

# Poster Session 3: Oncology – Bladder

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### MP 3.1

#### Downstaging of primary vs. secondary muscle-invasive bladder cancer after cystectomy and its association with survival

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**Introduction:** Although previous studies have suggested that patients who progress to muscle-invasive bladder cancer (secondary MIBC) after previous treatment for non-invasive disease have worse outcomes than those that present de novo (primary MIBC), contemporary studies have been conflicting. Further, most analyses have generally not assessed possible explanatory factors, although there is emerging evidence that secondary MIBC may be more resistant to perioperative chemotherapy. The aim of the current study was to assess whether there were differences in downstaging, and its association with survival outcomes, in patients with primary MIBC as compared to secondary MIBC in a large, retrospective cohort of patients from tertiary care centers.

**Methods:** This retrospective, multicenter study used the Canadian Bladder Cancer information system (CBCis) database, a registry that includes patient, tumor, and treatment data from 14 centers across Canada. The main study outcome was the rate of downstaging at cystectomy, defined as <pT2. Descriptive statistics were used to compare baseline demographic factors. Cox's proportional hazards models and multivariable regression analyses, adjusted for key patient and treatment variables, were performed to assess factors associated with downstaging, as well as overall survival (OS).

**Results:** During the study period, 908 patients received cystectomy between January 5, 2017, and September 1, 2020. Patients had localized primary MIBC (n=678) or secondary MIBC (n=230) at the time of TURBT. There were no observed differences in baseline variables based on MIBC status (primary vs. secondary), including sex, age at surgery, comorbidity, clinical stage, variant pathology, or use of neoadjuvant chemotherapy (NAC, 47% vs. 44%, p=0.43). Postoperatively, there were observed differences in rate of lymph node metastases (primary vs. secondary; 16% vs. 59%, p=0.037) and subsequent use of adjuvant chemotherapy (5 vs. 9%, p=0.016). Downstaging to <pT2 for those with primary MIBC was 28% vs. 14% with secondary MIBC (p<0.001) and downstaging to pT0 was 15% vs. 5%, respectively. Multivariable analysis of factors associated with downstaging at cystectomy included urothelial (vs. variant) pathology (OR 6.39, 95% CI 3.22–12.69), use of NAC (OR 2.23, 95% CI 1.39–3.60), and primary vs. secondary MIBC (OR 2.65, 95% CI 1.50–4.71). Lower OS was also associated with those with secondary vs. primary MIBC (HR 2.90, 95% CI 1.64–5.14, p<0.0001).

**Conclusions:** In this large, multicenter registry of patients with MIBC, those who had secondary, progressed disease were observed to have decreased survival on

multivariable analysis. Further, those cases were associated with lower downstaging rates post-cystectomy vs. those with de novo, primary MIBC. Limitations of these observations include selection biases of those registered in CBCis and incomplete details of previous management for non-invasive disease. Although these observations are likely confounded by assessed clinical stage at the time of cystectomy, they support further work investigating the chemosensitivity of MIBC that has progressed from non-invasive disease, as it may represent a more global, treatment-resistant phenotype.

### MP 3.2

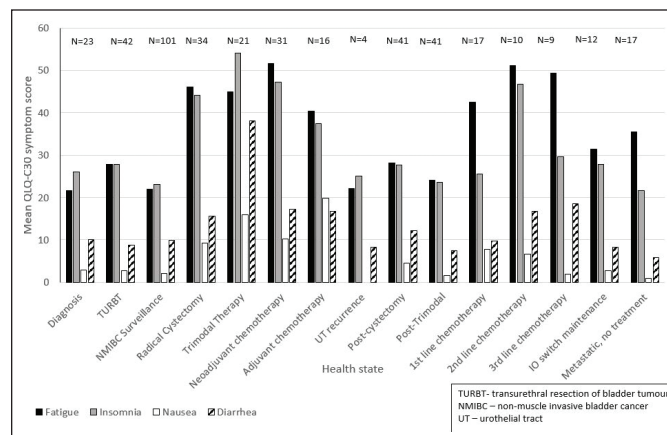
#### Quality of life and health state utilities in bladder cancer patients across the care trajectory

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**Introduction:** Utility is a preference-based measure of health-related quality of life (HRQoL) used in cost-effectiveness and decision models. There are few utility data for bladder cancer (BCa) patients, and none span the care trajectory. The objective of this study was to measure utilities and HRQoL in BCa patients at all phases of care.

**Methods:** We identified 15 BCa health states from diagnosis to third-line systemic therapy for metastatic disease based on patients' expected pathways (Table 1). In a prospective, multicenter study, consenting BCa patients attending outpatient urology, medical oncology, and palliative care clinics at three tertiary care centers in Vancouver, Montreal, and Toronto were allocated to a health state based on medical chart review, and re-evaluated every 1–6 months for up to two years for transition to another health state. At baseline and transition, patients completed three validated published utility scales: our internally developed Bladder Utility



**MP 3.2. Figure 1.** Selected EORTC QLQ-C30 symptoms scores for patients in bladder cancer health states. The bar chart indicates mean fatigue, insomnia, nausea, and diarrhea EORTC QLQ-C30 symptom scores for each of the 15 health states. Higher scores indicate higher symptomatology.

Symptom Scale (BUSS), EQ-5D-5L, and the Quality of Life Utility-Core 10 Dimensions (QLU-C10D; derived from the EORTC QLQ-C30). We report descriptive statistics across instruments and health states.

**Results:** A total of 378 patients (mean age 69 years, 76% male) completed at least one utility instrument and 365 completed all three at least once, for 426 health state observations. Mean utilities were higher at diagnosis (BUSS: 0.88; EQ-5D-5L: 0.86; QLU-C10D: 0.81) and NMIBC surveillance (BUSS: 0.91; EQ-5D-5L: 0.86; QLU-C10D: 0.81) than during treatment (Table 1). The lowest mean utilities were with radical cystectomy, at 0.65 (BUSS), 0.76 (EQ-5D-5L), and 0.55 (QLU-C10D). EORTC QLQ-C30 function and symptom scales mirrored trends in utilities. Fatigue, insomnia, and gastrointestinal symptoms were common during treatment states (Figure 1).

**Conclusions:** Patients reported large variability in HRQoL outcomes over the care pathway. We generated a robust standard set of utilities for all phases of BCa care, that can inform future cost-effectiveness analyses.

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**MP 3.3**

**The Bladder Utility Symptom Scale (Utility): A novel tool to measure utilities and quality of life in bladder cancer patients**

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**Introduction:** Bladder cancer (BCa) and its treatments have significant impacts on patient quality of life (QoL) and decision-making. To facilitate comparative effectiveness research, a BCa specific tool to measure both quality of life and utilities is required. We previously created and validated the Bladder Utility Symptom Scale (BUSS)-Psychometric (P), a 10-item multiple-choice questionnaire to measure QoL in all phases of BCa care. Our objective was to create two distinct algorithms to calculate utilities from BUSS-P responses.

**Methods:** We conducted in-person interviews with 200 BCa patients and 200 members of the general public. Purposeful sampling was used to ensure proportionate numbers of non-muscle-invasive (NMIBC), muscle-invasive (MIBC), and metastatic BCa patients. The general public sample was recruited proportionate to national age, sex, and income distributions. Each respondent provided time tradeoff (TTO) utilities for 12 randomly generated health state scenarios based on the BUSS-P attributes. Bayesian generalized linear multilevel models were used to estimate the impact of each of the 10 BUSS-P attributes to utility, which was bound by 0 and 1. Pearson correlation coefficients were calculated between observed and expected model values. Two algorithms to calculate utilities from BUSS-P responses were then generated: one derived from BCa patients and one from the general public.

