

Real-World Comparison Of Metastatic Melanoma Treatments Between Academic And Community Hospitals In Canada: A Retrospective Study

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Background

The BC Cancer Agency (BCCA) estimates there are 4500 new cases of metastatic melanoma in Canada annually. The management of patients with metastatic melanoma depends on the stage of their disease at diagnosis. It may involve surgical excision, regional lymphadenectomy, systemic therapy or radiation therapy¹.

Given, the complexity of treatment options, *The Melanoma Network of Canada* recommends that patients diagnosed with melanoma should seek treatment at a Centre of Excellence².

Often these Centres of Excellence are located in academic hospitals. The Council of Academic Hospitals of Ontario (CAHO) states that all member hospitals must have: (1) university affiliation; (2) minimum annual research revenues; and (3) minimum numbers of resident and fellow teaching days³. However, defining the difference between academic and community hospitals can be challenging. Community-based medicine often refers to a facility or provider that is engaged predominantly in patient care⁴. Research in the Canadian orthopedic context has demonstrated that patient populations and health outcomes can vary according to hospital type^{5,6}.

Since metastatic melanoma patients are encouraged to seek care at specialized centres, this study compares the systemic treatments provided to metastatic melanoma patients at academic versus community hospitals.

Objective

The objective of this study is to compare metastatic melanoma drug treatment between academic and community hospitals in Canada using real-world data.

Methods

This retrospective observational study utilized *IMS Brogan Real-World Oncology Data*, an anonymised patient database collected directly from specialists via electronic questionnaire spanning all relevant treatments and patient metrics.

An analysis of stage IV melanoma patients, treated in Canada between October 2014 and September 2015 was conducted using the following data fields:

- Regimens: The physician identifies combinations of drugs used to treat patients. 95% of patients received their second-line drug treatment during the study period.
- Hospital type (academic vs. community): The physician completing the questionnaire self-identifies him/herself as practicing in an academic or community hospital.

Drug classification⁵

Immunotherapy ⁶	Targeted Therapy (BRAF & MEK inhibitors)
Ipilimumab	Vemurafenib
Pembrolizumab	Dabrafenib
Interleukin-2	Trametinib
Interferon-alfa 2b	

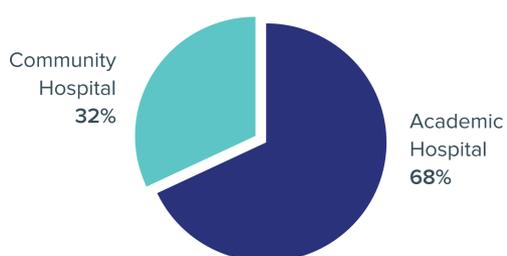
A chemotherapy classification has also been created and includes all other antineoplastic drugs excluding immunotherapy and targeted therapy (BRAF & MEK inhibitors).

Results

In our real-world metastatic melanoma database, a total of 430 unique patient histories with stage IV disease were available from October 2014 to September 2015.

293 patients (68%) were treated in an academic hospital, while 137 (32%) received therapy in a community setting.

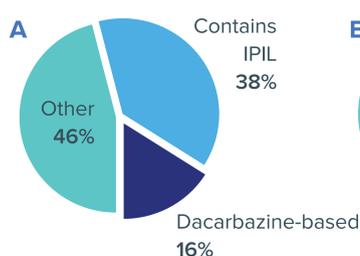
% of Patients Treated by Hospital Type



Base = 430 patients (Q4 2014, Q1 2015, Q2 2015 and Q3 2015 combined)

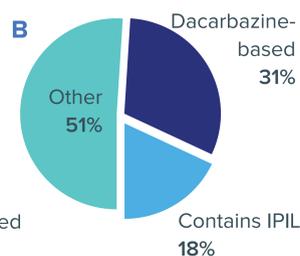
The most common immunotherapy in the academic setting was ipilimumab, while in the community hospitals, the most common chemotherapy was dacarbazine.

Academic Hospitals Regimen Breakdown



A: Based on 293 patients receiving therapy in academic hospitals

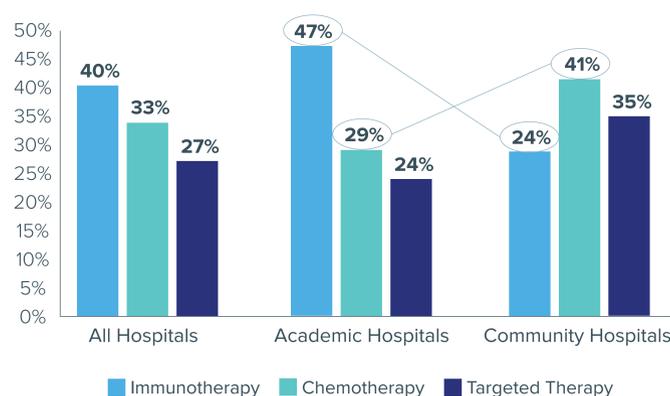
Community Hospitals Regimen Breakdown



B: Based on 137 patients receiving therapy in community hospitals

- Out of 293 patients receiving therapy in academic hospitals, 139 patients (47%) were treated with immunotherapy, 84 patients (29%) with chemotherapy and 70 patients (24%) with targeted therapy.
- Out of 137 patients receiving therapy in the community setting, 33 patients (24%) were treated with immunotherapy, 56 patients (41%) with chemotherapy and 48 patients (35%) with targeted therapy.

Drug Treatment Type - Patient Share



Base = 430 patients (Q4 2014, Q1 2015, Q2 2015 and Q3 2015 combined)

The real-world data used in this analysis has demonstrated differences in therapies between academic and community hospitals. Immunotherapy is more common in academic hospitals than in the community setting ($p < 0.05$).

Conclusions

The systemic treatment options for metastatic melanoma are rapidly evolving, with seven recent drug approvals in Canada including immunotherapy agents' ipilimumab (2012), nivolumab (2015) and pembrolizumab (2015) as well as oncogene-directed therapies' vemurafenib (2012), dabrafenib (2013), trametinib (2013) and cobimetinib (2016). The majority of patients in this dataset are treated in an academic setting. However, the real-world data used in this analysis has demonstrated differences in therapies between academic and community hospitals.

Immunotherapy, led by ipilimumab-containing regimens, is more common in academic hospitals than in the community setting. While on the other hand, chemotherapy, which is driven by dacarbazine-based regimens, is more prevalent in the community setting than in academic hospitals.

¹ BC Cancer Agency (BCCA). Melanoma. 2013. Available from : <http://www.bccancer.bc.ca/health-professionals/professional-resources/cancer-management-guidelines/skin/melanoma#Melanoma-Precursors>
² Melanoma Network of Canada. Finding the Right Doctor. Available from: <https://www.melanomanetwork.ca/finding-the-right-doctor/>
³ The Council of Academic Hospitals of Ontario (CAHO). CAHO Membership Criteria. 2009.
⁴ Topps M, Strasser R. When a community hospital becomes an academic health centre. *Can J Rural Med.* 2010 Winter; 15(1):19-25.
⁵ Only drugs appearing in the IMS Brogan Real-World Oncology Data between Oct. 2014 and Sept. 2015 data period were classified.
⁶ *5% of patients treated in an academic hospital received a regimen that comprised of both targeted- and immunotherapy and were defaulted to immunotherapy.

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