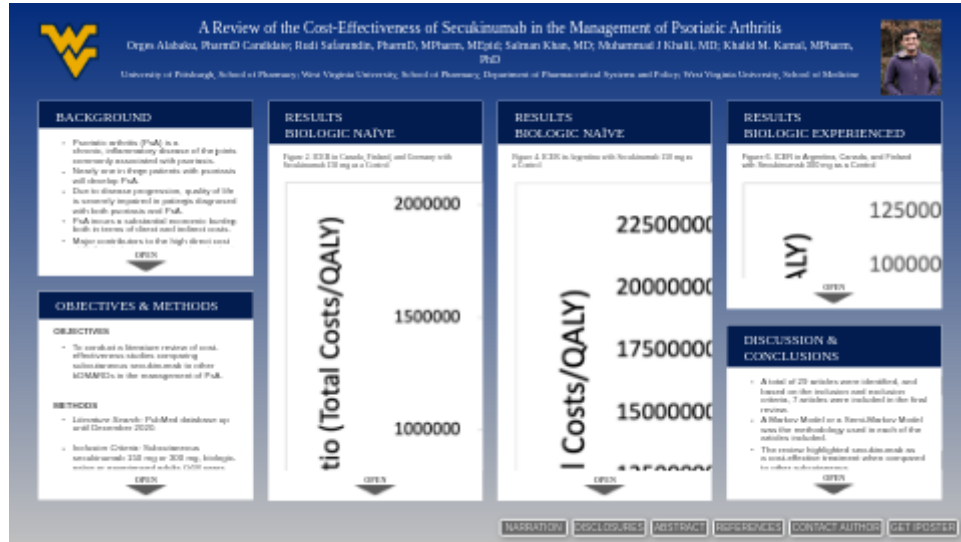


# A Review of the Cost-Effectiveness of Secukinumab in the Management of Psoriatic Arthritis



Orges Alabaku, PharmD Candidate; Rudi Safarudin, PharmD, MPharm, MEpid;  
 Salman Khan, MD; Muhammad J Khalil, MD; Khalid M. Kamal, MPharm, PhD

University of Pittsburgh, School of Pharmacy; West Virginia University, School of Pharmacy, Department of Pharmaceutical Systems and Policy; West Virginia University, School of Medicine



PRESENTED AT:



## BACKGROUND

- Psoriatic arthritis (PsA) is a chronic, inflammatory disease of the joints commonly associated with psoriasis.<sup>1</sup>
- Nearly one in three patients with psoriasis will develop PsA.<sup>2</sup>
- Due to disease progression, quality of life is severely impaired in patients diagnosed with both psoriasis and PsA.<sup>3</sup>
- PsA incurs a substantial economic burden both in terms of direct and indirect costs.<sup>4</sup>
- Major contributors to the high direct cost of PsA include treatments such as biologic disease-modifying antirheumatic drugs (bDMARDs).<sup>5</sup>
- bDMARDs are used as second-line therapy in patients with moderate to severe PsA.<sup>6</sup>
- Recent cost-effective analyses have shown that secukinumab is the most cost-effective in comparison to older bDMARDs in PsA.

