Cost per responder analysis of guselkumab versus secukinumab in the treatment of moderate to severe plaque psoriasis based on the ECLIPSE trial

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INTRODUCTION

- Several biologic therapies are recommended by the National Institute for Health and Care Excellence (NICE) for the treatment of moderate to severe plaque psoriasis, including tumor necrosis factor alpha inhibitors, an interleukin (IL)-12/23 inhibitor, IL-17 inhibitors, and IL-23 inhibitors.[1]
- Network meta-analyses suggest IL-23 and IL-17 inhibitors are the most efficacious biologic therapies.[2]
- In ECLIPSE, the first head-to-head Phase 3 trial to compare an IL-23 inhibitor (guselkumab) and an IL-17 inhibitor (secukinumab), guselkumab was shown to have superior long-term efficacy compared with secukinumab.[3]
- Considering the chronic nature of moderate to severe psoriasis, it is important to determine the long-term economic value of these biologic therapies.

OBJECTIVE

- To estimate the cost per responder in the United Kingdom (UK) of guselkumab and secukinumab, leveraging treatment cost data and head-to-head efficacy results from ECLIPSE.

METHODS

- A cost per responder model was developed to compare the cost of guselkumab per treatment response versus the cost of secukinumab per treatment response.
- Efficacy data from the ECLIPSE trial were used to inform treatment response in the model (**Table 1** and **Figure 1**).[3]
- Treatment response definitions included: achievement of 90% improvement in baseline Psoriasis Area and Severity Index (PASI) score (i.e., PASI 90 response), PASI 100 response, or an Investigator's Global Assessment (IGA) score of 0/1 (cleared/minimal).
- The model only considers drug costs, which were based on 2019 UK list prices as published in the British National Formulary (**Table 1**).[4]
- Dosing regimens were based on the European Medicines Agency Summary of Product Characteristics for guselkumab and secukinumab (**Table 1** and **Figure 2**).[5,6]
- The primary analyses were conducted for PASI 90 at Week 48, the primary endpoint of the ECLIPSE trial, and every four weeks from Week 12 to Week 48. The earliest timepoint assessed was Week 12 since this is the timepoint at which NICE recommends stopping secukinumab treatment in patients who have not responded adequately.[7]
- Additional analyses were conducted for PASI 100 and IGA 0/1 at Week 48.

Table 1: Cost per responder model inputs

	Dosing Regimen[5,6]	Formulation	Formulation Cost[4]	Drug Cost at Week 48	Efficacy at Week 48[3]		
					PASI 90	PASI 100	IGA 0/1
Guselkumab	100 mg SC at Weeks 0, 4, and 12, then Q8W	100 mg	£2,250.00	£15,750	84.5%	58.2%	85.0%
Secukinumab	300 mg SC at Weeks 0, 1, 2, 3, and 4, then monthly	300 mg	£1,218.78	£17,063	70.0%	48.4%	74.9%

Figure 1: PASI 90 response rates for guselkumab and secukinumab over time in the ECLIPSE trial

