# Comparison of Compliance and Discontinuation Rates Among MS Patients Treated with Fingolimod and Other Disease-Modifying Therapies: A Canadian Retrospective Claims Analysis

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## CONCLUSIONS

- **This retrospective analysis using private claims data showed that a higher percentage of patients with a compliance rate of ≥80% was found in patients treated with fingolimod compared to patients treated with other DMTs after 6 month periods across Canada**
- **Discontinuation rates after 6 month periods were lower with fingolimod than with other DMTs**
- **This analysis provides the first insight into short-term compliance with DMTs in a Canadian real-world setting**
- **Improved compliance may help achieve therapeutic goals and may be associated with improved clinical benefits**

## INTRODUCTION

- Current pharmacological management of relapsing-remitting multiple sclerosis (RRMS) includes the use of oral, injectable, or infusible Disease Modifying Therapies (DMTs). Achieving therapeutic goals in chronic conditions such as MS requires strict adherence to the medication and administration schedule.
- Patients who have been persistent with and adherent to DMTs have a lower risk of relapse,[1,2] reduced healthcare resource utilization,[3] reduced frequency of MS-related hospitalization[4] and improved health-related quality of life compared with those who have not.[5,6]
- Once-daily oral fingolimod (FTY720; GILENYA®, Novartis Pharma AG), a sphingosine 1-phosphate receptor (S1PR) modulator, is approved in Canada for the treatment of relapsing-remitting multiple sclerosis.[7] More than 125,000 patients have been treated with fingolimod both in the clinical trial and post-marketing settings; total patient exposure now exceeds 240,000 patient-years[b] in the world.
- Recent real-world analyses using data from US administrative claims databases have demonstrated higher rates of persistence in patients initiating oral fingolimod therapy than in those using injectable or infusible DMTs.[8]

## OBJECTIVE

- This analysis evaluated the compliance and discontinuation rates in patients treated with fingolimod versus those treated with other oral, injectable or infusible therapies. The objective was to compare compliance and discontinuation rates in Canadian patients with RRMS treated with DMTs.

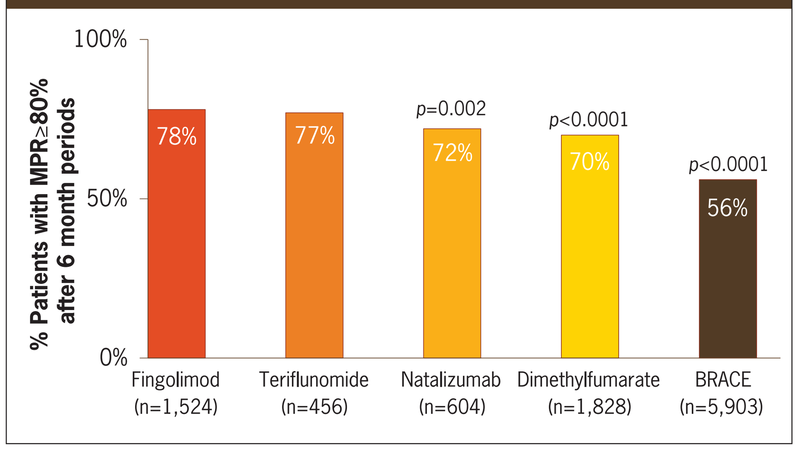
## DESIGN/METHODS

- This non-interventional, retrospective analysis was based on private claims from patient cohorts accessed through IMS Brogan Rx Dynamics®. Patients had at least one prescription filled for each DMT (oral: fingolimod, dimethylfumarate, teriflunomide; injectable: interferon beta-1b, interferon beta-1a, glatiramer acetate (BRACE); infusible: natalizumab).
- Patients were deemed compliant if the medication possession ratio (MPR) was ≥80%. The MPR was calculated by dividing Actual Usage Days (using days supplied) by Ideal Usage Days. Ideal Usage Days refers to the number of patients in a given cohort multiplied by the number of days in the cohort period. This calculation does not remove non-retained days where a patient has switched to a different product or stopped therapy in the market.
- The discontinuation rate was calculated based on patients who stopped therapy or who were switched to another DMT.
- Both compliance and discontinuation rates were collected at 6-month intervals after starting a new DMT. Discontinuation rates were also observed for 12 month periods.
- Comparisons between patients on fingolimod and other DMTs were performed by Chi-squared test.
- Period for compliance cohorts were from August 2011 to December 2014 (rolling 36 months total). Period for discontinuation cohorts were from September 2011 to January 2015.