## OBJECTIVES & METHODS

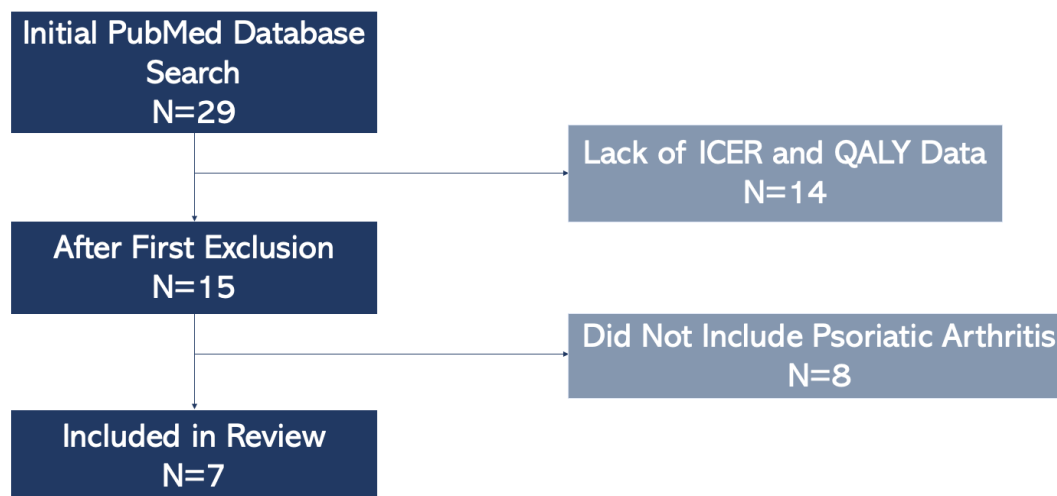
### OBJECTIVES

- To conduct a literature review of cost-effectiveness studies comparing subcutaneous secukinumab to other bDMARDs in the management of PsA.

### METHODS

- *Literature Search:* PubMed database up until December 2020.
- *Inclusion Criteria:* Subcutaneous secukinumab 150 mg or 300 mg, biologic-naïve or experienced adults ( $\geq 18$  years old), active PsA, and outcomes reported after at least 12-weeks follow up.

Figure 1. Study Inclusion Diagram



- *Data Extraction:* A standardized table was created: study title, author name, country, publication year, study design, population, intervention and comparators, clinical and study parameters, outcomes, discount rate, and decision model type.
- *Sensitivity Analysis:* Uncertain parameter estimates and different assumptions were noted with their detailed impact on the study conclusions.

# RESULTS

## BIOLOGIC NAÏVE

Figure 2. ICER in Canada, Finland, and Germany with Secukinumab 150 mg as a Control

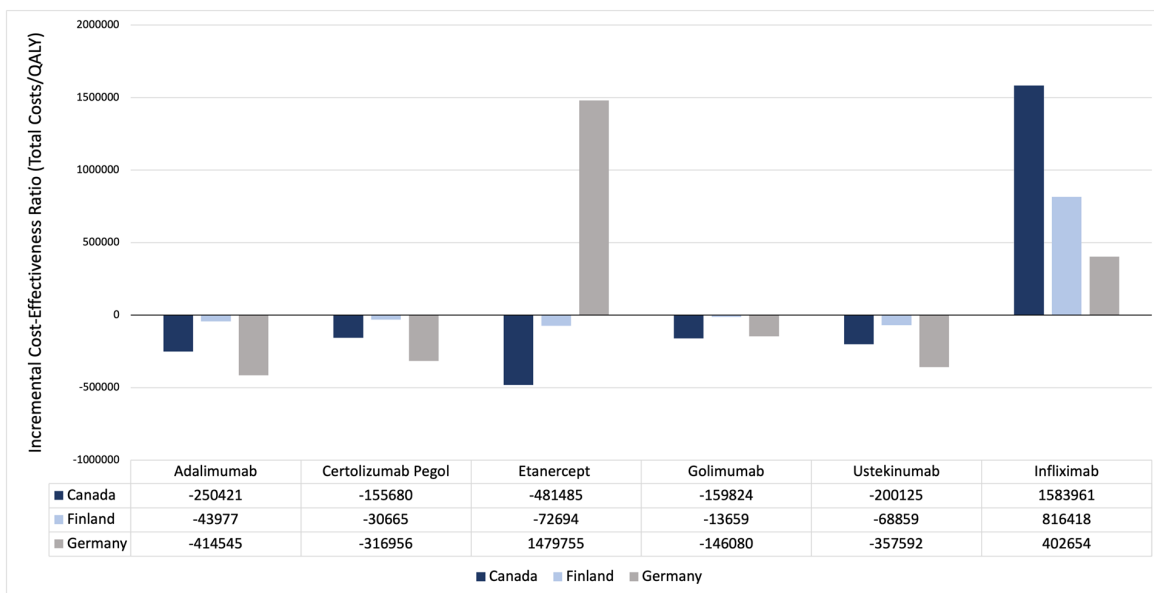


Table 1. ICER in Canada, Finland, and Germany with Secukinumab 150 mg as a Control

