Poster EE560

A Comparison of Time-Driven Activity-Based Costs for Patients and Caregivers Receiving Intravitreal Treatments for Neovascular Age-Related Macular Degeneration

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INTRODUCTION

- Neovascular age-related macular degeneration (nAMD) is among the leading causes of vision loss and a chronic condition.[1,2]
- Treatment of nAMD requires frequent intravitreal (IVT) injections, which place a significant burden on patients and caregivers.[2]
- Each IVT therapy has a unique, patient-specific dosing regimen and maintenance injection frequencies can vary from every (q) 4 to 16 weeks.[3-6]
- This study sought to quantify the total financial burden, including drug cost and time lost (e.g., to travel), for patients and their caregivers for four IVT nAMD therapies and their Health Canada-approved or studied* dosing regimen(s) dosing frequencies.

** Bevacizumab use in nAMD is off-label as it is not Health Canada-approved for use in nAMD.*

METHODS

- To complete this time-driven activity-based costing (TDABC) study, a patient journey was constructed to capture direct and indirect activities related to nAMD treatment, over three years, in the context of the Canadian healthcare system (Table 1).
- Lost productivity for patients and their caregivers, financial burden of treatment, and ancillary costs (e.g., transportation, meals, daily support) were all included. Costs associated with adverse events (e.g., stress, risk of infection, procedure side effects and financial impact of such) were excluded.
- Visit frequency for IVT injections aflibercept[3], bevacizumab[4], faricimab[5], and ranibizumab[6] were considered within the modeled journey according to their Health Canada approved or studied* dosing regimen(s).
- Activities were quantified using data from publicly available sources (Table 1).[7-12]
- Preliminary findings were validated by Fighting Blindness Canada, a patient advocacy group.

RESULTS

$1,855.80 CAD

additional cost to the patient and caregiver per IVT injection

The **total additional cost** to the patient and caregiver were **higher than the total cost of medication** in all cases.

Faricimab

administered at a maintenance interval of q16 weeks (13 visits in 3 years) had the **lowest total burden ($41,675 CAD) of all the drugs and regimens tested**.

Table 1. Model inclusions, assumptions, and values.

Travel	Assumption	Value (CAD)
• Parking	• Travel by car[7] • Parking 2 hours	**$50.00**
• Lost productivity/time of patient for driving (to and from clinic) • Lost productivity/time of caregiver for driving (to and from clinic)	• Driving time = 66 min x 2[8,9] • Wage = $31.50/hr [based on a weighted average of the average income for Canadians 65 yrs and older ($43,200/yr and 1950 hrs=$22.15/hr)[10] and $41.00/hr average wage for salaried employed individuals[11]]	**$69.30** **$69.30**
• Cost of gas (to and from clinic)	• Driving time = 66 min x 2[8,9] • 80 mph, 176 miles, 30 mpg, and $7.66/gal	**$44.94**
Appointment		
• Lost productivity/time of patient for appointment • Lost productivity/time of caregiver for appointment	• Appointment time = 1 hr 45 min[7,12] • Wage = $31.50/hr[10,11]	**$55.13** **$55.13**
Recovery		
• Lost productivity/time of patient for recovery period • Lost productivity/time of caregiver for recovery period	• Recovery time = 24 hrs[8,9] • Wage = $31.50/hr[10,11]	**$756.00** **$756.00**
TOTAL		$1855.80

Table 2. Summary of 3-year treatment and ancillary costs for selected nAMD IVT medications.

Molecule	Treatment frequency	Number of visits (3 yrs)	Cost of medicine (CAD)	Additional patient/ caregiver cost (CAD)	Total financial burden (CAD)
Faricimab[5] *Regimen 1 (q16wk)*	Every 4 weeks for the 1st 4 doses, then at weeks 28 and 44	13	$17,550	$24,125	$41,675
Aflibercept[3] *Regimen 1 (q12wk)*	Every 4 weeks for the 1st 3 doses, then every 12 weeks	15	$21,270	$24,837	$49,106
Faricimab[5] Regimen 2 (q12wk)	Every 4 weeks for the 1st 4 doses, then at weeks 24, 36 and 48	16	$21,600	$29,693	$51,292
Aflibercept[3] Regimen 2 (q8wk)	Every 4 weeks for the 1st 3 doses, then every 8 weeks	21	$29,778	$38,972	$68,750
Bevacizumab[4] Regimen 1 (q8wk)	Every 4 weeks for the 1st 3 doses, then every 8 weeks	21	$10,899	$38,972	$49,871
Ranibizumab[6] Regimen 1 (q8wk)	Every 4 weeks for the 1st 3 doses, then every 8 weeks	21	$33,999	$38,972	$72,971
Faricimab[5] Regimen 3 (q8wk)	Every 4 weeks for the 1st 4 doses, then at weeks 20, 28, 36 and 44	22	$29,700	$40,827	$70,527

Low High

CONCLUSIONS

- While drug costs were considered for their overall societal impact, treatment activity costs affect patients (particularly those with private or public drug coverage) and caregivers to a greater extent.
- Patients with nAMD and their caregivers incur significant costs related to IVT injection visits, with more frequent injections resulting in an increased burden (including cost).
- Of the four IVT therapies and seven regimens studied, faricimab dosed at a maintenance interval of q16 weeks was the least burdensome to patients and their caregivers managing nAMD, with the least number of associated visits and lowest additional cost.

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DISCLOSURES

B. Hurley reports: Consultant to, or on the speaker bureau for the following: Allergan, Novartis, Alcon Canada, Bayer, Bausch & Lomb Canada Inc., Hoffmann-La Roche Ltd., Biogen, and Apellis

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ABBREVIATIONS

CAD, Canadian dollars; IVT, intravitreal; nAMD, neovascular age-related macular degeneration; q, every; TDABC, time-driven activity-based costing; wk, week; yr, year