## RESULTS

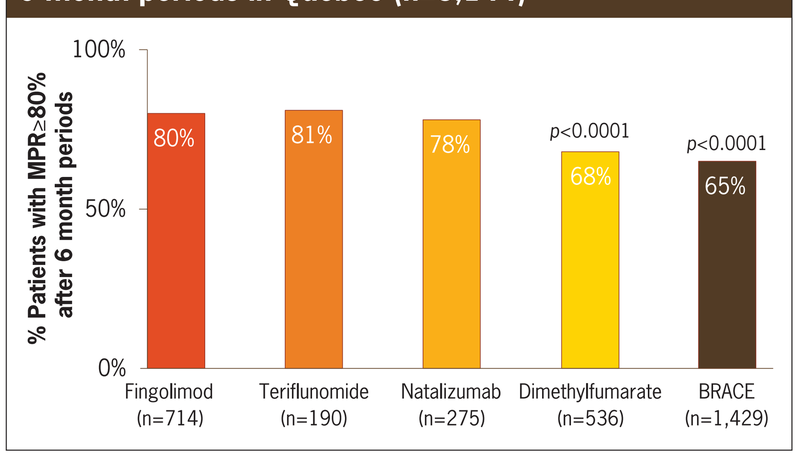
- The compliance data was collected for 10,315 patients (fingolimod, n=1,524; teriflunomide, n=456; natalizumab, n=604; dimethylfumarate, n=1,828; BRACE, n=5,903) **(Figure 1)**.
- The percentage of patients with MPR≥80% across Canadian provinces was higher for fingolimod (78%) compared to other DMTs, including natalizumab (72%, $p$=0.002), dimethylfumarate (70%, $p$=<0.0001), and BRACE (56%, $p$<0.0001) **(Figure 1)**.

**Figure 1. Percentage of patients with MPR≥80% after 6 month periods across Canada (n=10,315)**



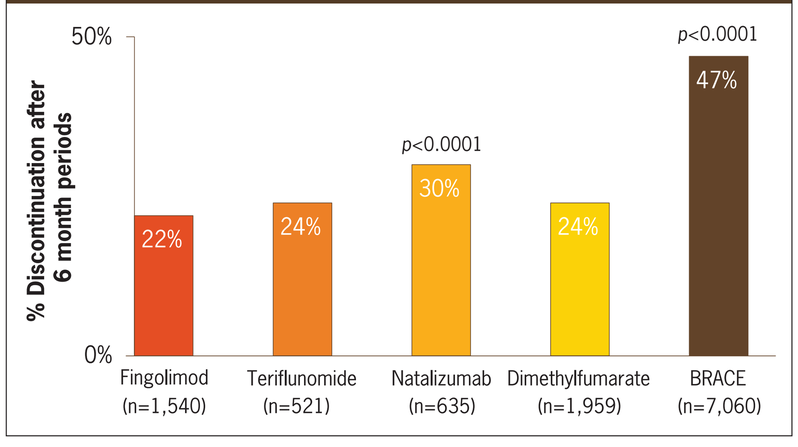

- In Quebec, the percentage of patients with MPR≥80% for fingolimod was 80%, particularly higher than dimethylfumarate (68%, $p$<0.0001) and BRACE (65%, $p$<0.0001) **(Figure 2)**.

