 95% CI 0.51–0.67; p=0.22), and PSA >0.2 at 12 months postoperatively (NCCN 0.59, 95% CI 0.49–0.69; PROTEUS 0.64, 95% CI 0.54–0.75; p=0.32).

Conclusions: This comparative analysis based on highly granular data shows that prostate cancer patients defined as high-risk based on NCCN risk groups or high-risk criteria employed in the PROTEUS clinical trial have comparable outcomes. Therefore, identifying patients suitable for treatment intensification with perioperative systemic therapy is critical in this evolving clinical landscape.

MP 1.10

Canadian subgroup analysis of the phase 3 VISION study of lutetium-177-PSMA-617 for metastatic castration-resistant prostate cancer

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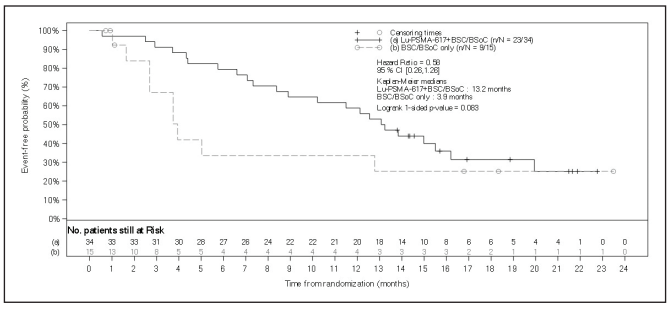
Introduction: In the international VISION study, 177Lu-PSMA-617 (Lu-PSMA) improved radiographic progression-free survival (rPFS) and overall survival (OS) compared to protocol-permitted standard of care (SoC): median rPFS was 8.7 vs. 3.4 months (m) and median OS was 15.3 vs. 11.3 m, respectively. As there can be regional differences in treatment outcomes, we evaluated the efficacy and safety of Lu-PSMA in the Canadian subgroup of patients enrolled in the VISION study.



MP 1.10. Figure 1. Overall survival of Canadian subgroup in VISION trial.

Methods: VISION was an open-label, randomized, phase 3 trial in patients with progressive, PSMA-avid mCRPC previously treated with at least one androgen receptor pathway inhibitor and 1–2 taxane-containing regimens. Patients were randomized 2:1 to either Lu-PSMA (7.4 GBq, 200 mCi every six weeks for up to six cycles) plus SoC (Lu-PSMA arm) or SoC alone (control arm).
Results: Of the 49 Canadian patients enrolled in the VISION trial, 34 were randomly assigned to the Lu-PSMA arm, and 15 to the control arm. Relative to the entire cohort, there was a higher proportion in the Canadian subgroup with an Eastern Cooperative Oncology Group (ECOG) score of 2 (14% vs. 8%) and liver metastases (20% vs. 12%). Canadian patients in the control arm relative to the Lu-PSMA arm had a higher rate of baseline liver metastases (33 vs. 15%) and were more likely to have received two prior taxane regimens (60 vs. 35%). The rPFS was longer in the Lu-PSMA arm than in the control arm (median 6.0 vs. 2.2 m). OS was also longer in the Lu-PSMA arm (median 13.2 vs. 3.9 m) (Figure 1). Of patients with measurable disease, 7/28 (25%) had a radiologic response in the Lu-PSMA arm compared to 0/6 (0%) in the control arm; 42% had a PSA response in the Lu-PSMA arm compared to 0% in the control arm. The incidence of grade 3 or higher treatment-emergent adverse events was similar between arms.
Conclusions: Outcomes for Canadian patients treated with Lu-PSMA were numerically different but consistent with the results in the overall population of the VISION trial.