**MP 3.2. Table 1. Health state utilities for bladder cancer patients in each health state**

Health state	Utility instrument (N patients)					
	BUSS (n=371)		EQ-5D-5L (n=376)		QLU-C10D (n=372)	
	n	Mean (SD)	n	Mean (SD)	n	Mean (SD)
Diagnosis	22	0.88 (0.14)	23	0.86 (0.14)	23	0.81 (0.18)
TURBT	40	0.78 (0.17)	41	0.81 (0.15)	41	0.75 (0.20)
NMIBC surveillance	101	0.91 (0.12)	102	0.86 (0.11)	100	0.81 (0.17)
Radical cystectomy	34	0.65 (0.18)	33	0.76 (0.15)	34	0.55 (0.22)
Trimodal therapy	21	0.78 (0.16)	21	0.82 (0.14)	21	0.57 (0.29)
Neoadjuvant chemotherapy	31	0.76 (0.20)	31	0.77 (0.22)	31	0.59 (0.26)
Adjuvant chemotherapy	16	0.74 (0.16)	16	0.81 (0.10)	16	0.60 (0.22)
Urothelial tract recurrence	4	0.81 (0.12)	4	0.87 (0.07)	4	0.79 (0.09)
Post-cystectomy	41	0.80 (0.13)	41	0.84 (0.10)	41	0.77 (0.19)
Post-trimodal	40	0.91 (0.08)	41	0.88 (0.09)	41	0.84 (0.15)
1st-line chemotherapy	17	0.75 (0.20)	17	0.78 (0.20)	16	0.72 (0.16)
2nd-line chemotherapy	10	0.69 (0.12)	10	0.76 (0.13)	10	0.61 (0.21)
3rd-line chemotherapy	9	0.75 (0.15)	9	0.73 (0.16)	9	0.58 (0.19)
IO switch	12	0.82 (0.12)	12	0.86 (0.08)	12	0.75 (0.13)
Metastatic, no treatment	17	0.78 (0.18)	17	0.75 (0.28)	17	0.72 (0.25)

Note: Canadian utility weights from patients (BUSS) or the general population (EQ-5D-5L, QLU-C10D) were used.

**Results:** Of 400 participants, 322 completed the TTO exercises with adequate comprehension. Of the BCa patients, 70 were NMIBC, 53 MIBC, and 32 metastatic. A total of 3288 randomly generated, unique BUSS-P health state valuations were obtained. The final model had a weighted correlation coefficient between predicted and observed utilities of 0.733 and 0.734 in the community and patient groups, respectively. A final table of weights for each response level of each question was created for the final utility calculation. In an exploratory analysis of patients' own BUSS-U responses, discrimination of utilities across health states was observed, with mean (SD) utilities in NMIBC, cystectomy, and minimally symptomatic metastatic patients at 0.897 (0.099), 0.831 (0.109), and 0.825 (0.157), respectively.

**Conclusions:** The BUSS-P is the first instrument that provides utilities for BCa derived from both BCa patients and the general public. Grounded in robust TTO methodology, utilities in all phases of BCa care can be measured for use in comparative effectiveness research, cost-effectiveness, and decision-modeling and policy work.

*Acknowledgements:* This research was supported by grants from CIHR and CCSRI. This work has been accepted for presentation at the European Association of Urology annual congress in 2024.

**MP 3.4**  
**Impact of multifocal carcinoma in situ on the risk of tumor progression in non-muscle-invasive bladder cancer**

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**Introduction:** Concomitant carcinoma in situ (CIS) is a well-established prognosticator of non-muscle-invasive bladder cancer (NMIBC) progression; however, the impact of CIS distribution (unifocal or multifocal) on progression risk remains uncertain. We sought to assess whether CIS distribution impacts progression risk.

**Methods:** In this multi-institutional, retrospective cohort study involving both academic and community hospitals, clinicopathologic data were collected from Ta/T1 NMIBC patients treated from 2005–2022. Unifocal CIS was defined as CIS in only one specimen (i.e., papillary disease with CIS at the tumor base or isolated CIS in only one specimen). Multifocal CIS was characterized by CIS in multiple specimens. Progression was defined as the development of muscle-invasive or metastatic disease. Multivariable Cox regression was performed to identify progression-associated factors.

**Results:** Among 2924 patients, 384 (13%) experienced progression over a median followup of 4.8 years. Median age was 71 years; 697 (24%) were female; 943 (32%) had T1 disease and 1488 (51%) had high-grade disease. Concomitant CIS occurred in 328 patients (11%); 234 (8%) and 94 (3%) presented with unifocal and multifocal CIS, respectively. Older age, T1 stage, high-grade disease, multifocal CIS (but not unifocal), and multiple tumors were associated with an increased risk of progression (Table 1). Among concomitant CIS patients, multifocal CIS remained a significant prognosticator (HR 2.0, 95% CI 1.2–3.2, p=0.006) after adjusting for age, stage, grade, tumor size, and number of tumors.

**Conclusions:** NMIBC progression risk varies with CIS distribution. Multifocal CIS seems to be an independent prognosticator of progression in Ta/T1 NMIBC. Distinguishing between unifocal and multifocal CIS should be encouraged and our results warrant further external validation. Our findings support submitting separate tumor specimens to pathology at the time of transurethral resection for tumor mapping and CIS characterization.

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**MP 3.4. Table 1. Cox regression to predict tumor progression (muscle-invasive or metastatic disease) among patients with Ta/T1 non-muscle-invasive bladder cancer (n=2924)**

Variable	Univariable analysis*	Multivariable analysis	
	HR (95% CI)	HR (95% CI)	p
Age (per 10 years)	1.3 (1.1–1.4)	1.2 (1.1–1.3)	0.002
T1 stage	5.6 (4.5–7.0)	2.7 (2.1–3.4)	<0.0001
High-grade	7.5 (5.6–10)	3.6 (2.6–5.1)	<0.0001
Concomitant CIS	2.4 (1.9–3.1)	Excluded, collinear with degree of CIS	
Degree of CIS			
None	Ref	Ref	–
Unifocal	2.0 (1.5–2.7)	0.9 (0.7–1.2)	0.5
Multifocal	3.6 (2.5–5.2)	1.6 (1.1–2.3)	0.02
Multiple tumors	1.9 (1.5–2.3)	1.4 (1.1–1.7)	0.002
Tumor diameter ≥3 cm	1.6 (1.3–2.0)	1.1 (0.9–1.4)	0.2

\*All HR statistically significant at p<0.0001.

**MP 3.5**  
**Comparison of 90-day morbidity and mortality between ileal conduit and orthotopic neobladder following radical cystectomy in a large, multi-institutional database: The Canadian CBCis experience**

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**Introduction:** Ileal conduit (IC) urinary diversions are more frequently offered to patients undergoing radical cystectomy than orthotopic neobladder reconstructions (ONB). Patients selected for IC usually have more comorbidities, advanced disease, and older age. We aimed to assess 90-day complications and mortality for patients undergoing either procedure in a large, Canadian, contemporary cohort to guide patient counselling and care.

**Methods:** Patient information was obtained from the Canadian Bladder Cancer information system (CBCIS), a prospective registry that includes data on patients treated in 14 academic Canadian centers. A retrospective analysis of 2256 patients who underwent radical cystectomy between February 2015 and September 2023 was carried out. Ninety-day complications were analyzed according to the Clavien-Dindo severity scale. Perioperative parameters and survival rates were compared between IC and ONB diversion. We used rank sum and Chi-squared exact tests for descriptive statistics. Unconditional logistic regression was used to evaluate the

association between complications of IC vs. ONB. Multivariable Cox regression was used for assessing potential confounders in 90-day mortality.

