CUA 2023 Annual Meeting Abstracts – Poster Session 3: Oncology – Prostate (Part 1)

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MP 3.1

The use of prostate-specific membrane antigen positron emission tomography in a prospective, multicenter registry for patients with recurrent prostate cancer: Results of the PREP registry

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Introduction: Prostate-specific membrane antigen (PSMA) positron emission tomography (PET) is often positive in patients with biochemical failure (BCF) after radical prostatectomy (RP) or radiation therapy (RT), even when conventional imaging (CI) is negative.

Methods: The PREP registry is open at five centers across Ontario and enrollment is according to six clinical scenarios. When first initiated (PREP 1), CI was required for all patients. This has been modified (PREP 2) to require CI only when the prostate-specific antigen (PSA) is >10 ng/mL at the time of PSMA PET. Most PSMA PET scans in PREP used 18-fluorine DCFPyL as a radiotracer. The primary endpoint is overall detection rate, with secondary endpoints including detection rate by clinical cohort, patterns of recurrence, and change in planned management based on PSMA PET results.

Results: From December 2018 to March 2022, 3967 PSMA PET studies were done; 348 (12%) were repeat scans, mostly to re-evaluate after an initial negative scan or to follow up after a PSMA PET-directed therapy. Median age at enrollment was 71 years. Overall detection rate was 69%, with limited (pelvic only or oligometastatic) disease detected in 57% and extensive metastatic disease in 12% (Table 1). Overall detection rate by PSA level is shown in Table 2. Overall detection rates among men with PSA <10 ng/mL, with or without CI, were similar (64% vs. 70%). The PSMA PET led to a change in planned management in half of cases: 29% changed to local salvage, 19% to systemic therapy, and 5% to observation.

Conclusions: The PREP registry is a large, multicenter collection of patients with recurrent prostate cancer who have received PSMA PET imaging prior to salvage treatment. PSMA-avid disease and a change in management were seen in most men. The omission of CI in patients with PSA <10 ng/mL did not seem to dramatically change patterns of disease detection or management change.

Acknowledgements: The PREP registry is funded by Ontario Health (Cancer Care Ontario), an agency of the Ontario Ministry of Health. Data from this registry has previously been published as https://doi.org/10.1148/radiol.211824.

MP 3.1. Table 2. Overall detection rate by PSA level

PSA range (ng/mL)	Number of scans	Overall positive scans Number of scans (%)	Limited disease (loco-regional or oligometastatic) Number of scans (%)	Extensive metastatic disease Number of scans (%)
<0.1	17	2 (12%)	2 (12%)	0 (0%)
0.1–0.3	866	331 (38%)	319 (37%)	12 (1%)
0.3–0.5	458	253 (55%)	238 (52%)	15 (3%)
0.5–1.0	521	352 (68%)	325 (62%)	27 (5%)
>1.0	2105	1803 (86%)	1386 (66%)	417 (20%)
Total	3967	2741 (69%)	2270 (57%)	471 (12%)

MP 3.1. Table 1. Overall detection rate in PREP registry by clinical cohort

Cohort number	Patient cohort	Number of scans	PSA (ng/mL) Median (IQR)	Overall positive scans Number of scans (%)	Limited disease (loco-regional or oligometastic) Number of scans (%)	Extensive metastatic disease Number of scans (%)
1	Node positive or persistently detectable PSA post–RP	239	0.73 (0.27–2.5)	160 (67%)	133 (56%)	27 (11%)
2	BCF after initial RP	1383	0.33 (0.2–0.93)	672 (49%)	622 (45%)	50 (4%)
3	BCF after RP and adjuvant or salvage RT	1104	1.0 (0.45–2.57)	798 (72%)	673 (61%)	125 (11%)
4	BCF after RP and salvage ADT	256	3.31 (1.5–7.12)	231 (90%)	161 (63%)	70 (27%)
5	BCF after RP and lesion–directed treatment	169	2.4 (1.0–4.91)	147 (87%)	100 (59%)	47 (28%)
6	BCF (per Phoenix definition) after primary RT	816	4.4 (3.1–7.5)	733 (90%)	581 (71%)	152 (19%)
Total		3967	1.2 (0.34–3.77)	2741 (69%)	2270 (57%)	471 (12%)

MP 3.2

Impact of run-in treatment with abiraterone acetate and prednisone (AAP) in the phase 3 MAGNITUDE study of niraparib and AAP in patients with mCRPC and homologous recombination repair gene alterations

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Introduction: In the phase 3 MAGNITUDE study, niraparib (NIRA) and AAP (NIRA/AAP) significantly improved outcomes in patients (pts) with metastatic castration-resistant prostate cancer (mCRPC) and homologous recombination repair gene (HRR) gene alterations, particularly in BRCA+ pts. As a practical measure, pts were permitted to receive up to four months (mos) of AAP (in 1L mCRPC) before randomization to allow time for genomic testing. Here, we report the impact of AAP run-in treatment on the efficacy of NIRA/AAP.

MP 3.2. Table 1. Summary of efficacy outcomes

		HR (95% CI) rPFS median (month, NIRA/PBO)	TCC HR (95% CI)	TSP HR (95% CI)	OS HR (95% CI) Event #
HRR+ cohort (IA2, n=423)	No prior AAP (n=325)	0.72 (0.55–0.96) (19.4/11.2)	0.66 (0.43, 1.00)	0.60 (0.40, 0.90)	0.86 (0.62, 1.20) 66/74
	≤2 mos (n=58)	0.69 (0.36, 1.30) (13.9/11.1)	0.52 (0.24, 1.11)	0.32 (0.13, 0.79)	1.30 (0.58, 2.90) 15/10
	>2 mos (n=40)	1.47 (0.66, 3.30) (13.1/16.5)	0.96 (0.36, 2.52)	1.28 (0.49, 3.34)	3.80 (1.15, 12.57) 9/5
BRCA sub-group (IA2, n=225)	No prior AAP (n=166)	0.48 (0.32, 0.71) (19.6/8.4)	0.54 (0.31, 0.96)	0.55 (0.32, 0.94)	0.71 (0.44, 1.15) 30/39
	≤2 mos (n=36)	0.63 (0.27, 1.47) (13.9/11.1)	0.40 (0.14, 1.16)	0.15 (0.03, 0.69)	1.12 (0.42, 3.03) 9/8
	>2 mos (n=23)	1.20 (0.30, 4.80) (NE/24.9)	0.86 (0.19, 3.83)	1.32 (0.42, 4.10)	6.02 (0.65, 55.57) 4/2

Methods: A total of 423 pts with mCRPC and HRR gene alterations were randomized 1:1 to receive NIRA/AAP or placebo/AAP. At the prespecified second interim analysis, a sensitivity analysis based on the duration of AAP run-in was conducted. Pts with BRCA alterations were also analyzed separately.
Results: The median duration of prior AAP treatment received was 1.9 (range 0.3–4.1) mos. Pts receiving AAP ≤2 mos had similar benefit (radiographic progression-free survival [rPFS] HR 0.69, 95% CI 0.36–1.30; time to cytotoxic chemotherapy [TCC] HR 0.52, 95% CI, 0.24–1.11; time to symptomatic progression [TSP] HR 0.32, 95% CI 0.13–0.79) (Table 1) to pts not receiving any prior AAP. In pts who had previously received AAP >2–4 mos rPFS benefit was not demonstrated (HR, 1.47, 95% CI 0.66–3.30). The findings were consistent in the BRCA population.
Conclusions: Benefits from NIRA/AAP in pts receiving a short run-in (≤2 mos) of AAP alone obtained similar benefit as those who received both NIRA/AAP together for initial treatment of mCRPC. While the interpretation of data is limited by the small sample size and event numbers, for pts where NIRA/AAP is being considered as therapy, AAP may be initiated during HRR testing and combination treatment should be initiated expeditiously once HRR positivity is established to attain maximal treatment benefit.
Acknowledgements: Funding was provided by Janssen Research & Development. This abstract was originally presented at the American Society of Clinical Oncology-Genitourinary Cancer Symposium on February 16, 2023.

MP 3.3

Association between prostate-specific antigen decline and clinical outcomes in patients with metastatic castration-resistant prostate cancer in the VISION trial

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Introduction: In the phase 3 VISION trial, lutetium (^{177}Lu) vipivotide tetraxetan ([^{177}Lu] Lu-PSMA-617; ^{177}Lu-PSMA-617) prolonged radiographic progression-free survival (rPFS) and overall survival (OS) when added to protocol-permitted standard of care (SoC) in patients with progressive, PSMA-positive metastatic castration-resistant prostate cancer (mCRPC). The proportion of patients with confirmed decline from baseline in prostate-specific antigen (PSA) level ≥50% was higher with ^{177}Lu-PSMA-617 plus SoC treatment than with SoC alone. This post-hoc, exploratory analysis aimed to evaluate associations between magnitude of PSA decline from baseline and clinical outcomes in the ^{177}Lu-PSMA-617 group.
Methods: Patients in the ^{177}Lu-PSMA-617 group were classified into four subgroups by magnitude of confirmed best PSA decline from baseline: no decline; ≤50% decline; >50–≤90% decline; and >90% decline (cutoff date: January 27, 2021). PSA levels were assessed at baseline and at the start of each six-weekly treatment cycle. Median OS and rPFS were estimated with the Kaplan-Meier method. Hazard ratios (HRs) were estimated using Cox proportional-hazards regression.
Results: Greater PSA decline from baseline was associated with prolonged rPFS and OS in the ^{177}Lu-PSMA-617 group (Table 1). Patients with PSA declines >50–≤90% and >90% had an 80% and 96% reduced risk of radiographic disease progression, and a 58% and 90% reduced risk of death, respectively, vs. those with no decline. Landmark analyses will also be presented.

