

Economic Impact of Clozapine Treatment Persistence: A Canadian Perspective

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INTRODUCTION

- Although schizophrenia (SCZ) only affects around 1% of the population in Canada, it imposes a disproportionate burden on society and the health care system.¹
- Despite significant improvements in the past decades in pharmacological SCZ treatments, about 30% of patients have treatment-resistant SCZ (TRS).²
- Patients with TRS experience a lower quality of life and greater clinical burden, and their annual costs can be up to 11 times higher compared to SCZ patients without treatment resistance.³
- Clozapine is the only treatment approved for TRS patients in Canada.^{2,4} However, of those who initiate clozapine, a substantial proportion (~50%) discontinue therapy due to limited efficacy, adverse events, or low adherence.⁵
- Non-persistence to treatment is a major concern in the management of TRS since it is associated with hospitalization, mortality, suicide, delayed remission, poor prognosis, worsening psychiatric symptoms, unemployment, and poor quality of life.⁶

- Both brand name and generic formulations of clozapine are commercially available.
- Health Canada requires that each manufacturer of clozapine implement a patient support program (PSP), but not all are equal.
- Though different brands of clozapine may have the same clinical benefits and be bioequivalent, differences in the PSPs (i.e., different levels of support to healthcare professionals and their patients to ensure patient safety and treatment success) may have an impact on treatment persistence.

- Additionally, differences in treatment persistence can have a substantial economic impact on the healthcare system given the downstream consequences of non-persistence to treatment in patients with TRS.

OBJECTIVE

- The objective of this study was to estimate the economic impact of clozapine persistence on brand versus generic clozapine, in Quebec, Canada.

METHODS

Persistence Rate of Clozapine

- A retention analysis of brand clozapine versus generic clozapine products was performed using IQVIA Canada's Régie de l'assurance maladie du Québec (RAMQ) data.
 - **Persistence:** any patient who does not discontinue their index clozapine prescription.
 - **Discontinuation:** the absence of a claim for the index medication for more than the number of days supplied on the Rx plus a 30-day grace period.
- Patients identified were followed for 18 months, covering the period from October 2018 to February 2021.
- A Kaplan-Meier model was used to estimate persistence across medications.
- A Cox Proportional Hazards model was used to determine the association between index medication, age and sex. P-values and hazard ratios for each of these variables were reported.

METHODS

Economic Impact of Clozapine Persistence

- Costs and health care resources considered were those relevant to the Quebec health care system, including treatment acquisition, hospitalization, suicide attempts, emergency room and physician visits, and clozapine withdrawal symptoms. Costs were obtained from literature and Canadian governmental sources.
- A mean annual cost was calculated for a patient on brand clozapine and a patient on generic clozapine.
- The mean annual cost per patient was subsequently used to estimate the overall economic impact of clozapine retention for Quebec based on the proportion of TRS patients treated with clozapine in the province.
- The number of clozapine-treated SCZ patients in Quebec was established from literature and Canadian governmental sources.

RESULTS

- A total of 122 patients were included in this analysis (39 on brand clozapine and 83 on generic clozapine) (Figure 1).
- The 18-month persistence rate of patients on brand clozapine was 32.5% better than patients on generic clozapine, with the absolute percentages being 69.2% vs 55.4% (p=0.049) (Figure 2).

