Poster Session 2: Oncology – Bladder
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MP 2.1

Evaluating for low bone mineral density following radical cystectomy and intestinal urinary diversion in patients with bladder cancer

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Introduction: Radical cystectomy (RC) with intestinal urinary diversion (IUD) is standard treatment for muscle-invasive bladder cancer (MIBC). IUD is associated with metabolic acidosis, which adversely affects bone health. Bone mineral density (BMD) screening practice with dual energy X-ray absorptiometry (DXA) in this population remains poorly characterized. We evaluated BMD screening, fracture risk, and longitudinal metabolic trends following RC with IUD.

Methods: We performed a retrospective chart review of patients undergoing RC with IUD between February 2009 and April 2019 at a tertiary academic center. Demographics, smoking status, fracture history (hx), DXA screening, and laboratory values, including renal function markers, electrolytes, glucose, calcium, and vitamin B12, were collected preoperatively and up to five years postoperatively. Descriptive statistics and Chi-squared tests examined associations between fracture hx, smoking, and DXA use.

Results: A total of 239 patients were included (mean age 68 years); 16% had a prior fracture and 65% had a smoking hx. Thirteen percent underwent DXA (mean 4.4 years post-RC), mainly for age (36%) or fragility fracture (31%); 59% of these were classified as moderate- or high-risk (27% osteopenia, 32% osteoporosis). Followup DXA was uncommon. Prior fracture hx was weakly associated with DXA use (r=0.23), while T-score and fracture risk were moderately correlated (r=0.51). Mean creatinine rose from 108 µmol/L preoperatively to 125–128 µmol/L in years 1–3, and bicarbonate fell from 26.7 mmol/L preoperatively to 20.7 mmol/L by year 5, consistent with chronic metabolic acidosis.

Conclusions: BMD assessment following RC with IUD is infrequent and reactive, despite prevalent risk factors and abnormal findings. Longitudinal metabolic trends suggest renal and acid-base disturbances that predispose patients to fracture. A study limitation was the inability to reliably track fractures post-RC. Future prospective studies are needed to assess fracture incidence and the role of routine DXA on fracture risk and survivorship.

MP 2.2

Understanding baseline sexual function of Canadian women undergoing bacillus Calmette-Guérin treatment for bladder cancer

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Introduction: Although women account for approximately one-quarter of bladder cancer diagnoses, literature regarding the impact of their diagnosis and treatment on sexual function remains limited. Intravesical bacillus Calmette-Guérin (BCG) therapy is standard treatment for high-risk non-muscle-invasive bladder cancer (NMIBC). Sexual dysfunction has been described in men undergoing treatment with BCG, but the impact of BCG therapy on female sexual function remains poorly understood. This study aimed to understand the sexual function of women with bladder cancer prior to treatment.

Methods: This prospective, observational study recruited patients from the QEII Health Sciences Center in Halifax, NS, with newly diagnosed NMIBC from May 2024 to present. Patients completed the PROMIS SexFS questionnaire to evaluate baseline sexual function and satisfaction prior to starting BCG treatment. Descriptive analyses were conducted for baseline characteristics, and T-scores were computed for each questionnaire domain.

Results: A total of 10 patients completed the baseline PROMIS SexFS questionnaire. Participants had a mean age of 69.5 years (SD 9.7). Compared to the reference population on which the PROMIS SexFS was validated, participants reported greater vaginal and vulvar discomfort (mean T-scores 56.4 [SE 3.6] and 55.3 [SE 6.0], respectively). Additionally, participants reported lower sexual interest, vaginal lubrication, ability to orgasm, and overall sexual satisfaction (mean T-score of 31.9, 36.9 [SE 4.7], 48.2, and 39.9 [SE 3.6], respectively).

Conclusions: This study provides novel prospective data on baseline sexual function among Canadian women with NMIBC prior to initiating intravesical BCG therapy. Participants reported greater genital discomfort and lower sexual interest, function, and satisfaction compared with reference populations, highlighting an under-recognized aspect of the bladder cancer experience. Despite a small sample size, this represents the first prospective Canadian evaluation of female sexual function in NMIBC. Ongoing data collection during BCG treatment will further define treatment-related effects on sexual health. These findings underscore the need for sex-specific, patient-centered research to ensure survivorship outcomes receive attention alongside oncologic control.

MP 2.3

Local and systemic adverse events and hospital-based interventions in a contemporary cohort of metastatic urothelial carcinoma patients

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Introduction: Metastatic urothelial carcinoma (mUC) is an aggressive disease with historically poor prognosis. Platinum-based chemotherapy was the former first-line standard, yielding a median overall survival (OS) of approximately 14 months. Recently, enfortumab vedotin (EV), an antibody-drug conjugate (ADC) combined with pembrolizumab, an immune checkpoint inhibitor (ICI), has become the standard of care for eligible patients, improving median OS to 31.5 months; however, ICIs and ADCs are associated with potentially severe adverse events (AEs), and improved survival has increased complications related to local tumor progression and metastases. This study aimed to characterize systemic and local AEs to improve early management and patient outcomes.

Methods: We retrospectively reviewed patients with pathologically confirmed mUC treated with systemic therapy between January 2022 and January 2025 at CHU de Québec-Université Laval. Patients received at least one dose of platinum-based chemotherapy, ADCs, and/or ICIs. Local and systemic AEs, emergency department visits, hospitalizations, and surgical interventions were recorded.