MP 3.3. Table 1. Clinical outcomes by PSA decline subgroups with ^{177}Lu-PSMA-617

Outcome		PSA decline			
		No decline	> 0-≤ 50%	> 50-≤ 90%	>90%
rPFS[a] n=385	n (%)	97 (25.2)	53 (13.8)	88 (22.9)	106 (27.5)
	Median[c]	3.0 (2.4, 3.7)	6.0 (4.2, 8.6)	8.8 (8.5, 10.8)	19.7 (17.0, 20.6)
	HR[d]	1.0[e]	0.40 (0.26, 0.60)	0.20 (0.14, 0.30)	0.04 (0.02, 0.08)
OS[b] n=551	n (%)	147 (26.7)	79 (14.3)	112 (20.3)	157 (28.5)
	Median[c]	8.4 (7.3, 9.5)	12.0 (10.3, 14.0)	15.0 (13.9, 17.8)	NE (26.8, NE)
	HR[d]	1.0[e]	0.58 (0.43, 0.79)	0.42 (0.32, 0.56)	0.10 (0.07, 0.15)

[a]Analysis in PFS FAS. [b]Analysis in FAS. [c]Kaplan-Meier estimates; months (95% CI). [d]Hazard ratio (95% CI) of PSA decline vs. no decline. [e]Reference.

Conclusions: In this analysis, the magnitude of PSA decline from baseline was strongly associated with prolonged rPFS and OS in patients with mCRPC treated with ^{177}Lu-PSMA-617 plus SoC. This suggests that PSA decline is of prognostic importance for clinical outcomes during radioligand therapy with ^{177}Lu-PSMA-617 in this patient population.

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MP 3.4

The Next Generation Trial – the first 10 months: Assessing ^{18}F-PSMA-1007 positron emission tomography and magnetic resonance imaging in the primary staging of prostate cancer patients

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Introduction: Prostate cancer is the most common internal malignancy in North American men. Prostate-specific membrane antigen (PSMA) is a type II transmembrane protein that demonstrates overexpression in the vast majority of prostate cancers and correlates with the aggressiveness of the tumor. PSMA PET imaging has been shown to be superior to conventional imaging (CT/bone scan) in the workup of prostate cancer. The objective of this study was to determine the accuracy and role of ^{18}F-PSMA-1007 PET and MRI in the primary locoregional staging of intermediate- and high-risk prostate cancer.

Methods: The Next Generation Trial (NCT05141760) is a prospective, phase 2 study assessing ^{18}F-PSMA-1007 PET and mpMRI for locoregional staging of clinically significant prostate cancer in men undergoing radical prostatectomy and bilateral pelvic lymph node dissection. The design of this study is a validating-paired cohort with final histopathology following surgery as the gold-standard comparator.

Results: Between March and December 2022, 156 patients were assessed for eligibility; 82 patients met inclusion criteria, while 64 were excluded. Seventy patients received both their PSMA PET and mpMRI scans. Thirty-five received prostatectomy. Ten patients received complete, trial-specific, blinded imaging and pathology reviews (Table 1). Among the 10 patients included in this preliminary dataset, six had PSMA PET concordant with the final pathology staging, while two had mpMRI concordant with the final pathology staging. mpMRI was poor at identifying the presence of extraprostatic extension (EPE) vs. PSMA PET (3/10 vs. 8/10). Additionally, PSMA-PET has a trend of greater concordance for secondary, non-dominant nodules.

Conclusions: From this initial analysis, there is a trend of prostate cancer patients who are more accurately staged using 18F-PSMA-1007 PET compared to mpMRI, including detection of EPE. As more blinded imaging and pathology results are compiled, this initial data will be further clarified and the quality of evidence increased.

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MP 3.5

Development and multi-institutional validation of SEPERA – An artificial intelligence-based side-specific extra-prostatic extension risk assessment tool for patients undergoing radical prostatectomy

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Introduction: Accurate prediction of side-specific extraprostatic extension (ssEPE) is critical to inform nerve-sparing strategy during radical prostatectomy. We aimed to apply artificial intelligence (AI) approaches to provide more accurate and personalized ssEPE predictions.

Methods: A total of 4936 prostatic lobes (cases) were included. SEPERA, an AI-based side-specific extra-prostatic extension risk assessment tool, was trained on 1022 cases from Trillium Health Partners. SEPERA was validated on 3914 cases from the Princess Margaret Cancer Centre, L'Institut Mutualiste Montsouris, and Jules Bordet Institute. Model performance was characterized by area under the receiver-operating characteristic curve (AUROC), area under precision-recall curve, calibration, and net benefit. An algorithmic audit was conducted to assess model bias and identify common characteristics among predictive errors. SEPERA was compared against existing nomograms and a separate logistic regression model using the same variables from SEPERA.

Results: SEPERA was well-calibrated and had the best performance in all cohorts (Table 1). SEPERA had a higher net benefit for clinically relevant thresholds between 15–30%, enabling more patients to safely receive nerve-sparing if it was used instead of other nomograms. No significant difference in AUROC was found when stratified by race, biopsy year, age, biopsy type (systematic only vs. systematic and MRI-targeted), biopsy location (academic vs. community), and D'Amico risk group. The most common errors were false-positives, especially for older patients with higher-risk disease. No aggressive tumors (>grade group 2 or high-risk disease) were found in false-negatives. In patients with ssEPE despite benign ipsilateral biopsies, SEPERA correctly predicted ssEPE in 68% of cases, compared to 0–44% for other models.

Conclusions: SEPERA, a novel AI tool for personalizing nerve-sparing strategy during radical prostatectomy, has been shown to be accurate, safe, and generalizable in a diverse patient cohort.

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MP 3.4. Table 1. Preliminary compiled data for the first 10 completed patients in the Next Generation Trial

Study ID	Pathology	MRI	PSMA PET
2	pT2b - Bilateral nodules. Dominant nodule right posterior peripheral. Non-dominant nodule #1 right anterior peripheral. Non-dominant nodule #2 right posterior peripheral. Non-dominant nodule #3 left posterior peripheral. Non-dominant nodule #4 left posterior peripheral. No EPE.	T2a - Unilateral nodule. Dominant nodule right posterior peripheral. No EPE. PI-RADS 4.	T2b - Bilateral nodules. Dominant nodule right posterior peripheral. Non-dominant nodule #1 right posterior peripheral. Non-dominant nodule #2 left anterior and posterior, peripheral and transition. No EPE. PSMA-RADS 4.
4	pT2a - Unilateral nodule. Dominant nodule left anterior and posterior transition and peripheral. No EPE.	T3a - Unilateral nodule. Dominant nodule left anterior and posterior, transition and peripheral. EPE left posterolateral mid-gland. PI-RADS 5.	T3b - Bilateral. Dominant nodule left anterior and posterior, transition and peripheral. Non-dominant nodule #1 right posterior peripheral. No EPE. PSMA-RADS 5
8	pT3a - Bilateral nodules. Dominant nodule right anterior and posterior transition and peripheral. Nondominant lesion #1 left anterior peripheral. EPE right posterolateral midland, microscopic.	T2a - Bilateral nodules. Dominant nodule right anterior and posterior peripheral. Non-dominant Nodule #1 left posterior peripheral. No EPE. PI-RADS 5	T2a - Bilateral nodules. Dominant nodule right anterior and posterior transition and peripheral. Non-dominant nodule #1 left posterior peripheral. No EPE. PSMA-RADS 4.
9	T3b - Unilateral nodule. Dominant nodule left posterior peripheral. EPE left posterior mid-gland, microscopic. SVI left posterior.	T2a - Unilateral nodule. Dominant nodule left posterior peripheral. No EPE. PI-RADS 4.	T3a - Unilateral nodules. Dominant nodule left posterior peripheral. Non-dominant nodule #1 left posterior transition. EPE left posterolateral mid-gland. PSMA RADS 4
11	T3a - Bilateral nodules. Dominant nodule bilateral anterior transition. Non-dominant nodule #1 left posterior peripheral. EPE bilateral anterior apex, microscopic.	T2b - Bilateral nodule. Dominant nodule bilateral anterior transition. No EPE. PI-RADS 5.	T2b - Bilateral nodule Dominant nodule bilateral anterior and posterior transition. No EPE. PSMA-RADS 5.
13	pT2b - Bilateral nodules. Dominant nodule right posterior peripheral. Non-dominant lesion #1 bilateral anterior transition. Non-dominant nodule #2 left posterior peripheral. Non-dominant nodule #3 left posterior peripheral. No EPE.	T2b - Bilateral nodules. Dominant nodule right posterior peripheral. Non-dominant nodule #1 left posterior peripheral. No EPE. PI-RADS 4.	T2b - Bilateral Nodules. Dominant nodule right posterior peripheral. Non-dominant nodule #1 left anterior and posterior peripheral. No EPE. PSMA-RADS 4.
15	pT2a - Unilateral nodule. Dominant nodule right posterior transition. No EPE.	T0 - No dominant nodule. PI-RADS 2.	T2b - Bilateral Nodules. Dominant nodule right anterior and posterior transition. Non-dominant nodule #1 left anterior and posterior transition. No EPE. PSMA RADS 3.
17	T3a - Bilateral nodules. Dominant nodule right posterior peripheral. Non-dominant nodule #1 left posterior peripheral. EPE right poterolateral mid-gland. microscopic.	T2a - Unilateral nodule. Dominant nodule right posterior peripheral. No EPE. PI-RADS 4	T3a - Bilateral Nodules. Dominant nodule right posterior peripheral and transition. Non-dominant nodule #1 left posterior peripheral. EPE right posterior mid-gland. PSMA-RADS 5.
21	pT3a - Bilateral nodules. Dominant nodule left apex to base extending to right. Nondominant nodule #1 right midgland. EPE left poseterolateral midgland.	T2a - Unilateral nodule. Dominant nodule left base to mid-gland. No EPE. PI-RADS 5	T3a - Bilateral Nodules. Dominant nodule left apex to base extending to right side. Left mid-gland posterolateral EPE. PSMA-RADS 5.
26	pT2b - Bilateral nodules. Dominant nodule right anterior and posterior peripheral. Non-dominant nodule #1 left anterior peripheral. Nondominant nodule #2 left posterior peripheral. No EPE.	T2b - Bilateral nodules. Dominant nodule right anterior and posterior peripheral. Non-dominant lesion #1 left posterior peripheral. No EPE. PI-RADS 4.	T2b - Bilateral Nodules. Dominant nodule right anterior and posterior transition and peripheral. Non-dominant lesion #1 left posterior peripheral and transition. No EPE. PSMA.RADS 5