Country	Treatment	Total Costs	QALYs	ICER
<b>Canada</b>				
	Secukinumab 150 mg	\$736,000.07	8.54	
	Adalimumab	\$778,571.60	8.37	Secukinumab dominates adalimumab
	Certolizumab pegol	\$779,590.44	8.26	Secukinumab dominates certolizumab pegol
	Etanercept	\$784,148.55	8.44	Secukinumab dominates etanercept
	Golimumab	\$780,750.84	8.26	Secukinumab dominates golimumab
	Ustekinumab	\$784,030.04	8.3	Secukinumab dominates ustekinumab
	Infliximab	\$807,620.71	8.58	\$1,583,960.58/QALY
<b>Finland</b>				
	Secukinumab 150 mg	\$225,305.10	8.01	
	Adalimumab	\$249,052.75	7.47	Secukinumab dominates adalimumab
	Certolizumab pegol	\$245,850.32	7.34	Secukinumab dominates certolizumab pegol
	Etanercept	\$250,021.04	7.67	Secukinumab dominates etanercept
	Golimumab	\$237,051.74	7.15	Secukinumab dominates golimumab
	Ustekinumab	\$257,668.95	7.54	Secukinumab dominates ustekinumab
	Infliximab	\$276,747.94	8.07	\$816,417.82/QALY
<b>Germany</b>				
	Secukinumab 150 mg	\$390,759.51	8.67	
	Certolizumab pegol	\$441,472.40	8.51	Secukinumab dominates certolizumab pegol
	Adalimumab	\$444,650.31	8.54	Secukinumab dominates adalimumab
	Ustekinumab	\$447,974.23	8.51	Secukinumab dominates ustekinumab
	Golimumab	\$436,044.17	8.36	Secukinumab dominates golimumab
	Etanercept	\$450,949.70	8.71	\$1,479,755/QALY
	Infliximab	\$467,263.80	8.86	\$402,654/QALY