Results: Seventy-seven patients were included; 81% were male, with a median age of 69 years. First-line therapy was EV/pembrolizumab in 27% and platinum-based regimens in 64%. A total of 203 medical consultations occurred during treatment with 60% via the emergency department. Local complications occurred in 56% of patients, most commonly urinary tract infection, renal obstruction, and hematuria; 39% required urinary diversion. Treatment-related toxicities accounted for 47% of consultations, primarily dermatologic and nephrologic AEs. Among EV/pembrolizumab-treated patients, 17% experienced AEs requiring medical attention. Hospitalization occurred in 58% of visits, with a median stay of 7.5 days.

Conclusions: Systematic identification of treatment-related toxicities and local disease complications is critical to optimizing care, quality of life, and outcomes in patients with mUC.

MP 2.4

Real-world patient characteristics, treatment patterns, and clinical outcomes in de novo muscle-invasive bladder cancer in Ontario, Canada

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Introduction: The de novo muscle-invasive bladder cancer (dnMIBC) treatment landscape is evolving, with integration of immunotherapies in the perioperative setting; however, Canadian real-world data (RWD) characterizing the burden of dnMIBC from diagnosis through recurrence, progression, and end-of-life remain scarce. This study examined patient characteristics, treatment patterns, and overall survival (OS) in dnMIBC patients in routine clinical practice in Ontario, Canada.

Methods: This real-world, retrospective cohort study used ICES Ontario health administrative data to identify patients aged ≥18 years diagnosed with bladder cancer from January 2013 to August 2023 as per the cancer registry, with follow-up from diagnosis to death, loss of provincial health insurance, or August 2024. dnMIBC was defined by treatment received: cystectomy, with or without perioperative treatment (neoadjuvant and/or adjuvant chemotherapy); trimodal therapy (TMT), consisting of radical transurethral resection of bladder tumor followed by external beam radiation concurrently with radiosensitizing systemic therapy or chemoradiation; or radical radiotherapy. OS from treatment initiation (cystectomy, TMT, radiotherapy) onwards was assessed using Kaplan-Meier analysis and stratified by baseline estimated glomerular filtration rate (eGFR): ≤40 mL/min, >40–<60 mL/min, ≥60 mL/min.

Results: Among 2735 dnMIBC cases, 75% were male, with a median age at diagnosis of 71 years (IQR 63–78); 71% were aged ≥65 years. At baseline, 8% were eGFR ≤40 mL/min, 16% were eGFR >40–<60 mL/min, 63% were eGFR ≥60 mL/min, and 13% unknown. Definitive treatment included cystectomy (77%), TMT (19%), and radical radiotherapy (4%), with bladder-preserving approaches more common in eGFR ≤40 mL/min patients. Among those undergoing cystectomy, 40% received neoadjuvant and 14% adjuvant therapy, primarily gemcitabine plus cisplatin. Following curative-intent treatment, 27% received subsequent therapy, including chemotherapy (66%), immunotherapy (22%), and chemoradiation (11%). Median OS (mOS) was 4.1 years, with prolonged survival observed in eGFR ≥60 mL/min patients (Table 1).

Conclusions: In the rapidly evolving landscape of dnMIBC, these RWD provide a contemporary evaluation of practice patterns in Ontario. The majority of patients received cystectomy, and survival was lowest in patients with eGFR <60 mL/min, which underscores the highest unmet medical need. Altogether, these data add to the body of evidence and highlight the opportunities for novel therapies in dnMIBC.

Funding: AstraZeneca Canada.

MP 2.4. Table 1. Overall survival in dnMIBC patients by eGFR

	mOS, years (95% confidence interval)	5-year OS
Overall	4.1 (3.6,4.5)	45.8%
eGFR ≤40mL/min	1.2 (0.9,1.6)	19.6%
eGFR >40-<60 mL/min	2.3 (1.8,3.0)	35.1%
eGFR ≥60 mL/min	6.0 (4.9,7.1)	52.2%

MP 2.5

Predictors of phase-based costs of bladder cancer care in a universal healthcare system

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Introduction: Existing phase-based cost studies do not include contemporary patients, omit important cost drivers, and lack the granularity to examine sociodemographic, comorbidity, and time-related predictors of cost. We report the net costs and predictors of per-patient cost for bladder cancer (BCa) in a universal healthcare system.

Methods: We used population and registry data housed at the Institute for Clinical Evaluative Sciences (ICES; Canada) that captures 96% of cancer diagnoses in Ontario. Established BCa phases were used to represent diagnosis, non-muscle-invasive (NMIBC), muscle-invasive (MIBC), metastatic, and end-of-life patients. The costs of BCa were calculated by capturing inpatient, ambulatory, outpatient, and emergency care, physician and non-physician billings, laboratory, cancer and dialysis clinics, chemotherapy and drug benefit costs, mental health, long-term, complex and continuing care, and home care services. Net costs were calculated by subtracting baseline comorbidity costs from propensity score-matched (1:5) population controls. A GEE linear regression model to predict net phase-based costs was used to estimate the impact of age, sex, rurality, income, comorbidity, and time trends, with $p<0.05$ indicating statistical significance.

Results: A total of 29 230 BCa patients were diagnosed and followed longitudinally in ICES data from 2003 to present. Net per-patient costs and the relevant cost drivers for each phase are reported in Table 1. NMIBC patients who were older (+$28.07 every 30 days, per year of age, $p<0.01$), female (+$356.85 every 30 days, $p<0.01$), lower income quintile ($p<0.01$), and who were treated in the most recent era (+$1057.18 every 30 days, post-2020, $p<0.01$) were more expensive. Younger (+$20.45 every 30 days, per year of age, $p=0.03$), female (+$643.02 every 30 days, $p=0.01$), and lower income quintile ($p<0.01$) MIBC patients who were treated in the most recent era (+$1857.12 every 30 days, post-2020, $p<0.01$) were associated with the highest MIBC costs. For metastatic patients, younger (+$72.78 every 30 days, per year of age, $p<0.01$) and female (+$931.78 every 30 days, $p<0.01$) patients were more expensive than their counterparts.

