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Cost-Utility Analysis of Anti-Vascular Endothelial Growth Factor (Anti-VEGF) Treatments for Neovascular Age-Related Macular Degeneration (nAMD)

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Abstract

Background: Neovascular age-related macular degeneration (nAMD) has a rising clinical and economic burden for health services due to lifelong intravitreal anti-vascular endothelial growth factor injections. It is unknown if recently introduced agents, aflibercept 8mg and faricimab, are more cost-effective than the current standard of care, aflibercept 2mg. The impact of recently introduced biosimilar aflibercept 2mg is also uncertain. Methods: A cost-utility analysis from the NHS perspective compared aflibercept 8mg, faricimab, and aflibercept 2mg in (1) treatment naïve patients and (2) early suboptimal responders to aflibercept 2mg. Markov modelling simulated lifetime disease progression using literature derived inputs. Outcomes were lifetime costs (GBP) and quality-adjusted life years (QALYs). Deterministic, probabilistic, scenario and threshold analyses explored uncertainty. Results: In treatment naïve patients, aflibercept 8mg gained 0.018 QALYs and saved £4,338 versus faricimab, while faricimab gained 0.031 QALYs and saved £6,750 versus aflibercept 2mg. Incremental differences were greater in suboptimal responders. In both cohorts, aflibercept 8mg was cost-effective in 100% of probabilistic sensitivity analysis simulations at a cost-effectiveness threshold of £20,000/QALY. When repeated using a maximal likely 70% biosimilar discount for aflibercept 2mg, discounted biosimilar aflibercept 2mg was the most cost-effective strategy in 96% of simulations in treatment-naïve patients at a cost-effectiveness threshold of £20,000/QALY. Conclusions: Aflibercept 8mg was more cost-effective than faricimab and originator aflibercept 2mg. However, a 70% discounted biosimilar aflibercept 2mg could become the most cost-effective option. As key inputs came from separate trials and evidence for suboptimal responders is lacking, head-to-head trials and real-world studies are recommended.

Introduction

Age-related macular degeneration (AMD) is a leading cause of severe, irreversible visual impairment in adults over 50 in high-income countries.[1,2] AMD can progress from asymptomatic early stages to neovascular AMD (nAMD). nAMD involves abnormal retinal blood vessels that leak and scar the retina, causing severe vision loss. [3] In the UK, AMD affects over 700,000 people, with prevalence increasing with age.[4] Although nAMD represents only 10% of AMD cases,[5] it accounts for the majority of severe vision loss and registered blindness attributable to the disease.[6]

Intravitreal anti-vascular endothelial growth factor (anti-VEGF) therapy is the current nAMD standard of care.[7] Anti-VEGF agents inhibit pathological angiogenesis and vascular permeability, helping to stabilise or improve visual acuity.[8] Treatment involves an initial loading phase followed by a treat-and-extend (T&E) regimen where injection intervals are adjusted according to disease activity.[9] Anti-VEGF therapies have substantially improved outcomes but treatment requires long-term repeated intravitreal injections. Injections may cause discomfort and anxiety, while frequent visits disrupt patients' and carers' lives.[10,11,12] Difficulties adhering to nAMD injection clinic appointments may reduce effectiveness.[13] The injections carry a risk of complications, including sight-threatening endophthalmitis.[14] The need for regular injections in specialist ophthalmology services also burdens healthcare resources.[15] Strategies that safely reduce injection frequency could therefore benefit both patients and services.

Aflibercept 2mg has been used first-line for nAMD since 2013.[16] Two newer agents may allow longer dosing intervals. These include faricimab, a bispecific antibody targeting both VEGF and angiopoietin-2,[17] and high-dose aflibercept (8mg), which has been developed to extend treatment intervals compared with the standard 2mg formulation.[18] In addition, biosimilar versions of aflibercept 2mg have recently entered clinical practice and will reduce drug acquisition costs.[19]

Although newer agents may reduce the frequency of injections and clinic visits, they may have higher acquisition costs. nAMD therefore represents a growing clinical and economic challenge for health services and determining whether newer anti-VEGF therapies provide value for money is important for healthcare decision making. Economic evidence directly comparing these treatments remains limited. Existing clinical trials have relatively short follow-up periods and do not provide direct comparisons between faricimab and aflibercept 8mg, limiting their ability to inform long-term resource allocation decisions.