**Figure 2. Percentage of patients with MPR≥80% after 6 month periods in Quebec (n=3,144)**



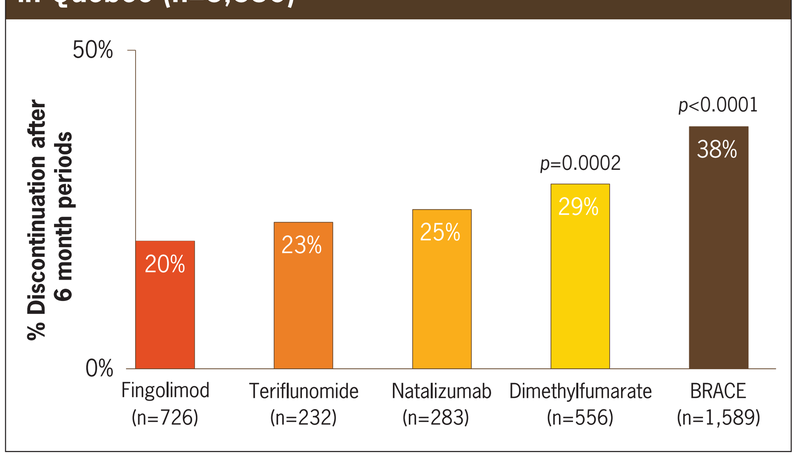

- Patients treated with fingolimod had the lowest discontinuation rate across Canada (22%), compared to natalizumab (30%, $p$<0.0001) and BRACE (47%, $p$<0.0001) **(Figure 3)**.

**Figure 3. Discontinuation rate after 6 month periods across Canada (n=10,315)**



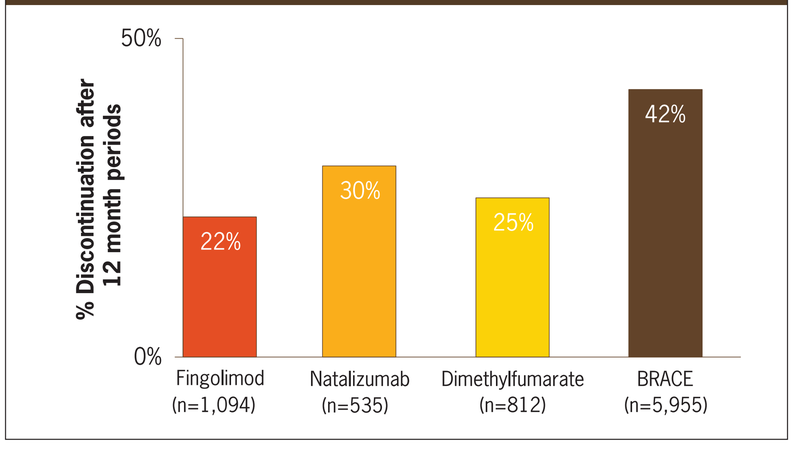

- In Quebec, dimethylfumarate had a higher discontinuation rate (29%, $p$=0.0002) than other orals (fingolimod, 20%; teriflunomide, 23%) and natalizumab (25%) **(Figure 4)**.

**Figure 4. Discontinuation rates after 6 month periods in Quebec (n=3,386)**




- Fingolimod continued to have lower discontinuation rates across Canada after 12 months as compared to other DMTs; fingolimod (22%, n=1,094), natalizumab (30%, n=535), dimethylfumarate (25%, n=812), and BRACE (42%, n=5,955) **(Figure 5)**. Discontinuation rate for teriflunomide over a 12-month period was not available due to recent launch.

**Figure 5. Discontinuation rates after 12 month periods across Canada (n=8,396)**






a) GILENYA® Canadian Product Monograph, February 12, 2014. The approved indication may vary from country to country.
b) Data as of May 2015; Q2 Novartis Pharmaceuticals Interim Financial Report, July 21, 2015.

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**Disclosures**

- **Paola Haddad** and **Anne-Marie Lamarche** are employees of Novartis Pharmaceuticals Canada Inc.
- **Pierre Duquette** has received honoraria for advisory boards and CMEs from Novartis, Biogen-Idec, Genzyme, EMD Serono and Teva Neurosience; has taken part in Investigator-initiated trials funded by Novartis, Biogen-Idec, Genzyme and EMD Serono; has received funding from peer-reviewed agencies such as the Canadian Institutes for Health Research (CIHR) and the MS Society of Canada.
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