Biomarker Testing in Canadian Thoracic Surgical Patients: A CATS Multicentre Prospective Real World Evidence Study

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INTRODUCTION

Recent advancements in immunotherapy and targeted therapy for neoadjuvant and adjuvant treatment in early-stage lung cancer have raised the importance of biomarker testing.

Biomarker testing for lung cancer care in Canada across different centres is not standardized. This is the first analysis of biomarker testing practices in Canada.

Our primary objective was to determine factors associated with pre-operative biopsy biomarker testing and post-operative specimen testing.

METHODS

This is a prospective cohort study of 168 patients with lung cancer referred to five Canadian centres between January 2023 and December 2024. Data was collected through chart review and patient questionnaires.

Multivariable logistic regression was used to identify factors associated with biomarker testing (pre-operative biopsy and post-operative specimen).

Vancouver, BC | Toronto, ON | Ottawa, ON | Montreal, QC | Halifax, NS

DISCUSSION AND CONCLUSION

Pre-operative and post-operative biomarker testing were significantly associated with site suggesting practice of biomarker testing is variable across the country.

Pre-operative testing was significantly associated with stage while post-operative testing was significantly associated with histology This suggests decisions to pursue biomarker testing were based potentially on higher risk groups, reflecting accessibility to biomarker testing in Canada.

Further investigation of the factors influencing the decisions to pursue biomarker testing are needed.

RESULTS

More post surgical specimens underwent biomarker testing than pre-operative biopsies except for Ottawa.
Tested pre-operative specimens had higher odds of being locally advanced or from Dalhousie, McGill, or Ottawa.
Tested post-operative specimens had higher odds of being from Dalhousie or McGill or of none adenocarcinoma histology, less odds of being from Ottawa

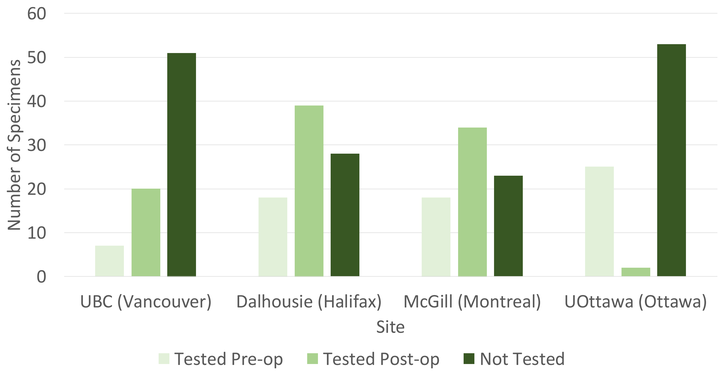


Figure 1. Specimen biomarker testing counts by site
In total, 64% of pre-operative specimens and 56% of post-operative specimens underwent biomarker testing.

	OR (95% CI)	p-value
Halifax	**5.11 (1.54-16.96)**	**0.008**
McGill	**3.72 (1.12-12.41)**	**0.032**
Ottawa	**13.22 (3.86-45.26)**	**< 0.001**
Stage (early vs locally advanced)	**3.07 (1.33-7.05)**	**0.008**
Age	0.97 (0.92-1.02)	0.257
Sex	1.17 (0.54-1.96)	0.937
Histology (adenocarcinoma vs other)	1.03 (0.54-1.96)	0.937
Smoking status (current/former vs never)	0.42 (0.14-1.29)	0.128

Table 1. Multivariable logistic regression odds ratio with biomarker testing in pre-op biopsy specimens as the response variable.
UBC used as reference for site, early stage as reference for stage, and adenocarcinoma as reference for histology, and current/former smoker as reference for smoking status. Site and stage were statistically significant.

	OR (95% CI)	p-value
Halifax	**12.63 (2.82-56.48)**	**< 0.001**
McGill	**3.77 (1.12-12.70)**	**0.032**
Ottawa	**0.03 (0.004-0.17)**	**< 0.001**
Stage (early vs locally advanced)	0.65 (0.24-1.82)	0.416
Age	1.02 (0.95-1.09)	0.568
Sex	0.65 (0.25-1.71)	0.384
Histology (adenocarcinoma vs other)	**0.40 (0.18-0.90)**	**< 0.001**
Smoking status (current/former vs never)	0.71 (0.01-35.68)	0.865

Table 2. Multivariable logistic regression odds ratio with biomarker testing in post-operative surgical specimens as the response variable.
UBC used as reference for site, early stage as reference for stage, and adenocarcinoma as reference for histology, and current/former smoker as reference for smoking status. Site and histology were statistically significant.

Artificial Intelligence (AI) Use Disclaimer: AI tools were not used in the preparation of this poster