Decision analytic modelling can address these evidence gaps by synthesising data from multiple sources, including clinical trials and real-world evidence, to estimate long-term costs and health outcomes. The aim of this study was therefore to evaluate the cost-effectiveness of faricimab and aflibercept 8mg compared with aflibercept 2mg (including biosimilars) for the treatment of nAMD from the perspective of the NHS in England.

Methods

Study design

We conducted a cost–utility analysis in accordance with NICE methods guidance,[20] adopting an English NHS and Personal Social Services perspective. Outcomes were quality-adjusted life years (QALYs) and costs (GBP, 2022/23 prices). A lifetime horizon was used and costs and QALYs were discounted at 3.5% per annum.

Cost-effectiveness was estimated by dividing incremental costs by incremental benefits to calculate an incremental cost-effectiveness ratio (ICER) if one treatment was more effective but more costly.[21] When strategies were more effective and less costly, net monetary benefit (NMB) was calculated using a cost-effectiveness threshold (CET) of £20,000/QALY, consistent with NICE's CET of £20,000–£30,000.[22] The base-case analysis used aflibercept 2mg originator pricing and explored biosimilar costs in sensitivity analyses.

Model interrogation and cross-validation against published nAMD models assessed plausibility. Ethics approval was not required as all inputs were from secondary, publicly available sources.

Model overview and structure

A decision-analytic model was developed in Microsoft Excel. Given uncertainty regarding the optimal use of newer anti-VEGF therapies in nAMD, two decision problems were evaluated: (1) the cost-effectiveness of aflibercept 8mg and faricimab 6mg compared with aflibercept 2mg as first-line treatment for nAMD; and (2) among patients with an early suboptimal response to aflibercept 2mg, the cost-effectiveness of continuing aflibercept 2mg versus switching to aflibercept 8mg or faricimab 6 mg. Initial treatment choice and early response were modelled using decision trees, with long-term outcomes simulated using a Markov model reflecting progressive visual acuity decline in AMD. Model structure was based on published models and AMD progression[23] and was clinically validated. A single treated eye was modelled, with VA, utilities, and costs attributed to that eye alone, as per previous analyses.

Regimens followed Royal College of Ophthalmologists (RCO) guidance. All therapies were modelled with loading doses followed by T&E. Biosimilars were assumed clinically equivalent to originator aflibercept but differed in cost. Suboptimal response was defined four weeks after three aflibercept 2mg loading doses as persistent disease activity on retinal imaging or ≤ 5-letter gain on the Early Treatment Diabetic Retinopathy Study (ETDRS) letter score as per RCO guidance. [24]

The Markov model (Fig. 1) included three primary health states (on treatment, off treatment, death). Patients on or off treatment transitioned across five VA states based on ETDRS letter scores. Transitions were bidirectional on treatment and unidirectional (stable or declining) off treatment, with maximum two-state movement per cycle. Cohorts of 10,000 patients per comparator were simulated in 4-weekly cycles from age 80 over a 20-year (260-cycle) lifetime horizon.

Model inputs

Inputs were identified through targeted literature searches, prioritising randomised controlled trials, systematic reviews and high-quality observational studies. See appendix A for detailed methodology and parameters.

