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Utilising Real-World Evidence from a Large Tertiary Hospital to Tailor Budget Impact Projections for nAMD Therapies

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BACKGROUND

- Neovascular age-related macular degeneration (nAMD) is a significant and growing burden; in the UK NHS, clinical capacity is a critical bottleneck, leading to treatment delays and suboptimal outcomes.
- Local payer evaluations often use rigid 1- to 2-year horizons focused on immediate drug acquisition cost, disincentivising therapies with a higher initial cost but substantial long-term savings.
- This study uses real-world evidence (RWE) to assess the real impact of sustainable pathways.

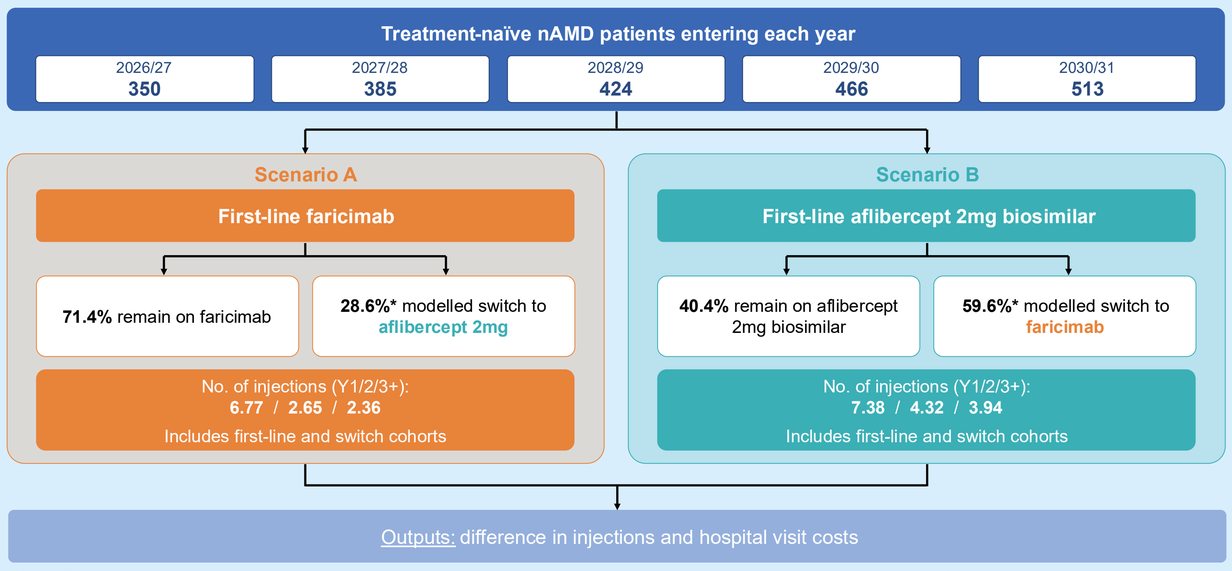
OBJECTIVE

- Evaluate the 5-year budget impact of initiating treatment-naïve nAMD patients on first-line faricimab vs aflibercept 2mg biosimilar.
- Quantify clinical capacity implications (injections and visits avoided) using RWE from a large tertiary UK NHS hospital that is reflective of general clinical practice.
- Contextualise financial projections within NHS sustainability and operational capacity relief.

METHODS

- Retrospective longitudinal cohort study using a RWE database from a large tertiary UK hospital was integrated into a Budget Impact Model (BIM) with a 5-year horizon (data extracted Jan 2022 to June 2025). Intravitreal therapy status (switch or remains on treatment) was evaluated at 6-, 12-, 18-, and 24-month milestones after initiating therapy.
- Given real-world attendance variability, unconfirmed milestone status (used to impute switching rates for pricing) was normalised via a multi-step procedure based on preceding timepoints, whereas injection numbers reflect actual injection counts.
- 350 treatment-naïve patients in Year 1, growing 10% per year[1], with an annual discontinuation of 6.5-8%[1].

Figure 1. Treatment pathways



*Modelled switch rates represent an extrapolation based only on observed switchers versus completers; patients lost to follow-up were excluded to re-base the denominator. This conservative adjustment is used strictly to model pricing and drug costs. It does not impact the projected number of injections, which are based purely on observed real-world clinical counts.

Box 1: Modelling assumptions

- RWE injection frequencies come from the pre-biosimilar era and therefore reflect aflibercept 2mg. Aflibercept 2mg biosimilar is assumed to have the same injection profile.
- 25% re-loading (3 loading doses) upon switching.
- Drug costs at list price[2] to ensure public referenceability.
- From a pricing perspective, aflibercept 2mg is modelled at the biosimilar list price, testing whether faricimab's injection savings outweigh a cheaper comparator.
- Each visit includes a full associated-activity package: OCT + IVT injection + outpatient visit

Table 1. Unit costs

Input	Cost (£)
Faricimab drug per dose[2]	857.00
Aflibercept 2mg biosimilar drug per dose[2]	295.65
Optical coherence tomography (OCT)[3]	118.00
IVT injection[3]	156.00
Outpatient visit (in-person appointment)[3]	73.00

