COST-EFFECTIVENESS ANALYSIS OF HALOBETASOL AND TAZAROTENE (DUOBRII™) COMPARED TO STANDARD OF CARE FOR ADULT PATIENTS WITH MODERATE-TO-SEVERE PLAQUE PSORIASIS IN QUÉBEC

EE418

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BACKGROUND & OBJECTIVE

- Plaque psoriasis is the most common subtype of psoriasis, affecting more than 2% of the Canadian population.[1]
- With up to 36% of patients with moderate to severe plaque psoriasis not receiving treatment [2,3] and low satisfaction rates with available treatments[2,3], there is a need for new effective treatments.[3]
- Halobetasol propionate (0.01%) and tazarotene (0.045%) (HP/TAZ) is a convenient once-daily fixed-dose treatment for plaque psoriasis that combines the benefits of both a retinoid and corticosteroid.[4,5]
- HP/TAZ has shown rapid and sustained reductions in the signs and symptoms of psoriasis, with no safety concerns.[6-9]
- Although HP/TAZ is widely available, it is not available for publicly insured patients in Québec. A cost-effectiveness analysis is needed to support its reimbursement request.

OBJECTIVE

- To estimate the cost-effectiveness of incorporating HP/TAZ into treatment sequences of topical and systemic therapies among patients with moderate-to-severe plaque psoriasis in Québec, compared to the current standard of care (SC) treatment sequences without HP/TAZ.

METHODS

- A cost-utility analysis was conducted following current guidelines for the economic evaluation of health technologies in Canada.[10,11]

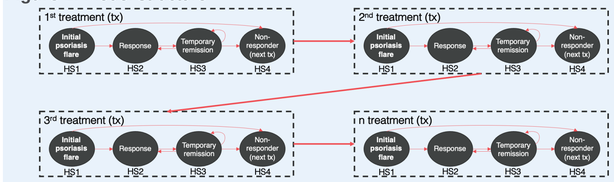
Table 1: Analysis parameters

Perspective	Québec public payer
Analysis type	Cost-utility analysis
Model structure	Cohort Markov model
Comparators	Usual care sequences (Table 4) composed by: A. Very high potency corticosteroids (VHPC) B. VHPC/ vitamin D analogue (VDA) combination (betamethasone/calcipotriol [BD/VDA])
Cycle length	4 weeks
Time horizon	5 years
Discounting	1.50%

- Health states (Figure 1) are characterized by response to treatment according to the Investigator's Global Assessment (IGA). Individuals move across health states based on response to topical therapy and rate of relapse. Patients that do not respond, move to the next treatment in the sequence and eventually to post-topical therapies.
- Based on expert opinion (EO), the SC for Québec was assumed to be BD/VDA followed by systemic therapies. In the base case, HP/TAZ replaced BD/VDA in the sequence. However, HP/TAZ was seen by the expert as an additional therapy that can be used before or after BD/VDA; so the impact of adding HP/TAZ to the SC sequence rather than replacing BD/VDA was also considered.

METHODS (CONTINUED)

Figure 1. Model structure



Topical treatments:

- The cost of topical treatments was estimated based on the proportion of the body surface area (BSA) affected and the assumption that 30 grams are sufficient to cover 100% of the BSA of an average patient:

*Topical product used (g) per application = (% BSA affected) * (30g)*

- In the base case it was assumed that 5% of the BSA is affected in patients included in the modelled population. This estimate was based on the median BSA of the patients in the HP/TAZ trials.

Post-topical treatments:

- In the base case, as per EO, it was assumed that 90% of those who failed topical therapies moved on to systemic therapies, and the remainder 10% moved on to phototherapy.

Health services costs and HRQoL:

- Costs and utilities were assumed to vary by health state.
- EQ-5D utilities by health state were informed by published data.
- Health services costs were estimated bottom-up based on EO.

Efficacy

- The primary outcome of interest was treatment success at 8 weeks (defined as achieving a score of "clear" or "almost clear"), based on IGA or equivalent scale.

Table 2: Input resource use per model cycle (4-week) and cost parameters

Health state	Total health service cost[a] (CAD)	Utilities
Initial psoriasis (or relapse) flare	$73.28	0.80
Responders to topical treatment	$0	0.90
Temporary remission	$0	0.90
Non-responders	$19.71	0.83
Response assessment	$40.62	0.80

[a] *RAMQ Manuel et guides de facturation[12], 2022*

Table 3: Treatment cost per cycle (4-week)

Treatment	Treatment cost[a] (CAD)
HP/TAZ	$81.06
VHPC	$10.57
BD/VDA	$57.14

[a] *RAMQ list of medications , 2022[13]*

Efficacy (continued)

- Relative to vehicle, the relative risk (RR) of treatment response applied in the model (estimated via a network meta-analysis) was 4.43 (95% credible interval: 3.2, 5.73) for HP/TAZ; 4.42 (3.47, 5.53) for VHPC/VDA; 3.31 (2.26, 4.53) for VHPC.
- The NMA studies also provided data on relapse rates, which were synthesized via pairwise meta-analysis. The results suggested that the 4-week possibilities of relapse for VHPC/VDA, HP/TAZ, and VHPC were 0.3, 0.2, and 0.4, respectively.
- Patients not responding to any of the topical therapies were assumed to receive either systemic therapy or phototherapy.