Population

Baseline characteristics was based on the 2022–23 NHS AMD national audit (age 80, 59.9% female).[25] The suboptimal responder cohort reflected week-12 post-loading status, with VA distribution adjusted accordingly base on VIEW-1/2 phase 3 trial data (Appendix A, Table 1).[26]

Table 1
VA transition categories by letter change

Model transition	Description
VA worsens/improves by 2 states	Loss/gain of ≥ 22.5 letters
VA worsens/improves by 1 state	Loss/gain of 7.5–22.5 letters
VA state unchanged	Change of <7.5 letters

Treatment effect

Health state transitions were defined by letter score changes (Table 1). Definitions reflect the structure of VA states (defined in 15 letter ETDRS bands) and the assumption that on average VA lies at the midpoint. For example, for the state 41–55 (midpoint 48), to increase to the next state (56–70), VA must increase by minimum 7.5 and maximum 22.5. As in previous studies and NICE models, VA changes were assumed to be normally distributed.[23] Therefore, literature reported mean VA change and SD estimated the probability of a given letter change (e.g. 7.5–22.5 letters) using the cumulative distribution function.

Trials do not report mean VA change stratified by initial VA. Therefore, odds ratios (Appendix A, Table 3) representing the relative likelihood of treatment response across VA groups were taken from NICE's AMD economic evidence. These were used to adjust first-year transition probabilities based on the VA being transitioned from, consistent with previous models and supporting evidence.[23,27,28]

VA change was modelled across four phases to reflect typical treatment response in trials.[18,29,30]

1. Initial 12 week loading period: rapid improvement.
2. Weeks 12–52: gains plateau.
3. Weeks 52–104: gradual decline.
4. Weeks 104+: continued decline.

In keeping with previous models and the evidence, VA could improve by a maximum of one health state during weeks 52–104, and not at all beyond week 104.[23] Appendix A Table 4 lists transition probabilities modelling treatment effect.

Two-year treatment effect for first-line comparators was taken from phase 3 RCTs: PULSAR (aflibercept 8mg)[18] and TENAYA/LUCERNE (faricimab).[29] As these trials used fixed 8-weekly aflibercept 2mg dosing, aflibercept 2mg data were taken from the ARIES T&E arm to reflect UK practice.[30] With faricimab and aflibercept 8mg only recently licensed, no long-term real-world data exist. For aflibercept 2mg, a UK observational study reported VA loss of -2.3 letters/year

in years 2-5.[31] In line with previous evaluations,[23] this was applied beyond year 2. The same long-term decline was assumed for all therapies, reflecting similar trial year 2 outcomes and typical anti-VEGF long-term treatment patterns.[32]

No trials have evaluated early treatment switching in suboptimal responders. Available real-world switching studies involved patients with long prior treatment histories,[33–39] making them unsuitable for this cohort. Without direct evidence, outcomes for early suboptimal responders switched to faricimab or aflibercept 8mg were assumed to match phase 3 trial outcomes. To reflect suboptimal response to aflibercept 2mg (which shares mechanisms of action with both aflibercept 8mg and faricimab), more frequent dosing was assumed to achieve equivalent outcomes. Patients continuing aflibercept 2mg were similarly assumed to achieve trial-equivalent outcomes at increased frequency, consistent with T&E principles[40] and real-world evidence.[41]

Injection frequency, adverse events (AEs) and discontinuation

Injection counts were derived from RCTs and assumed stable beyond year 2, consistent with previous evidence (Appendix A, Table 5).[42–44] Ocular AEs were modelled as per-injection probabilities from RCTs (Appendix A, Table 6). Systemic AEs were excluded given no between comparator differences.[18,29] Discontinuation probabilities were derived from RCTs (Appendix A, Table 7). After discontinuation disease progression was assumed to follow the AMD natural course (Appendix A, Table 8).[45]

Mortality

Age- and sex-specific mortality rates were obtained from UK life tables (Appendix A, Table 9),[46] with excess mortality associated with visual impairment incorporated using published hazard ratios (Appendix A, Table 10).[47]

Utilities

VA state utilities were derived from a UK time trade-off study using linear regression of utility on better-seeing-eye VA (Appendix A, Table 11).[48] AE and treatment-anxiety decrements followed NICE's AMD economic evaluation (Appendix A, Table 12).[23]

Costs

Resource use assumptions followed methods from NICE's AMD economic evidence.[23] Costs were estimated from an NHS perspective using 2022/23 prices (Appendix A, Table 13). Drug acquisition, administration, and optical coherence tomography (OCT) monitoring were included per treatment visit per commissioning guidance.[24] Adverse event costs were applied per-injection probabilities to unit costs. Discontinued patients incurred low vision costs only.

