Cost-Effectiveness Analysis of Baricitinib and Ritlecitinib for Alopecia Areata in the U.S.

Jean Lee, PharmD, Post-doctoral Fellow¹; Ryan Hansen, PharmD, PhD¹ 1. CHOICE (Comparative Health Outcomes, Policy, and Economics) Institute, School of Pharmacy, University of Washington, Seattle, WA

BACKGROUND₁

- > Alopecia Areata (AA) is a chronic autoimmune disorder causing nonscarring hair loss, ranging from small patches to total scalp (alopecia totalis) or body hair loss (alopecia universalis).
- \blacktriangleright AA affects ~2% of the global population (~700,000 in the U.S.), with onset often before age 40.
- Relapse rates vary from 30-52% with most relapses occurring within four years.
- The Severity of Alopecia Tool (SALT) scores hair loss on a 0-100 scale; scores >50% indicate severe AA.
- > Oral Janus Kinase (JAK) inhibitors like baricitinib are recommended for severe AA; its efficacy was shown in the BRAVE-AA2 trial, yet its cost-effectiveness in the U.S. remains under investigation.

OBJECTIVE

> Assess cost-effectiveness of baricitinib and ritlecitinib at a Willingness-to-pay (WTP) threshold of \$200,000 per Quality Adjusted Life Year (QALY)

METHODS

Figure 1. Four-state Markov Model Structure



- Transition probabilities were derived from BRAVE-AA2 and ALLEGRO trials, with adjustments for consistency
- Monthly cycle over a five-year time horizon
- > Death rates extracted from the National Center for Health Statistics life tables
- > Assumption:
- Patients can move between the health states
- Equal transition rates for mild-to-severe and remission-tosevere states across treatments due to limited trial data.

METHODS₂₋₄

Table 1: Model Input Parameters

Monthly Trans

Baricitinib 4mg

Mild to Severe Mild to Remissio

Severe to Mild Severe to Remis

Remission to Sev

Remission to Mi

Ritlecitinib 50mg

Severe to Mild

Severe to Remise

Standard of Care Severe to Mild Severe to Remis



Figure 2: Probabilistic Sensitivity and One-way Sensitivity Analyses







sition Probabilities		Utilities	
		Remission	0.919
	0.0087	Mild	0.853
n	0.0180	Severe	0.554
	0.0480		
sion	0.0320	Costs	
vere	0.0087	Baricitinib 4mg monthly cost	\$3,234
ld	0.1700	Ritlecitinib 50mg monthly cost	\$4,452
5		Monthly cost in Remission state	\$358
	0.1200	Monthly cost in Mild state	\$2,081
sion	0.1100	Monthly cost in Severe state	\$3,082
e (SOC)			
	0.0037	Other parameters	
sion	0.0011	Discount, cost and health outcomes	3%





- doi:10.1007/s11136-024-03645-9

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Table 2: Comparative Results

	Cost	QALYs	ICER
Standard of Care	\$150,579	2.49	-
Baricitinib	\$290,403	3.29	\$175,079
Ritlecitinib	\$346,183	3.52	\$246,313



> For SOC vs. baricitinib, reducing uncertainty has the highest value at \$175,000/QALY (EVPI=\$12,454). For baricitinib vs. ritlecitinib, \$250,000/QALY (EVPI=\$13,157)

> The EVPI curves cross at \$200,000/QALY, indicating that research priorities should shift from SOC vs. baricitinib to baricitinib vs. ritlecitinib as the WTP threshold increases.

CONCLUSION & DISCUSSION

Baricitinib was found to be the most cost-effective option at a \$200,000/QALY, while riltecitinib offered slightly higher QALY gains, but exceeded this threshold. > Additional research is most valuable at \$175,000/QALY for SOC vs. baricitinib and at

> Utility values in severe AA and treatment costs were the most influential factors for

Ritlecitinib's transition probabilities, adjusted using BRAVE-AA2 placebo data, may

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