Treatment sequences

- The standard of care (i.e., comparator arm) was depicted by assuming a sequence of TCs available in Québec, and for the intervention arm the same sequence was assumed but with HP/TAZ displacing one treatment in the sequence (base case) or with HP/TAZ being added to the sequence (scenario analysis) (Table 4).

Time horizon

- Base case assumed a 5-year time horizon.
- Sensitivity analysis (SA): used 1- and 3-year time horizons.

Table 4: Standard of care sequences vs HP/TAZ sequences

Scenario number	Treatment sequences	
	Standard of care (SC)	Sequence with HP/TAZ
Base case	BD/VDA > Systemic therapy (ST)	HP/TAZ > ST
1	VHPC > BD/VDA > ST	VHPC > HP/TAZ > ST
2	BD/VDA > ST	HP/TAZ > BD/VDA >ST
3	BD/VDA > ST	BD/VDA > HP/TAZ > ST

Very high potency corticosteroids (VHPC) betamethasone / vitamin D analogue combination (BD/VDA). ">" represents a transition in the sequence.

RESULTS

- Regardless of the scenario adopted, HP/TAZ sequences dominated standard of care.
- Scenario 2 led to the highest cost saving ($1,483) per patient.
- Results held across all the sensitivity analyses, except for 1-year time horizon, where HP/TAZ was dominated by standard care.

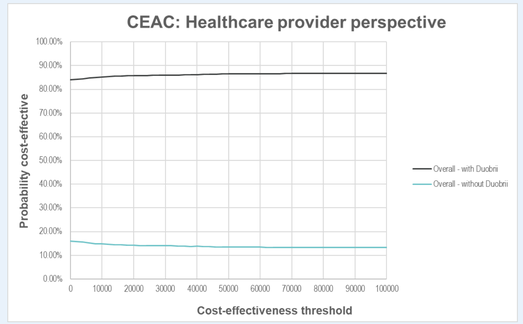
Table 5: Probabilistic base case results (5,000 iterations)

	Total Costs (95% CI)	Total QALYs (95% CI)	Incremental analysis		
			Δ Cost (95% CI)	Δ QALY (95% CI)	Incremental Cost Effectiveness Ratio (ICER)
SC	$11,082 ($9,531, $13,006)	4.090 (3.98, 4.20)	-	-	-
HP/TAZ	$10,626 ($9,075, $12,570)	4.11 (4.00, 4.21)	-$455 (-$1,545, $649)	0.016 (-0.02, 0.05)	HP/TAZ dominates SC

RESULTS (CONTINUED)

- Probabilistic sensitivity analysis showed low uncertainty around the cost-effectiveness of HP/TAZ, regardless of the cost-effectiveness threshold used.

Figure 2: Cost-effectiveness acceptability curve



CONCLUSION

- The use of HP/TAZ yields better treatment outcomes, leading to prolonged avoidance of costly therapies and resulting in considerable long-term savings. This makes it the dominant strategy for moderate-to-severe patients.
- Using HP/TAZ treatment results in potential cost savings ranging from -$455 (base case) to $1,483 (scenario 2) compared to SC sequences, with a corresponding improvement of QALYs from 0.016 (base case) to 0.033 QALYs (scenario 2).
- The simulated savings and QALYs were mainly due to delaying the access to systemic treatment access for HP/TAZ patients versus SC.
- When considering a very conservative one-year time horizon, the economic benefits of avoiding a large proportion of patients receiving systemic therapy would not be as noticeable as in longer-term scenarios.

REFERENCES

1. Petrella R, et al. Value in Health. 2014; 17: 1.
2. Armstrong AW, et al. JAMA Dermatol. 2013; 149: 1180-5.
3. Feldman SR, et al. Am Health Drug Benefits. 2016; 9: 504-13.
4. Ramachandran V, et al. Ann Pharmacother. 2020; 54: 872-78.
5. Papp K, et al. J Cutan Med Surg. 2009; 15: 210-19.
6. Sugarman JL, et al. J Drugs Dermatol. 2017; 16: 197-204.
7. Pariser DM, et al. J Drugs Dermatol. 2018; 17: 723-26.
8. Lebwohl MG, et al. J Am Acad Dermatol. 2019; 80.
9. Gold LS, et al. J Am Acad Dermatol. 2018.
10. Canadian Agency for Drugs and Technologies in Health. Guidelines for the economic evaluation of health technologies: Canada - 4th Edition., 2017.
11. Guidance Document for Submitting a Request to INESSS. Institut national d'excellence en santé et en services sociaux (INESSS), 2018.
12. Regie de l'assurance maladie Quebec. Manuel des médecins omnipraticiens 2022.
13. Regie de l'assurance maladie Quebec. List of medications (Accessed: July 2022). 2022.

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