MP 1.11

Skeletal-related events and use of bone-targeting agents in patients with metastatic castration-resistant prostate cancer treated with radium 223: Results from Princess Margaret Cancer Centre

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Introduction: Patients with metastatic castration-resistant prostate cancer (mCRPC) involving the bone are at significant risk of developing symptomatic skeletal-related events (SREs), which increase morbidity and mortality. Radium 223, an alpha-emitting radioligand therapy targeting bone metastases, may further increase SRE risk. While bone-targeting agents (BTAs) can mitigate these risks, they remain underused in clinical practice. This study assessed patterns of SREs and BTA use in patients with mCRPC treated with radium 223.
Methods: This retrospective study analyzed 263 patients with mCRPC and bone metastases who received radium 223 at the Princess Margaret Cancer Centre from 2015–2024. Patterns of BTA use and SRE outcomes were summarized using descriptive statistics. Univariate analysis assessed the association between BTA use and the development of SREs.
Results: Among 263 mCRPC patients treated with radium 223, 180 (68.7%) experienced SREs, including the use of radiotherapy (161, 61.5%) for pain or fracture, pathologic fractures (83, 31.7%), and spinal cord compression (49,18.7%). BTAs were administered to 142 (54.0%) patients, with 72 (50.7%) receiving zoledronic acid, 61 (43.0%) receiving denosumab, and nine (6.3%) receiving both at various time points. BTA complications occurred in seven cases (4.9%), including osteonecrosis of the jaw (6). The use of zoledronic acid was associated with 66% less risk of SREs (OR 0.34, 95% CI 0.14–0.81, p=0.016), with a similar although non-significant trend seen with denosumab (OR 0.73, 95% CI 0.23–2.55, p=0.60).
Conclusions: Patients with mCRPC and bone metastases undergoing radium 223 are particularly vulnerable to highly symptomatic SREs, many of which occur even with BTA use. Our data highlights the ongoing underuse of BTAs despite their low complication rates. Further research is needed to better understand factors contributing to SREs and underuse of BTAs.
Acknowledgements: The authors wish to thank their patients, trainees, pharmacy, and the Genitourinary Oncology, Radiology, and Nuclear Medicine healthcare teams at Princess Margaret Cancer Center.

MP 1.12

Adherence to the 2021 Canadian Urological Association androgen deprivation therapy guidelines for bone health management in patients with advanced prostate cancer: A provincial study

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Introduction: Long-term use of androgen deprivation therapy (ADT) in men with advanced prostate cancer (PCa) can lead to decreased bone mineral density (BMD) and greater fracture risk. The Canadian Urological Association (CUA) guideline recommends baseline evaluation and monitoring of bone health (BH) with BMD scans. The study aimed to determine adherence to CUA guidelines by physicians provincially for BH.
Methods: A retrospective chart review was conducted using the provincial Drug Information System to identify PCa patients who filled an ADT prescription from 2020–2024 for at least 24 months. Electronic medical records were accessed to determine characteristics such as patient age, ADT prescriber, duration of ADT, and frequency of BMD scans.
Results: We identified 712 patients, of whom 214 (30%) had a BMD scan. Uro-oncologists (UO) were the leading ADT prescribers who ordered BMD scans in 60% of their patients, followed by radiation oncologists (RO) at 31%, medical oncologists (MO) at 30%, non-oncology academic urologists (AU) at 20%, and community urologists (CU) at 22%. Only 47% of scans were ordered within 12 months of ADT initiation, as per guidelines. BMD scans ordered within 12 months by specialty were UO (55%), RO (52%), MO (57%), AU (40%), and CU (26%). Only 19% of patients had followup (FU) BMD scans. Specialty distribution was MO (35%), RO (31%), and UO (16%). Of all FU scans, 63% met guideline recommendations, with adherence rates as follows: MO (100%), UO (50%), RO (44%). Baseline scan results showed 58% low-, 27% moderate-, and 12% high-risk. Among low-risk patients who had a FU scan, 57% progressed to moderate- or high-risk.
Conclusions: Adherence to the CUA guidelines is poor across specialties provincially, as BMD screening is often overlooked among providers. Advanced PCa patients on ADT with BMD initially classified as low-risk frequently (57%) progress to moderate- or high-risk. Further adherence with greater education and creation of clinical tools should be implemented to bridge the gap.