Conclusions: We evaluated the drivers of cost in bladder cancer, and evaluated important sociodemographic, comorbidity, and time-related predictors of cost. Age, sex, socioeconomic status, and the era of treatment were important predictors of cost,

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MP 2.5. Table 1. Net per-patient costs for bladder cancer care by health phase

Health state	Net cost (mean ± SD)	Largest cost drivers		
		1st	2nd	3rd
Diagnosis	$1110.34 ±$11 594.56	Outpatient ambulatory care	Physician billings	Emergency department visits
NMIBC care	$30 650.23 ±$104 507.09	Outpatient ambulatory care	Physician billings	Inpatient care
MIBC care	$65 445.57 ±$103 442.54	Inpatient care	Physician billings	Cancer clinics
Metastatic care (including end-of-life from bladder cancer)	$68 678.21 ±$99 519.76	Inpatient care	Cancer clinics	Physician billings
End-of-life from other-cause mortality	$30 782.04 ±$36 694.19	Inpatient care	Physician billings	Home care

MP 2.6

Intermediate-risk bladder cancer stratification: Trends in disease prognosis and treatment outcomes

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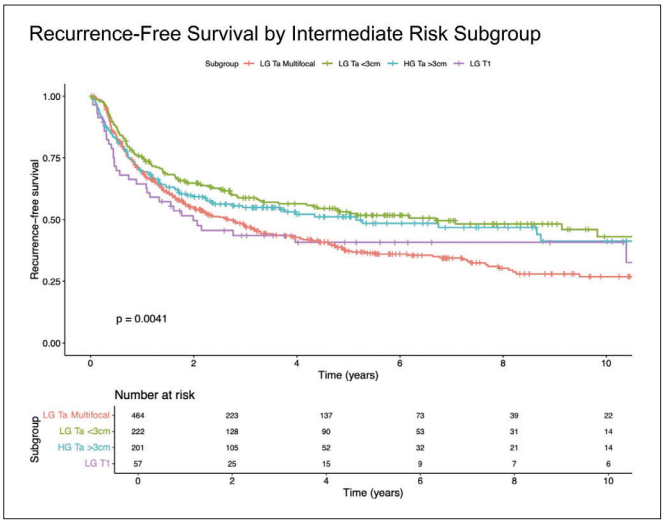
Introduction: AUA guidelines for NMIBC define an intermediate-risk (IR) group that encompasses a heterogeneous population. Recurrence and survival outcomes of the subgroups of this population are limited. We aimed to substratify IR patients by AUA-defined risk factors to identify differences in oncologic outcomes and clarify which patients may benefit most from BCG.

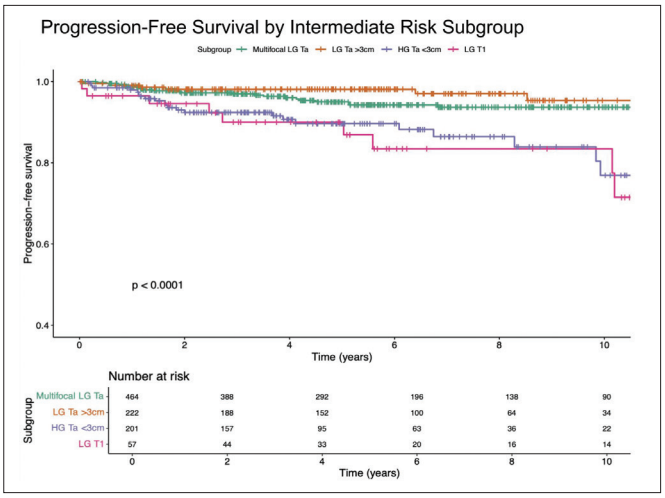
Methods: We retrospectively collected and analyzed IR NMIBC patients' data at Trillium Health Partners (THP) and the University Health Network (UHN), for all patients treated between 2005 and 2022. All IR patients were then stratified into subgroups based on the AUA and CUA guidelines. Descriptive characteristics of the population were tabulated, including estimated overall survival (OS), recurrence-free survival (RFS), and progression-free survival (PFS), which were compared between subgroups.

Results: A total of 944 IR NMIBC patients were included. Patients were divided into the following subgroups: multifocal low-grade (LG) Ta (n=464), solitary low-grade (LG) Ta >3 cm (n=222), solitary high-grade (HG) Ta <3cm (n=201), and low-grade T1 (n=57). The median followup was 7.55 years (95% CI 7.14–8.10). The subgroups showed differences in RFS (p=0.004) and PFS (p<0.001) based on Kaplan-Meier analysis (Figures 1, 2). The estimated five-year recurrence rate was highest in the multifocal LG Ta subgroup (62.7%, 95% CI 57.55–67.37). The estimated five-year progression rate was highest in the HG Ta <3 cm subgroup (10.32%, 95% CI 5.38–15.00) and the LG T1 subgroup (10.00%, 95% CI 1.19–18.02). BCG was not associated with improved recurrence outcomes except in the HG Ta <3 cm subgroup (HR 0.53, 95% CI 0.35–0.80, p=0.003).

Conclusions: Our results indicate significant differences in recurrence and progression risk within the IR subgroups, suggesting that tailored followup and treatment strategies may be necessary. Our results confirm that not all IR subgroups are created equal, suggesting potential benefit from selective treatment intensification.



MP 2.6. Figure 1. Kaplan-Meier estimates of recurrence-free survival among intermediate risk NMIBC patients, stratified by the following subgroups: LG Ta multifocal, LG Ta <3 cm, HC Ta >3 cm, LG T1.



