

# Poster Session 7: Oncology – Prostate (Part 2)

## Monday, June 29, 2026 • 07:45–09:00

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### MP 7.1

#### Androgen deprivation therapy and cognitive performance in men with neurodegenerative disease

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**Introduction:** Androgen deprivation therapy (ADT) is a cornerstone of prostate cancer management but has been increasingly associated with adverse cognitive outcomes. Systematic reviews and population-based studies have demonstrated associations between ADT exposure and impairments in memory, executive function, and an increased risk of dementia diagnoses.<sup>1-3</sup> Prospective clinical studies suggest that these cognitive changes may occur even in the absence of metastatic disease.<sup>4</sup> The biological mechanisms underlying ADT-associated cognitive vulnerability remain unclear; however, emerging evidence suggests that hormonal and functional pathways may play a greater role than overt structural brain changes.<sup>5</sup> We therefore evaluated the associations between ADT exposure, prostate cancer diagnosis, testosterone levels, magnetic resonance imaging-derived white matter metrics, and cognitive performance in a neurodegenerative disease research cohort.

**Methods:** We performed a cross-sectional analysis of 521 men (mean age 72 years) participating in a neurodegenerative disease research cohort. Variables included prostate cancer diagnosis, ADT exposure, serum testosterone, global and frontal white matter volumes derived from magnetic resonance imaging, and Montreal Cognitive Assessment (MoCA) score. Group comparisons were conducted using t-tests or Mann-Whitney U tests, as appropriate. Multivariable linear regression was used to identify independent predictors of MoCA score, adjusting for age.

**Results:** Men receiving ADT demonstrated lower MoCA scores compared with those not receiving ADT ( $19.1 \pm 4.6$  vs.  $22.7 \pm 4.7$ ,  $p=0.004$ ). Participants with prostate cancer also had lower cognitive scores than those without prostate cancer ( $21.6 \pm 4.3$  vs.  $22.8 \pm 4.7$ ,  $p=0.04$ ). No significant differences were observed in global or frontal white matter volumes by ADT exposure or prostate cancer status (all  $p>0.05$ ). In adjusted regression analysis, increasing age was the only independent predictor of lower MoCA score ( $\beta=-0.28$ ,  $p<0.001$ ).

**Conclusions:** Men with prostate cancer and those treated with ADT demonstrated lower cognitive performance independent of structural white matter measures. These findings suggest that cognitive vulnerability associated with ADT may reflect functional or hormonal mechanisms rather than gross anatomical changes, supporting the need for cognitive surveillance in men receiving ADT.

**Acknowledgements:** Data used in this study were obtained from the Canadian Consortium on Neurodegeneration in Aging (CCNA) Comprehensive Assessment of Neurodegeneration and Dementia (COMPASS-ND) study.

#### References:

1. McGinty HL, Phillips KM, Jim HS, et al. Cognitive functioning in men receiving androgen deprivation therapy for prostate cancer: A systematic review and meta-analysis. *Support Care Cancer* 2014;22:2271-80. <https://doi.org/10.1007/s00520-014-2285-1>
2. Nead KT, Gaskin G, Chester C, et al. Androgen deprivation therapy and future Alzheimer's disease risk. *J Clin Oncol* 2016;34:566-71. <https://doi.org/10.1200/JCO.2015.63.6266>
3. Jayadevappa R, Chhatre S, Malkowicz SB, et al. Association between androgen deprivation therapy use and diagnosis of dementia in men with prostate cancer. *JAMA Netw Open* 2019;2:e196562. <https://doi.org/10.1001/jamanetworkopen.2019.6562>
4. Alibhai SMH, Breunis H, Timilshina N, et al. Impact of androgen deprivation therapy on cognitive function in men with nonmetastatic prostate cancer. *J Clin Oncol* 2010;28:5030-7. <https://doi.org/10.1200/JCO.2010.30.8742>

5. Buss C, Wolf OT, Witt J, et al. Autobiographic memory impairment following acute cortisol administration. *Psychoneuroendocrinology* 2004;29:1093-6. <https://doi.org/10.1016/j.psyneuen.2003.09.006>

### MP 7.2

#### Incremental value of micro-ultrasound-targeted prostate biopsy cores: A secondary analysis of the OPTIMUM randomized trial

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**Introduction:** Micro-ultrasound (microUS) is a novel, high-resolution imaging technique that allows for real-time visualization of prostate tissue. Level I evidence supports non-inferiority to magnetic resonance imaging (MRI) in the detection of clinically significant prostate cancer (csPCa, defined as Gleason grade group  $\geq 2$ ). The ideal number of microUS-targeted biopsy cores per region of interest, however, remains uncertain. The objective of this analysis was to determine the ideal number of targeted prostate biopsy cores needed to detect csPCa using high-resolution microUS.

**Methods:** This was a secondary analysis of data from the OPTIMUM trial, a multicenter, international, open-label, randomized, non-inferiority trial comparing MRI and microUS for the detection of csPCa. For the microUS-targeted lesions, the sampled biopsy cores (1–5) and their corresponding detection of csPCa were recorded. Detection was assessed as the presence of csPCa in at least one of the targeted cores. The primary outcome was the rate of csPCa detection, stratified by sequential core number. Differences in detection rates between the groups were analyzed using the Wilcoxon rank-sum test ( $p$ -value  $<0.05$ ).

**Results:** A total of 148 patients were assessed who had a microUS-guided targeted biopsy between December 2021 and September 2024. The detection of csPCa using microUS in at least one targeted core was recorded in 116, 112, 104, 12, and six patients with one, two, three, four, and five targeted cores sampled, respectively. The rate of csPCa detection increased with additional targeted cores: 85% with one core, 92% with two cores, 98% with three cores, and plateaued at 100% with four and five cores. There were significant differences in the rate of csPCa detection between one and three cores ( $p<0.001$ ) and between two and three cores ( $p=0.025$ ). All other relationships were not significant ( $p>0.05$ ).