MP 1.13

Investigating the association between lifetime cannabis exposure and prostate cancer incidence: A single-center, case-control study

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Introduction: While cannabis is increasingly legalized and used for both recreational and medicinal purposes, evidence of its effects on prostate health remains sparse. This study aimed to investigate whether lifetime cannabis consumption is associated with PCa incidence.
Methods: We identified all PCa patients (cases) and benign prostatic hyperplasia (BPH) patients (controls) treated at a single center between Jan 2023 and July 2024. Participants were emailed a questionnaire assessing substance use history, with a focus on cannabis. Respondents were matched by age at diagnosis by nearest-neighbor method. Conditional logistic regression was used to assess the relationship between questionnaire results and PCa incidence.
Results: There were 2527 questionnaires sent, 1022 responses, with 122 incomplete or excluded, for a total 724 included respondents. Of them, 456 were PCa patients and 268 were BPH patients. After matching, 231 respondents were included in each group (Table 1). The median age at diagnosis was similar between PCa patients and BPH controls at 61 vs. 60 years, respectively. A higher proportion of BPH patients had completed a postsecondary degree than PCa patients (74% vs. 66%, p=0.01). Any cannabis use was reported by 64% of PCa patients and 58% of BPH controls (p=0.22). There were no significant differences between PCa and BPH groups in terms of ever-use, infrequent cannabis use, frequent use, current use, age at first exposure, total years of exposure, method

of consumption, or cannabinoid type (all p>0.05). Conditional regression did not identify infrequent (OR 1.6, 95% CI 0.93, 2.7, p=0.09) or frequent (OR 1.5, 95% CI 0.87, 2.5, p=0.15) cannabis use as significant predictors of PCa incidence.
Conclusions: This case-control analysis fails to identify a direct association between lifetime cannabis use and PCa incidence. There is a high prevalence of cannabis exposure for both groups with prostatic disease.
Acknowledgements: Supported by the Ontario Cannabis Store Social Impact Fund.

MP 1.13. Table 1. Matched-cohort demographics and cannabis exposure for BPH and PCa respondents

	BPH	PCa	p
N	231	231	
Age at diagnosis (IQR)	60 (55, 65)	61 (56, 67)	0.161
Age at questionnaire (IQR)	70 (65, 76)	66 (61, 73)	<0.001*
Ethnicity (%)			0.773
Asian	10 (4.3)	11 (4.8)	
Black	5 (2.2)	7 (3.0)	
Caucasian	195 (84)	193 (84)	
Middle Eastern	9 (3.9)	7 (3.0)	
Other	12 (5.1)	13 (5.6)	
Completed postsecondary degree (%)	178 (74)	153 (66)	0.013*
Family history of PCa (%)	61 (31)	73 (47)	0.004*
Cannabis exposure			
Never user (%)	95 (42)	82 (36)	0.221
Infrequent user (%)	31 (13)	42 (18)	0.202
Frequent user (%)	35 (15)	42 (18)	0.454
Current user (%)	26 (11)	30 (13)	0.669
Age at first exposure (IQR)	19 (16, 33)	19 (16, 32)	0.936
Years of exposure [IQR]	3.5 (1.0, 14)	4.0 (1.0, 12)	0.650
Method of cannabis consumption (%)			
Smoked flower	99 (43)	111 (48)	0.304
Vaporized	8 (3.5)	9 (3.9)	0.999
Edibles	29 (13)	38 (17)	0.291
Concentrates (hash, shatter, etc.)	16 (6.9)	21 (9.1)	0.493
Cannabinoid type (%)			
THC dominant	52 (23)	57 (25)	0.661
CBD dominant	10 (4.3)	12 (5.2)	0.827
Equal THC and CBD	10 (4.3)	7 (3.0)	0.621
Unsure	71 (31)	83 (36)	0.278

*Statistically significant.