Sensitivity analysis

Deterministic sensitivity analysis (DSA)

One-way DSA assessed the impact of parameter uncertainty on cost-effectiveness. Parameters were varied individually across plausible ranges derived from 95% confidence intervals or reported ranges, while holding other inputs constant. Discount rates were varied from 1.5% to 5%.

Threshold analysis

Threshold analyses identified values at which cost-effectiveness conclusions changed using a threshold of £20,000/QALY. Analyses were conducted on biosimilar aflibercept 2mg price and VA change and injection frequency (given the limited head-to-head evidence base).

Scenario analysis

Scenario analyses assessed structural assumptions. First, all treatments were assigned a common discontinuation probability derived from national nAMD audit data (30% discontinuation over two years).[25] This was because discontinuation rates derived from trials may not reflect real-world practice and the DSA showed discontinuation probabilities influenced outcomes. Second, treatment initiation ages of 75 and 85 years were evaluated. Finally, biosimilar aflibercept 2mg pricing was used instead of originator aflibercept 2mg. A 70% discount from originator price was assumed to reflect the maximum likely discount based on previous NHS biosimilar discounts.[49,50]

Probabilistic sensitivity analysis (PSA)

PSA used 1000 Monte Carlo iterations to assess combined parameter uncertainty.[22] Model parameters were assigned appropriate probability distributions: gamma (costs), beta (probabilities and utilities), normal (VA change and injection counts), and log-normal (hazard ratios). Parameter distributions are listed in Appendix B. Results were plotted as cost-effectiveness scatter plots and acceptability curves (CEAC). PSA was conducted using originator aflibercept 2mg pricing and repeated assuming a 70% discounted biosimilar price.[49,50]

Results

Base-case analysis

Treatment naive cohort

Compared with aflibercept 2mg, aflibercept 8mg gained 0.049 QALYs and saved £11,067, producing a NMB of £12,046. Faricimab gained 0.031 QALYs and saved £6730, compared with aflibercept 2mg (NMB: £7342). When compared with faricimab, aflibercept 8mg gained 0.018 QALYs and saved £4338 (NMB: £4705) (Appendix C, Table 1). Stepwise incremental analysis showed aflibercept 8mg dominated (provided more QALYs at lower cost) both faricimab and aflibercept 2mg (Table 2).

Table 2
Base case results: fully incremental comparisons

Strategy	Total Cost (£)	QALYs	Comparator	Incremental costs (£)	Incremental QALYs	ICER
Treatment naive						
Aflibercept 8mg	50,160	3.781				
Faricimab	54,497	3.763	Aflibercept 8mg	+ 4337	-0.018	Dominated
Aflibercept 2mg	61,227	3.732	Aflibercept 8mg	+ 11,067	-0.049	Dominated
Suboptimal responders						
Aflibercept 8mg	68,783	3.550				
Faricimab	75,277	3.524	Aflibercept 8mg	+ 6494	-0.026	Dominated
Aflibercept 2mg	85,085	3.497	Aflibercept 8mg	+ 16,302	-0.053	Dominated

Suboptimal responders

Compared with aflibercept 2mg, aflibercept 8mg gained 0.052 QALYs and saved £16,302 (NMB: £17,350), whilst faricimab gained 0.027 QALYs and saved £9808 (NMB: £10,349) (Appendix C, Table 1). Compared with faricimab, aflibercept 8mg gained 0.025 QALYs and saved £6494 (NMB: £7001). Stepwise incremental analysis showed aflibercept 8mg dominated both faricimab and aflibercept 2mg (Table 2).

Deterministic sensitivity analysis (DSA)

DSA assessed individual parameter effects on NMB at £20,000/QALY. Results are summarised in Fig. 2 and Appendix D.

Across analyses, the parameters with the greatest influence on cost-effectiveness were mean visual acuity change, injection frequency, treatment discontinuation probability, and discount rate. However, no single parameter variation altered the base-case conclusion that aflibercept 8mg was the most cost-effective strategy. Targeted analyses for the suboptimal responder cohort produced similar findings.