**Conclusions:** The detection of csPCa using microUS is significantly improved by taking multiple cores, up to three, with four and five targeted cores not meaningfully improving the detection of csPCa. Three targeted biopsy cores maximize prostate cancer detection while minimizing unnecessary sampling and potential patient complications.

**Funding:** Exact Imaging.

### MP 7.3

#### Real-world time to results consultation following MRI-targeted prostate biopsy

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**Introduction:** There are many delays for patients being investigated and treated for prostate cancer (PCa), with novel advances promising to reduce those in the diagnostic paradigm. In the Canadian healthcare system, these delays are poorly characterized. Additionally, the stress felt at each delay is not equal, with the delay between prostate biopsy and results creating the most anxiety for patients.<sup>1</sup> Delays to perform a prostate biopsy and result disclosure may represent areas for workflow improvement; as such, they were assessed at our tertiary care center.

**Methods:** We conducted a retrospective review of all patients who underwent a magnetic resonance imaging (MRI) cognitive fusion microultrasound (ExactVu, ExactVu Imaging Inc., Markham, ON)-guided transperineal prostate biopsy at Vancouver General Hospital between July and November 2024 (n=100 patients). Lesions were categorized using the Prostate Imaging Reporting and Data System (PI-RADS) v2. Several time intervals across the diagnostic pathway were assessed. The primary outcomes were time from referral to MRI and biopsy to communication of results at the postbiopsy followup appointment. Outcomes are reported as median days with interquartile range.

**Results:** Our cohort showed a median PSA of 9 ng/mL, and the most frequent lesions were PI-RADS 4 (n=45) and 5 (n=40). Clinical characteristics are shown in Table 1. The biopsy pathology most frequently demonstrated benign findings or grade group 2 PCa (n=27). The median time from referral to biopsy was 173 days (IQR 101–248), and the median interval from biopsy to pathology reporting was seven days (IQR 6–8, range 4–13). The median interval from biopsy to post-biopsy followup to discuss results was 17 days (IQR 14–21, range 6–50) (Table 2).

**Conclusions:** There exists long delays in the Canadian PCa diagnostic pathway, which, in addition to oncologic concerns, also increases patient anxiety. Reduced reliance on MRI and application of near-real-time pathologic workflows may minimize delays and reduce patient PCa-related anxiety, which should be assessed in prospective studies.

Reference:

1. Dale W, Bilir P, Han M, et al. The role of anxiety in prostate carcinoma: A structured review of the literature. *Cancer* 2005;104:467-78. <https://doi.org/10.1002/cncr.21198>

MP 7.3. Table 1. Patient characteristics, PI-RADS score distribution, and biopsy grade groups for 100 patients who underwent prostate biopsy	
Patient characteristics	Median (IQR)
Age at biopsy, years	69 (62–74)
PSA at biopsy, ng/mL	9.0 (5.3–13.6)
Prostate volume, mL	45 (34–64)
PSA density, ng/mL/mL	0.18 (0.11–0.28)
ROI size, mm	14 (10–21)
PI-RADS score	Number of patients
3	15
4	45
5	40
Grade group	Number of patients
Benign	27
1	25
2	27
3	12
4	3
5	6

Values are presented as median and interquartile range (IQR) or number of patients.

MP 7.3. Table 2. Days (median and IQR) between each patient event: Referral, MRI, biopsy, and post-biopsy followup		
	Median (days)	IQR (days)
Referral to biopsy results followup	187	119–259
MRI to biopsy	96	55–149
Referral to biopsy	173	101–248
Biopsy to pathology	7	6–8
Biopsy to biopsy results followup	17	14–21
Referral to biopsy results followup	118	118–263
Biopsy to treatment	107	74–197
Referral to treatment	273	200–334

### MP 7.4

#### Detection of clinically significant prostate cancer in peripheral and transitional zone lesions using MRI-fusion transperineal biopsy

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**Introduction:** MRI fusion technology is transforming prostate biopsy practices, with the transperineal approach gaining popularity for its lower infection risk. Multiparametric MRI (mpMRI) should be offered to all biopsy-naive patients with elevated PSA prior to prostate biopsy. This study demonstrates prostate cancer (PCa) detection rates of the MRI fusion transperineal biopsy in different tumor locations (peripheral zone, transitional zone, or both), comparing MRI PI-RADS scores with the International Society of Urological Pathology (ISUP) grade groups.

**Methods:** This single-center, retrospective study included 300 patients who underwent MRI-fusion transperineal biopsies between November 2021 and December 2025. All patients underwent both systematic and targeted biopsy, with a minimum of 12 cores. Data for analysis, including PSA levels, lesion zone, PI-RADS scores, and biopsy results were collected from patient records. Clinically significant prostate cancer (csPCa) is defined as patients having a biopsy ISUP grade group of 2 or more.

**Results:** Among 300 patients, MRI identified lesions as PI-RADS-3 and above in the following: the peripheral zone (PZ) of 125 (41.7%) cases, the transitional zone (TZ) of 143 (47.7%) cases, and in both zones (PZ+TZ) of 32 (10.6%) cases. The number of biopsy-confirmed cases as PCa differs across the three groups; the PZ group had 86 (68.8%) cases, the TZ group had 65 (45.5%) cases, and the PZ+TZ group had 21 (65.6%) cases (Table 1). Regarding PZ lesions, csPCa was found in three (17.6%) cases with PI-RADS-3, 34 (45.9%) cases with PI-RADS-4, and 24 (70.6%) cases with PI-RADS-5. As for the TZ lesions, csPCa was found in three (10.3%) cases with PI-RADS-3, 26 (28.6%) cases with PI-RADS-4, and 13 (56.5%) cases with PI-RADS-5. Finally, the PZ+TZ lesions had csPCa in eight (40%) cases with PI-RADS-4 and eight (80%) cases with PI-RADS-5. No csPCa cases were detected with PI-RADS-3 (Table 2).