MP 3.6

PC-PEP, a comprehensive, daily, six-month, home-based Patient Empowerment Program leads to significant weight loss in men with prostate cancer: A secondary analysis of a randomized clinical trial

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Introduction: The Prostate Cancer-Patient Empowerment Program (PC-PEP), a daily, six-month, home-based, physical, mental, and social-support intervention has been shown to improve mental health and urinary function among men with prostate cancer (PCa).[1] This study aimed to explore weight loss in men participating in PC-PEP based on timing of the intervention.

Methods: In a randomized clinical trial of 128 men scheduled for curative PCa surgery or radiotherapy (± hormone treatment), 66 men received 'early' six-month PC-PEP intervention, and 62 were randomized to the 'late' waitlist-control arm following six months of the standard-of-care, and then six months PC-PEP. The PC-PEP intervention consisted of 182 daily emails with video-based education, patient empowerment on physical and mental health, dietary recommendations, physical and pelvic floor fitness, and social support. The physical fitness component prescribed strength exercises for 30 minutes two days per week and aerobic exercise daily for 30 minutes for the rest of the week. Here, we examined the effects of the intervention on weight loss at six months and compare the early vs. late effects of the intervention on weight loss.

Results: Overall compliance was high with both time allotment and intensity of the physical fitness aspect of the program. At six months, patients assigned to the PC-PEP had statistically significant lower weight from baseline (mean 86 kg, SE 1.9) compared to the waitlist-control group (mean 88 kg, SE 1.9) ($p<0.001$) (Figure 1). When comparing the groups at 12 months, no statistically significant differences were observed, showing PC-PEP is equally effective provided at diagnosis or six months later, after scheduled treatment.

MP 3.5. Table 1. Discriminative performance of all models based on area under receiver-operating-characteristic curve (AUROC) and area under precision-recall curve (AUPRC)

AUROC

Cohort	SEPERA	Logistic regression	Biopsy-based nomogram 1[a]	Biopsy-based nomogram 2[b]	MRI-based nomogram[c]
Training	0.80 (0.77–0.82)	0.80 (0.77–0.82)	0.77[x] (0.74–0.79)	0.74[+] (0.71–0.77)	0.70[+] (0.66–0.73)
Validation 1	0.78 (0.76–0.79)	0.76[+] (0.74–0.79)	0.77[+] (0.75–0.79)	0.74[+] (0.72–0.76)	0.70[+] (0.67–0.72)
Validation 2	0.75 (0.73–0.78)	0.75 (0.72–0.78)	0.71[+] (0.67–0.74)	0.69[+] (0.66–0.73)	0.69[+] (0.66–0.72)
Validation 3	0.77 (0.71–0.82)	0.76 (0.68–0.83)	0.76 (0.67–0.84)	0.72[x] (0.63–0.80)	0.71[x] (0.62–0.79)
Combined validation	0.77 (0.75–0.78)	0.75[+] (0.74–0.77)	0.75[+] (0.73–0.76)	0.72[+] (0.70–0.74)	0.69[+] (0.68–0.71)

AUPRC

Cohort	SEPERA	Logistic Regression	Biopsy-based nomogram 1[a]	Biopsy-based nomogram 2[b]	MRI-based nomogram[c]
Training	0.69 (0.63–0.72)	0.68 (0.63–0.72)	0.65[x] (0.61–0.70)	0.63[+] (0.58–0.67)	0.53[+] (0.47–0.59)
Validation 1	0.64 (0.61–0.67)	0.62[+] (0.59–0.65)	0.63[+] (0.59–0.66)	0.57[+] (0.54–0.61)	0.48[+] (0.44–0.51)
Validation 2	0.57 (0.52–0.62)	0.55[x] (0.50–0.59)	0.51[+] (0.47–0.56)	0.50[+] (0.45–0.54)	0.48[+] (0.44–0.52)
Validation 3	0.47 (0.34–0.59)	0.46 (0.32–0.61)	0.42 (0.30–0.55)	0.36 (0.26–0.48)	0.35 (0.24–0.47)
Combined validation	0.61 (0.58–0.63)	0.58[+] (0.55–0.61)	0.57[+] (0.54–0.60)	0.53[+] (0.50–0.55)	0.46[+] (0.44–0.49)

[a]https://doi.org/10.1111/bju.13733. [b]https://doi.org/10.1016/j.euo.2020.08.008 (Model 1). [c]https://doi.org/10.1016/j.euo.2020.08.008 (Model 2). Performance metrics for the training cohort were determined based on stratified 10-fold cross validation. Statistically significant differences between SEPERA and existing nomograms are shown ([+]p<0.01, [x]p<0.05). The best performing model(s) for each cohort are highlighted in bold. Training, Trillium Health Partners, Mississauga, Canada (1022 cases); Validation 1, Princess Margaret Cancer Centre, University Health Network, Toronto, Canada (2300 cases); Validation 2, L'Institut Mutualiste Montsouris, Paris, France (1352 cases); Validation 3, Jules Bordet Institute, Brussels, Belgium (262 cases).

Conclusions: PC-PEP delivered early or late following diagnosis resulted in significant weight loss in men undergoing curative PCa treatment compared to standard of care.

Reference:

1. Ilie G, Mason R, Bell D, et al. Development and initial evaluation of a multifaceted intervention to improve mental health and quality of life among prostate cancer survivors. *Int J Ment Health Addiction* 2020;18:1067-80. https://doi.org/10.1007/s11469-019-00108-y

MP 3.7

Examining the association between the extent of lymph node dissection and biochemical recurrence or castrate-resistant disease development in patients undergoing radical prostatectomy

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Introduction: In patients with prostate cancer (PCa), the utility of extended lymph node dissection (LND) during radical prostatectomy (RP) on early oncological outcomes remains controversial.[1] Limited studies exist examining the association between extended LND vs. standard LND on biochemical recurrence (BCR) and the development of castrate-resistant prostate cancer (CRPC).[1,2] This study examines the association between LND approach and BCR and development of CRPC in a Canadian, multi-institutional cohort.

Methods: This is a retrospective cohort study including 601 patients from a Canadian national PCa database who underwent RP from January 2005 to December 2016. Descriptive statistics were performed, and patient/surgical factors and LND approach were compared with BCR and CRPC using correlation and regression analysis.

Results: The median (IQR) followup was 1219.5 (1477.8) days with a median time from RP to BCR and CRPC of 297 (750) and 1584 (1088) days, respectively. Patients underwent standard LND (n=494) or extended LND (n=107). Median LN yield was 7 (7) for standard LND and 14 (11) for extended LND. Extended LND was associated with increased intraoperative blood loss (ρ=0.252, p<0.001), and had mild associations with increased positive LN yield (ρ=0.125, p=0.002), and higher postoperative complication rates (ρ=0.110, p=0.007) compared to standard LND. There were no differences in BCR based on LND approach, with 33.2% of standard LND cases (n=123/371) and 28.9% (n=24/83) of extended LND cases progressing to BCR (p=0.28). Similarly, there were no differences in progression to CRPC based on LND type (standard 9.09% (n=21/231) vs. extended 10.9% (n=5/46) (p=0.32).

Conclusions: Standard vs. extended LND did not show significant differences in the rates of progression to BCR or CRPC in patients undergoing RP. This study adds to the data exploring the association between LND and early oncological outcomes in PCa.