MP 1.14
Genomic testing access hurdles and opportunities in Canada: Results from a national HCP survey

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Introduction: Identification of gene alterations associated with homologous recombination repair (HRR) in patients with prostate cancer (PCa) has implications for biomarker-driven therapies, familial risk assessment, and prognostication. With the approval of many new biomarker-driven therapies, we sought to examine the evolving nationwide trends in genomic testing access and practices in Canada.
Methods: The Genitourinary Research Consortium (GURC) administered a cross-sectional survey to investigators across 22 GURC Canadian sites in 2022 (survey I) and in 2023 (survey II) to examine evolving trends in PCa genomic testing. Responses from all 22 sites were collected for surveys I and II.
Results: Mainstream germline testing initiated by clinicians had increased from 34% (survey I) to 53.3% (survey II). The availability of tumor genomic testing increased from 58% (survey I) to 92.6% (survey II) and the proportion of clinicians offering circulating tumor DNA (ctDNA) testing increased from 0% to 26%. Provincially funded options for testing increased from 63% to 70%; however, respondents continued to rely on clinical trials (22%) and private pay options (19%) to fill gaps in testing access. More clinicians reported referring patients to genetic counseling when HRR or other alterations were identified; from 64% and 39% at survey I to 85% and 63% at survey II, respectively. Yet, there was an overall decrease in referrals to genetics specialists, from 45% to 33.3%, from survey I to II, reflecting the impact of mainstream germline testing.
Conclusions: Canadian GU oncology clinicians have reported increased awareness, knowledge, and access surrounding genomics testing in PC that has translated into greater initiation of mainstream germline and tumor and ctDNA testing; however, there continues to be an access gap in testing and uncertainty around patterns of referral to genetic counseling. Further investigation into regional discrepancies and barriers to testing is necessary.

MP 1.15

Population-based assessment of treatment patterns for high-risk localized prostate cancer

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Introduction: Patients with high-/very high-risk (H/vHR) localized prostate cancer (PCa) are at higher risk of disease recurrence, metastasis, and death than those with intermediate-risk (IR). To contextualize emerging clinical trial data suggesting the benefit of intensified therapy in this population, we characterized real-world treatment patterns for these patients.

Methods: We performed a retrospective, population-based cohort study using province-wide linked administrative data in Ontario, Canada, among patients with high- or very high-risk prostate cancer. These patients were compared to a concurrent cohort of patients with intermediate-risk disease to assess differences in management. We descriptively characterized treatment approaches for each group.

Results: We compared 13 206 patients diagnosed with H/vHR PCa between 2010 and 2021 to 18 365 with IR disease. While most patients received active treatment, rates were significantly higher in the H/vHR (n=12 606, 95.5%) than the IR cohort (n=14 995, 81.6%; p<0.001; standardized difference 0.44). Within one year of diagnosis, 6207 (47%) patients in the H/vHR cohort and 7286 (39.7%) patients in the IR cohort underwent RP (p<0.001; standardized difference 0.148). Over the same time, 6321 (47.9%) of those with H/vHR disease and 7427 (40.4%) of those with IR disease received EBRT (p<0.001; standardized difference 0.15). Few patients (0.4%) received intensified systemic therapy. Patients with HR disease were more likely to be diagnosed with metastatic disease (46 vs. 30%, p<0.001; standardized difference 0.338) and at an earlier timepoint (median 2.6 vs, 4.3 years, p<0.001; standardized difference 0.31). Similar patterns were observed for other clinical endpoints (Table 1).

Conclusions: Despite more local therapy, patients with H/vHR PCa have significantly worse clinical outcomes than those with IR. These data highlight the need for therapies to improve clinical outcomes in this patient population.

Acknowledgements: This study made use of de-identified data from the ICES Data Repository, which is managed by the Institute for Clinical Evaluative Sciences with support from its funders and partners: Canada's Strategy for Patient-Oriented Research (SPOR), the Ontario SPOR Support Unit, the Canadian Institutes of Health Research and the Government of Ontario. The opinions, results and conclusions reported are those of the authors. No endorsement by ICES or any of its funders or partners is intended or should be inferred. This abstract was accepted for poster presentation at ASCO GU 2025.