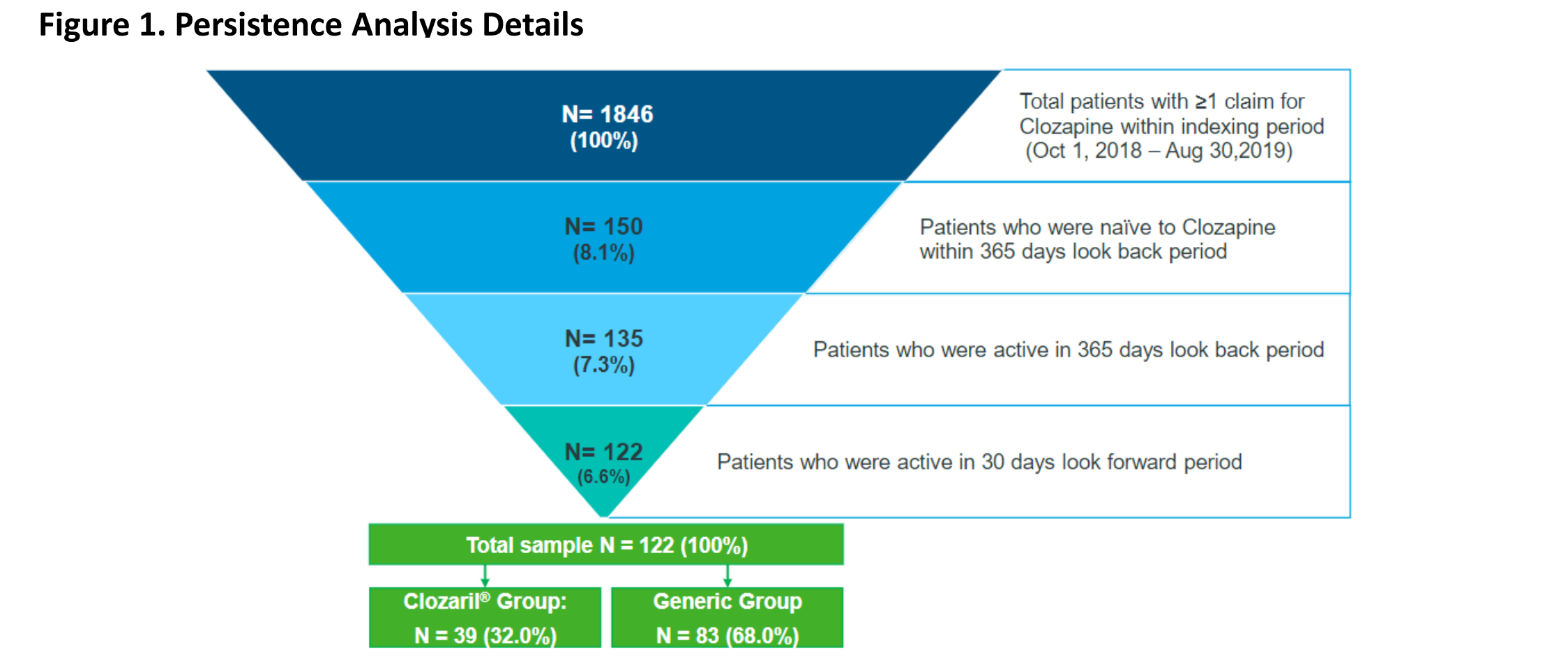
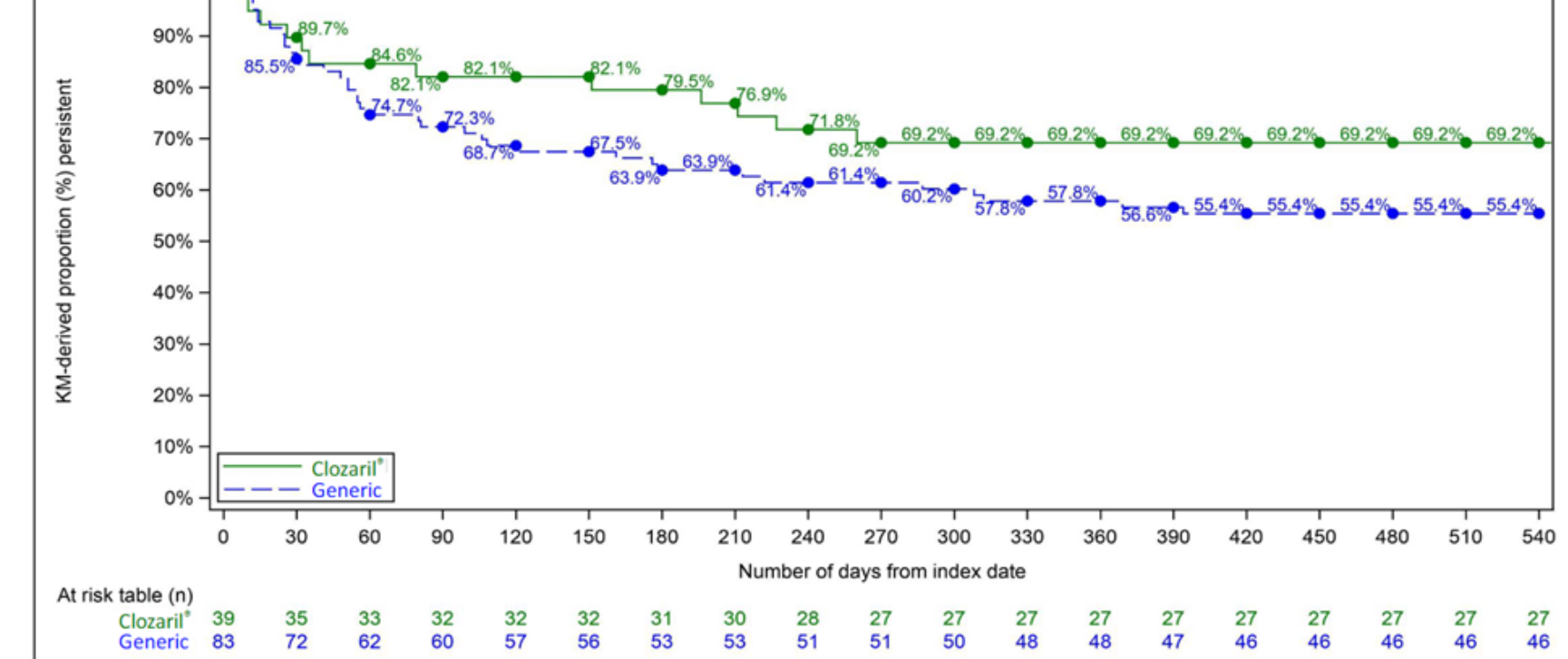