Figure 3. ICER in the United Kingdom with Secukinumab 300 mg as a Control

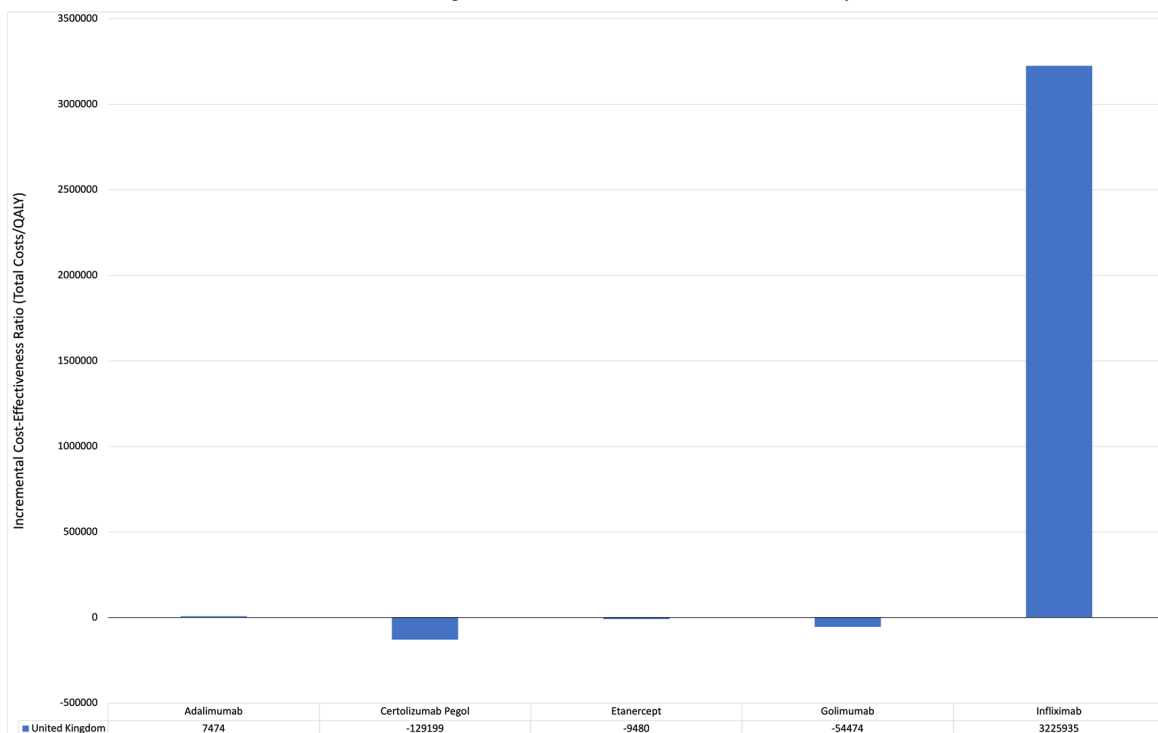


Table 2. ICER in the United Kingdom with Secukinumab 300 mg as a Control

Country	Treatment	Total Costs	QALYs	ICER
<b>United Kingdom</b>				
	Secukinumab 300 mg	\$125,729.65	7.998	
	Adalimumab	\$122,867.03	7.615	\$7,474.20/QALY
	Certolizumab pegol	\$136,711.56	7.913	Secukinumab dominates certolizumab pegol
	Etanercept	\$135,210.04	7.984	Secukinumab dominates etanercept
	Golimumab	\$141,472.69	7.709	Secukinumab dominates golimumab
	Infliximab	\$174,118.67	8.013	\$3,225,934.67/QALY