MP 2.6. Figure 2. Kaplan-Meier estimates of progression-free survival among intermediate risk NMIBC patients, stratified by the following subgroups: LG Ta multifocal, LG Ta <3 cm, HC Ta >3 cm, LG T1.

MP 2.7

Five-year risk of progression in primary carcinoma in situ: An international, retrospective cohort study

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Introduction: Primary carcinoma in situ (CIS) is an aggressive form of non-muscle-invasive bladder cancer (NMIBC) with a high risk of progression. While considered "high-risk" in current guidelines, data supporting this designation are usually based on small, historical studies, with wide variations reported. To better understand the progression risk of primary CIS, we analyzed a large, international cohort, comparing it to other high-grade (HG) NMIBC tumors with concomitant CIS.

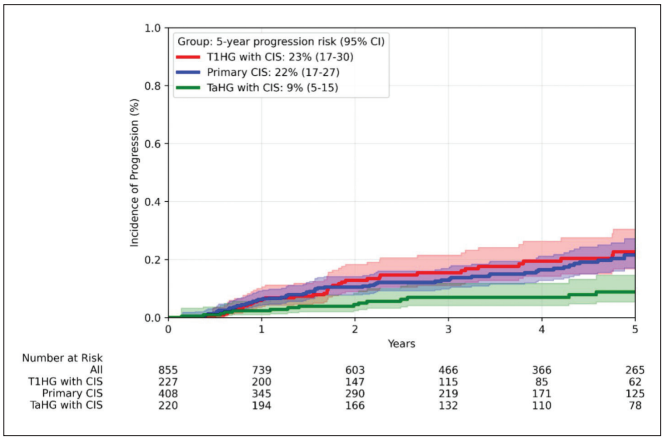
Methods: Clinicopathologic data were collected for patients with primary CIS or Ta/T1 HG with concomitant CIS treated between 2005 and 2023 across 19 academic and community hospitals in North America and Europe. All patients received at least bacillus Calmette-Guérin induction, and all T1 patients underwent repeat transurethral resection of the bladder tumor (TURBT). Primary outcome was time to progression, defined as development of muscle-invasive or metastatic disease. Cumulative incidence of progression was assessed using the Kaplan-Meier method and compared with log-rank tests.

Results: Of 855 patients, 408 (48%) had primary CIS, 220 (26%) had TaHG with concomitant CIS, and 227 (27%) had T1HG with concomitant CIS. Median age was 71 years and 19% were female. Over a median followup of 3.7 years

(IQR 2.0–6.2), the estimated five-year progression risk was 22% (95% CI 17–27) for primary CIS, 9% (95% CI 5–15) for TaHG with concomitant CIS, and 23% (95% CI 17–30) for T1HG with concomitant CIS (Figure 1). Time to progression between the primary CIS and TaHG with concomitant CIS groups was statistically different (p<0.001).

Conclusions: With over 400 primary CIS cases, one of the largest of its kind, this study confirms that these patients have a substantial risk of progression (>20%) and should thus be included in the high-risk category. These findings may inform patient counseling and clinical trial design as they outline differences in progression risks between primary CIS and papillary tumors with associated CIS.

Acknowledgements: Portions of this work were previously presented at AUA 2025, the Canadian Bladder Cancer Forum 2025, and EAU 2025.



MP 2.7. Figure 1. Cumulative incidence of progression in primary CIS and Ta/T1 HG NMIBC with concomitant CIS patients following index TURBT.

MP 2.8

Immunosenescence characterises failure of bacillus Calmette-Guérin therapy in patients with bladder cancer

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Introduction: Following tumor resection, the standard-of-care treatment for high-risk non-muscle-invasive bladder cancer (NMIBC) for over three decades has been bacillus Calmette-Guérin (BCG) immunotherapy. Despite the well-established clinical benefit of BCG, up to 50% of patients suffer disease recurrence or progression to muscle-invasive disease. Yet, the immunologic mechanisms underlying BCG responsiveness remain poorly understood, highlighting the need to identify pre-existing immune states that predispose patients to treatment failure.

Methods: Peripheral blood mononuclear cells (PBMCs) were collected from 16 patients with intermediate- or high-risk NMIBC. both prior to BCG immunotherapy and after five weekly instillations of induction BCG immunotherapy (n=32 samples). Single-cell RNA and ATAC sequencing was performed to assess transcriptomic and chromatin accessibility changes between responders and non-responders across immune cell populations. Differential abundance, pathway enrichment, and differential expression analyses were used to identify immune signatures associated with BCG responsiveness.

Results: Single-cell analysis revealed that circulating myeloid cells from BCG non-responders exhibited pre-existing activation of inflammatory and metabolic pathways consistent with immunosenescence. Genes associated with this phenotype were enriched for accessible activator protein-1 (AP-1) and interferon regulatory factor (IRF) binding sites, implicating these transcription factors as potential drivers of this state. In contrast, BCG responders displayed relative immune quiescence prior to treatment and subsequently mounted robust activation of immune and metabolic pathways following BCG therapy. Transcripts defining treatment response were validated in multiple independent bulk RNA-seq cohorts.

Conclusions: Pre-existing immune dysfunction, marked by inflammatory and metabolic dysregulation, impairs the response to BCG immunotherapy in NMIBC. Peripheral immune profiling prior to therapy may serve as a non-invasive strategy to predict treatment outcomes and guide personalized therapeutic approaches.