Threshold analysis

From a base price of £816 per injection, for faricimab to lose cost-effectiveness (CET: £20,000/QALY), biosimilar aflibercept 2mg cost must fall below £529 (-35%) in treatment naïve patients and £551 (-32%) in suboptimal responders. For aflibercept 8mg to lose cost-effectiveness, biosimilar aflibercept 2mg must fall below £345 (-58%) in treatment-naïve patients and £373 (-54%) in suboptimal responders.

Scenario analysis

Using a real-world discontinuation rate (0.0136 per 4-week cycle) applied uniformly across all drugs resulted in lower total costs and QALYs for all drugs. However, cost-effectiveness ranking remained unchanged (Appendix F, Table 1).

Starting treatment at age 75 increased, and at age 85 reduced, incremental cost and QALY differences between comparators, without changing the cost-effectiveness conclusions (Appendix F, Tables 2 and 3).

An analysis explored using biosimilar aflibercept 2mg priced at a 70% off discount from originator instead of originator aflibercept 2mg pricing (Appendix F, Table 4). Biosimilar aflibercept 2mg was cheaper than aflibercept 8mg and faricimab but produced less QALYs. In treatment naïve patients, ICERs were £72,488 for aflibercept 8mg vs biosimilar aflibercept 2mg and £257,700 for faricimab vs biosimilar aflibercept 2mg. In suboptimal responders, ICERs were £115,500 and £464,155 respectively. Therefore, at a £20,000–30,000 CET, neither aflibercept 8mg nor faricimab would be cost-effective compared with discounted biosimilar aflibercept 2mg.

Probabilistic sensitivity analysis (PSA)

Originator aflibercept 2mg pricing

Expected costs and QALYs from PSA simulations are shown in Appendix G, Fig. 1 (treatment-naïve patients) and Appendix G, Fig. 2 (suboptimal responders). In both cohorts, aflibercept 8mg was consistently the least costly option, followed by faricimab and aflibercept 2mg. QALY gains were highest with aflibercept 8mg, followed by faricimab and aflibercept 2mg, although differences were small and overlapping.

The CEACs show the probability of each comparator being the most cost-effective option at different willingness-to-pay thresholds (Appendix G, Fig. 3: treatment naïve, Appendix G, Fig. 4: suboptimal responders). Aflibercept 8mg was the most cost-effective strategy in 100% of simulations in both cohorts in CET up to £60,000/QALY.

3.5.2. Maximal discounted biosimilar aflibercept 2mg pricing

The expected costs and QALYs from 1000 PSA simulations are shown in Appendix G, Fig. 5 for treatment naïve patients and Appendix G, Fig. 6 for suboptimal responders. In both cohorts, biosimilar aflibercept 2mg was consistently the least costly, then aflibercept 8mg, then faricimab. As expected, QALY distributions mirrored the PSA with originator aflibercept 2mg.

In treatment naïve patients, at a £20,000/QALY CET, biosimilar aflibercept 2mg was cost-effective in 96% of simulations, aflibercept 8mg in 4%, and faricimab in 0%. At a £30,000/QALY CET, biosimilar aflibercept 2mg was cost-effective in 86% of simulations, aflibercept 8mg in 14%, and faricimab in 0% (Fig. 5). For suboptimal responders, biosimilar aflibercept 2mg was cost-effective in 100% of simulations at a £20,000/QALY CET. At a £30,000/QALY CET, probabilities were 98% for biosimilar aflibercept 2mg, 2% for aflibercept 8mg, and 0% for faricimab (Appendix G, Fig. 7). This suggests that even after accounting for combined parameter uncertainty, 70% discounted biosimilar aflibercept 2mg is highly likely to be cost-effective compared to faricimab and aflibercept 2mg in both cohorts.