# RESULTS

## BIOLOGIC NAÏVE

Figure 4. ICER in Argentina with Secukinumab 150 mg as a Control

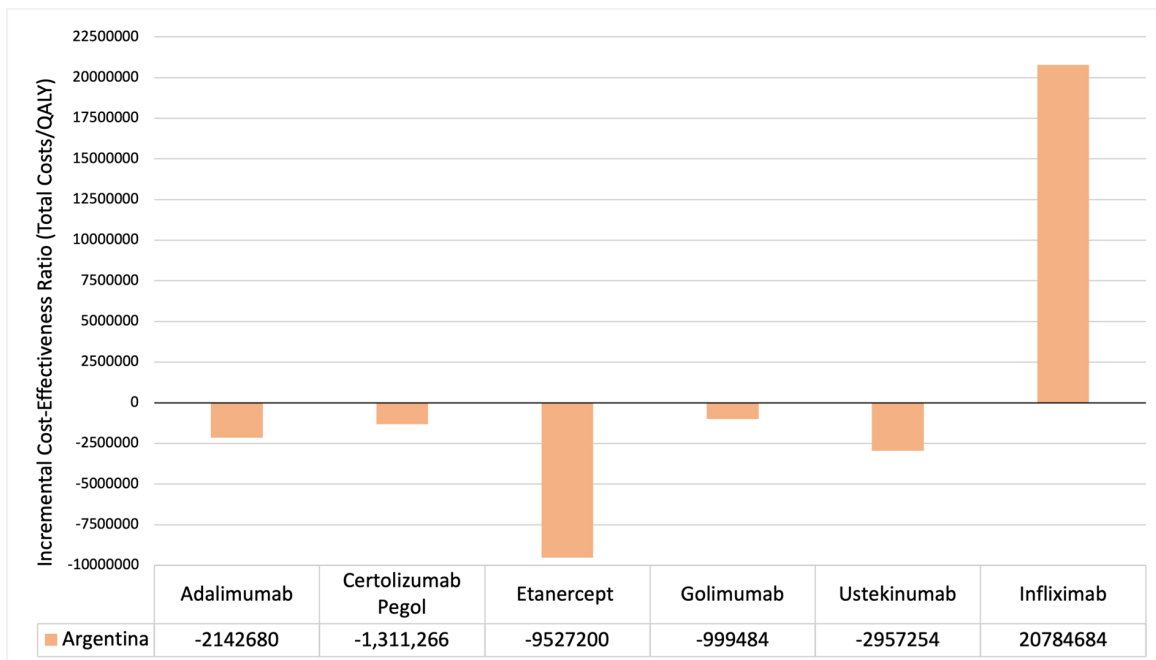


Table 3. ICER in Argentina with Secukinumab 150 mg as a Control

Country	Treatment	Total Costs	QALYs	ICER
Argentina	Secukinumab 150 mg	\$3,755,678	7.18	
	Adalimumab	\$4,291,348	6.93	Secukinumab dominates adalimumab
	Certolizumab pegol	\$4,214,621	6.83	Secukinumab dominates certolizumab pegol
	Etanercept	\$4,422,582	7.11	Secukinumab dominates etanercept
	Golimumab	\$4,185,456	6.75	Secukinumab dominates golimumab
	Ustekinumab	\$4,524,564	6.92	Secukinumab dominates ustekinumab
	Infliximab	\$6,543,069	7.31	\$20,784,684/QALY

Figure 5. ICER in the United Kingdom and Spain with Secukinumab 300 mg as a Control Versus Ixekizumab

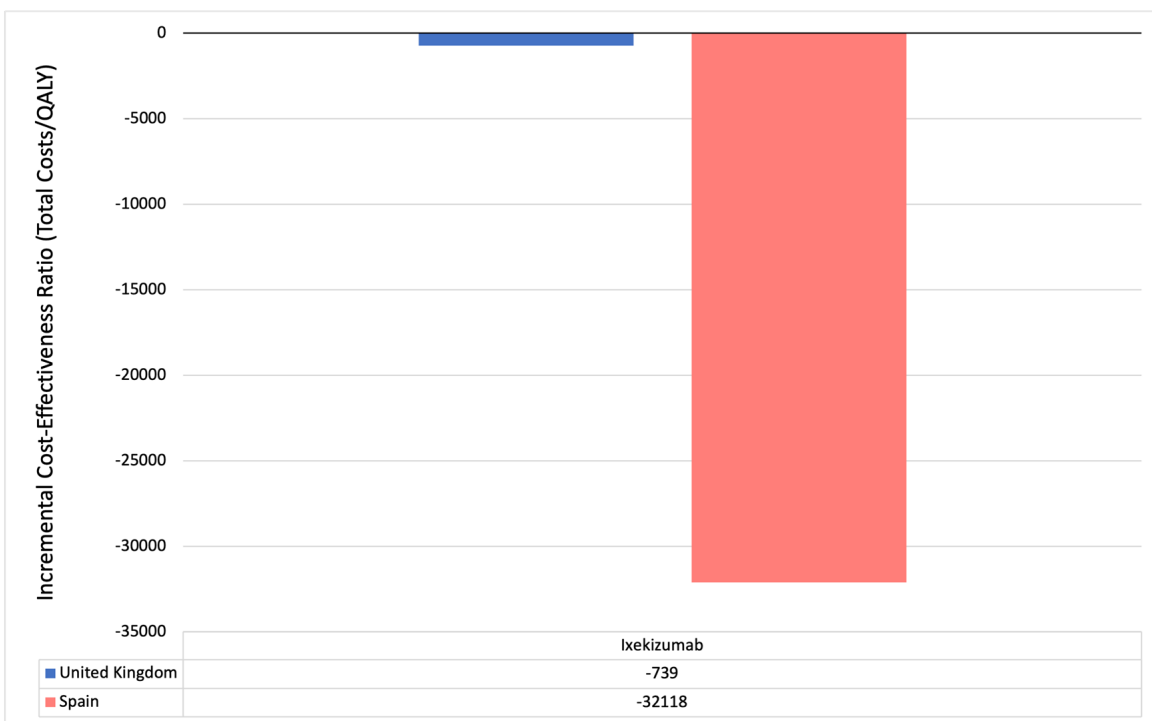


Table 4. ICER in the United Kingdom and Spain with Secukinumab 300 mg as a Control Versus Ixekizumab