MP 2.9

Naloxegol vs. alvimopan for postoperative length of stay and postoperative Ileus after radical cystectomy: A systematic review and meta-analysis

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Introduction: Radical cystectomy carries a high risk of postoperative ileus (POI), leading to prolonged hospitalization, patient discomfort, and increased healthcare costs. Opioid-induced gastrointestinal dysmotility is a major contributing factor. Alvimopan, a peripherally acting μ-opioid receptor antagonist (PAMORA), has been shown to improve return of bowel function and reduce hospital stay, thus becoming standard of care in the U.S. Unfortunately, this is not Health Canada-approved. Naloxegol, another PAMORA, is available in Canada, but is not as well-studied. Therefore, we aimed to perform a systematic review and meta-analysis to compare the efficacy of naloxegol and alvimopan for POI and postoperative length of stay (LOS).

Methods: A literature search (PubMed, Embase, CENTRAL, Web of Science, Scopus, and trial registries) identified studies evaluating naloxegol in adult cystectomy patients. Two reviewers independently screened and extracted LOS and POI data using Covidence. Randomized and observational studies comparing naloxegol with alvimopan were included, continuous outcomes were pooled using a random-effects meta-analysis (mean difference [MD] with 95% CI), and dichotomous outcomes using odds ratios (OR) with 95% CI. Risk of bias was assessed with ROBINS-I V2.

Results: As shown in Figure 1, three retrospective studies (Table 1) met the inclusion criteria. Meta-analysis showed no significant difference in LOS (MD 0.45 days, 95% CI -0.25–1.15, p=0.0518), with moderate heterogeneity (I^2=66%) (Figure 2). POI incidence was similar (OR 1.29, 95% CI 0.81–2.06, p=0.481) (Figure 3). ROBINS-I assessment indicated moderate bias for all studies.

Conclusions: Naloxegol and alvimopan demonstrated comparable effects on postoperative LOS and POI incidence. Therefore, naloxegol could become our Canadian alternative to alvimopan to reduce LOS and POI after radical cystectomy. A randomized control trial should be prioritized to confirm these findings and improve postoperative radical cystectomy care.

Acknowledgements: The authors wish to thank Andrea Quaiattini, Associate Librarian at McGill.

MP 2.10

Humoral immune exhaustion associates with poor response to BCG immunotherapy in patients with high-risk non-muscle-invasive bladder cancer

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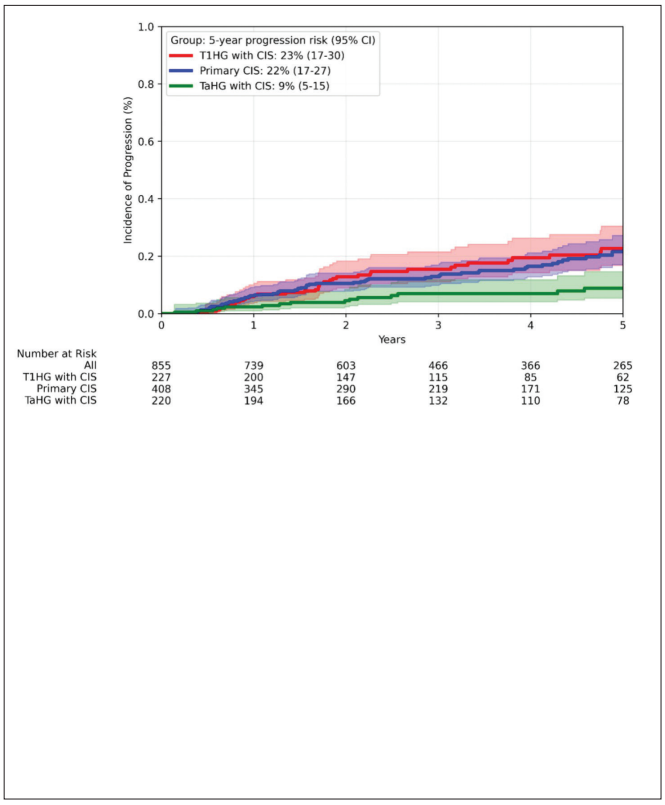
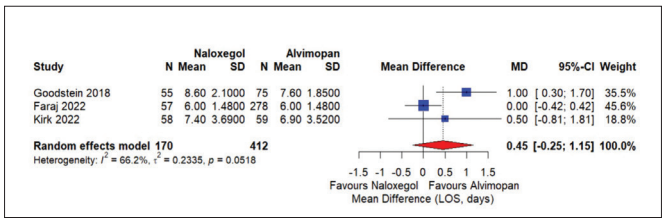
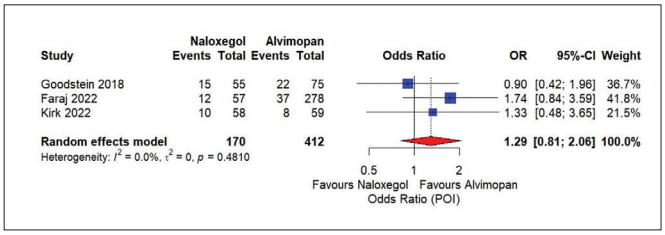
Introduction: Pre-existing local and systemic immune exhaustion is an emerging critical factor underlying failure to achieve durable anti-tumor immunity following repeated intravesical administration of bacillus Calmette-Guérin (BCG) in patients with high-risk non-muscle-invasive bladder cancer (NMIBC). Simultaneous to



MP 2.9. Figure 1. RISMA flow diagram illustrating the identification, screening, eligibility, and inclusion of studies.



MP 2.9. Figure 2. Forest plot comparing naloxegol and alvimopan for length of hospital stay. Mean differences with corresponding standard deviations are shown. Values to the left favor naloxegol, while values to the right favor alvimopan.