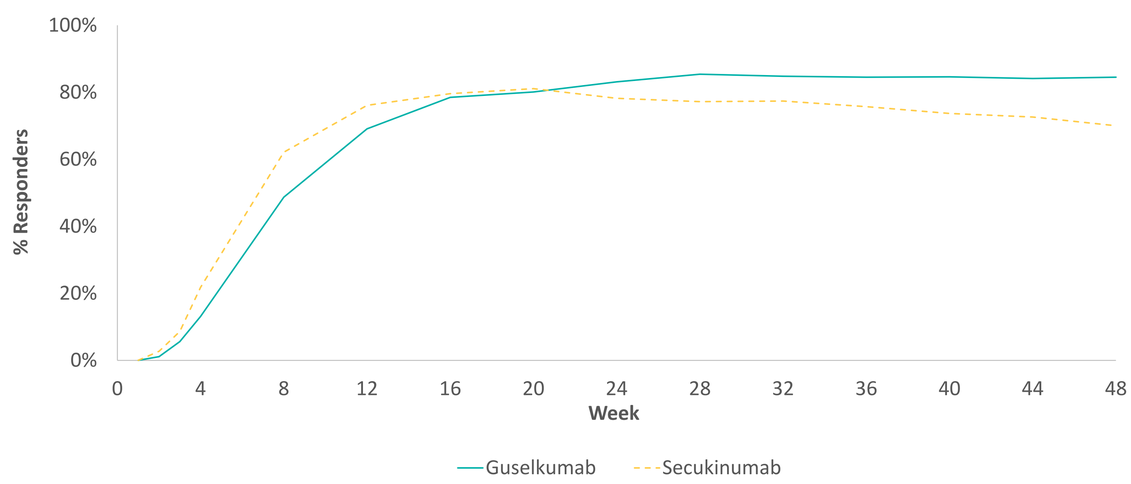
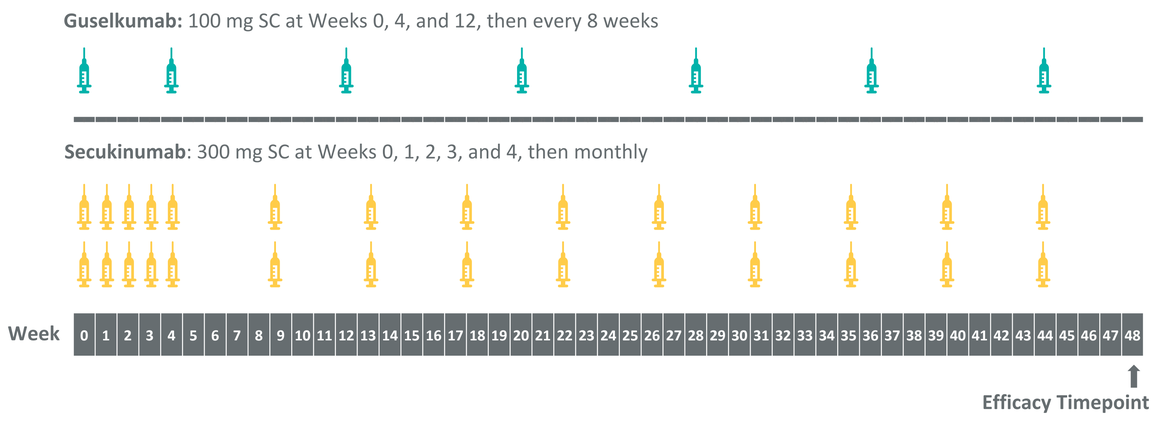


Figure 2: Treatment dosing regimens used in the model



RESULTS

- At week 48, guselkumab had a lower cost per PASI 90 responder than secukinumab (**Figure 3**), a result of:
  - Lower overall drugs costs for guselkumab (**Table 1**).
  - A significantly greater proportion of patients treated with guselkumab achieving a PASI 90 response (84.5% vs. 70.0%, $P < 0.001$; **Table 1** and **Figure 1**).
- Additionally, at all timepoints assessed from Week 12 to 48, guselkumab had a lower cost per PASI 90 responder than secukinumab (**Figure 4**).
- Guselkumab had higher PASI 100 and IGA 0/1 response rates at Week 48 compared with secukinumab (**Table 1**), leading to lower costs per PASI 100 and IGA 0/1 responders at Week 48 (**Figure 5**). Guselkumab also had lower costs per PASI 100 and IGA 0/1 responders at all timepoints assessed from Week 12 to 48 (data not shown).

