The Impact of Perioperative Immune Checkpoint Inhibitors on the Economic Burden of Bladder Cancer in Canada

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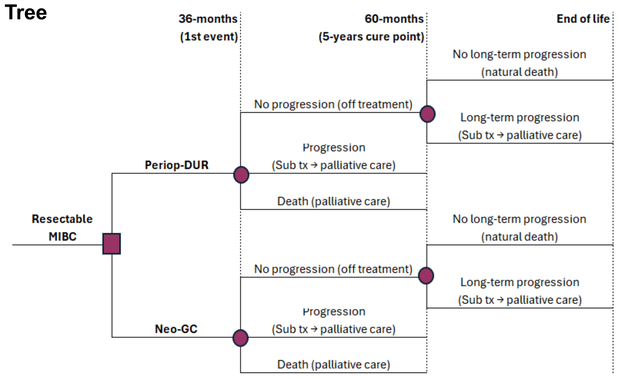
Introduction

- Durvalumab is the first approved perioperative immune checkpoint inhibitor for resectable muscle invasive bladder cancer (MIBC) in Canada, administered in combination with neoadjuvant gemcitabine and cisplatin (neo-GC), followed by adjuvant durvalumab monotherapy (periop-DUR).[1]
- In the phase 3 NIAGARA trial (NCT03732677), adding perioperative durvalumab to neo-GC significantly improved event-free survival (EFS) and overall survival (OS), representing the first immune checkpoint inhibitor to demonstrate benefit in this setting.[2]
- No published Canadian health care resource utilization (HCRU) analyses currently evaluate periop-DUR against Canadian standard of care in cisplatin-eligible MIBC.
- This study estimates HCRU and costs associated with treatments for resectable MIBC from a Canadian perspective.

Methods

- A lifetime cost calculator was developed to compare HCRU of periop-DUR versus neo-GC in a Canadian setting. Adjuvant nivolumab was excluded given population and timing differences and the absence of comparison with neo-GC.
- **Perspective/ costs:**
  - Healthcare system perspective: direct medical costs only, including treatment acquisition, administration, surgery, monitoring, adverse events (AEs), subsequent treatments and palliative care.
  - Societal perspective (scenario analysis): direct and indirect cost (patient and caregiver lost productivity loss along with travel-related costs).
- All costs were reported in 2025 Canadian dollars.
- **Clinical inputs:** including EFS and OS, informed by the NIAGARA trial and validated by Canadian clinical experts.[2]
- **Model:** decision tree (**Figure 1**), with a first event assessed at 36 months and a cure point assumed at 5-years if no progression.

Figure 1. Decision Tree



Type of Results:

- Total lifetime cost: Includes all direct medical costs, including treatment acquisition costs.
- Lifetime cost of care: Excludes treatment acquisition costs for both intervention and comparator.
- Cost per patient per year (PPPY): Calculated by dividing total costs by the total life-years (LYs) accrued in the model (**Table 1**).

Table 1. Total Life-Years Accrued in the Model

Periop-DUR	13.6 Lys
Neo-GC	11.0 Lys
Difference	**Δ: 2.6 LYs**

Abbreviations: DUR: durvalumab; Neo-GC: neoadjuvant gemcitabine-cisplatin; LYs: Life-Years; periop: perioperative

Results

Lifetime Costs

- The cost difference is mainly attributable to the addition of DUR to both neoadjuvant (4 cycles) and adjuvant settings (8 cycles), in addition to its higher unit acquisition cost, whereas the comparator is administered only in the neoadjuvant setting (4 cycles) (**Figure 2 and 3**).
  - **Total lifetime cost**: When including treatment acquisition costs, an incremental total cost of $106,232 was observed ($5,530 PPPY).
  - **Lifetime cost of care**: When excluding treatment costs, cost savings of $34,568 ($4,938 PPPY) are observed.
- Findings were directionally consistent in the societal perspective scenario (Total lifetime cost: incremental total cost of $108,140 [$3,055 PPPY]; Lifetime cost of care: cost savings of $32,659 [$7,234 PPPY]).