References:

1. Touijer KA, Sjoberg DD, Benfante N, et al. Limited versus extended pelvic lymph node dissection for prostate cancer: A randomized clinical trial. *Eur Urol Oncol* 2021;4:532-9. https://doi.org/10.1016/j.euo.2021.03.006
2. Lestingi JFP, Guglielmetti GB, Trinh QD, et al. Extended vs. limited pelvic lymph node dissection during radical prostatectomy for intermediate- and high-risk prostate cancer: Early oncological outcomes from a randomized phase 3 trial. *Eur Urol* 2021;79:595-604. https://doi.org/10.1016/j.eururo.2020.11.040

MP 3.8

A real-world evidence study using Alberta population-based data to describe treatment patterns for metastatic castration-sensitive prostate cancer patients (AWARENESS)

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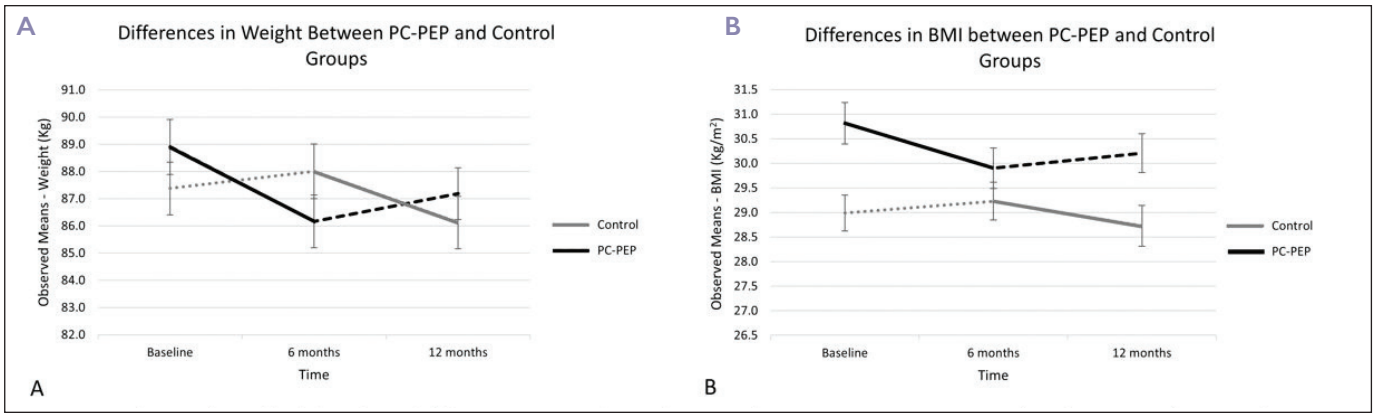
Introduction: Previous real-world studies have indicated slower-than-expected uptake in Canada of docetaxel (doce), abiraterone (abi), enzalutamide (enza), and apalutamide (apa) in combination with androgen deprivation therapy (ADT) for the treatment of metastatic castration-sensitive prostate cancer (mCSPC); however, many studies have not been population-based or inclusive of all sources of drug funding.



MP 3.6. Figure 1. Observed (A) weight and (B) BMI for patients in the early vs. late intervention groups at baseline, 6, and 12 months.

Methods: AWARENESS (NCT05149131) is a retrospective, population-based study using administrative data to describe patient characteristics, treatment patterns, and survival for patients with mCSPC in 2016–2020 in the province of Alberta, Canada.
Results: A total of 960 de novo mCSPC patients receiving treatment with ADT alone or combined with doce, abi, enza, or apa were identified. Patients receiving ADT alone were older and had more comorbidities compared with those receiving ADT with another agent (both p<0.001) (Table 1). The proportion of patients receiving ADT alone remained stable from 2016 (77.8%) to 2017 (77.1%) but decreased in 2018 (62.8%) and 2019 (52.9%); there was a similar pattern for ADT+doce (from 17.5% in 2016 to 4.6% in 2019). Use of ADT+abi increased from 4.7% in 2016 to 33.3% in 2019, while use of ADT+enza/apa remained low (<10%). Median (95% CI) overall survival was 27.4 (24.3–29.8) months for ADT alone vs. 31.3 (28.5–37.7) for all ADT combinations. Among patients starting treatment with ADT alone, 34.4% initiated a second line of therapy vs. 42.3% among those starting ADT with another agent. The pattern of therapy sequencing is shown in Figure 1.
Conclusions: In patients with mCSPC, the use of ADT alone and ADT+doce has decreased over time, while the use of ADT+abi/apa/enza has increased, albeit still relatively lower than expected. Many patients received multiple lines of therapy regardless of initial treatment. Further research is needed to understand barriers/drivers to uptake of newer therapies and concordance with current Canadian guidelines.
Acknowledgements: This study was supported by Bayer AG. Medical writing support was provided by Vicky Kanta, PhD, and Bethany Reinecke, PhD, of Lumanity Scientific, Inc. (Yardley, PA), with financial support from Bayer HealthCare Pharmaceuticals (Whippany, NJ, USA).

MP 3.8. Table 1. Baseline characteristics

Variable	ADT alone (n=643)	ADT+doce (n=116)	ADT+abi (n=171)	ADT+apa/enza (n=30)	p
Age, years (mean [SD])	75.9 (10.3)	65.3 (8.0)	70.0 (9.0)	68.3 (9.0)	<0.001
Charlson Comorbidity Index, n (%)					<0.001
≥1	258 (40.1)	18 (15.5)	53 (31.0)	<10	
Diabetes, n (%)	128 (19.9)	10 (8.6)	26 (15.2)	<10	0.023
Cardiovascular disease, n (%)	89 (13.8)	<10	10 (5.8)	<10	<0.001
Number of metastatic sites at diagnosis n (%)					<0.001
1	533 (79.9)	70 (60.3)	100 (57.5)	21 (67.7)	
≥2	132 (20.5)	46 (39.7)	74 (43.3)	10 (33.3)	
Sites of metastasis at diagnosis, n (%)					
Osseous	558 (86.8)	106 (91.4)	156 (91.2)	29 (96.7)	0.112
Lymph nodes	169 (26.3)	42 (36.2)	79 (46.2)	<10	<0.001
Pulmonary	32 (5.0)	13 (11.2)	12 (7.0)	<10	0.028

MP 3.9

Distance from cancer center and health equity of prostate cancer patients in Northwestern Ontario

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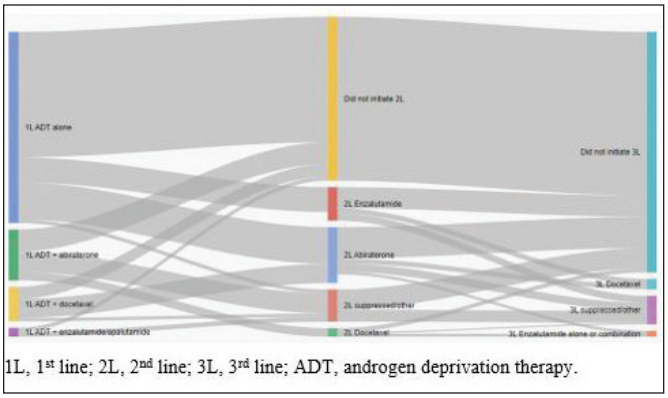
Introduction: Early detection of prostate cancer (PCa) leads to better survival; however, barriers to an early diagnosis, like low accessibility, can affect the outcome of the disease. This study aimed to investigate the relationship between the distance from Thunder Bay Regional Health Science Center (TBRHSC) and the characteristics of patients with PCa presenting to our center, which is the only center that provides uro-oncological care to the Northwestern Ontario region (area=526 417.35 km2, population=232 299).
Methods: A retrospective chart review was conducted for all patients who were



MP 3.8. Figure 1. Sequencing of therapies from 1st to 3rd-line.

diagnosed with and received treatment for PCa from 2010–2020 at TBRHSC. Patients fell under two distance-oriented categories: 1) <300 km and 2) ≥300 km away from TBRHSC.

Results: Of 1411 patients (median=69 years old), 1143 (81%) were living at less than 300 km (median 7.3 km), while 268 (19%) were at ≥300 km (median 382 km) distance from TBRHSC. There was no statistical significance against the basic characteristics (age, history of smoking and comorbidities, and having a family physician) except for family history of PCa and marital status (Table 1). Compared to those who live <300 km from the center, those living at ≥300 km distance were more likely to present with higher PSA (13.25 vs. 9.00 ng/ml), higher Gleason score >6 (84.4% vs 78%), advanced (25.9% vs. 17.9%), and metastatic (22.0% vs. 14.6%) cancer (all p-value <0.05) (Table 2). A significant correlation between PSA at diagnosis and the distance from TBRHSC was plotted (p=0.008, correlation coefficient=0.076). The logistic regression showed patients living far were 1.8 times more likely to present with advanced disease (aOR 1.81, 95% CI 1.05–3.95, p<0.001) (Table 3).

Conclusions: The unavailability of PCa-related health services due to living at distance from Thunder Bay Regional Health Science Center was associated with a higher rate of advanced and metastatic PCa at presentation. To provide equitable yet high-quality care for PCa, it is prudent for healthcare providers, community resources, and the healthcare system to take access to cancer-related health services into account. As a result, some initiatives, such as satellite uro-oncology centers and a PCa screening campaign, are underway in our region.

Acknowledgements: This research was supported by a NOAMA grant.