**Results:** Of the 2256 cases, 95 were excluded for incomplete data. Of the 2161 remaining patients, 1799 received an IC and 362 an ONB. Patients were followed up for a median duration of 235 days (IQR 486). The cohort mean age was 65.1 years (SD 16.2). Patients in the IC group were significantly older (average 66.2 vs. 58.6 years,  $p < 0.001$ ). Males accounted for 76% of the IC group and 86% of the ONB group ( $p < 0.001$ ). The age-adjusted Charlson comorbidity index (aCCI) was significantly higher in the IC diversion group (mean  $\pm$  SD 4.9 $\pm$ 2.0 vs. 3.9 $\pm$ 1.6,  $p < 0.001$ ). Neoadjuvant chemotherapy was given more frequently in the ONB group (50% vs. 31%,  $p < 0.001$ ). The overall 90-day complication and 90-day mortality rates following RC were 46% and 4.3%, respectively. Unplanned readmission rates were higher in the ONB group (48% vs. 34%,  $p < 0.001$ ). The most common complications were ileus, wound infection, and facial dehiscence, occurring in 16%, 6.5%, and 3.5% of patients, respectively. The risk of overall complications was significantly higher in the ONB group than in the IC group on multivariable logistic regression (OR 2.21, 95% CI 1.70–2.88,  $p < 0.001$ ). Patients with ONB had a higher risk of urine leak (16% vs. 2%, OR 10.20, 95% CI 6.10–17.01,  $p < 0.001$ ) and lymphocele (5.6% vs. 2.0%, OR 2.91, 95% CI 1.53–5.52,  $p = 0.001$ ). Clavien-Dindo complications of 3–5 severity were noted in 28% of IC patients and 35% on ONB patients ( $p = 0.18$ ). Ninety-day mortality was 4.9% in the IC group and 0.82% in the ONB group ( $p < 0.001$ ); however, multivariable analysis could not be carried out due to a very small number of events in the ONB group (3 in ONB vs. 89 in IC).

**Conclusions:** In this multi-institutional cohort, patients with IC had higher 90-day mortality rate, possibly reflecting the selection of patients with lower health status. Patients with ONB had a higher risk of perioperative complications. Although complications were higher in severity in the ONB group, the difference did not reach statistical significance. These findings may help facilitate patient decision-making when choosing the best diversion option.

*Acknowledgements:* The authors thank Camilla Tajzler for her administrative support.

### MP 3.6

#### Outcomes among rural and urban Canadian patients with high-risk non-muscle-invasive bladder cancer: Results from the Canadian Bladder Cancer information system (CBCis)

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**Introduction:** Patients with high-risk non-muscle-invasive bladder cancer (NMIBC) require frequent surveillance and adjuvant intravesical therapy. Access to such care may be limited in patients with rural residences. Previous studies have suggested that patients of rural residence comparatively have worse cancer-related outcomes. We hypothesized that the management of rural patients with high-risk NMIBC (defined as HG Ta, any T1 disease, CIS) will be less CUA guideline-concordant compared to urban patients.

**Methods:** The Canadian Bladder Cancer information system (CBCis) database was used to identify all patients diagnosed with high-risk NMIBC (defined as HG Ta, any T1 disease, CIS) on initial transurethral resection of bladder tumor (TURBT). Rural/urban designation was defined using the first three digits of the patient's postal code in conjunction with the Statistics Canada definition. Exclusion criteria included patients with non-urothelial histology, benign histology, unknown T stage, or evidence of nodal or distant metastases at the time of diagnosis. Statistical analysis was performed using the rank sum tests for continuous variables and durations. Chi-squared method was used for comparison of proportions.

**Results:** Analysis was performed on 2838 patients with high-risk NMIBC who met inclusion criteria, of whom 88.8% ( $n = 2511$ ) were urban and 11.2% ( $n = 327$ ) were rural. Rural patients were more likely than urban patients to present with high-grade (HG) T1 tumors (42.8% vs. 37.8%,  $p = 0.03$ ). Repeat TURBT was

performed within 60 days for HG T1 disease in 5.5% of urban and 8.6% of rural patients ( $p = 0.078$ ). Rural patients were less likely than urban patients to receive induction BCG (54% vs. 61%,  $p = 0.054$ ); however, no significant differences were seen between both groups undergoing induction BCG with one year of maintenance (35% vs. 32%,  $p = 0.089$ ). After a median followup of 394 days, progression to muscle-invasive bladder cancer (MIBC) was significantly higher in the rural cohort (15% urban vs. 20% rural,  $p = 0.022$ ).

**Conclusions:** From a practice pattern perspective, repeat TURBT for HG T1 disease was performed at a lower-than-expected rate in both rural and urban populations. Additionally, access to intravesical immunotherapies may be more limited among rural patients. Overall, among high-risk NMIBC patients, rural patients appear to have significantly higher rates of progression to MIBC.

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### MP 3.7

#### The link between TURBT documentation, NMIBC risk stratification, and management

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**Introduction:** Transurethral resection of bladder tumor (TURBT) is currently the mainstay in the diagnosis and therapeutic management of bladder cancer. Accurate risk stratification based on histopathology and documented intraoperative findings is essential for guiding further treatment. This study aimed to examine intraoperative documentation and its implication for risk stratification and management according to the 2016 European Association of Urology (EAU) non-muscle-invasive bladder cancer (NMIBC) guidelines.

**Methods:** A retrospective analysis was conducted on all TURBT and bladder biopsies undertaken at a single institution in 2022 to evaluate the documentation of 11 predetermined critical parameters. An algorithm that combined these findings with histopathology results was developed to generate a risk-group outcome corresponding to EAU guidelines. Possible outcomes were: 1) low-risk; 2) intermediate-risk; 3) high-risk; 4) muscle-invasive bladder cancer (MIBC); 5) requires repeat resection; and 6) unable to stratify; or a combination of these where applicable. Further audits were also conducted on the instillation of intravesical therapy both as a postoperative single instillation (POSI) and as adjuvant therapy, as a marker of guideline adherence.

**Results:** A total of 124 TURBT and bladder biopsy procedures with histologically confirmed bladder cancer were reviewed. Of these, 90 (73%) received a risk stratification grouping and 34 (27%) received an outcome of "unable to stratify." Of the former, nine (10%) were deemed low-risk, seven (8%) intermediate-risk, 58 (64%) high-risk, and 16 (18%) MIBC. Sixty procedures were also doubly classified as requiring repeat resection (48%), with 20 being from the unable to stratify group (59%). In total, POSI was performed in nine (7%) instances. Of these, seven (78%) were classified as unable to stratify, one (11%) as high-risk, and one (11%) intermediate-risk. POSI was not performed in any low-risk classified procedures. Of the 41 patients who had at least one procedure classified as high-risk, 22 (54%) continued on to receive adjuvant therapy. All patients who did not receive adjuvant therapy had justifiable reasons for this diversion. Of the seven patients with at least one procedure classified as intermediate-risk, none received adjuvant chemotherapy as recommended.

**Conclusions:** Inadequate intraoperative documentation hinders accurate risk stratification, particularly in cases of low- and intermediate-risk NMIBC, leading to suboptimal treatment, as evidenced by poor rates of adjuvant intravesical chemotherapy administration. High-risk patients remain more consistently identified, likely due to the prominent role of histopathology in the stratification process for this group. These observations highlight the importance of standardized documentation in TURBT procedures to facilitate accurate risk stratification and guide subsequent therapeutic management.