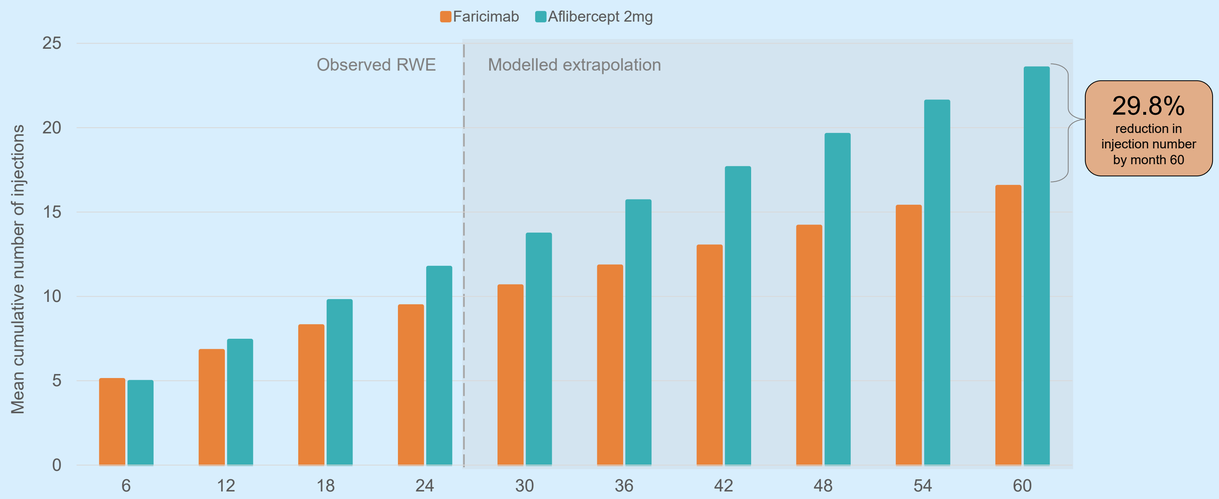
RESULTS

Table 2. Observed RWE injections per patient per 6-month period

Months	Faricimab		Aflibercept 2mg	
	Mean (SD)	N	Mean (SD)	N
0-6	5.05 (0.94)	355	4.93 (1.04)	243
>6-12	1.72 (1.03)	355	2.45 (1.40)	242.
>12-18	1.47 (1.99)	222	2.35 (2.18)	191
>18-24	1.18 (2.68)	120	1.97 (2.24)	147

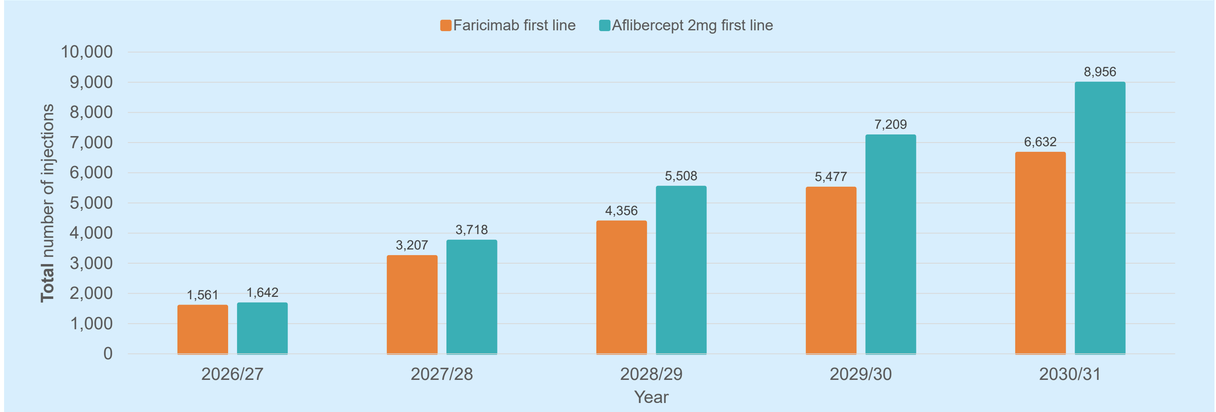
Months 0-24 observed RWE; months >24-60 extrapolated by holding the >18-24-month rate constant.

Figure 2. Mean cumulative injections per patient



Over 60 months, faricimab saves on average 7 injections per patient, thereby relieving capacity.

Figure 3. Total annual number of injections



Faricimab avoids 5,800 injections, with the gap widening yearly (-81 in Year 1 to -2,324 in Year 5).

Figure 4. Overall budget impact (drug cost + hospital visit cost)



Operational offset neutralises the cost difference by Year 3 (-£0.1M), with Years 1-2 drug cost investment fully recovered by Year 5 (net: -£0.6M)

Table 3. 5-year outputs comparison

Output	Faricimab	Aflibercept 2mg	Difference
Injections	21,233	27,033	**-5,800**
Drug cost	£14,9M	£13,5M	**£1,4M**
Hospital visit cost	£7,4M	£9,4M	**-£2,0M**
Overall budget impact	*£22,3M*	*£22,9M*	***-£0.6M***

Box 2: Uncosted benefits

- Prevention of irreversible vision loss associated with treatment delays, thereby reducing long-term societal and social care burdens.
- Wait list mitigation, allowing timely treatment of incident patients.
- Reduced nursing and physician overtime.

Note: Data presented reflects a refined model analysis and updated assumptions completed post-abstract submission.

CONCLUSIONS

- Commissioners should evaluate treatments across the complete patient pathway to ensure long-term financial and operational sustainability.
- The Year 1-2 investment of faricimab adoption in first-line is recovered through 5,800 avoided injections, releasing capacity and reducing waiting-list pressure.
- First-line faricimab delivers a £0.6M net saving to the NHS over 5 years for treatment-naïve patients when the full treatment pathway is considered.

DISCLOSURES

This project was sponsored by Roche Products Ltd.
The authors acknowledge Simon Wan Yau Ming for his valuable support and contributions to this analysis.
Note: Data presented reflects a refined model analysis and updated assumptions completed post-abstract submission.

REFERENCES

1. National Institute for Health and Care Excellence (2022). TA800 Committee papers.
2. Joint Formulary Committee. British National Formulary (BNF).
3. NHS England (2025). 25-26 NHSPS amendment consultation annex (OCT, IVT Injection, Outpatient visit).