MP 3.9. Table 1. Basic characteristics overall and between distance groups

	Total	Less than 300 km	300 km and above	p
Demographic factors				
Age (years) Mean ± SD	69.31±9.07	69.22±9.16	69.7±8.68	0.304
Distance (km) Mean ± SD	112.91±219.01	33.48±67.71	451.96±302.39	<0.001
Marital status, n (%)				<0.001
Single	181 (12.9)	154 (13.5)	27 (10.1)	
Married/common law	1060(75.1)	863 (75.4)	197 (73.5)	
Widowed	78 (55)	60 (5.2)	18 (6.7)	
Divorced	71 (5)	58 (5.1)	13 (4.9)	
Unknown	12 (1.5)	8 (0.7)	13 (4.9)	
Smoking status, n (%)				0.607
Never	325 (23.1)	258 (22.6)	67 (25)	
Former	505 (35.8)	415 (36.3)	90 (33.6)	
Current	162 (11.5)	135 (11.8)	27 (10.1)	
Unknown	419 (29.7)	335 (29.3)	84 (31.3)	
Medical factors				
Diabetes mellitus				0.445
No	997 (70.7)	804 (70.4)	193 (72)	
Yes	274 (19.4)	220 (19.2)	54 (20.1)	
Unknown	140 (9.9)	119 (10.4)	21 (7.8)	
Hypertension				0.405
No	580 (41.1)	464 (40.6)	116 (43.3)	
Yes	691 (48.9)	560 (49)	131 (48.9)	
Unknown	140 (9.9)	119 (10.4)	21 (7.8)	
Cardiovascular				0.445
No	957 (67.8)	772 (67.5)	185 (69)	
Yes	314 (22.3)	252 (22.1)	62 (23.1)	
Unknown	140 (9.9)	119 (10.4)	2 (7.8)	
Family history of PCa				0.002
No	672 (47.6)	567 (49.6)	105 (39.2)	
Yes	260 (18.4)	211 (18.4)	49 (18.3)	
Unknown	479 (30.4)	365 (32)	114 (42.5)	

MP 3.9. Table 2. Clinical characteristics overall and between distance groups

	Total	Less than 300 km	300 km and above	p
Age (years) Mean ± SD	69.31±9.07	69.22±9.16	69.7±8.68	0.304
Distance (km) Mean ± SD	112.91±219.01	33.48±67.71	451.96±302.39	<0.001
Family history of PCa				0.002
No	672 (47.6)	567 (49.6)	105 (39.2)	
Yes	260 (18.4)	211 (18.4)	49 (18.3)	
Unknown	479 (30.4)	365 (32)	114 (42.5)	
PSA (ng/ml) at diagnosis				<0.001
Mean ± SD	77.05±379.111	59.74±312.94	152.94±582.06	
Median	9.6	9	13.25	
Gleason grade, n (%)				0.009
3+3	260 (20.9)	227 (22)	33 (15.2)	
3+4	412 (33)	350 (34)	62 (28.6)	
4+3	214 (17.2)	171 (16.6)	43 (19.8)	
8	205 (16.4)	165 (16)	40 (18.4)	
9 or 10	156 (12.5)	117 (11.4)	39 (18)	
Gleason grade				0.014
6 and below	260 (20.9)	227 (22)	33 (15.2)	
Above 6	987 (79.1)	803 (78)	184 (84.8)	
Stage at diagnosis				<0.001
Localized	1112 (80.6)	920 (82.1)	192 (74.1)	
Advanced	267 (19.4)	200 (17.9)	67 (25.9)	
Metastasis				<0.001
No	1159 (84)	957 (85.4)	202 (78.0)	
Yes	220 (16)	163 (14.6)	57 (22.0)	
Risk group				0.061
Low-risk	387 (32)	305 (30.5)	82 (38.9)	
Intermediate-risk	587 (48.5)	496 (49.6)	91 (43.1)	
High-risk	236 (19.5)	198 (19.8)	38 (18)	

MP 3.9. Table 3. The effect of distance from the medical center on the likelihood of advanced stage at diagnosis

Outcome	OR (95% CI)	p	aOR (95% CI)	p
Distance				
Less than 300 km	Ref			
300 km and above	2.59 (1.15–5.91)	<0.001	1.81 (1.05–3.95)	<0.001

MP 3.10

Stimulated Raman histology interpretation by artificial intelligence can provide real-time pathologic feedback of prostate biopsies

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MP 3.10. Table 1. Diagnostic performance of AI convolutional neural network at full scan speed and 4X increase in scan speed for identification of GGG 1–5 PCa on prostate biopsy-stimulated Raman histology

	AUC	Sensitivity External Cohort (%)	Specificity External Cohort (%)	Accuracy Training Patches (%)	Accuracy Validation Patches (%)	Accuracy External Cohort (%)	Leave One-Out Concordance (k)
AI full scan speed	99	95.7	100	99.6%	98.6	96.9	0.925
AI 4x scan speed	99.5	95.7	100	n/a	93.8	96.9	0.925

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Introduction: There is a delay between prostate biopsy and pathologic diagnosis; this delay has limited the use of pathologic feedback during the diagnosis and treatment of prostate cancer (PCa). Stimulated Raman histology (SRH) is a novel microscopic technique allowing real-time, label-free, high-resolution microscopic images of unprocessed, unsectioned tissue. We hypothesized that an artificial intelligence convolutional neural network (CNN) could rapidly interpret prostate biopsy SRH.

Methods: Prostate biopsies were prospectively taken ex-vivo from prostatectomy specimens and scanned in a SRH microscope at 20 microns depth using two Raman shifts: 2845 cm-1 and 2930 cm-1, to create SRH images. The cores were then processed and H&E-stained as per normal pathologic protocols and used for ground truth pathologic assessment. A total of 303 ex-vivo prostate biopsies taken from 100 radical prostatectomy specimens were used to train the SRH Inception-ResNet-v2 CNN. With a two-sided alpha level of 5%, it was calculated 32 biopsies would provide 90% power to detect a difference in concordance kappa when testing the CNN. Concordance and diagnostic accuracy of the CNN were tested on training and validation patches, and the 32 leave-one-out prostate biopsies from 23 radical prostatectomy specimens.

Results: The CNN showed a 99.6% weighted accuracy on the training patches and 98.6% when tested on the validation set. The CNN also showed very good kappa concordance (k=0.925, p<0.001) when classifying the 32 prostate biopsies as benign or malignant, giving a diagnostic accuracy of 96.9%, with a scan time of 2–2.75 minutes (Table 1). Additionally, if a region containing PCa was first scanned with SRH, the AI could identify PCa in approximately one minute.

Conclusions: Artificial intelligence applied to SRH can rapidly classify fresh, unprocessed, unstained prostate biopsies as benign or malignant.

Acknowledgements: This abstract was accepted as a podium presentation at AUA 2023.

MP 3.11

Patient-reported health-related quality of life in patients with urethral stenosis after radiation treatment for prostate cancer

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Introduction: While many patients experience an uneventful recovery after radiation treatment for prostate cancer, urethral stenosis as a consequence of treatment is likely under-reported, likely uniformly refractory to endoscopic techniques with a particular deficiency in patient-reported quality of life (QOL) in this population. The objective of this study was to evaluate patient-reported QOL in patients with urethral stenosis after prostate radiotherapy.

Methods: Patients undergoing treatment for urethral stenosis after radiation treatment were identified from an established urethroplasty database (2004–2022) and a regional EMR review of patients undergoing endoscopic treatment (2019–2022). Identified patients were surveyed by telephone using the Expanded Prostate Cancer Index Composite for Clinical Practice (EPIC-CP) to assess health-related quality of life (HRQOL), a validated clinical instrument assessing urinary continence, voiding function, bowel function, sexual function, hormonal, and vitality after prostate cancer treatment. Descriptive were used to summarize the tabulated findings.

Results: A total of 230 patients were identified with a mean age of 67.5 years. Stenosis was most commonly related to brachytherapy (55.8%). The mean time to stricture diagnosis after radiation treatment was 65.2 months (SD 36.9); 27.1% of patients recalled being aware of urethral stenoses as a potential complication of radiation treatment and 31.3% had specific documentation during radiotherapy consultation outlining urethral stenosis as a potential complication. More than half (63.8%) of patients reported overall urinary function as either a "moderate" or "big" problem, with 85.1% reporting problematic "obstructed" LUTS and 85.1% also reporting urinary frequency. Several (89.4%) patients reported urinary incontinence, 70.2% required daily pad use, and 53.2% felt urinary incontinence was either a "moderate" or "big" problem. Less than half (40.4%) of patients reported rectal pain and increased frequency of bowel movements. Sexual dysfunction was a "moderate" or "big" problem in 70.8% of patients, with 91.7% reporting poor or absent orgasmic dysfunction and 89.6% reporting erections insufficient for any sexual activity. Depressive features were also reported in 40.4% of patients, 68.1% reported a lack of energy, and 19.1% reported hot flashes or breast tenderness. Overall EPIC-CP score (out of 60) was a mean of 28.0 (SD 12.0) and median of 26.5 (IQR 19.0–37.0). Patients undergoing urethroplasty reported better HRQOL compared to those opting for other treatments (p<0.001).

Conclusions: Urethral stenosis after radiotherapy is uniquely complex, as it seldom occurs in isolation, with a broad scope of associated complications, including high rates of concurrent incontinence, storage LUTS, sexual dysfunction, bowel dysfunction, and some systemic features. This multifocal nature, combined with a typically insidious presentation, creates a uniquely challenging condition to treat.