**Conclusions:** MRI-fusion transperineal biopsy demonstrates high detection rates of csPCa in PI-RADS-4 and -5 lesions across both PZ and TZ. Even for the TZ with typically lower detection accuracy, the ability to detect 10.3% csPCa in PI-RADS-3 TZ lesions is clinically significant.

**Acknowledgements:** This abstract was presented as a moderated poster at the NSAUA 2025 (interim analysis).

**MP 7.4. Table 1. Prostate cancer detection rate**

Average age of participants (n=300)	70 years				
Median PSA of participants	9.4 ug/l				
MRI fusion transperineal biopsy					
	Prostate cancer zone	Peripheral zone, n (%)	Transitional zone, n (%)	Peripheral + transitional, n (%)	Total, n (%)
Pre-biopsy MRI		125 (41.7%)	143 (47.7%)	32 (10.6%)	300 (100%)
Positive reported biopsy		86 (68.8%)	65 (45.5%)	21 (65.6%)	172 (57.3%)

**M 7.4. Table 2. Findings of biopsy result when compared to PI-RADS score**

Peripheral zone					CsPCa % in biopsy	Transitional zone					csPCa % in biopsy	Peripheral + transitional zone					csPCa % in biopsy			
MRI score	ISUP grade					MRI score	ISUP grade					MRI score	ISUP grade							
	PZ (n=125)	2	3	4			5	TZ (n=143)	2	3			4	5	PZ+TZ (n=32)	2		3	4	5
PI-RADS-3 (n=17)	+ve: 6 -ve: 11	2 (11.8%)	1 (5.9%)	0	0	3 (17.6%)	PI-RADS-3 (n=29)	+ve: 6 -ve: 23	3 (10.3%)	0	0	0	3 (10.3%)	PI-RADS-3 (n=2)	+ve: 0 -ve: 2	0	0	0	0	0 (0%)
PI-RADS-4 (n=74)	+ve: 52 -ve: 21	21 (28.4%)	5 (6.8%)	8 (10.8%)	0	34 (45.9%)	PI-RADS-4 (n=91)	+ve: 42 -ve: 49	20 (22%)	3 (3.3%)	2 (2.2%)	1 (1.1%)	26 (28.6%)	PI-RADS-4 (n=20)	+ve: 12 -ve: 8	4 (20%)	1 (5%)	3 (15%)	0	8 (40%)
PI-RADS-5 (n=34)	+ve: 28 -ve: 6	13 (38.2%)	7 (20.6%)	4 (11.8%)	0	24 (70.6%)	PI-RADS-5 (n=23)	+ve: 17 -ve: 6	10 (43.5%)	1 (4.3%)	3 (1.3%)	0	13 (56.5%)	PI-RADS-5 (n=10)	+ve: 9 -ve: 1	2 (20%)	2 (20%)	3 (30%)	1 (10%)	8 (80%)

**MP 7.5**

**The significance of systematic biopsy in prostate cancer diagnosis within MRI-fusion transperineal biopsy protocols**

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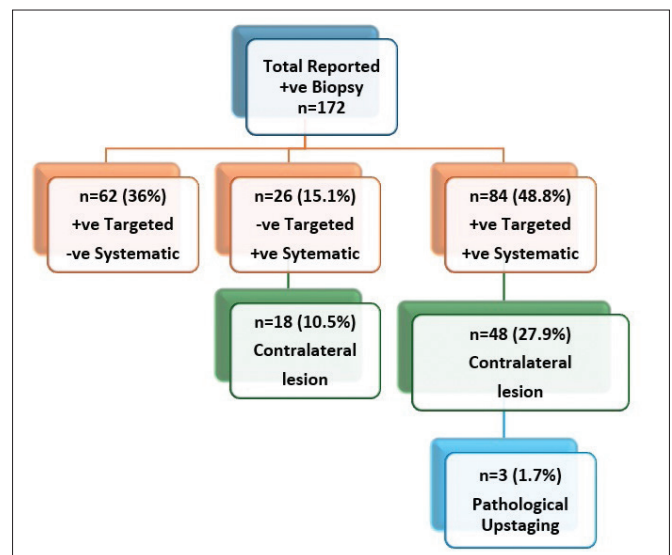
**Introduction:** MRI-fusion transperineal biopsy has improved the accuracy of prostate cancer diagnosis by enabling targeted sampling of suspicious lesions. Current standard practice combines targeted biopsy (TBx) with systematic biopsy (SBx). This study aimed to quantify the diagnostic contribution of systematic biopsies when performed alongside targeted biopsies, particularly in detecting clinically significant prostate cancer (CsPCa).

**Methods:** We conducted a single-center, cross-sectional chart review of patients undergoing prostate biopsy at Thunder Bay Regional Health Sciences Centre (TBRHSC). All patients underwent MRI-fusion transperineal biopsy, starting with targeted biopsies of MRI-identified lesions, followed by a standardized 12-core systematic biopsy protocol.

**Results:** Among 300 patients, 172 (57.3%) had positive biopsy results that were grouped into three groups: only targeted positive, only systematic positive, systematic and targeted positive. Sixty-two patients (36%) had only positive targeted biopsy, and 26 patients (15.1%) had only positive systematic biopsy, including 18 patients (10.5%) with the positive lesions contralateral to the MRI targeted ones. Finally, 84 patients (48.8%) had positive systematic and targeted biopsies, including 48 patients with positive lesions in the systematic biopsy on the contralateral side to the targeted ones (three had pathologic upstaging from clinically insignificant to clinically significant cancer) (Figure 1).

**Conclusions:** Systematic biopsy plays a critical role in detecting prostate cancer foci beyond MRI-visible targets. Reliance on targeted biopsy alone carries a 5.8% risk of missing clinically significant prostate cancer. Furthermore, bilateral system-

atic sampling is essential, as clinically significant contralateral prostate cancer was identified in 10.5% of cases. These findings support the continued use of combined targeted and systematic biopsy protocols to optimize diagnostic accuracy.