MP 2.9. Figure 3: Forest plot comparing naloxegol and alvimopan for postoperative ileus. Odds ratios with 95% CIs are presented. Values to the left favor naloxegol, while values to the right favor alvimopan.

chronic carcinogen exposure, biologic aging causes mucosal and systemic immune dysfunction, negatively influencing treatment outcomes. B cells are critical determinants of mucosal immune responses induced by Mycobacteria given their antigen presentation and antibody production functions. While the innate and T helper type 1 immune responses have been extensively investigated, the full spectrum of BCG-induced mucosal immunity within the context of B cells remains poorly understood.

Methods: Tumor tissue specimens and peripheral blood from a cohort of 27 patients (nine non-responders; recurrence/progression <1 year and 18 responders; recurrence> 2 years), undergoing induction BCG therapy at the Kingston Health Sciences Center, were characterized. Pre- and post-BCG tumor specimens were subjected to spatial immunophenotyping using multiplex immunofluorescence for 25 markers and Xenium single-cell spatial transcriptomics platform. Corresponding plasma levels of 96 immune-oncology-related proteins, auto-antibodies to the human proteome, and anti-BCG IgG were determined. Circulating B cells were characterized using multiparametric flow cytometry and single-cell RNA sequencing.

Results: Tumors from BCG non-responders depicted increased density and distinct localization patterns of exhausted B and T cells within tumor-adjacent tertiary lymphoid structures, compared to those from BCG responders. Spatial transcriptomics revealed enrichment of pathways associated with hypoxia and epithelial to mesenchymal transition in non-responders. Significant systemic expansion of exhausted B cells and elevated levels of stress-associated proteins, such as IL-10, MICA/B, HO1, and HGF, were observed in non-responders following repeated BCG.

Conclusions: This study reveals novel findings on exhausted B cell associated maladaptive mucosal immune remodelling as a central mediator of dampened anti-tumor T cell immunity and poor outcomes following adequate BCG therapy.

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MP 2.11

Prognostic significance of tumor weight at time of transurethral resection of bladder tumor for non-muscle-invasive bladder cancer

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Introduction: Non-muscle-invasive bladder cancer (NMIBC) represents 70% of new cases of bladder cancer. Tumor size is a well-known prognosticator for NMIBC; however, tumor size is difficult to quantify, and the size measurement is commonly based on visual inspection by the surgeon. A more objective method of estimating tumor size may be a weight measurement. The objective of this study was to determine whether tumor weight at the time of initial transurethral resection of bladder tumor (TURBT) is a predictor of recurrence and progression for patients with NMIBC.

Methods: This is a retrospective chart review of medical charts held at Nova Scotia Health Authority who have undergone an initial TURBT and have been diagnosed with Ta or T1 urothelial carcinoma of the bladder between 2010 and 2020. Inclusion criteria required the presence of tumor resection weight documented in the pathology report. Patients were excluded if they had non-urothelial carcinoma, variant histology, pathologic stage T2 or higher, evidence of metastasis, or tumor weight not provided. Data collected included demographic, tumor characteristics, pathologic report details, adjuvant therapies, timing of recurrence, and current status of disease information. Statistical analysis was completed using SPSS.

Results: During the collection period, 2740 TURBT were completed, identifying 1606 individual patients. Of these, 321 patients were randomized to be examined further, with 167 diagnosed with NMIBC and 43 meeting full inclusion criteria. Among these patients, 34 (79.0%) were male, 17 (48.8%) had T1 pathology, and 26 (60.5%) had Ta pathology. A total of 22 patients (51.2%) received BCG treatment. Disease recurrence occurred in 16 patients, with eight experiencing an upstage in pathology. The mean tumor weight across all patients was 4.45±7.47 g. Patients with recurrence had a mean tumor weight of 5.78±9.80 g, compared to 4.28±6.70 g in those without recurrence (p=0.59). Patients with upstaged pathology had a mean tumor weight of 9.75±12.74 g compared to 1.85±2.73 g in those without upstaged pathology (p=0.12).

Conclusions: Tumor weight may have some association with disease progression in patients with NMIBC. This study found no significant correlation between tumor weight and recurrence; however, a trend was observed, indicating that

MP 2.9. Table 1. Baseline characteristics of patients in studies included

Study ID	Study Type	N. (naloxegol/ alvimopan)	Sex p*	Race p*	Smoking status p *	Tumor stage p*	Age (median [IQR] or mean ± SD) (naloxegol/alvimopan	BMI (median [IQR] or mean ± SD) (naloxegol/alvimopan)	Robbins-I risk of bias	Administration naloxegol	Administration alvimopan
Goodstein 2018	CCS	55/75	0.094	0.52	0.64	0.41	64±5.6 / 66±5.5	27.5±2.5/ 26.7±2.4	Moderate	25mg or 12.5mg if CrCl <60 mL/min) PO DIE for 7 days	12 mg PO BID for 7 days
Faraj 2022	CCS	57/278	0.26	0.61	NR	0.162	73 (65–77)/ 72 (65–77)	26.9(24.1–30.1)/ 27.7 (24.2–31.3)	Moderate	NR	Single dose, followed by twice daily dosing until the patient had return of bowel function
Kirk 202	CCS	58/59	0.9	0.6	0.5	0.07	67(60–74)/ 68(60–74)	28 (26–33)/ 28(25–32)	Moderate	2 5mg or 12.5mg if CrCl <60 mL/min) PO DIE for 7 days	12 mg PO BID for 7 days

Summary of patient demographics, clinical features, and relevant baseline variables across studies included in the analysis. Data are presented as mean ± SD, p-value median (IQR). *p-values are for between-group comparisons (naloxegol vs. alvimopan).

patients with upstaged pathology may have heavier tumor specimens. Further research with larger sample sizes and more comprehensive data is recommended to determine whether tumor weight can serve as a reliable prognostic marker for NMIBC recurrence and progression.