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MP 3.12

Stimulated Raman histology: A novel method for intraoperative surgical margin assessments during robotic-assisted laparoscopic prostatectomy

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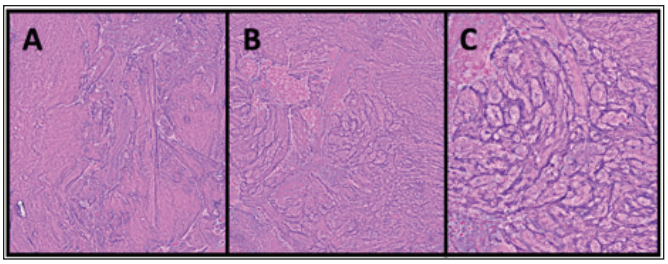
Introduction: Routine pathological assessment of neurovascular bundles during robot-assisted laparoscopic prostatectomy (RALP) enables nerve-sparing surgery without negatively affecting oncological outcomes; however, many urologists do not have access to rapidly frozen sections interpreted by genitourinary pathologists. We hypothesized that stimulated Raman histology (SRH) may allow surgeons to identify positive margins intra-operatively.

Methods: Twenty-three subjects underwent RALP with surgical margin resections conducted per surgeon assessment from presurgical and surgical factors. Preoperatively, all subjects underwent a 3 Tesla multiparametric prostate MRI (reporting per PI-RADSv2) indicating the region of dominant tumor with degree of suspicion and location for possible ECE. Surgeons resected and imaged ~5 mm samples from the prostate bed along bilateral neurovascular bundles and/or areas of concern with a clinical stimulated Raman histology (SRH) microscope (Raman spectra 2845 cm-1 and 2930 cm-1). Samples ground truth was provided by pathological processing with hematoxylin and eosin staining or frozen section after SRH visualization (Figure 1).

Results: Eleven subjects had extraprostatic extension (EPE), eight of which had multifocal EPE. Seven subjects had a positive surgical margin, six of which had a non-focal positive margin. Ten of the 11 subjects with pathological EPE had an associated MRI region of interest with broad capsular contact. A total of 121 individual SRH margin assessments (mean 5.5) were conducted, with a mean time per assessment of 7.5 minutes. The accuracy of the surgical team SRH interpretation of resected margins was 95.5%, with a sensitivity of 83.3% and a specificity of 98.3%. All positive SRH margins were extraprostatic and associated with EPE in a sextant zone in or adjacent to the MRI region of interest.

Conclusions: SRH can provide surgeons with a rapid tool for accurate identification of PCa at surgical margins in real-time during RALP.

Acknowledgements: This abstract was submitted to the 2023 AUA annual meeting.



MP 3.12. Figure 1.

UP 3.1

Post-prostatectomy adjuvant androgen deprivation therapy — patient opinions and goals of care

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Introduction: Despite the proven benefit of adjuvant androgen deprivation therapy (ADT) for patients receiving primary radiation, few studies evaluate adjuvant ADT after prostatectomy. We surveyed Canadian prostate cancer patients about adjuvant ADT with the goal of informing an adjuvant ADT clinical trial.

Methods: An electronic survey was devised and distributed using a modified Dillman approach. The survey was sent to members of Prostate Cancer Canada, a patient advocacy group. In addition to demographic information, we asked patients about their experience with prostate cancer, if they received postoperative therapy, and about their opinions to inform the design of an adjuvant ADT clinical trial. The survey was sent on May 2021, and all responses were received by July 2021.

Results: Forty patients completed the survey. The average participant age was 71±7.3 years old. The average age at prostate cancer diagnosis was 64±6.7 years. Thirty-eight (95%) patients were previously treated with radical prostatectomy and 24 (60%) subsequently developed biochemical recurrence. If it had been available, 30 (75%) participants indicated that they would have been interested in an adjuvant ADT trial to prevent biochemical recurrence. Most (15, 37.5%) stated that 12 months would be the longest duration of ADT that they would consider. The remainder of participants would consider up to six months (9, 22.5%), up to 18 months (3, 7.5%), up to 24 months (5, 12.5%), or greater than 24 months (8, 20%) of adjuvant ADT. A daily oral tablet (31, 52.5%) or injection every six months (9, 22.5%) were favored in a clinical trial over an injection at shorter time intervals. The most important outcomes for a trial of adjuvant ADT were prevention of cancer-related death (38, 95%) and cancer recurrence (37, 92%). If one year of adjuvant ADT reduced PSA recurrence by 50%, many (29, 47.5%) stated they would have chosen this intervention.

Conclusions: Few trials have assessed adjuvant ADT after radical prostatectomy and many patients claim they would have been interested in participating in a trial if it had been available. Based on these results, a randomized trial is warranted, and patient preferences should be incorporated in trial design.

Acknowledgements: Accepted for presentation at the AUA 2023 conference.

UP 3.2

Areas of controversy in the management of advanced prostate cancer: Results from the third multidisciplinary Canadian Consensus Forum

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Introduction: The landscape of prostate cancer (PCa) has evolved, leading to controversy in areas of management that lack high-level evidence to guide treatment. The third Canadian Consensus Forum (CCF), held by the Genitourinary Research Consortium (GURC), highlighted several areas of controversy in the management of PCa.

Methods: Questions were adapted from the 2022 Advanced Prostate Cancer Consensus Forum and the 2020 CCF using a modified Delphi process. The core scientific group (N=8) conducted the initial review, with questions finalized following input from a group of 26 multidisciplinary specialists (urologists/uro-oncologists=13, medical oncologists=9, radiation oncologists=4). Fifty-eight questions were voted on in the live virtual forum. Areas of controversy were defined as questions that did not reach the threshold of agreement of 75% and generated significant discussion among the voting panel.

Results: The nine areas of controversy included a lack of data to support stopping systemic therapy in patients with deep remission, impact of PSMA-PET/CT for high-risk localized PCa patients with radical prostatectomy and positive lymph nodes in the pelvis, and use of lutetium-PSMA therapy in chemotherapy-unfit metastatic castration-resistant PCa (mCRPC). Other areas of controversy included when to recommend salvage radiation therapy, initiation of ADT before biopsy in symptomatic patients with suspicion of metastatic disease, chemotherapy for mCRPC patients who received docetaxel in the castration-sensitive/naive setting, and ordering genetic testing (Table 1). The benefit of, and appropriate population for, triplet therapy was another area of controversy, with discussion focused on the lack of appropriate comparator in clinical trials (PEACE-1, ARASENS) and potential added adverse events following the addition of docetaxel to doublet treatments.

Conclusions: The third CCF identified nine areas of controversy, which represent opportunities for research and education to improve patient care.

Acknowledgements: The Canadian Consensus Forum was sponsored by Janssen Canada. The event was managed and facilitated by IQVIA Canada, in collaboration with Janssen and the Canadian Genitourinary Research Consortium (GURC).

UP 3.3

Association between prescribing specialty and treatment-related complications in patients using novel hormonal agents for metastatic castration-resistant prostate cancer: A population-based study

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Introduction: Novel hormonal agents (NHAs), such as abiraterone acetate (ABI) and enzalutamide (ENZ), are frequently used in metastatic castration-resistant prostate cancer (mCRPC). While mCRPC treatment has been traditionally administered by medical oncologists, urologists have also adopted the use of NHAs. Complications from treatment with NHAs vary widely in scope, from cardiovascular to infectious. The objective was to assess the association between the incidence of NHA-related complications and prescribing specialty in mCRPC patients treated with NHAs.

Methods: A retrospective, population-based cohort was extracted from Quebec public healthcare administrative databases. First-time NHA users between 2011 and 2016 were selected and grouped by the prescribing specialty (medical oncology [MO] vs. urology [URO] vs. other [OTH]). Outcomes of interest were overall NHA-related complications and its subtypes: cardiovascular, metabolic, infectious, and general/non-specific. Secondary outcomes included all-cause mortality and all-cause hospitalization. The overlap weighting (OLW) method was used to adjust for measured baseline characteristics and potential confounding.

UP 3.2. Table 1. Areas of controversy in the management of advanced prostate cancer

Practice scenario questions	Most frequently selected response	
In the majority of patients with metachronous high-volume (on conventional imaging or unequivocal on NGI) mCSPC, what is your preferred systemic treatment?	73%	ADT + apalutamide OR enzalutamide
For the majority of post-prostatectomy patients with isolated rising PSA only, if salvage RT is planned, at what confirmed PSA level do you recommend starting salvage radiation therapy?	65%	PSA up to 0.1 ng/mL
Do you order genetic testing?	65%	Yes - directly (mainstreaming)
In patients with mCSPC with durable deep remission to systemic treatment with PSA undetectable (e.g., ≤0.2 at 2–3 years), do you discuss with the patient the possibility of stopping all systemic therapy (ADT ± AR pathway inhibitor)?	61%	No
In the majority of patients with high-risk localized prostate cancer for whom radical prostatectomy is planned with N0, M0 on conventional imaging, but with 1–3 PSMA PET/CT positive lymph node(s) only in the pelvis (cN1, M0), what is your treatment recommendation?	59%	Radical prostatectomy plus extended lymphadenectomy as planned
For chemotherapy unfit patients with PSMA imaging-positive mCRPC who meet any relevant criteria for lutetium-PSMA therapy progressing after at least one line of AR pathway inhibitor who cannot enroll in a clinical trial and if there is no molecular alteration with approved therapy, do you recommend lutetium-PSMA therapy?	50%	Yes
In patients who received docetaxel in castration-sensitive, castration-naive setting, what is your treatment approach for the majority of patients for whom you like to treat with a second chemotherapy course in the mCRPC setting?	50% 50%	Docetaxel re-challenge in those with prior response to docetaxel Cabazitaxel
In symptomatic patients with high suspicion of metastatic prostate cancer (PSA, imaging) do you initiate ADT before histopathological confirmation of prostate cancer?	48%	Yes, in a minority of patients
In the majority of patients with synchronous high-volume (on conventional imaging or unequivocal on NGI) mCSPC, what is your preferred systemic treatment?	48% 48%	ADT + apalutamide OR enzalutamide Triplet therapy combinations (ADT+Doce+Daro or ADT+Doce+Abi)