Figure 2. Lifetime Cost Results - Healthcare System Perspective

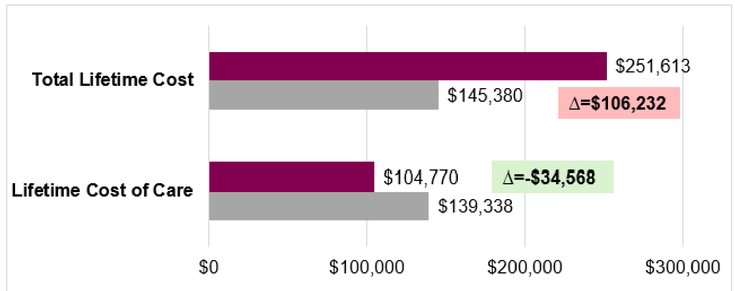
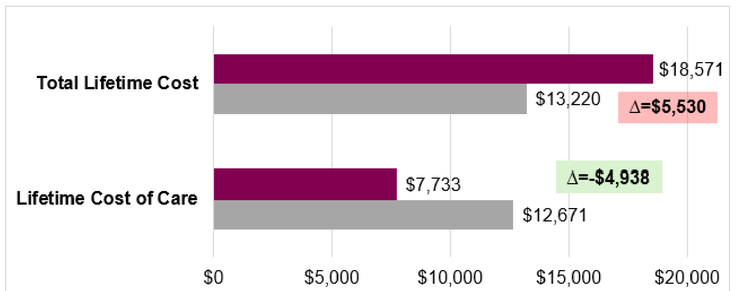


Figure 3. Results PPPY - Healthcare System Perspective

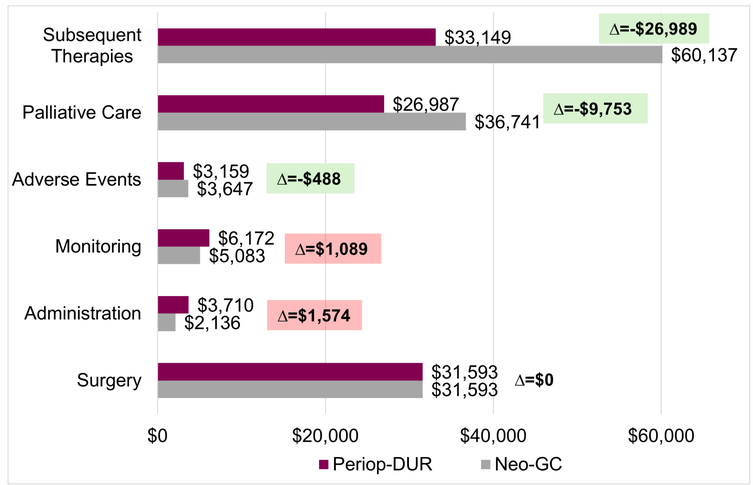


Notes: Negative values (green) of the differential (Δ) represent cost savings for periop-DUR compared with neo-GC.
Abbreviations: DUR: durvalumab; neo-GC: neoadjuvant gemcitabine and cisplatin; LY: life year; Periop-: perioperative.

Lifetime Cost of Care- Healthcare System Perspective

- Periop-DUR reduced downstream HCRU costs for resectable MIBC patients by $26,989 in subsequent treatments, $9,753 in palliative care, and $488 in AE costs compared with neo-GC (**Figure 3**).
- These savings reflect superior efficacy to neo-GC, characterized by fewer EFS events and a greater proportion of patients achieving cure compared with neo-GC.

Figure 3. Lifetime Cost of Care – Disaggregated Results



Notes: Negative values (green) of the differential (Δ) represent cost savings for periop-DUR compared with neo-GC. Abbreviations: DUR: durvalumab; neo-GC: neoadjuvant gemcitabine and cisplatin; Periop-: perioperative.

Conclusions

- Despite higher upfront treatment costs, periop-DUR was associated with reduced downstream HCRU and related costs in resectable MIBC, driven by superior efficacy with fewer recurrences and reduced subsequent care requirements.
- Results are consistent with CDA-AMC review of periop-DUR which suggested it is a cost-effective treatment, reinforcing the value of accepting higher but predictable upfront costs to mitigate downstream clinical and economic risk.[3]
- These results provide insight into the broader economic implications associated with improved perioperative outcomes in this therapeutic setting.

References

1. Marcq G, Jarry E, Ouzaid I, et al. Contemporary best practice in the use of neoadjuvant chemotherapy in muscle-invasive bladder cancer. Therapeutic Advances in Urology. 2019;11. doi:10.1177/1756287218823678
2. Powles T, Catto JWF, Galsky MD, et al. Perioperative Durvalumab with Neoadjuvant Chemotherapy in Operable Bladder Cancer. The New England journal of medicine. 2024;391(1):1773-1786. doi:10.1056/NEJMoa2408154
3. CDA-AMC. Reimbursement Recommendation, Durvalumab (Imfinzi) Treatment of patients with resectable muscle invasive bladder cancer in combination with gemcitabine and cisplatin as neoadjuvant treatment, followed by adjuvant Imfinzi monotherapy treatment after radical cystectomy. Canadian Journal of Health Technologies. January 2026 (6): 1. https://www.cda-amc.ca/sites/default/files/DRR/2026/PC0414-Imfinzi.pdf

Disclosures

- JL is a partner at PeriPharm Inc., a company that has served as a consultant to AstraZeneca Canada and has received funding from AstraZeneca Canada.
- KG, CR and KM are employees of PeriPharm Inc.
- ND and JS are employees of AstraZeneca Canada.
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