MP 2.12

Real-world baseline characteristics and outcomes of patients with advanced urothelial carcinoma treated with enfortumab vedotin plus pembrolizumab: The Alberta experience

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Introduction: Enfortumab vedotin plus pembrolizumab (EVP) has demonstrated a significant survival benefit for advanced urothelial carcinoma (aUC) patients in clinical trials; however, global access remains limited, with real-world efficacy and safety data lacking. We evaluated outcomes of patients with aUC treated with EVP through an early-access patient support program.

Methods: We conducted a retrospective, multicenter analysis of 53 patients with aUC treated with first-line EVP from September 2024 to October 2025 in Alberta, Canada. Eligible patients received EVP through a patient support program prior to formal funding and had a minimum of three months of followup from treatment initiation. Clinicopathologic, treatment, and outcome data were collected from medical records. FGFR alteration testing was done in a subset of patients. Progression-free survival (PFS) was estimated using the Kaplan-Meier method.

Results: Fifty-three patients were included (43 males, 10 females; median age 69 years). Eleven patients (21%) had locally advanced unresectable disease, 14 (26%) had lymph node only disease, and 28 (53%) had visceral metastases. The primary tumor site was bladder in 39 (74%) patients. FGFR testing was performed in 27 patients (eight positive, 19 negative). Most patients (81%) received full-dose EV for cycle 1. With a median followup of 6.4 months, the mean number of EVP cycles received was 7.5. The ORR was 60%, including complete responses in 19% and partial responses in 42%. Six patients (11%) had primary refractory disease. The six-month PFS was 75%. Grade 3 or higher adverse events of highest frequency were rash (13%) and fatigue (8%). Second-line therapy was initiated in five patients, all receiving platinum-gemcitabine (Table 1).

Conclusions: This real-world analysis of EVP demonstrates outcomes comparable to clinical trials, highlighting the benefit of early access to novel therapies and support EVP as standard first-line therapy for aUC. Toxicity was manageable in this cohort. Additionally, we demonstrate that integration of early FGFR testing is feasible in the real world. Additional followup and evaluation of prognostic factors is ongoing.

MP 2.13

Initial validation of an automated large language model pipeline for population-scale extraction of bladder pathology reports

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Introduction: Population-level cancer surveillance and policy rely on structured data extracted from narrative pathology reports, but manual extraction is limited by cost, workforce constraints, and human error. Large language models (LLMs) may provide an accurate and scalable alternative, yet their reliability across heterogeneous, multi-institutional corpora remains uncertain.

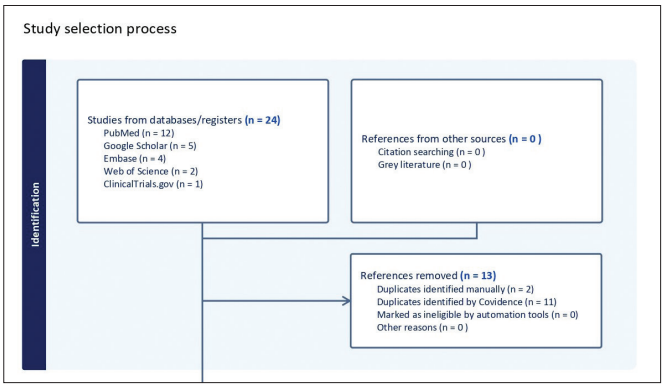
Methods: We developed a multistage, triple-LLM pipeline (Figure 1) to extract structured data from bladder pathology reports. To mitigate known limitations of LLM-based extractions, the pipeline incorporated cross-modality inputs (text and scanned images), redundant LLM runs with voting and adjudication mechanisms, and task-specific prompt templates and structured output schemas. We evaluated the pipeline on a sample of bladder cancer pathology reports. LLM-generated extractions were compared against trained, non-clinician extractors, who represent the pragmatic, real-world baseline for extraction accuracy. Blinded adjudication of discordant fields was performed independently by two urologists, serving as the expert reference standard.

Results: We randomly sampled 100 reports from a population-wide database spanning 2001–2022 across the province of Ontario, Canada. Cohort character-

MP 2.12. Table 1. Baseline demographics, treatment received, and outcomes	
Patient characteristics	n=53
Gender, n (%)	
Male	43 (81)
Female	10 (19)
Median age, years (range)	69 (48–86)
Site of primary, n (%)	
Bladder	39 (74)
Upper genitourinary tract	14 (26)
Histology, n (%)	
Pure urothelial	43 (81.1)
Variant histology	10 (18.9)
Stage at initial diagnosis of urothelial cancer, n (%)	
Non-muscle-invasive	20 (38)
Muscle-invasive	22 (42)
Metastatic	11 (21)
Disease extent, n (%)	
Locally advanced	11 (21)
Metastatic	
Lymph node only	14 (26)
Visceral	28 (53)
Treatment and outcomes	n=53
Initial dose of EV + pembro, n (%)	
EV 1.25mg/kg + pembro 200mg	43 (81)
EV 1mg/kg + pembro 200mg	10 (19)
Median number of cycles received	7.5
Response to first-line EVP	n=53
Best response to EVP, n (%)	
Stable disease	15 (28)
Partial response	22 (42)
Complete response	10 (19)
Objective response rate (ORR)	**32 (60)**
Disease control rate (DCR)	**47 (89)**
Primary refractory	6 (11)
Grade 3–4 adverse events (incidence >10%), n (%)	
Rash	7 (13)
Fatigue	4 (8)
Progression at any time, n (%)	18 (34)
Second-line treatment initiation	5 (9)
Platinum + Gemcitabine	5/5
6-month progression-free survival	75%
FGFR alteration status, n (%)	n=27
Positive	8 (30)
Negative	19 (70)

istics were: 77 male and 23 female; 65 NMIBC and 30 MIBC (five Tx specimen); and concomitant non-bladder cancer in eight. Across 1337 extracted fields, our LLM pipeline agreed with trained non-clinician extractors on 1183 (88.5%; Cohen's kappa=0.85). Agreement was highest for categorical histological features (>90%) and lower for macroscopic specimen measurements (<60%). Among 154 discordant fields (11.5%), blinded expert review favored the LLM pipeline in 112 (73%) of cases (McNemar p<0.001). Consistency among redundant LLM extraction passes within the triple-LLM architecture was excellent (Fleiss's kappa=0.96). The mean processing cost per report was $0.04 USD, with a mean runtime of six seconds.