Country	Treatment	Total Costs	QALYs	ICER
<b>United Kingdom</b>				
	Secukinumab 300 mg	\$212,472	7.989	
	Ixekizumab	\$212,370	8.127	Ixekizumab dominates secukinumab
<b>Spain</b>				
	Secukinumab 300 mg	\$175,909	9.082	
	Ixekizumab	\$172,922	9.175	Ixekizumab dominates secukinumab

# RESULTS

## BIOLOGIC EXPERIENCED

Figure 6. ICER in Argentina, Canada, and Finland with Secukinumab 300 mg as a Control

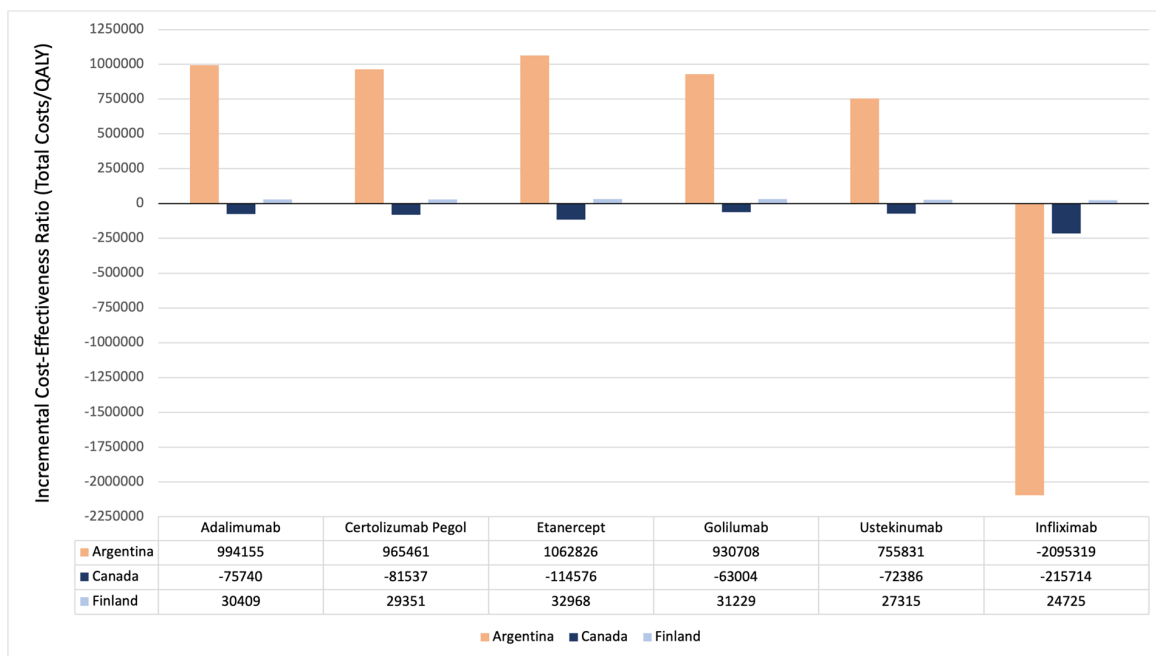


Table 5. ICER in Argentina, Canada, and Finland with Secukinumab 300 mg as a Control

Country	Treatment	Total Costs	QALYs	ICER
<b>Argentina</b>				
	Secukinumab 300 mg	\$5,276,941	7.53	
	Adalimumab	\$4,401,093	6.65	\$994,155/QALY
	Certolizumab pegol	\$4,374,946	6.6	\$965,461/QALY
	Etanercept	\$4,596,230	6.89	\$1,062,826/QALY
	Golimumab	\$4,294,288	6.48	\$930,708/QALY
	Ustekinumab	\$4,622,624	6.67	\$755,831/QALY
	Infiximab	\$6,366,507	7.01	Secukinumab dominates infiximab
<b>Canada</b>				
	Secukinumab 300 mg	\$759,307.60	8.89	
	Adalimumab	\$797,935.02	8.38	Secukinumab dominates adalimumab
	Certolizumab pegol	\$800,891.31	8.36	Secukinumab dominates certolizumab pegol
	Etanercept	\$806,283.74	8.48	Secukinumab dominates etanercept
	Golimumab	\$797,110.25	8.29	Secukinumab dominates golimumab
	Ustekinumab	\$799,120.08	8.34	Secukinumab dominates ustekinumab
	Infiximab	\$830,493.18	8.56	Secukinumab dominates infiximab
<b>Finland</b>				
	Secukinumab 150 mg	\$225,305.10	8.01	
	Adalimumab	\$249,052.75	7.47	Secukinumab dominates adalimumab
	Certolizumab pegol	\$245,850.32	7.34	Secukinumab dominates certolizumab pegol
	Etanercept	\$250,021.04	7.67	Secukinumab dominates etanercept
	Golimumab	\$237,051.74	7.15	Secukinumab dominates golimumab
	Ustekinumab	\$257,668.95	7.54	Secukinumab dominates ustekinumab
	Infiximab	\$276,747.94	8.07	\$816,417.82/QALY