*Acknowledgements:* This study has been accepted for publication in the BJUI as an article entitled: Quality of TURBT documentation: Implications for NMIBC risk stratification and management (<https://pubmed.ncbi.nlm.nih.gov/38116588/>)

References:

- Babjuk M, Böhle A, Burger M, et al. EAU guidelines on non-muscle-invasive urothelial carcinoma of the bladder: Update 2016. *Eur Urol* 2017;71:447-61. <https://doi.org/10.1016/j.eururo.2016.05.041>

**MP 3.7. Table 1. Intraoperative documentation findings in all 203 TURBT and bladder biopsy procedures**

Variables	Histopathology result		Total, N=203 (%)
	BC present n=125 (62%)	BC absent n=78 (38%)	
<b>Tumor number</b>			
0	9	20	29 (14%)
1	54	22	76 (37%)
2-5	21	7	29 (14%)
>5	1	0	2 (1%)
Diffuse	13	9	22 (11%)
Not recorded	26	20	46 (23%)
<b>Size of largest tumor</b>			
<3 cm	31	3	34 (17%)
3 cm or more	17	2	19 (9%)
Not recorded	68	53	121 (60%)
N/A	9	20	29 (14%)
<b>Tumor characteristics</b>			
Sessile	0	2	2 (1%)
Nodular	13	2	15 (7%)
Papillary	58	12	70 (34%)
Flat/erythema	20	37	57 (28%)
Not recorded	25	5	30 (15%)
N/A	9	20	29 (14%)
<b>Presence of CIS</b>			
Suspicious	13	12	25 (12%)
Not suspicious	24	14	38 (19%)
Not recorded	88	52	140 (69%)
<b>Visually complete resection</b>			
Complete	27	2	29 (14%)
Not complete	17	4	21 (10%)
Not recorded	72	52	124 (61%)
N/A	9	20	29 (14%)
<b>Visualisation of DM in resection base</b>			
Seen	25	0	25 (12%)
Not seen	0	1	1 (0%)
Not recorded	91	57	148 (73%)
N/A	9	20	29 (14%)

**MP 3.7. Table 1 (cont'd). Intraoperative documentation findings in all 203 TURBT and bladder biopsy procedures**

Variables	Histopathology result		Total, N=203 (%)
	BC present n=125 (62%)	BC absent n=78 (38%)	
<b>Appears muscle-invasive</b>			
Yes	12	0	12 (6%)
No	2	0	2 (1%)
Not recorded	102	58	160 (79%)
N/A	9	20	29 (14%)
<b>Concern for bladder perforation</b>			
Yes	0	0	0 (0%)
No	16	5	21 (10%)
Not examined	0	0	0 (0%)
Not recorded	109	73	182 (90%)
<b>Adequate hemostasis</b>			
Yes	83	50	133 (66%)
No	3	1	4 (2%)
Not recorded	39	27	66 (33%)
<b>Bimanual EUA/DRE</b>			
Performed (+ findings)	41	7	48 (24%)
Not performed	3	2	5 (2%)
Not recorded	81	69	150 (74%)
<b>Post-op intravesical therapy administered within 24 hrs</b>			
Administered (+ agent)	5	4	9 (4%)
Not administered	1	2	3 (1%)
Not recorded	119	72	191 (94%)

- Anderson C, Weber R, Patel D, et al. A 10-item checklist improves reporting of critical procedural elements during transurethral resection of bladder tumor. *J Urol* 2016;196:1014-20. <https://doi.org/10.1016/j.juro.2016.03.151>

### MP 3.8 Metachronous upper tract urothelial carcinoma following non-muscle-invasive bladder cancer: A retrospective, multi-institutional study

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**Introduction:** Metachronous upper tract urothelial carcinoma (UTUC) following non-muscle-invasive bladder cancer (NMIBC) is uncommon. There is limited evidence, often from small, single-institutional studies, to inform the frequency of upper tract imaging. We aimed to assess the risk factors of UTUC after NMIBC in a large, multi-institutional cohort study.

**Methods:** Clinicopathologic data were collected for NMIBC patients treated at four academic or community hospitals in Ontario, Canada from 2005–2022. Patients with prior or synchronous UTUC at NMIBC diagnosis were excluded. Presence of UTUC was confirmed on pathology or unequivocal upper tract imaging. Cumulative incidence curves were estimated for time to UTUC, with all-cause mortality as a competing risk. Fine-Gray regression was performed to identify adverse prognostic factors for UTUC.

**Results:** Among 3034 patients, 1281 (42%) were low-risk, 555 (18%) intermediate-risk, 1026 (34%) high-risk, and 172 (6%) very high-risk, according to the European Association of Urology risk groups. During a median followup of 4.9 years (IQR 2.7–8.4), 69 (2%) patients developed UTUC after NMIBC. On multivariable analysis, only high-grade disease (SHR 2.2, 95% CI 1.2–4.1, p=0.02) and multiple tumors (SHR 2.5, 95% CI 1.5–4.3, p<0.001) were associated with an increased risk of UTUC. The cumulative incidences of UTUC after NMIBC are shown in Table 1.

**Conclusions:** UTUC risk after NMIBC remains minimal for low- and intermediate-risk patients even at 10 years, although it can reach 5% among high-risk patients. Multifocal and high-grade tumors are associated with an increased risk of UTUC. These findings, stemming from the largest, multi-institutional study on UTUC post-NMIBC, suggest that the contemporary risk may be lower than historical data have shown. These discrepancies may be attributed to differences in smoking exposure and consideration of competing risks. These insights may inform decisions regarding the optimal frequency of upper tract imaging for NMIBC patients.

*Acknowledgements:* Jethro C.C. Kwong was supported by the University of Toronto Surgeon Scientist Training Program.

**MP 3.8. Table 1. Cumulative incidence of metachronous UTUC at 5 and 10 years following diagnosis of NMIBC, stratified by EAU risk groups**

EAU risk group	Risk of UTUC within 5 years (%)	Risk of UTUC within 10 years (%)
Low (n=1281)	1.3	1.4
Intermediate (n=555)	1.5	2.2
High and very high (n=1198)	2.9	5.0

All-cause mortality was considered a competing risk. The number of patients in each risk group is shown in parentheses.

### MP 3.9

#### The natural history of node-positive bladder cancer in a multi-institutional Canadian cohort

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**Introduction:** Node-positive (N+) bladder cancer confers a poor prognosis, with a five-year overall survival (OS) of 32–36% compared to 60–70% with TanyN0M0 disease. There is relatively limited evidence to guide management options for patients with N+ disease, with multiple treatment modalities often needed during the treatment course. This contemporary analysis of the management of patients with N+ bladder cancer highlights the natural history of this disease with respect to newer treatment modalities and guideline recommendations.

**Methods:** A retrospective review of the prospectively maintained Canadian Bladder Cancer information system (CBCis) was conducted, identifying 290 patients older than 18 years of age diagnosed with clinical TanyN1-3+M0 bladder cancer. Descriptive statistics were obtained. Kaplan-Meier estimates and Cox regression were performed for OS, with stratification for nodal involvement and treatment received.

**Results:** Of the 290 patients, T<sub>≥</sub>2 disease was present in 76.6%. N1, N2, and N3 staging was found in 49.7%, 34.1%, and 16.2% of patients, respectively. Variant histology and lymphovascular invasion were found in 35% and 33.6% of patients, respectively. CIS was found in 26.6%. For initial treatment, 58 patients (20%) received neoadjuvant chemotherapy (NAC) followed by cystectomy; 94 patients (32.4%) received cystectomy only and 35 patients (12.1%) received radiation. Maximal TURBT with concurrent chemoradiation was performed in 44 patients (15.2%), while the remainder of patients (20.3%) received various other combinations of treatment modalities. Kaplan-Meier OS results are displayed by node status (Figure 1). There was no statistically significant difference in OS found between node status N1, N2, or N3 by Cox regression. On multivariable regression analysis, having N+ disease confers a HR of 1.68 (p=0.028) for OS (Table 1). Receiving NAC followed by cystectomy was associated with improved OS, with a HR of 0.63 (p=0.001) compared with cystectomy alone (Figure 2).