**MP 7.5. Figure 1.** Systematic and targeted biopsy results with the MRI-fusion transperineal technique.

**MP 7.6**

**Beyond continence control: A systematic review and meta-analysis of oncologic outcomes following Retzius-sparing vs. conventional robot-assisted radical prostatectomy**

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**Introduction:** Recent literature has shown superior short-term continence and function with Retzius-sparing robot-assisted radical prostatectomy (RS-RARP) over conventional RARP (C-RARP). Data are lacking for post-RS-RARP oncologic outcomes. A systematic review with meta-analysis evaluated oncologic outcomes (positive surgical margins [PSM], biochemical recurrence [BCR], and other cancer-related parameters) for RS-RARP vs. C-RARP for localized prostate cancer.

**Methods:** A PRISMA-guided review registered in PROSPERO (CRD420251154063) searched major databases up to January 25, 2025. Risk of bias was evaluated using the RoB 2 and ROBINS-I tools. Covidence was used for in-duplicate screening and data extraction. Descriptive statistics and meta-analyses were conducted in IBM SPSS Statistics v30. To capture the scope of available data, randomized controlled trials (RCTs) and prospective and retrospective observational studies were included.

**Results:** Thirty-one studies (five RCTs, eight prospective, 18 retrospective) were included, with 5994 patients (54.2% C-RARP and 45.8% RS-RARP) with a mean (SD) age of 64.5 (2.6) years. Meta-analysis showed no differences between approaches for PSMs (RR 0.95, 95% CI 0.90–1.01). No differences were shown between PSMs and pathological stage ( $\leq$ pT2: RR 0.93, 95% CI 0.86–1.01; pT3: RR 0.96, 95% CI 0.91–1.02). Fewer cases of BCR occurred with RS-RARP vs. C-RARP (121 vs. 168,  $p < 0.001$ ). Clavien-Dindo complications were higher in the RS-RARP group for all grades ( $p < 0.001$ ). When isolated, prospective studies indicated RS-RARP had higher PSMs ( $p < 0.001$ ), while C-RARP had more BCR ( $p = 0.004$ ) and complications ( $p = 0.001$ ); 72% of observational studies had a "moderate" RoB, while three RCTs had "low" RoB, and two had "some concerns."

**Conclusions:** A meta-analysis of 31 studies showed no significant differences between C-RARP and RS-RARP for PSM rates, stage, and BCR. RS-RARP indicated increased complications over C-RARP across all Clavien-Dindo grades.

**MP 7.7**

**Progression of bone loss in patients with prostate cancer on androgen deprivation therapy: A provincial study**

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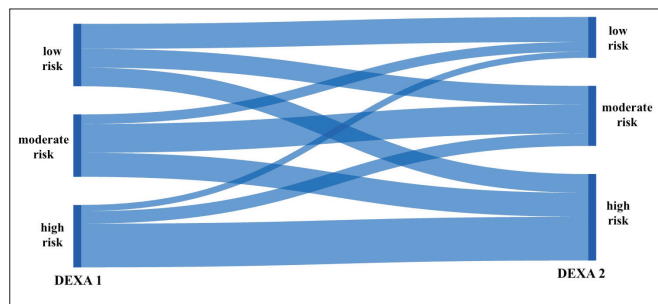
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**Introduction:** Androgen deprivation therapy (ADT) is the cornerstone of advanced prostate cancer (PCa) treatment; however, it has detrimental effects on bone health, accelerating bone demineralization and decreasing bone mineral density (BMD), leaving patients vulnerable to osteoporosis and fractures. There is a paucity of data describing the course of BMD in patients treated with ADT. The purpose of this study was to investigate bone loss progression in men with PCa on ADT.

**Methods:** Patients with PCa on ADT were identified using the provincial Drug Information System between January 2020–December 2024. A retrospective chart review was conducted using electronic medical records to determine ADT duration, frequency of dual-energy X-ray absorptiometry (DEXA) scans with fracture risk, and treatment with antiresorptive (AR) therapy.

**Results:** Among 1749 patients identified, 30% had a first DEXA scan. From scan 1: 68% were low-risk (LR), 19% moderate-risk (MR), and 11% high-risk (HR). AR therapy was started in 13% of patients (13% LR, 42% MR, 68% HR). A second DEXA scan was performed in 14% of patients with risk classification LR 45%, MR 28%, and HR 25%. Among those on AR, 51.5% remained stable (Figure 1); 60% of LR patients worsened, while 38% of MR progressed to HR. HR patients on AR largely remained HR (70%), although 30% improved. HR patients not on AR showed no improvement. Most (83%) patients who improved received AR therapy.

**Conclusions:** Our findings demonstrate that bone loss is a common complication in men receiving ADT. Progression in men initially classified as LR advancing to MR or HR is frequent (60%). While AR therapy decreases risk fracture in some (30%), HR patients remain vulnerable to skeletal related events. Patients classified as MR or HR should initiate AR treatment, as MR patients showed minimal improvement without therapy and HR showed none. These findings highlight the importance of routine BMD monitoring and early AR therapy initiation, as recommended by the CUA guidelines.



**MP 7.7.** Changes in BMD risk category from DEXA 1 to DEXA 2 in men with prostate cancer on ADT and AR treatment.

**MP 7.8**

**RELIEVE-TP: Inhaled methoxyflurane for pain and anxiety control during outpatient transperineal prostate biopsy: A prospective, randomized trial**

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**Introduction:** Transperineal (TP) prostate biopsy is increasingly adopted due to lower infectious risk and improved diagnostic performance compared with the transrectal approach; however, TP biopsy may still be associated with significant procedural pain and anxiety, even under optimized local anesthesia (LA), which can limit patient acceptance in outpatient settings. Inhaled methoxyflurane is a rapid-onset, self-administered analgesic with established safety profile for short procedures, and may improve patient comfort during office-based interventions.