Results: The cohort comprised 2183 patients, with 1157 (53.0%) in the MO group, 740 (33.9%) in the URO group, and 286 (13.1%) in the OTH group. For overall NHA-related complications, the URO group (OLW-hazard ratio [HR] 0.97, 95% CI 0.72–1.31) and OTH group (OLW-HR 1.05, 95% CI 0.70–1.54) were not different compared to the MO group. While the URO group was associated with a greater incidence of cardiovascular complications compared to the MO group (OLW-HR 1.85, 95% CI 1.04–3.28), it was also at lower risk of infectious complications (OLW-HR 0.66, 95% CI 0.43–0.98). Neither all-cause mortality (OLW-HR [URO] 1.08, 95%CI 0.93–1.24; OLW-HR [OTH] 1.12, 95%CI 0.94–1.33) nor all-cause hospitalization (OLW-HR [URO] 1.11, 95%CI 0.90–1.34; OLW-HR [OTH] 1.10, 95%CI 0.94–1.28) were associated with prescribing specialty.

Conclusions: We found no differences across prescribing specialties for overall NHA-related complications, all-cause mortality, and all-cause hospitalization but subtype-specific associations were identified. Relative to the MO group, the URO group was associated with a higher risk of cardiovascular complications but a lower risk of infectious complications. These results highlight the complexity of the management of mCRPC with NHA treatment and further studies are required to corroborate these findings.

UP 3.4

The PROCURE biobank: An important resource for prostate cancer research

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Introduction: Research on prostate cancer (PCa) is often impaired by lack of high-quality biospecimens and clinical data. PROCURE, with a team of urologists, scientists, and pathologists, has created a biobank of biospecimens and associated clinical data from patients undergoing radical prostatectomy (RP) for their cancer and who are followed longitudinally during remission or recurrence of their disease.

Methods: Ethics approval of four participating universities/hospital centers in the province of Quebec was obtained. Operating documents included: a consent form, a questionnaire on sociodemographics, lifestyle habits and diseases, standard operating procedures, and worksheets.

Results: From 2006–2013, 2007 men were enrolled. Blood (serum, plasma, buffy coat), urine, and prostate tissues (frozen and FFPE) obtained at RP were banked. Clinico-pathological data were collected in an ATIM database and updated periodically. Followup visits permitted blood and urine recollection. The mean age of participants and mean prostate-specific antigen (PSA) at diagnosis, as well as the distribution of T stages and Gleason grades, correspond to reported values for RP cohorts. Current median followup time is >8 years. To date, 33% of participants had a biochemical recurrence and 11% died, of which 2.4% died of PCa. More than 10 500 blood and urine samples have been collected, including 8500 at followup visits. Indeed, a majority of participants (87%) have provided additional samples after RP. A tissue microarray composed of benign and cancer tissue cores from 1638 participants was generated.

Conclusions: The PROCURE biobank can allocate high-quality biospecimens and data to researchers sending requests. The long clinical followup, rich outcome data, and blood sampling throughout patient followup make this biobank a precious tool to conduct innovative research for better understanding, detection, and treatment of PCa.

UP 3.5

Do PPIs increase risk of prostate cancer

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Introduction: Prostate cancer (PCa) is the second most common diagnosis of cancer among men and the fifth most common cause of cancer-specific death worldwide. There is currently mixed evidence on the effect of certain common medications on the risk of developing PCa. The primary endpoint of this study was prostate biopsy outcome in association with three commonly prescribed groups of pharmacological agents: 5-alpha reductase inhibitors (5-ARIs), statins, and pantoprazole. The secondary endpoint was diagnosis of clinically significant PCa.

Methods: This retrospective cohort study used the Princess Margaret Cancer Centre prostate biopsy database to include men who underwent their first diagnostic prostate biopsy from January 2018 to December 2018. Exposures were defined as six or more months of treatment with any of 5-ARIs, statins, or PPIs for patients undergoing their first prostate biopsy. PCa was defined based on pathology reports, with Gleason score (GS) of ≥6 as the cutoff for PCa diagnosis. Clinically significant PCa was defined as GS of ≥7.

Results: A total of 663 patients fulfilled the inclusion criteria. Univariable analysis demonstrated a positive association between risk of PCa diagnosis and pantoprazole use, with an OR of 2.69 (95% CI 1.25–6.3, p=0.02), older age, higher PSA, and smaller prostate volume. The association with the statins and 5-ARIs

were not statistically significant. Similar results were seen in the univariable analysis for clinically significant PCa, whereby both PPI use (OR 2.01, 95% CI 1.13–3.57, p=0.017) and statin use (OR 2.17, 95% CI 1.38–3.41) had statistically significant positive association with GS ≥7 PCa diagnosis; however, 5-ARIs did not (p=0.26). When adjusting for confounders on multivariable analysis, PPI use was associated with increased odds of PCa diagnosis, but this did not reach statistical significance (OR 1.18, 95% CI 0.69–2.03, p=0.54). A similar result was noted in the logistic regression model for clinically significant PCa risk (OR 1.28, 95% CI 0.79–2.07, p=0.31). On the other hand, there was an increased risk for both PCa and clinically significant PCa in pantoprazole users, with an OR of 2.45 (95% CI 1.15–5.19, p=0.02) and 2.3 (95%CI 1.26–4.19, p=0.0067), respectively. In both multivariable analyses, statin and 5-ARI use were associated with reduced risk of cancer diagnosis; however, this was not statistically significant.

Conclusions: Our results indicate that PPI use is associated with an increased risk of developing clinically significant PCa. Although statistical significance was not reached, these results highlight a continued need for obtaining a thorough medication history and active monitoring of PPI use in men at risk of PCa. Further larger population-based cohorts and randomized studies should provide more information on this important area

UP 3.6

An analysis of incidental prostate cancer diagnosed at radical cystoprostatectomy: Does neoadjuvant chemotherapy have an impact?

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Introduction: The clinical significance of incidental prostate cancer (PCa) diagnosed at radical cystoprostatectomy (RC) for bladder cancer is undetermined, and presents an opportunity to assess the impact of concurrent bladder cancer therapy on PCa stage and grade. The anti-tumor effects of platinum-based chemotherapy have been reported previously in unselected, advanced PCa patients with variable response rates. In this study, we analyze the outcomes of patients with incidental PCa at RC and compare the stage and grade of incidental PCa in patients treated with neoadjuvant chemotherapy (NAC) and primary RC.

Methods: A retrospective analysis of 168 patients who underwent RC for non-metastatic urothelial carcinoma from 2001–2019 was performed. Patients with incidental PCa were included. Univariate analysis was performed to determine the effect of NAC on the stage and grade of incidentally diagnosed PCa.

Results: Low-risk, organ-confined (T2) PCa was most commonly seen in the patient cohort: grade group (GG) 1, n=125 (76%); GG 2–3, n=36 (22%); ≥GG 4, n=4 (2%); T2, n=148 (89%). Median overall survival (OS) was reduced in patients with high- (≥GG 4) vs. intermediate- (GG 2–3) and low-risk (GG 1) PCa (0.9 yrs vs. 9.3 yrs vs. 7.2 yrs, p=0.08). Median bladder cancer-specific recurrence-free survival (DSS) was also significantly reduced in patients with high- vs. low-risk PCa (6.9 yrs vs. 0.5 yrs, p=0.01). Thirty-eight (23%) and 130 (77%) patients received NAC and primary RC, respectively. Within the NAC group, 34 (97%) received platinum-based NAC and 30 (81%) received ≥4 cycles. T2 PCa was more commonly seen in the NAC group (92% vs. 88%, p=0.8), while in the primary RC group, >T2 disease was more commonly seen (12% vs. 8%, p=0.8); however, the incidence of low-, intermediate-, and high-risk disease was similar in both groups.

Conclusions: The majority of patients with incidental PCa in this cohort had low-risk disease. OS and DSS were worse among patients with incidental high-risk PCa. Platinum-based chemotherapy did not significantly impact PCa stage or grade in this patient cohort.

UP 3.7

3rd Canadian Consensus Forum on the management of prostate cancer

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Introduction: Management of prostate cancer (PCa) is rapidly evolving. Treatment options expand each year, and increasingly novel imaging and biomarkers guide disease management; however, high-level evidence for the use of new therapeutics and diagnostics is lacking. In November 2022, the Genitourinary Research Consortium (GURC) held its 3rd Canadian Consensus Forum (CCF3) to provide guidance on key controversial areas for the management of PCa.