**Conclusions:** Node-positive disease confers a worse prognosis for bladder cancer patients, with no difference found in this series between N1, N2, and N3 disease. Patients who received neoadjuvant chemotherapy had improved survival compared to cystectomy alone.

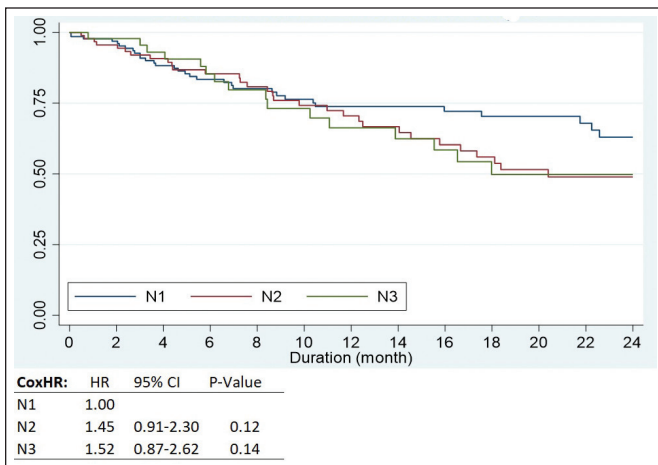
*Acknowledgements:* Special thanks to the CBCis.

*References:*

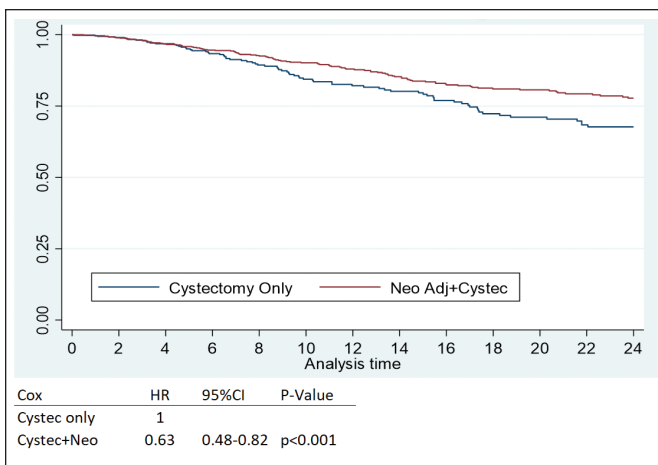
- Al-Alao O, Catrina Mueller-Leonhard C, Kim SP, et al. Clinically node-positive (CN+) urothelial carcinoma of the bladder treated with chemotherapy and radical cystectomy: Clinical outcomes and development of a postoperative risk stratification model. *Urol Oncol* 2020;38:76. e19-28. <https://doi.org/10.1016/j.urolonc.2019.09.00>
- Aljabery F, Liedberg F, Häggström C, et al. Management and outcome of muscle-invasive bladder cancer with clinical lymph node metastases. A nationwide population-based study in the bladder cancer data base Sweden (BladderBaSe). *Scand J Urol* 2019;53:332-8. <https://doi.org/10.1080/21681805.2019.1681504>
- Bae WK, Lee HJ, Park SH, et al. Comparative effectiveness of palliative chemotherapy vs. neoadjuvant chemotherapy followed by radical cystectomy vs. cystectomy followed by adjuvant chemotherapy vs. cystectomy for regional node-positive bladder cancer: A retrospective analysis: KCSG GU 17-03. *Cancer Me* 2019;8:5431-7. <https://doi.org/10.1002/cam4.2446>
- Flaig TW, Spiess PE, Agarwal N, et al. Bladder cancer, version 3.2020, NCCN clinical practice guidelines in oncology. *J Natl Compr Canc Netw* 2020;18:329-54. <https://doi.org/10.6004/jnccn.2020.0011>
- Galsky MD, Stensland K, Sfakianos JP, et al. Comparative effectiveness of treatment strategies for bladder cancer with clinical evidence of regional lymph node involvement. *J Clin Oncol* 2016;34:2627-35. <https://doi.org/10.1200/JCO.2016.67.5033>

**MP 3.9. Table 1. Cox multivariable regression analysis for overall survival in node-positive bladder ca patients**

Variable	HR	95% CI	p
Node-negative (n=290)	1.00		
Node-positive (n=2948)	1.68	1.05–2.68	0.028
Age	1.15	0.93–1.34	0.202
Sex	1.49	1.01–2.18	0.029
Charlston comorbidity score	1.42	1.03–1.93	0.03
ASA score	1.04	0.87–1.25	0.668
+Smoking	0.92	0.87–1.25	0.668



**MP 3.9. Figure 1.** Overall survival at different N-stages.



**MP 3.9. Figure 2.** Survival of treatment groups.

**MP 3.10**

**Primary vs. secondary muscle-invasive bladder cancer: Prognostic impact on cancer-specific survival in a large, population-based cohort**

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**Introduction:** Currently, it is unclear whether patients diagnosed with muscle-invasive bladder cancer (MIBC) in the primary setting (de novo) vs. the secondary setting (progression after prior non-muscle-invasive disease) have differing cancer-specific survival (CSS). Secondary MIBC might be indicative of either better (due to prior non-invasive tumor character) or worse (due to progressive tumor biology) outcomes. Therefore, our study aimed to investigate the association between presentation of MIBC and CSS in a large population-based cohort.

**Methods:** We derived a population-based cohort in the province of Ontario, Canada, by linking manually abstracted TURBT pathology reports to health administrative databases. Patients diagnosed with MIBC between January 2001 and December 2015 who lived within the province of Ontario for at least five years before the diagnosis of MIBC were included. Secondary MIBC was defined by a prior diagnosis of bladder cancer in the five years preceding the index date. Patients were followed for the occurrence of bladder cancer-specific mortality and censored at the date of death due to other causes or at the date of the last contact with the healthcare system or on December 31, 2018. Fine and Gray's univariable and multivariable proportional subdistribution hazards regression (competing risks analysis) was used to quantify the association between presentation (reference: primary MIBC) and CSS. Adjustments were made for age and comorbidity (measured by the Charlson Comorbidity Index, as well as by resource utilization bands and predicted one-year mortality according to Johns Hopkins ACG algorithm). Effect estimates were presented as hazard ratios (HR, 95% confidence interval, p-value).

**Results:** A cohort of 7240 patients was identified, of which 3898 individuals (53.8%) had a prior diagnosis of bladder cancer (i.e., secondary presentation). Patients were followed for a median of 1.4 (IQR 0.5–4.2) years. Univariable regression analysis did not reveal an association between presentation and CSS (HR 1.00, 0.93–1.07, p = 0.92) but patients with secondary MIBC were more likely to die of other causes (HR 1.07, 1.00–1.16, p=0.08]), suggesting confounding due to age/comorbidity. After adjusting for the latter, we observed that secondary MIBC was associated with a slightly more favorable prognosis regarding CSS (HR 0.92, 0.86–1.00, p=0.03]) and that the prior statistically significant association between secondary MIBC and other-cause mortality subsided (HR 0.96, 0.89–1.05, p=0.39).

**Conclusions:** While prior studies found the type of presentation of MIBC to be strongly associated with prognosis, in our large cohort we observed only a small effect size, with secondary MIBC associated with a more favorable prognosis. Causal mediation analysis might shed light on the mechanisms mediating these findings.