**Methods:** RELIEVE-TP is a prospective, randomized, two-arm, controlled clinical trial conducted in an outpatient urology clinic. Men undergoing TP prostate biopsy under LA will be randomized (1:1) to receive either standard LA alone or LA plus inhaled methoxyflurane delivered via a handheld inhaler. Procedures will be performed without intravenous sedation, operating room resources, or anesthesia personnel, allowing immediate discharge. Primary endpoints are worst procedural pain, measured by numeric rating scale, and procedural anxiety, measured by visual analogue scale for anxiety. Secondary endpoints include patient satisfaction, willingness to repeat the same analgesic strategy, adverse events, changes in vital signs, cancer detection rate, and total procedural time. Planned sample size is 100–120 participants.

**Results:** The study protocol has received final internal approval and has been submitted for research ethics board review. Recruitment is expected to begin following approval, with projected completion within 6–9 months based on institutional biopsy volume.

**Conclusions:** RELIEVE-TP will provide prospective evidence on the feasibility and effectiveness of inhaled methoxyflurane as an adjunct to LA for outpatient TP prostate biopsy. If successful, this strategy could enhance patient comfort and anxiety while maintaining efficient clinic-based workflows. The protocol should further support deployment of ambulatory TP biopsy.

**MP 7.9****Understanding urologists' perspectives on using an artificial intelligence-enabled decision support tool in healthcare**

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**Introduction:** An AI-enabled decision support tool called ClarityDX Prostate has been developed to enhance prostate cancer risk stratification and streamline clinical decision-making.<sup>1,3</sup> The University of Alberta, Nanostics Inc., and Acute Care Alberta partnered with the W21C Research and Innovation Center to assess urologists' perspectives on clinical workflows in prostate cancer screening and diagnosis, and the potential integration of ClarityDX Prostate in their region. W21C also assessed human impact factors associated with the use of ClarityDX Prostate from the patient perspective in a separate study.

**Methods:** Eight urologists from five Canadian provinces were recruited to participate in a focus group held during the 80th CUA meeting in Ottawa. Two preliminary interviews were conducted with Alberta-based urologists to develop the discussion topics for the focus group. The focus group participants were surveyed pre- and post-focus group session to collect demographic and practice information, and gather participants' perceptions of ClarityDX Prostate, including usefulness and ease of use ratings, respectively. The focus group session was analyzed using thematic analysis to identify themes using NVivo 15.<sup>4</sup>

**Results:** Participants viewed ClarityDX Prostate favorably, citing its usefulness, ease of use, and especially its ability to improve MRI triage and support decision-making in uncertain cases; however, concerns included possible misdiagnosis from test misinterpretation and increased caseloads if patients are not discharged without MRI confirmation. For successful adoption, participants emphasized the need for patient reimbursement, more data on effectiveness and cost savings, evidence of reduced MRI waits, and proof that overdiagnosis of minor cancers can be avoided.

**Conclusions:** The participants found ClarityDX Prostate to be an interesting and potentially valuable tool, especially in the context of MRI triaging. The lack of repeat PSA testing observed in many regions was seen by participants as a challenge, but also as a potential opportunity for integrating ClarityDX Prostate into existing pathways and serving as a more informative followup test. Successful implementation will require addressing key barriers, such as establishing clear risk thresholds, ensuring patient reimbursement, and demonstrating robust clinical effectiveness data. Overall, ClarityDX is a promising tool for urologists to improve prostate cancer diagnosis efficiency.

Funding: Genome Canada and Genome Alberta.

References:

- Hyndman ME, Paproski RJ, Kinnaird A, et al. Development of an effective predictive screening tool for prostate cancer using the ClarityDX machine learning platform. *NPJ Digital Medicine* 2024;7:163. <https://doi.org/10.1038/s41746-024-01167-9>
- Wallis CJD, Paproski RJ, Hyndman ME, et al. Addition of MRI or DRE to clinical data and risk prediction for clinically significant prostate cancer. *J Clin Oncol* 2024; 42:e17105. [https://doi.org/10.1200/JCO.2024.42.16\\_suppl.e17105](https://doi.org/10.1200/JCO.2024.42.16_suppl.e17105)
- Hyndman ME, Kinnaird A, Paproski RJ, et al. MP 1.13 Accurate risk models with and without magnetic resonance imaging features and digital rectal examination findings to predict clinically significant prostate cancer before prostate biopsy. *Can Urol Assoc J* 2024; 18:S21-9.
- Maher C, Hadfield M, Hutchings M, et al. Ensuring rigor in qualitative data analysis: A design research approach to coding combining in vivo with traditional material methods. *Int J Qual Meth* 2018; 17:1609406918786362. <https://doi.org/10.1177/1609406918786362>

**MP 7.10****Utility of prostate-specific antigen density in guiding biopsy decisions for Prostate Imaging Reporting and Data System 3 lesions**

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**Introduction:** Management of Prostate Imaging Reporting and Data System (PI-RADS) 3 lesions is difficult due to variable risk of clinically significant prostate cancer (csPCa). Prostate-specific antigen density (PSAd) may refine biopsy decisions, but no consensus cutoff or risk model exists. We aimed to identify csPCa predictors in PI-RADS 3 lesions and develop a PSAd-based biopsy decision calculator.

**Methods:** We retrospectively analyzed patients undergoing transperineal prostate biopsy from 2022–2025. The primary outcome was csPCa. Variables included age, PSA, prostate volume (Pvol), PSAd, lesion size, imaging site, and prior biopsy status. Group comparisons, univariable logistic regression, and receiver operating characteristic (ROC) analyses were performed. Given limited csPCa events, multivariable modeling was not performed. A decision curve analysis (DCA) assessed the net clinical benefit of PSAd, which was used to construct a biopsy decision calculator.

**Results:** Of 390 patients, 49 (12.5%) had PI-RADS 3 lesions, with five (10.2%) having csPCa. Patients with csPCa had higher PSAd (median 0.25 vs. 0.12 ng/mL<sup>2</sup>, p=0.013) and smaller Pvol (30.4 vs. 64.5 cm<sup>3</sup>, p<0.001). Smaller Pvol was significantly associated with csPCa (OR 0.86, 95% CI 0.75–0.99, p=0.038), while PSAd showed a strong trend (1.62, 0.92–2.84, p=0.096). Area under the curve was 0.95 and 0.83 for Pvol and PSAd, respectively, with optimal cutoffs of 33.5 cm<sup>3</sup> and 0.15 ng/mL<sup>2</sup>. DCA showed net benefit of PSAd over 'biopsy-all' and 'biopsy-none' strategies across a 3–21% threshold probability range. At 21% threshold, 66.7% of biopsies were avoided, with 8.3% of cancers missed.