Figure 3: Cost per PASI 90 responder at Week 48

Figure 4: Cost per PASI 90 responder over time

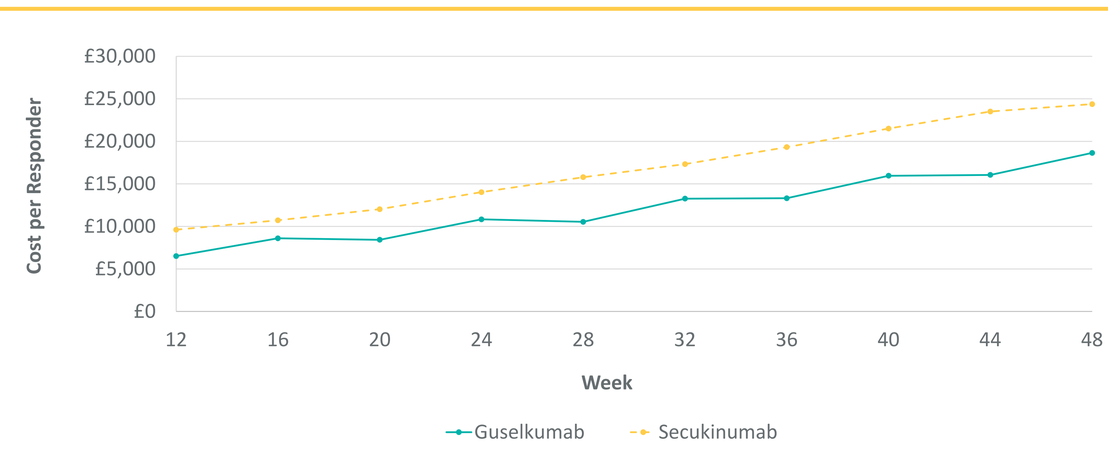
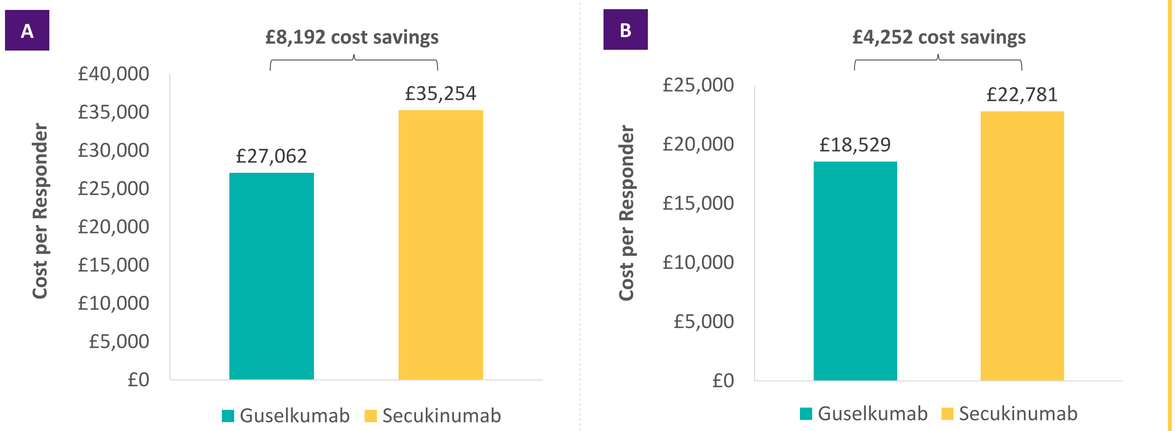


Figure 5: Costs per PASI 100 (A) and IGA 0/1 (B) responders at Week 48



CONCLUSIONS

- Based on data from the ECLIPSE trial, guselkumab had a lower cost per PASI 90 responder than secukinumab at all timepoints assessed from Week 12 to Week 48.
- Guselkumab also had lower costs per PASI 100 and IGA 0/1 responders at Week 48.
- Over 48 weeks of treatment, the cost savings associated with using guselkumab instead of secukinumab could range from £4,252 to £8,192 per responder, depending on the efficacy measure used.
- These results suggest that guselkumab offers greater economic value than secukinumab through approximately one year of treatment, which is a more important time frame to consider than the induction period (12-16 weeks), given the chronic nature of psoriasis.

REFERENCES

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