**MP 3.11**

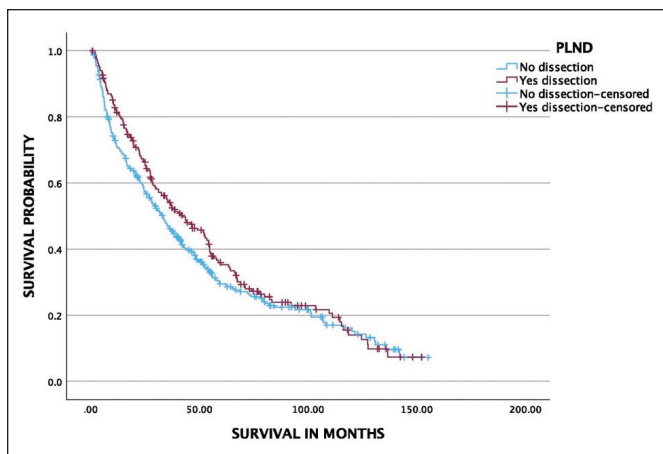
**The survival impact of pelvic lymph node dissection among octogenarians who underwent partial cystectomy for muscle-invasive bladder cancer**

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**Introduction:** The gold-standard treatment for muscle-invasive bladder cancer (MIBC) is radical cystectomy; however, there is a growing interest among elderly individuals in bladder-preservation protocols. Current guidelines suggest partial cystectomy (PC) with pelvic lymph node dissection (PLND) can be considered a feasible option in carefully selected individuals with stage II bladder cancer. Few published studies have evaluated the significance of PLND after PC in the elderly population. In this study, we used the National Cancer Database to evaluate the overall survival among octogenarians who underwent PC with or without PLND.

**Methods:** Our study focused on octogenarians who underwent PC with or without PLND for localized MIBC (cT2-4aN0M0) with urothelial histology from



MP 3.11. Figure 1.

2004–2017. Based on the lymph node yield (LNY), the PLND arm was sub-categorized into inadequate (<10 nodes) and adequate (≥10 nodes) arms. A Kaplan-Meier survival curve was done to compare the survival between PLND and non-PLND.

**Results:** A total of 2573 patients underwent PC and 532 octogenarians met our selection criteria. Among them, 227(42.7%) underwent PLND and 305(57.3%) had no PLND. Within the PLND arm, 57 (25.1%) had adequate and 170 (74.9%) had inadequate PLND. The median OS for the PLND and non-PLND patients were 41.5 and 32.3 months, respectively (p=0.12) (Figure 1). Similarly, adequate and inadequate PLND had 53.4 and 37.0 months, respectively (p=0.30). In T2 tumors, OS with and without PLND were 46.6 and 38.2 months, respectively. Similarly, in T3/T4 tumors, the OS with and without PLND were 25.0 and 17.3 months, respectively (p=0.16).

**Conclusions:** In our study on PC with a PLND and a LNY of ≥10, there was no statistically significant difference in the median OS. Therefore, PLND may not be beneficial in the octogenarian population.

### MP 3.12

#### Characterization of urothelial cancer associated with enterocystoplasty

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**Introduction:** The association of augmentation cystoplasty (AC) with the development of urothelial cancer (UC) is controversial. In order to characterize the incidence and outcome of patients who developed UC, we analyzed our institutional experience in all patients who underwent AC.

**Methods:** All patients who underwent AC from 1985–2023 were tracked prospectively. From a total of 266 patients, 156 females and 110 males (mean age 39 years, range 18–76, median 37), seven patients (four females and three males, mean age 35 years, range 20–46, median 37) developed UC. Diagnoses were spina bifida in two (three females, two males) and spinal cord injury in two (one female, one male). Preoperative management was foley catheter in three, ileal conduit in two, condom drainage in one, and intermittent catheterization (IC) in one. AC was done for incontinence in five and as part of undiversion from ileal conduit in two. AC involved ileum (n=5), caecum (n=1), and sigmoid (n=1). Ureteral reimplants were done in the two undiversion patients and bladder neck (BN) slings were done in four and BN closure with continent stoma in one. Followup protocol consisted of ultrasound imaging at 6–12-month intervals and periodic cystoscopy.

**Results:** Tumors were detected after a mean of 14 (range 4–23, median 15) years after AC. Mean age at diagnosis was 48 (median 50) years. Six of seven patients had been on IC and one had a Foley catheter. All patients were followed from the date of AC. Followup visits were occasionally interrupted by patient mobility problems, illness, and/or COVID-19. All patients had negative evaluations (GU ultrasound and cystoscopy) from six months to three years (mean 13 months, median seven months) prior to cancer diagnosis (Table 1). Gross hematuria prompted evaluation in two (patients 6 and 7). Cytology was not positive in any patient prior to or at time of diagnosis. Diagnosis was made by cystoscopy with change in imaging findings. All patients had high-grade carcinoma and only 2/7 had organ-confined disease at diagnosis. Six of seven died of metastatic disease despite surgery in three, and one of respiratory failure after cystectomy.

**Conclusions:** While the overall risk of developing UC in patients after AC was low (2.6%, 1/38), all tumors were high-grade and patients fared poorly. Early clinical symptoms were uncommon. Cystoscopy alone was not always adequate, whereas change in imaging findings was more reliable for diagnosis. While current literature does not support screening, the lethal nature of UC in these patients merits a prospective followup protocol.

### MP 3.13

#### The impact of national non-muscle-invasive bladder cancer quality indicators on treatment patterns in a comprehensive Ontario community hospital

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**Introduction:** The Canadian Bladder Cancer information system (CBCis), a national registry capturing Canadian bladder cancer practice and treatment out-

MP 3.12. Table 1. Patient characteristics

Pt. no.	Age at diagnosis	Prior normal tests and time	Diagnosis made by	Pathology	Clinical course
1	37	Ultrasound, 6 mo.	Cysto, US, liver mets	Small cell carcinoma	Died soon after diagnosis
2	29	Ultrasound, 6 mo.	Cysto mass found	Signet ring adenoca at anastomosis	Cystectomy, died at 10 y with metastases
3	50	Cysto and ultrasound, 6 mo.	CT for left ureteral stones, bladder mass, TUR	High grade UC with glandular diff.	Died with mets
4	69	Ultrasound, cysto Bx low grade UC; 7 mos.	CT for abdo pain, bladder mass with mets, TUR	High grade UC	Died with mets
5	36	Ultrasound 1 y, cysto 6 mos.	US left hydro; CT renal pelvic mass	High grade UC with squamous diff. (renal)	L nephrectomy; died with mets
6	55	Ultrasound, cysto, 18 mos.	Cysto, TUR, CT	High grade UC with sarcomatoid diff.	Cystectomy; died with mets
7	60	Ultrasound, cysto, 3 y.	Cysto, CT mass	High grade UC with squamous diff.	Cystectomy, died of respiratory failure

comes, has established quality indicators (QI) pertaining to the management of non-muscle-invasive bladder cancer (NMIBC). We sought to assess the rates of QI compliance at Trillium Health Partners (THP) — the largest community-based hospital network in Canada and the newest contributor to CBCis.

**Methods:** A retrospective cohort analysis of patients diagnosed with NMIBC from 2005–2022 was conducted. The rates of compliance to QIs were tabulated and compared to national averages established by the CBCis. The cumulative incidence of progression was examined based on the current European Association of Urology (EAU) risk groups.