MP 1.15. Table 1. Clinical outcomes for patients with intermediate and high risk localized prostate cancer

Outcome		Intermediate-risk n=18 365	High- or very high-risk n=13 206	p	Standardized difference
Time to diagnosis of metastatic disease	n (%)	5,435 (30%)	6,039 (46%)	<0.0001	0.338
	Median years (IQR)	4.3 (1.2–7.1)	2.6 (0.5–5.7)	<0.0001	0.307
Time to castration resistance (CRPC)	n (%)	285 (2%)	960 (7%)	<0.0001	0.281
	Median years (IQR)	5.3 (3.5–7)	3 (2–5)	<0.0001	0.767
Time to first mCRPC treatment	n (%)	149 (1%)	626 (5%)	<0.0001	0.241
	Median years (IQR)	6 (4–7.7)	4 (2.5–6)	<0.0001	0.717
Time to prostate cancer event*	n (%)	10,743 (58%)	9,525 (72%)	<0.0001	0.289
	Median years (IQR)	0.4 (0.2–1.2)	0.5 (0.3–1.1)	<0.0001	0.258
Overall mortality (time to death)	n (%)	3,343 (18%)	3,876 (29%)	<0.0001	0.264
	Median years (IQR)	2155 (1287–3022)	1798 (1001–2661)	<0.0001	0.258

*PCa event, including BCR, RT, or bone agents.

MP 1.16

Evaluating the role of tissue resistance (ΔR) in irreversible electroporation for prostate cancer: A prospective cohort study stratified by high and low resistance levels

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Introduction: Irreversible electroporation (IRE) is an emerging focal therapy for prostate cancer (PCa) that uses electrical pulses to ablate tumor cells while preserving surrounding structures.[1] The change in tissue resistance (ΔR) during IRE has been studied in other cancers, where it has been shown to correlate with treatment efficacy and outcomes, potentially acting as a biomarker for ablation completeness and tissue response.[2-4] Given that ΔR has not been previously investigated in the context of PCa, this study aimed to compare oncologic outcomes in patients undergoing IRE for PCa.

Methods: We conducted a single-center, prospective study including 40 patients with PCa who underwent IRE between 2022 and 2024. Patients were categorized into two groups based on the cohort's median intra-procedural tissue resistance as cutoff: high resistance (≥9 ohms) and low resistance (<9 ohms). Baseline demographics, clinical parameters, and treatment-specific metrics were collected and analyzed. Outcomes assessed included preoperative PSA levels, PSA reduction at one month post-ablation, and recurrence or progression of disease postoperatively. Statistical analyses were conducted to determine significant differences between both groups.

Results: Of the 40 participants, 21 were classified in the low resistance and 19 in the high resistance group. There were no significant differences in age, race, comorbidities, or prior prostate cancer treatments. Preoperative PSA was similar between the groups (high resistance 8.3 ng/mL vs. low resistance 9.7 ng/mL, p=0.28). At one month postoperatively, PSA reduction was greater in the high resistance group, though not statistically significant (-58.6% vs. -54.0%, p=0.63) (Figure 1). Both groups had similar rates of complications and retreatment (high resistance 10.5% vs. low resistance 4.7%).

Conclusions: This study suggests that tissue resistance during IRE may be associated with PSA reduction. Although the stratification of patients into high- and low-resistance groups did not yield statistically significant differences in PSA reduction or complication rates, a trend toward greater PSA decline was observed in the high-resistance group. This finding suggests that ΔR may hold potential as an indicator of IRE effectiveness, aligning with evidence from other cancer types, where tissue resistance has been associated with ablation outcomes.

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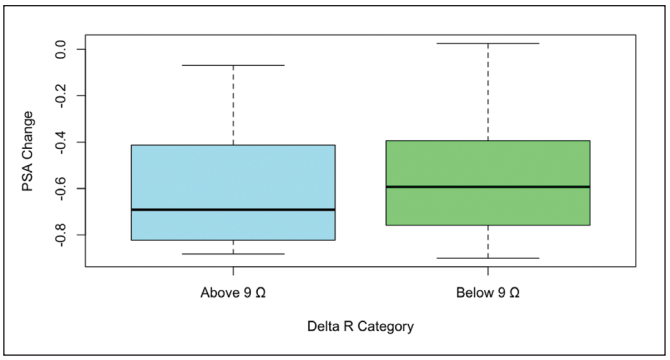

MP 1.16. Figure 1. PSA change from baseline at one month across tissue resistance categories: high (≥9 ohms) and low (<9 ohms).