Conclusions: An LLM-enabled pipeline accurately extracted structured data from free-text pathology reports in a heterogeneous dataset, exceeding trained non-clinician extractors while approaching expert-level accuracy. This technology provides a scalable, accurate, and inexpensive solution to enable high-quality secondary use of health data.



MP 2.13. Figure 1. Large Language Model. Top: Our iterative, expert-guided prompt and output schema design process. BOTTOM: For each pathology report, a multistage and multi-LLM abstraction process is employed. The report is screened for specific features (e.g. specimen type, concurrent malignancy), which then inform a uniquely assembled prompt and output schema specific to each report.

MP 2.14

The WASHOUT study: Workup and management of patients with emergency hematuria across the world

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Introduction: Gross hematuria accounts for 15% of all urologic emergency admissions. Previous studies report an underlying malignancy rate of 32% among patients with gross hematuria. This study aimed to describe current management practices and clinical outcomes of patients presenting with emergency hematuria across multiple centers worldwide.

Methods: This international, multicenter, prospective, observational study was conducted using the BURST collaborative model. Adults (>16 years) admitted with emergency gross hematuria were included, while traumatic hematuria and admissions <24 hours were excluded. The primary objectives were to describe length of stay (LoS), mortality and 90-day readmission rates. Patient and public involvement informed the study design.

Results: Data were collected for 8500 patients across 382 centers internationally over one year. The median LoS was four days (IQR 2–8), with a 90-day mortality rate of 9.2% and a 90-day readmission rate of 31%. On admission, 5% were hemodynamically unstable, 5% were septic, 11% required high-dependency care, and 21% required blood transfusion. Ward-based conservative management was successful in 35% of cases. Almost half (47%) did not undergo imaging during admission, and only 35% patients underwent procedural intervention during admission. Overall, 25% had malignancy as the underlying cause (12.5% pre-existing, 12.5% newly diagnosed), with a further 5% diagnosed during followup. Urothelial carcinoma accounted for 77% of malignancies during admission (69% bladder, 7% upper tract) and a further 73% during followup (67.6% bladder, 5.6% upper tract). The median time to diagnosis was 1 (0–2) day during admission and 21(10–41) days during followup, suggesting significantly longer time to diagnosis once the patient is discharged.

Conclusions: WASHOUT represents the largest, prospective, international, multicenter study of patients with emergency hematuria to date. Emergency hematuria is associated with substantial morbidity, high readmission rates, and malignancy rates comparable to outpatient cohorts, yet ward-based management success remains low. A considerable proportion of patients are discharged without imaging or intervention, despite a prolonged post-discharge delay to diagnosis. These findings support structured early diagnostic pathways and timely inpatient management, and caution against discharge without a definitive diagnosis, given the frequency of significant underlying pathology.

MP 2.15

The WASHOUT study: Early proactive intervention in emergency hematuria admissions reduces length of stay, mortality, and readmissions

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Introduction: There are currently no evidence-based guidelines for the management of emergency hematuria. Thus, clinical practice may be highly variable and dependent on several factors, including anecdotal clinician judgement and experience, hospital-level resource, and patient comorbidities. The WASHOUT study aimed to investigate variations in the management of emergency hematuria and evaluate impact of variation on patient outcomes.

Methods: A prospective, international, multicenter cohort study was conducted through the BURST collaborative with patient and public involvement. Adults (>16 years) admitted with emergency gross hematuria were included; traumatic hematuria and admissions <24 hours were excluded. The primary outcome was length of stay, with secondary outcomes of mortality and 90-day readmission. Clinical and management characteristics were analyzed using covariate-adjusted models to determine associations, with primary outcomes using Poisson regression for length of stay and logistic regression for mortality and readmission.

Results: Data were collected for 8500 patients across 382 centers internationally over one year. An increase in the number of days between admission and definitive management was significantly associated with increasing LoS and an increased risk of readmission and death (OR 1.02) (p=0.00). On comparative analysis, patients with >2 days between admission and completion of management had an average LoS increase of 5.6 days, a 2.5% greater probability of death within 90 days, and a 3.1% greater probability of readmission after adjustment for covariates. Other factors independently associated with prolonged LoS and increased mortality included frailty, sepsis, upper tract obstruction, and the need for intensive care. Mortality was also higher among patients who did not undergo imaging in the emergency department, lacked a definitive diagnosis during admission, or had malignancy as the underlying cause of hematuria. Higher 90-day readmission rates were observed among patients with a history of radiotherapy, those receiving antiplatelet or anticoagulant therapy, patients without prior hospital admissions, and those with longer initial hospital stays.

Conclusions: WASHOUT is the first study to evaluate factors influencing outcomes in patients presenting with emergency hematuria. Our findings support emergent imaging on admission and intervention within 48 hours when hematuria does not resolve with conservative measures. Evidence-based guidelines are urgently needed to standardize and accelerate the investigation and management of emergency hematuria and improve patient outcomes.