Figure 1. Persistence Analysis Details

Figure 2. Persistence Analysis Results



RESULTS

- The improved persistence on brand clozapine compared to generic translates into savings of \$3,158 per patient, per year, despite higher treatment acquisition costs on brand clozapine (+\$2,097) and the longer retention, mainly owing to the reduced hospitalization (-\$4,825). When applying these savings to the total Quebec TRS patient population on clozapine, this represents total savings of \$25.6 million (Table 1).

Table 1. Results by Clozapine Group (Brand vs. Generic Clozapine) – Annual Costs per Patient*

	Brand	Generic Clozapine	Difference
Retention rate	69 %	55 %	14%
Treatment costs	\$4,771	\$2,674	\$2,097
Hospitalization costs	\$28,051	\$32,876	-\$4,825
Emergency room visit costs	\$205	\$250	-\$45
Physician visit costs	\$302	\$346	-\$44
Cost associated with suicide	\$281	\$363	-\$82
Cost associated with clozapine withdrawal	\$577	\$836	-\$259
Total cost per patient with TRS	\$34,187	\$37,345	-\$3,158
Cost for the Quebec health care system	\$277,691,716	\$303,340,568	-\$25,648,852

*All costs are annual weighted average costs per patient. These costs were estimated using the persistence rate and the unit cost for patients on clozapine (i.e., persistent) and patients off clozapine (i.e., non persistent)

CONCLUSIONS

- This study shows that, although brand and generic clozapine may have the same clinical benefits, there are significant differences between their respective PSP in terms of treatment persistence.
- Improving persistence of treatment has a beneficial impact on the economic burden for the health care system, and the wellbeing of the patient.
- The impact of PSPs appears to be an important factor in persistence.

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DISCLOSURES

- KM and JL are employees of PeriPharm Inc., which received fees from HLS Therapeutics Inc. for the conduct of this study.
- DB received an honorarium from HLS Therapeutics Inc.
- JAG is an employee of HLS Therapeutics Inc.
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