Methods: A steering committee of eight multidisciplinary physicians identified topics for discussion from the Advanced PCa Consensus Conference (APCCC) 2022. Questions from APCCC 2022 were adapted for use at the CCF. Questions focused on the management of PCa (localized to mCRPC disease), the use of novel imaging, and germline testing and genomic profiling. The threshold for "consensus agreement" was set at 75%; 58 questions were voted on during a live, virtual forum, and 76 questions were voted on online prior to the live meeting.

Results: The final voting panel included 13 urologists/uro-oncologists, nine medical oncologists, and four radiation oncologists (n=26). Consensus was reached for 31 online questions and 32 questions from the live forum (Table 1). Consensus was seen for the use of local treatment for low-volume mCSPC without metastasis-directed therapy, and triplet therapy for synchronous high-volume mCSPC. Consensus was also reached on sufficiency of conventional imaging to manage mCSPC, use of germline testing and genomic profiling for metastatic disease, and use of PARP inhibitors in mCRPC with BRCA1/2.

Conclusions: CCF3 identified consensus agreement that provides guidance on >60 practice scenarios related to the management of mCSPC and use of novel imaging and genetic testing. Consensus initiatives provide valuable guidance on areas of controversy as clinicians await high-level evidence.

Acknowledgements: The Canadian Consensus Forum was sponsored by Janssen Canada. The event was managed and facilitated by IQVIA Canada, in collaboration with Janssen and the Canadian Genitourinary Research Consortium (GURC).

UP 3.7. Table 1. CCF 3 areas of consensus from live forum

Practice scenario questions	Consensus agreement	
For local treatment of the primary tumor in mCSPC, is it important to distinguish low-volume from high-volume defined by conventional imaging?	100%	Yes, it is important to distinguish low-volume from high-volume mCSPC on conventional imaging for local treatment of the primary tumor.
In the majority of patients without symptoms from the primary tumor with synchronous low-volume (conventional imaging) mCSPC, what is your preferred treatment strategy concerning the primary tumor?	100%	Preferred treatment is radiation therapy.
For chemotherapy-fit patients with PSMA imaging-positive mCRPC who meet any relevant criteria for lutetium-PSMA therapy, who have received at least one line of AR pathway inhibitor but no chemotherapy, what is your preferred treatment option for the majority of patients assuming treatments are readily available and there is no molecular alteration with approved therapy?	100%	Preferred treatment option is docetaxel.
In patients with a confirmed pathogenic aberration BRCA1/2 (germline/somatic or somatic alone) in case you do not have access to a PARP inhibitor, do you recommend treatment with a platinum-based therapy instead?^ ^Assume after PARPi	100%	Yes, recommend treatment with platinum-based therapy instead.
In patients with suspected metastatic prostate cancer, should patients have histological confirmation in the prostate or metastatic sites?	100%	Yes.
In the majority of patients without symptoms from the primary tumor with synchronous low-volume (conventional imaging) mCSPC, what is your preferred treatment in addition to ADT?	96%	Preferred treatment is radical local treatment of the primary tumour plus additional systemic therapy (± metastases-directed therapy).
If you recommend triplet therapy (ADT plus docetaxel plus an AR pathway inhibitor) in patients with mCSPC, what is your preferred strategy?	96%	Preferred strategy is concurrent administration (as for ENZAMET, PEACE-1).
In the majority of patients with a positive family history but with no evidence of DNA damage repair alterations and/or MMR alterations in somatic (tumor) testing, do you recommend an additional germ-line testing?	96%	Yes, recommend additional germ-line testing.
Is it appropriate to extrapolate the data from the phase 3 trials (TITAN, ARCHES, and ENZAMET) of apalutamide/enzalutamide to abiraterone/prednisone in low-risk/low-volume mCSPC?	92%	Yes, data from phase 3 trials of apalutamide/enzalutamide can be extrapolated to abiraterone/prednisone in low-risk/low-volume mCSPC.
In the majority of patients without symptoms from the primary tumor with synchronous low-volume (conventional imaging) mCSPC, what is your preferred treatment strategy concerning the metastatic lesions?	92%	Preferred treatment is no metastases directed therapy.
In the majority of patients with synchronous low-volume (conventional imaging) mCSPC, if you recommend radical local treatment of the primary tumor (± metastases directed therapy), what is your preferred systemic treatment choice in addition to ADT?	92%	Preferred systemic treatment is AR pathway inhibitor as sole additional therapy.
In the majority of patients with metachronous low-volume (conventional imaging) mCSPC, what is your preferred treatment strategy?	92%	Preferred treatment strategy is systemic therapy alone (including ADT ± ARAT).
In the majority of patients with high-volume (conventional) mCSPC and a low baseline PSA level (e.g., ≤5) before initiation of ADT, and no neuroendocrine component on biopsy, what is your preferred systemic treatment in addition to ADT?^ ^Assuming synchronous, uncommon relapse situation	92%	Preferred systemic treatment in addition to ADT is docetaxel plus an AR pathway inhibitor.
For chemotherapy fit patients with PSMA imaging-positive mCRPC who meet any relevant criteria for lutetium-PSMA therapy, who have received at least one line of AR pathway inhibitor and one line of taxane-based chemotherapy, what is your preferred treatment option for the majority of patients assuming treatments are readily available and there is no molecular alteration with approved therapy?	92%	Preferred treatment option is lutetium-PSMA therapy.
In the majority of patients with metastatic prostate cancer, would you recommend germline counselling and/or testing (depending on local regulation) if available?	92%	Yes, recommend germline counselling and/or testing.
What is your recommended treatment approach for the majority of patients with oligorecurrent (metachronous) oligometastatic prostate cancer?	92%	Recommended treatment approach is AR pathway inhibitor + ADT.
In the majority of patients with mCRPC with disease evident on PSMA PET/CT, do you recommend additional conventional imaging with CT and bone scintigraphy before starting a new treatment?	89%	Yes, recommend additional conventional imaging before starting a new treatment.
Do you routinely screen for osteoporosis risk factors (e.g., current/history of smoking, corticosteroids, family history of hip fracture, personal history of fractures, rheumatoid arthritis, >3 alcohol units/day, BMI) or request bone mineral density test in patients with prostate cancer starting on long-term ADT?	89%	Yes, in the majority of patients.

UP 3.7. Table 1 (cont'd). CCF 3 areas of consensus from live forum

Practice scenario questions	Consensus agreement	
What is your recommended treatment strategy in the majority of patients with mCSPC that have low-volume disease by conventional imaging but high-volume by next-generation imaging?	88%	Recommended to treat as per low-volume.
In a patient with high-risk localized prostate cancer for whom radiation therapy of the prostate is planned, and who has no evidence of metastatic disease (N0 M0) on PSMA PET/CT, do you recommend omitting radiation therapy of the pelvis?	88%	No, do not recommend omitting radiation therapy of the pelvis.
For local treatment of the primary tumor in mCSPC, is it important to distinguish low-volume from high-volume defined by next-generation imaging (NGI)?	85%	No, it is not important to distinguish low-volume from high-volume mCSPC on next-generation imaging for local treatment of the primary tumor.
In the majority of patients with metastatic prostate cancer, when would you recommend tumor genomic profiling (tissue or ctDNA) if available without restrictions?	85%	Yes, at diagnosis of any mCSPC.
In a patient with a pathogenic BRCA1/2 aberration (germline/somatic or somatic alone), when do you recommend introducing a PARP inhibitor therapy?	84%	Recommend introducing a PARP inhibitor after one line of AR pathway inhibitor.
Do you recommend the use of a PARP inhibitor in a patient with a pathogenic, monoallelic somatic (NOT germline alteration identified) BRCA1/2 alteration?	82%	Yes, in the majority of patients.
Is it appropriate to extrapolate the data from the phase 3 trials (TITAN, ARCHES, and ENZAMET) of apalutamide/enzalutamide to abiraterone/prednisone in metachronous mCSPC?	79%	Yes, data from phase 3 trials of apalutamide/enzalutamide can be extrapolated to abiraterone/prednisone in metachronous mCSPC.
Do you recommend PSMA PET/CT for staging of localized prostate cancer?	79%	No, do not recommend PSMA PET/CT imaging for localized disease.
In a patient with high-risk localized prostate cancer, for whom radical prostatectomy is planned, and who has no evidence of metastatic disease (N0 M0) on PSMA PET/CT, do you recommend omitting the extended pelvic lymphadenectomy (ePLND) based on that finding?	79%	No, do not recommend omitting extended pelvic lymphadenectomy.
For the majority of patients, if you recommend tumor genomic testing, what is your preferred source of tissue?	76%	Preferred source of tissue is most recent archival tumor tissue available.
Do you recommend systemic (ADT) hormonal treatment in combination with salvage radiation therapy for patients with PSA recurrence after radical prostatectomy?	76%	Yes, in the majority of patients.
For patients with nmCRPC (M0 CRPC^), with an untreated primary, showing PSA progression only during treatment with AR pathway inhibitor do you recommend radiation to the primary as an approach to stretch the time to next subsequent treatment? ^Assuming M0 on conventional imaging	75%	Yes, recommend radiation to the primary to stretch time to next subsequent treatment.
If prescribing systemic treatment (ADT ± additional systemic therapy) WITHOUT metastases-directed therapy, what is your preferred option regarding systemic therapy duration in the majority of patients with metachronous low-volume?	75%	Preferred systemic therapy duration is intermittent therapy (temporary systemic therapy).