**Results:** A total of 1624 NMIBC patients were identified: 77.1% were male, and median age was 72.0 years. Comparison of QI compliance between THP and CBCis groups revealed lower rates of muscle sampling in first TURBT specimens in THP patients vs. CBCis, but higher rates of re-TURBT for T1 tumors and BCG induction (Table 1). The overall rate of one-year recurrence of TaHG was lower at THP than CBCis. The cumulative incidence of progression observed at five years at THP was 1.7% for the low-risk group, 5.9% for intermediate, 20% for high, and 22% for very high-risk. In contrast, the predicted progression rates for the EAU risk groups were 0.93, 4.9, 9.6, and 40%, respectively.

**Conclusions:** Our data demonstrates comparable implementation of CBCis QI at THP compared to other participating institutions. The observed risk of progression for higher-risk groups differed from those predicted by the EAU risk groups, suggesting that these risk groups may not accurately prognosticate high-risk patients in the community. This underscores the role that large, academic-affiliated community hospitals may play in providing both high-quality care to bladder cancer patients and in aiding the development of comprehensive national registries to better inform national practice patterns.

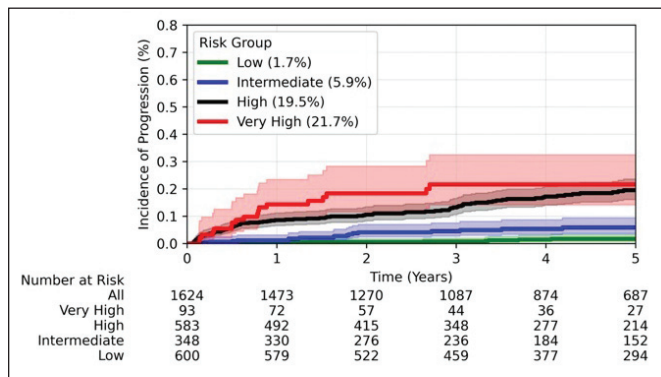
Reference:

- Black PC, Alimohamed N, Kassouf W, et al; for the Canadian Bladder Cancer Research Network. Building the Canadian Bladder Cancer Research Network (CBCRN): Progress during a pandemic. *Can Urol Assoc J* 2022;16:E307-14. [https://doi.org/10.5489/kuaj.7810](https://doi.org/10.5489/cuaj.7810)

**MP 3.13. Table 1. Performance of selected NMIBC quality indicators at THP and CBCis**

Quality indicators without benchmarks	THP	CBCis
Percent of TURBT with muscle in the specimen	49%	62%
Percent of T1 with muscle on TURBT	60%	60%
Percent of T1 undergoing re-TURBT (<90 days)	44%*	17%
Percent of HR-NMIBC receiving induction BCG	51%	40%
Percent with 1-year recurrence of TaHG	15%	31%

\* <42 days



**MP 3.13. Figure 1.** Cumulative incidence of progression stratified by the EAU risk groups.

**MP 3.14**

**Impact of bladder cuff management on oncologic outcomes following radical nephroureterectomy for upper tract urothelial carcinoma: A systematic review and meta-analysis**

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**Introduction:** Bladder cuff excision (BCE) is an integral component of radical nephroureterectomy (RNU) for upper tract urothelial carcinoma (UTUC). While many approaches have been described, the most optimal BCE technique for providing maximal oncologic control remains unclear. We aimed to perform a systematic review and meta-analysis to compare oncologic outcomes of different BCE techniques.

**Methods:** The Ovid MEDLINE, Embase, CENTRAL, and Web of Science databases were searched for studies comparing oncologic outcomes of RNU for UTUC based on different BCE approaches. Techniques for BCE were categorized as intravesical, extravesical, or endoscopic. Our primary outcomes were intravesical recurrence rate (IVR) and intravesical recurrence-free survival (IVRFS). Secondary outcomes included recurrence-free survival (RFS) and cancer-specific survival (CSS). Meta-analysis was performed to compare the recurrence rates and survival outcomes associated with different BCE techniques.

**Results:** Forty studies assessing a total of 17 168 patients were identified for inclusion. Open intravesical BCE was associated with superior univariate IVRFS (HR 1.27, 95% CI 1.13–1.42, p=0.04, I<sup>2</sup>=43%), multivariate IVRFS (HR 1.44, 95% CI 1.16–1.80, p 0.0001, I<sup>2</sup>=75%), univariate RFS (HR 2.30, 95% CI 1.04–5.10, p=0.0002, I<sup>2</sup>=71%), and multivariate CSS (HR 1.62, 95% CI 1.22–2.15, p=0.33, I<sup>2</sup>=14%) when compared to non-intravesical techniques. Subgroup analysis revealed that this difference was primarily driven by the inferiority of the open extravesical approach. Endoscopic and non-endoscopic BCE demonstrated equivalent univariate and multivariate IVRFS, RFS, and CSS.

**Conclusions:** Open intravesical BCE is associated with superior oncologic outcomes when compared to non-intravesical techniques. This difference is primarily driven by the open intravesical approach's superiority to the open extravesical approach. Endoscopic BCE showed equivalent outcomes when compared to non-endoscopic approaches. Prospective randomized trials can shed further light on the optimal approach to BCE.

**MP 3.15**

**Neoadjuvant chemotherapy for muscle-invasive bladder cancer: Insights from a Canadian population-based study**

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**Introduction:** Level-I evidence supports the use of neoadjuvant chemotherapy (NAC) for localized muscle-invasive bladder cancer (MIBC), and also implies equivalence of the regimens gemcitabine-cisplatin (GC) and dose-dense methotrexate, vinblastine, doxorubicin and cisplatin (DD-MVAC). Opponents of NAC fear missing a window of opportunity to deliver definitive therapy due to NAC-related toxicity or due to NAC-unresponsive disease. We aimed to identify factors associated with the receipt of definitive therapy among patients diagnosed with MIBC who initiated NAC by GC or DD-MVAC in a real-world cohort.

**Methods:** We linked manually abstracted bladder cancer pathology reports (June 2005 to December 2015) to health administrative databases from the province of Ontario, Canada, to health administrative databases to identify patients diagnosed with MIBC who received at least one dose of GC or DD-MVAC with non-palliative intention within 90 days of diagnosis. Patients were followed for the receipt of definitive therapy (i.e., radical cystectomy, curative chemoradiation, curative radiation), death due to bladder cancer, and death due to other causes. We used competing-risk regression analysis to identify factors associated with the receipt of definitive radical therapy. Effect estimates are presented as hazard ratios (HR, 95% confidence intervals; reference: GC). P-values <0.05 were considered statistically significant (two-sided).

**Results:** A cohort of 486 patients diagnosed with MIBC that initiated NAC by either GC (85.0%, n=413) or DD-MVAC (15.0%, n=73) was identified. On average, patients who initiated GC compared to DD-MVAC were older (65.8 vs. 60.9

years,  $p < 0.001$ ) and more comorbid (predicted one-year mortality according to Johns Hopkins ACG algorithm: 2.6 vs. 1.4%,  $p < 0.001$ ). A total of 385 patients (79.2%) underwent definitive therapy (91.6% radical cystectomy). The cumulative incidence of definitive therapy within one year of treatment initiation significantly differed as a function of NAC regimen (GC: 82.8%, DD-MVAC: 92.4%, HR 1.61, 1.20–2.16,  $p = 0.002$ ). This association remained statistically significant even after adjusting for age and comorbidity (HR 1.58, 1.17–2.13,  $p = 0.003$ ).

**Conclusions:** Our population-based study suggests that among patients diagnosed with MIBC who initiated NAC, DD-MVAC vs. GC is independently associated with the likelihood of receiving definitive therapy. This hypothesis-generating study is limited by the relative underrepresentation of DD-MVAC and the associated challenge of exploring potential causal pathways.