**Conclusions:** Higher PSAd and smaller Pvol were associated with csPCa in PI-RADS 3 lesions. Despite stronger statistical association for Pvol, PSAd showed comparable discrimination and clinical utility. A pilot PSAd-based calculator was developed to support biopsy decision-making for PI-RADS 3 lesions, representing the first such tool for this category.

Acknowledgements: This work was previously presented in part at the 49th Annual Meeting of the Quebec Urological Association.

**MP 7.11****Early mental health gains in younger men enrolled in a digital prostate cancer survivorship program: Preliminary age subgroup results from an international, phase 4 implementation trial**

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**Introduction:** Younger men with prostate cancer experience greater psychological distress and poorer mental health-related quality of life (QoL), yet scalable, integrated psychosocial and behavioral survivorship supports are lacking.

We examined whether a digital survivorship program (Prostate Cancer-Patient Empowerment Program [PC-PEP]) achieved comparable engagement and mental health benefits among younger (<60 yrs) vs. older (≥60 yrs) participants.

**Methods:** This international, phase 4, single-arm, prospective trial evaluated PC-PEP, a six-month, home-based, digital program integrating exercise, pelvic floor training, stress reduction, nutrition, and psychological support. Participants (n=693) completed assessments at baseline, six, 12, and 24 months. Outcomes included eligibility-adjusted retention, program acceptability, psychological distress (Kessler Psychological Distress Scale [K10]), and health-related QoL (SF-12 Mental Component Score and Physical Component Score [MCS, PCS]). Gaussian generalized estimating equation models adjusted for demographics, clinical and treatment factors, time, and time x age group interaction.

**Results:** Table 1 provides demographic information, and Table 2 psychological health data. Eligibility-adjusted retention was similar between all participants at six, 12, and 24 months. Program acceptability at six months was high, with a median recommendation score of 10 (IQR 8–10) and >92% providing positive ratings. At baseline, younger participants had worse mental health and distress (higher K10 and lower MCS, both p<0.001). Psychological distress decreased significantly over time, with greater long-term improvement among younger men (reductions in K10, and large gains in MCS) and significant improvement in mental health-related QoL. No age-related differences observed in physical health outcomes.

**Conclusions:** Younger men entered PC-PEP with worse mental health profiles but had comparable engagement and significantly greater long-term improvements in psychological distress and mental health-related QoL. These findings support integration of scalable digital survivorship programs into routine prostate cancer care to address age-related mental health disparities.

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**MP 7.12**  
**Stimulated Raman histology and artificial intelligence identify prostate cancer after neoadjuvant therapy, showing promise for post-treatment tissue banking**

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**Introduction:** A key challenge in treated prostate cancer (PCa) is identification of residual PCa in surgical specimens for genomic profiling. Stimulated Raman histology (SRH) with artificial intelligence (AI) detects PCa on untreated tis-

**MP 7.11. Table 1. Baseline characteristics of PC-PEP phase 4 participants by age group**

Characteristic	Older adults ≥60 (n=574)	Younger adults <60 (n=119)	p*
Age, years	68 (64, 73)	56 (52, 58)	<0.001
Country, n (%)			0.016
Canada	507 (92)	101 (91)	
New Zealand	38 (6.9)	4 (3.6)	
United States	5 (0.9)	2 (1.8)	
Australia	0 (0)	1 (0.9)	
South Africa	4 (0.7)	1 (0.9)	
Austria	0 (0)	1 (0.9)	
United Kingdom	0 (0)	1 (0.9)	
Rural residence, n (%)	168 (30)	38 (32)	0.60
Ethnicity, n (%)			0.053
White/Caucasian	498 (91)	103 (90)	
Black/African	11 (2.0)	6 (5.2)	
First Nations / Indigenous	4 (0.7)	1 (0.9)	
Latino/Hispanic	2 (0.4)	1 (0.9)	
Asian/Pacific Islander	13 (2.4)	2 (1.7)	
Middle Eastern/Arab/Indian	2 (0.4)	2 (1.7)	
Other	15 (2.8)	0 (0)	
Sexual orientation, n (%)			0.010
Heterosexual	550 (96)	107 (90)	
Gay	15 (2.6)	8 (6.7)	

Values are median (Q1, Q3) or n (%), as indicated. Percentages calculated excluding missing data. \*P-values derived from Wilcoxon rank-sum test (continuous variables) and Fisher's exact or Pearson  $\chi^2$  tests (categorical variables), as appropriate.

sue, but it is unknown whether models trained on treatment-naïve specimens retain performance in therapy-altered tissue. We evaluated performance of an untreated-tissue SRH-AI model in treated specimens.

**Methods:** Prospectively, 72 participants in GUNS neoadjuvant trial underwent radical prostatectomy after six months of neoadjuvant therapy. SRH-AI imaged samples from prostatectomies destined for cryobanking to generate a PCa percentage, and corresponding H&E-derived PCa percentage served as the reference standard; tissues were classified as positive if >0% PCa on fresh frozen H&E (Figure 1). Model assessment was performed by ROC and precision-recall (PR) AUC, SRH-AI distributions between PCa-positive and negative tissues were also compared.