## DISCUSSION & CONCLUSIONS

- A total of 29 articles were identified, and based on the inclusion and exclusion criteria, 7 articles were included in the final review.
- A Markov Model or a Semi-Markov Model was the methodology used in each of the articles included.
- The review highlighted secukinumab as a cost-effective treatment when compared to other subcutaneous and intravenous biologics except for ixekizumab.
- Argentina had the largest ICER when comparing infliximab to secukinumab 150 mg in biologic naïve patients. This is due to a high total cost associated with infliximab therapy with only a small increase in QALY.
- Similarly, secukinumab 150 mg in biologic naïve patients was cost-effective when compared to infliximab in Canada and Finland. However, when comparing secukinumab 300 mg in biologic experienced patients to infliximab in Argentina, Canada, and Finland, secukinumab dominates infliximab.
- Factors that were found to influence the cost-effectiveness of secukinumab included costs associated with drug acquisition, administration, adverse events, and monitoring; and patient factors such as PSA severity.
- Due to differences in these factors between countries, direct country comparisons on cost-effectiveness can be difficult

## DISCLOSURES

The presenting author and all co-authors do not have any disclosures relevant to this review.

# ABSTRACT

## Objective:

To conduct a literature review of cost-effectiveness studies comparing subcutaneous secukinumab to other biologics in the management of psoriatic arthritis (PsA).

## Methods:

A literature search was conducted in PubMed up until December 2020. The key search terms included psoriatic arthritis, cost-effectiveness analysis, and secukinumab. The inclusion criteria were subcutaneous secukinumab 150 mg or 300 mg, biologic-naïve or experienced adults ( $\geq 18$  years old), active PsA, and outcomes reported after at least 12-weeks follow-up. Data on decision model, perspective, comparators, time horizon, costs, outcomes, price year, sensitivity analysis, and results were extracted from the reviewed studies.

## Results:

Out of 29 studies identified, seven cost-effectiveness studies met the inclusion criteria and were included in the review. Studies conducted in Argentina, Canada, Finland, and Germany in biologic-naïve patients against comparators such as adalimumab, certolizumab pegol, entanercept, golimumab, ustekinumab, and apremilast showed that secukinumab 150 mg produced more QALYs at a lower cost. When compared to infliximab, secukinumab produced marginally less QALYs but was more cost-effective with an ICER ranging from \$816,417.82/QALY to \$20,784,684/QALY. Studies from Argentina, Canada, and Finland showed that secukinumab 300 mg in biologic-experienced patients produced greater QALYs. Interestingly, in a study from the United Kingdom, secukinumab 300 mg was more cost-effective than all biologics except for ixekizumab, which produced more QALYs at a lower cost for both biologic-naïve and experienced patients. In Spain, ixekizumab was more cost-effective than secukinumab in biologic-naïve patients. For biologic-naïve and experienced patients, total costs and QALYs for secukinumab ranged from \$191,617 to \$212,472 and 3.875-7.989, respectively.

## Conclusion:

Based on the 7 international studies, secukinumab was more cost-effective than all other subcutaneous, intravenous, and oral biologics except ixekizumab. Factors that were found to influence cost-effectiveness of secukinumab included costs associated with drug acquisition, administration, adverse events, and monitoring; and patient factors such as PsA severity.

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