### MP 3.16

#### Practice patterns of high-risk non-muscle-invasive bladder cancer in real-world Canadian practice

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**Introduction:** There is a paucity of evidence pertaining to real-world treatment of localized bladder cancer, particularly in Canada. We sought to investigate real-world treatment patterns in high-risk non-muscle-invasive bladder cancer (HR-NMIBC) patients treated in Alberta to understand current treatment practices, predictors of BCG use, and real-world survival outcomes.

**Methods:** We conducted a retrospective, observational cohort study of de novo HR-NMIBC patients diagnosed from 2010–2022 using population-level administrative databases in Alberta. Data sources included Alberta Cancer Registry (ACR), Vital Statistics, Pharmaceutical Information Network (PIN), Health Practitioner Claims, Discharge Abstract Database (DAD), and National Ambulatory Care Report System (NACRS) databases. HR-NMIBC was defined as AJCC stage N0 and M0 with either Tis, T1, or high-grade Ta (HG-Ta). Patients were followed from diagnosis to last known contact with the healthcare system, end of 2021, or death. Multivariable logistic regression analysis was used to identify features associated with receipt of BCG.

**Results:** In this cohort, 3874 HR-NMIBC patients were identified: 82% were male and mean age was 71 years. Tumor stage was T1 in 50%, HG-Ta in 33% and Tis in 17%. Following TURBT, 60.8% of the cohort received no intravesical therapy, while 35.6% received BCG treatment, 2.9% intravesical gemcitabine, and 0.6% mitomycin C. Patients who received BCG were predominantly male (83.9%), had T1 tumors (52%), and had a CCI of 0–1 (83.5%). Few (<10%) patients underwent cystectomy. In patients who received BCG, 28.3% completed only one dose, 56.9% completed five induction doses, and 32% received “adequate” dosing ( $\geq 5$  induction doses +  $\geq 2$  maintenance doses). In multivariable regression analysis, the strongest predictor of receipt of BCG was high-grade disease (OR 1.62, 95% CI 1.25–2.10,  $p < 0.001$ ). Other features associated with higher BCG use were younger age, fewer comorbidities, rural residence, and being diagnosed closer to 2010. Overall survival was 10.3 (95% CI 11.6–13.1) years.

**Conclusions:** In this large, population-based, retrospective study, we identify relatively poor use of BCG among patients with HR-NMIBC, with 32% of patients

receiving adequate BCG therapy, per FDA definitions. These data, while concordant with other jurisdictions, do not address underlying causes that may relate to BCG supply issues, patient preference, fitness to receive therapy, or physician beliefs regarding treatment efficacy. Additional research is needed to identify strategies to improve the use of guideline-recommended therapy among HR-NMIBC patients in real-world settings.

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### MP 3.17

#### Real-world response to first-line platinum-based chemotherapy in locally advanced or metastatic urothelial carcinoma

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**Introduction:** Contemporary, real-world reports of outcomes for patients with locally advanced or metastatic (LA/mUC) urothelial carcinoma are limited. Especially with the advent of switch maintenance immunotherapy and the availability of established second- and third-line treatment options, it has become imperative to better characterize real-world patient outcomes after first-line chemotherapy. The objective of this study was to determine real-world practice patterns and outcomes after first-line platinum-based chemotherapy in a large multicenter cohort of LA/mUC.

**Methods:** The Canadian Bladder Cancer information system (CBCis) is a national, prospectively maintained database across 15 academic institutions in Canada. Patients who received systemic therapy for locally advanced (cT4b or cN1–3) or metastatic urothelial carcinoma of the bladder were included between January 2015 and April 2023. Patients were included if they had at least one followup imaging after the initiation of systemic therapy. Treatment parameters and response rates were assessed.

**Results:** A total of 501 patients received first-line systemic therapy for LA/mUC, of whom 370 (73.9%) received platinum-based chemotherapy. Of those receiving platinum-based chemotherapy, 190 (51.4%) patients received cisplatin/gemcitabine and 172 (46.5%) patients received carboplatin/gemcitabine. Treatment was completed in 97 (26%) of 370 patients and discontinued in 140 (37.8%). Out of 370 patients who were initiated on platinum-based chemotherapy, 210 (56.7%) died at a median followup of 12.8 months. Of those who discontinued treatment, 47 (33.8%) patients stopped treatment due to progression and 68 (48.9%) due to an adverse event. After a median followup of 10.4 months, complete response was observed in four (1.1%) patients treated with platinum-based chemotherapy, partial response or stable disease in 121 (32.9%), and progression in 99 (26.9%). Switch maintenance with avelumab was used in 59 (15.9%) patients after platinum-based chemotherapy. Second-line systemic therapy was administered to 245 (48.9%) patients.

**Conclusions:** The real-world response rates after first-line platinum-based chemotherapy in this study are lower than previously reported. This study highlights the need for further research to better evaluate the true real-world effects of treatment in locally advanced and metastatic urothelial carcinoma.

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**MP 3.18****Real-world treatment practices in muscle-invasive bladder cancer (MIBC) patients treated in Alberta**

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**Introduction:** Contemporary, real-world data on treatment practices for patients with localized bladder cancer is limited. In this study, we examined treatment patterns for patients diagnosed with de novo MIBC in Alberta. In addition, we evaluated the impact of patient demographics on treatment selection.

**Methods:** We conducted a retrospective, observational cohort study of patients diagnosed with de novo MIBC from 2010–2022 using population-level administrative databases. Data sources included Alberta Cancer Registry, Vital Statistics, Pharmaceutical Information Network, Health Practitioner Claims, Discharge Abstract Database, and National Ambulatory Care Report System databases.

De novo MIBC was defined as initial presentation of UC with stage T2–T4, N0–N3, and M0 urothelial bladder cancer. Patients were followed from diagnosis to last known contact with the healthcare system, end of 2021, or death. Treatment patterns were descriptively summarized with stratified analyses performed according to treatment. Kaplan-Meier technique was used to estimate median overall survival (OS).

**Results:** Overall, 1292 de novo MIBC patients were identified: 76% male, mean age of 73 years. Overall, 50.3% underwent a radical cystectomy (RC), 9% received chemoradiotherapy, 3.6% chemotherapy only, 1.2% radiation only, and 25% did not receive active treatment. Of those receiving RC (n=651), 51% received perioperative chemotherapy. Overall, 43.5% of the cohort received neoadjuvant systemic therapy, with 12.6% receiving adjuvant systemic therapy. Stratification by treatment revealed most patients receiving radiation or no treatment were >75 years (86% and 73%, respectively) with a Charlson comorbidity index (CCI)  $\geq 1$  (64% and 67%, respectively). The majority of patients receiving RC or chemoradiotherapy were  $\leq 75$  years old (77% and 63%) with a CCI of 0 (61% and 53%). Median OS was 26 months from MIBC diagnosis and differed by treatment group: 83.3 months for RC with perioperative chemo, 42.4 months for RC without chemotherapy, 24.8 months for chemotherapy + radiation, 16.2 months for chemotherapy alone, 8.6 months for no therapy, and seven months for radiation alone.

**Conclusions:** This real-world cohort of de novo MIBC demonstrates a significant use of definitive surgical care (50%) compared to chemoradiotherapy, with over one-third of patients not receiving curative intent treatment. Notably, 40% of patients received neoadjuvant systemic therapy, aligning to current guideline-recommended treatment strategies. Variations in care were found as treatment modalities differed considerably based on patient characteristics. While this likely reflects appropriate clinical care, selection biases limit accurate conclusions regarding efficacy. These data highlight the need to better understand drivers for treatment selection in MIBC given the potential influence on outcomes.

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