**Results:** In this cohort, 11 % (9/72) of fresh tissue biobanked at the time of prostatectomy contained PCa, with a median of 5% infiltration (IQR 4–25 %) (Figure 2). The model showed moderate discrimination between PCa and non-PCa-infiltrated tissue (ROC-AUC 0.70, 95% CI 0.41–0.95) and concentrated its positive calls on true PCa more than expected by chance in this low-prevalence cohort (PR AUC 0.41, 95% CI 0.12–0.73). Three cases were deemed negative on fresh frozen H&E, with high SRH-AI scores (>20) and remaining PCa in prostatectomy; genitourinary pathologist review of the SRH images was also

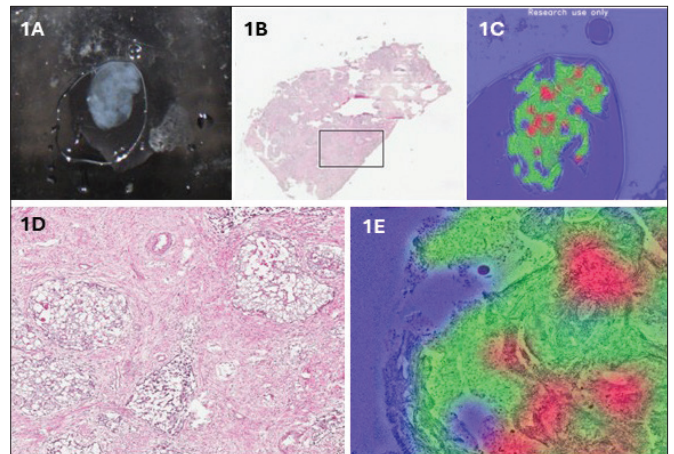
**MP 7. 11. Table 2. Longitudinal generalized estimating equation models for psychological distress and mental health-related quality of life by age group in the PC-PEP phase 4 implementation trial**

Predictor	K10 psychological distress $\beta$ (95% CI)	p	SF-12 mental component score (MCS) $\beta$ (95% CI)	p
Age at baseline (years)	-0.11 (-0.18, -0.03)	0.008	0.11 (-0.04, 0.25)	0.20
Charlson comorbidity index	0.41 (0.07, 0.75)	0.017	-0.46 (-1.10, 0.18)	0.20
Prescribed anxiety/depression medication	3.40 (2.40, 4.30)	<0.001	-6.10 (-8.10, -4.00)	<0.001
Currently in a relationship	-0.27 (-1.30, 0.76)	0.60	2.40 (0.07, 4.80)	0.044
Days from diagnosis to baseline survey	0.00 (0.00, 0.00)	0.009	0.00 (0.00, 0.00)	0.010
<b>Treatment category</b>				
Surgery $\pm$ hormone therapy	Reference	—	Reference	—
Active surveillance only	-0.25 (-0.83, 0.33)	0.40	0.23 (-1.10, 1.50)	0.70
Radiation $\pm$ hormone therapy	0.79 (0.10, 1.50)	0.025	-0.85 (-2.30, 0.60)	0.30
Hormone therapy only	1.10 (0.17, 2.10)	0.020	-1.50 (-3.60, 0.57)	0.20
<b>Time (months)</b>				
Baseline (0)	Reference	—	Reference	—
6	-0.62 (-1.10, -0.15)	0.009	0.80 (-0.35, 1.90)	0.20
12	-0.61 (-1.10, -0.08)	0.023	0.45 (-0.83, 1.70)	0.50
24	-0.76 (-1.40, -0.15)	0.015	1.10 (-0.31, 2.50)	0.12
Younger age (<60 vs $\geq$ 60)	1.40 (-0.02, 2.70)	0.054	-4.60 (-7.30, -1.90)	<0.001
<b>Time <math>\times</math> younger age interaction</b>				
6 months $\times$ younger	-0.44 (-1.60, 0.68)	0.40	3.20 (1.00, 5.30)	0.004
12 months $\times$ younger	-1.10 (-2.40, 0.29)	0.12	3.80 (1.20, 6.50)	0.005
24 months $\times$ younger	-1.50 (-2.70, -0.26)	0.018	5.50 (2.10, 8.90)	0.001

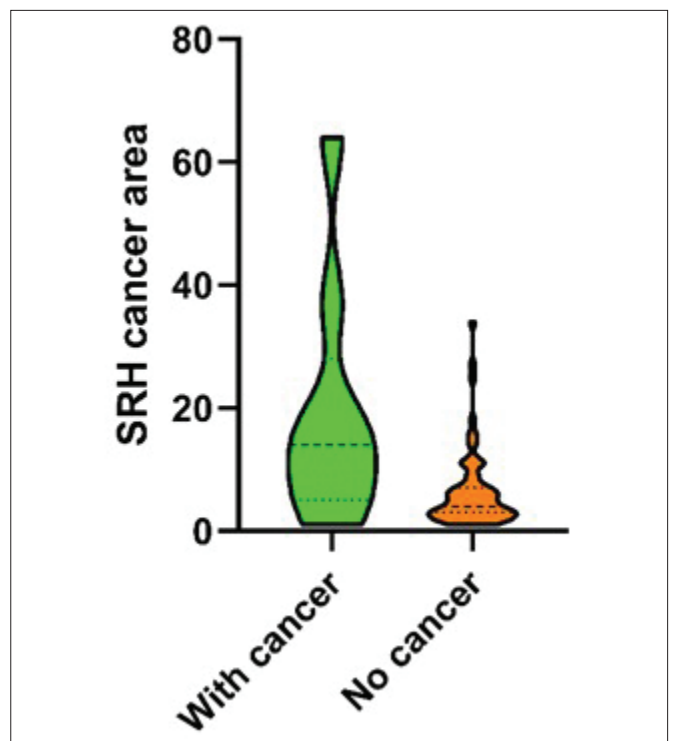
Models were estimated using Gaussian GEE with an exchangeable correlation structure and clustered by participant. All models adjusted for age, comorbidity burden, prescribed mental-health medication, relationship status, time from diagnosis to baseline survey, treatment category, time, and time  $\times$  age interaction. Negative  $\beta$  coefficients indicate lower psychological distress (K10), and positive  $\beta$  coefficients indicate better mental health-related quality of life (MCS).

highly suspicious for residual PCa in at least two cases, raising the possibility of missed PCa on frozen section analysis rather than true SRH-AI false positivity. If these two cases are reclassified as positive, the ROC-AUC improves to 0.81 (95% CI 0.61–0.96).

**Conclusions:** SRH-AI trained on untreated PCa maintained moderate discrimination in treated disease. SRH-AI very suspicious yet apparently “false-positive” cases require re-review and additional deeper level sections to confirm true final diagnosis. Overall, SRH-AI may be a valuable tool to help ensure that sampled tissue from treated PCa contains residual PCa for molecular analysis.



**MP 7.12. Figure 1.** SRH-AI and H&E analysis showing identification of PCa after 6 months of neoadjuvant therapy in the GUNS trial. (A) GUNS specimen (gross view). (B) OCT H&E-stained slide. (C) SRH-AI prediction of PCa. (D&E) Magnified comparison of OCT H&E and SRH-AI images, respectively.



**MP 7.12. Figure 2.** Violin plot representation of SRH cancer area in prostate cancer containing samples and no cancer samples, showing the median and interquartile ranges.

**MP 7.13****Phase I pilot study: Intraoperative somatic-autonomic nerve-grafting technique to preserve erectile function in high-grade prostate cancer patients undergoing robotic-assisted radical prostatectomy**

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**Introduction:** Erectile dysfunction is a major complication of radical prostatectomy (RP). High-risk prostate cancer often precludes nerve-sparing RP, and interposition nerve grafts historically have little clinical efficacy. Recently, somatic-to-autonomic nerve grafts demonstrated remarkable erectile function recovery 2+ years after RP; however, procedural complexity and a need for multidisciplinary surgical teams hinder widespread adoption. We conducted a phase I pilot trial to evaluate the safety and recovery of erectile function in patients undergoing a novel nerve-restoring (NR)-RALP for high-risk prostate cancer.

**Methods:** Ten patients with high-risk prostate cancer and preserved erectile function (International Index of Erectile Function-5 [IIEF-5] score >17) underwent a standard RALP with an intraoperative bilateral end-to-side neurotaphy between the dorsal penile nerve and corpora cavernosum using a genitofemoral nerve (GFN) graft. Outcomes included postoperative IIEF-5 score, subjective erectile function (/10), and Short Form McGill Pain Questionnaire (SF-MPQ) scores at one, three, six, 12, and 18 months. Adverse events were graded per Clavian-Dindo classification.

**Results:** The mean age of our cohort was 61 (SD±7) years, with a mean pre-operative IIEF-5 score of 24.5 (±0.7). No procedural complications were noted across the 10 procedures. At the time of abstract submission, median patient followup was three months, and two patients reached six months. The median three-month IIEF-5 score was 5 (IQR 5, 7.25) and median subjective erectile function was 2/10 (0,2). At six months, two patients noted IIEF-5 scores of 6 and 10, and subjective erectile function of 4 or 6/10. Side effects included thigh numbness and altered scrotal sensation; however, 9/10 patients reported 0 on SF-MPQ.

**Conclusions:** Our preliminary findings demonstrate that NR-RALP using an intraoperative GFN graft is a feasible and safe procedure, currently being evaluated in our clinical trial for efficacy in erectile functional recovery.

**MP 7.14****Prostate cancer detection and complications of systematic, MRI-targeted, and combined biopsy: Experience from 4920 transperineal prostate biopsies under local anesthesia**

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**Introduction:** Transperineal prostate biopsy (TP) has increasingly been adopted as a safer alternative to the traditional transrectal prostate biopsy due to its lower risk of infectious complications, including urosepsis; however, the role of systematic sampling in MRI-positive patients in the TP biopsy cohort remains unclear.

**Methods:** We retrospectively analyzed chart data from 4920 consecutive patients undergoing clinic-based transperineal prostate biopsy under local anesthesia between October 2016 and April 2025 at North York General Hospital (NYGH REB #0285). Patients underwent systematic, MRI-targeted, or combined (systematic + MRI-targeted) biopsy. Clinically significant prostate cancer (csPca) was defined as Gleason grade group (GG) ≥2.

**Results:** Overall prostate cancer detection was 58.7% (2888/4920), with GG distribution: GG1, 1037 (35.9%); GG2, 1050 (36.4%); GG3, 488 (16.9%); GG4, 111 (3.8%), and GG5, 202 (7.0%). csPca was detected in 37.6% (1851/4920) of cases. Exclusively anterior-located prostate cancer accounted for 8.9% (258/2888), of which 31.0% (80/258) were csPca. Systematic, combined, and MRI-targeted TP were performed in 3519 (71.5%), 1382 (28.1%), and 19 (0.39%) patients, respectively. A total of 1938 patients had a pre-biopsy MRI with available PI-RADS data (negative MRI: 540 (27.9%); PI-RADS 3: 427 [22.0%]; PI-RADS 4: 718 [37.0%]; PI-RADS 5: 253 [13.1%]). In the combined biopsy subgroup, csPca was detected in 19.2% of PI-RADS 3, 45.8% of PI-RADS 4, and 70.2% of PI-RADS 5 patients. Among these patients, systematic biopsy identified csPca that was not detected by MRI-targeted biopsy in 6.6%, 7.4%, and 6.3% of PI-RADS 3, 4, and 5 patients, respectively. Omission of systematic biopsy would have missed csPca in 15 (34.2%), 14 (16.3%), and 16 (9.0%) patients with PI-RADS 3, 4, and 5, respectively. The overall 30-day complication rate was low (3.6%), with urinary retention occurring in 69 (1.4%) and urosepsis requiring hospitalization in 6 (0.01%) patients.

**Conclusions:** TP under local anesthesia is safe and effective, with low infectious complication rates and acceptable diagnostic performance. Prostate MRI and targeted sampling improve risk stratification but do not eliminate the added value of systematic biopsy in the detection of csPca; however, the pathologic yield of additional systematic biopsies decreases with increasing PI-RADS scores. *Funding:* This work was supported in part by the Canadian Urological Association-Tolmar Community Urology Continuing Professional Development Grant Program.