Discussion

Summary of findings

Aflibercept 8mg was the most cost-effective first-line treatment for nAMD, followed by faricimab, then originator aflibercept 2mg. In treatment naïve patients, compared with faricimab. Aflibercept 8mg remained the most cost-effective treatment in suboptimal responders, with larger incremental differences between treatments than in treatment-naïve patients. In this analyses where drug prices were fixed, VA change, injection frequency, discontinuation, and discounting were identified as the main determinants of cost-effectiveness, though no plausible parameter variation altered conclusions. Aflibercept 8mg remained dominant using real-world discontinuation rates and with alternative starting ages.

For biosimilar aflibercept 2mg to displace aflibercept 8mg as most cost-effective in treatment naïve patients, a minimum 58% price reduction from originator would be required. At a maximal likely 70% reduction, biosimilar aflibercept 2mg was most cost-effective in 96% of simulations in treatment-naïve patients and 100% in suboptimal responders at a £20,000/QALY CET. This analysis illustrates the critical importance of price negotiation. Although not modelled conclusions could switch back to aflibercept 8mg should this price also be reduced.

Comparison with existing literature

Findings for faricimab versus aflibercept 2mg are consistent with prior analyses. NICE's cost-minimisation analysis (CMA) found lifetime savings of £18,852 per person with faricimab.[17] Also from the English perspective, a microsimulation CUA modelling five years found faricimab dominant over aflibercept 2mg.[51] However, both assumed equal drug efficacy, which risks obscuring differences in visual outcomes over time. For aflibercept 8mg, evidence is limited.[52] The Canadian Agency for Drugs and Technologies in Health (CADTH) found aflibercept 8mg less costly but less effective than faricimab.[53] This difference from our analysis likely reflects CADTH's use of only year-1 trial data with no subsequent decline in VA. Year-2 data show greater VA decline with faricimab (− 1.59 letters) than aflibercept 8mg (− 0.45 letters), incorporating this divergence explains why aflibercept 8mg was dominant in our analysis. Swiss[54] and Dutch[55] CMAs found aflibercept 8mg cost-saving versus both comparators, consistent with these findings. No prior cost-effectiveness analyses were identified for suboptimal responders or biosimilar aflibercept 2mg.

Strengths and limitations

Modelling synthesised trial and real-world evidence to evaluate lifetime outcomes and previously untested comparisons. Model structure was informed by published AMD models[23] and validated by a specialist ophthalmologist, ensuring relevance to real-world practice. Our analysis did not assume equal efficacy as others have done[17,51] and captured long terms costs and QALYs. This latter aspect better reflects nAMD's chronic course than some prior studies. The suboptimal responder and biosimilar analyses are novel contributions and multiple sensitivity analyses tested robustness across key uncertainties.

At presentation 12% of patients have bilateral nAMD,[25] this rises to 48% at 5 years,[56] but fellow-eye involvement was not modelled. By assuming patients only have one treated eye, the fellow eye was implicitly assumed untreated. Prior research suggest quality of life is predicted by the better seeing eye but costs of treating the other eye are omitted. Further work could explore this but would require information on the correlation of costs and QALYs estimates between eyes as has been done using the patient level data available in some glaucoma trials.[57] Nevertheless, our results are consistent with findings from a Japanese two-eye model.[58]

VA change, injection frequency, discontinuation, and AEs were drawn from three separate non-inferiority trials. Without head-to-head comparisons, observed differences may reflect heterogeneity in populations, follow-up schedules or dosing protocols rather than true treatment effects. For example, PULSAR required disease activity in both VA and anatomical measures to shorten injection intervals,[18] whereas TENAYA/LUCERNE required activity in only one.[29] This may explain why only 4% of patients in PULSAR required interval shortening at 12 weeks due to disease activity, compared with 20–23% in TENAYA/LUCERNE.[59] Drug regimens also differed. TENAYA/LUCERNE assigned faricimab to 8–16 week regimens based on initial disease activity.[29] PULSAR randomised aflibercept 8mg to 12–16 week regimens, with no initial 8 week option.[18] In ARIES, aflibercept 2mg intervals were adjusted 2 weekly from the start without preset assignments, more closely reflecting UK practice,[30] however none of the trials fully reflect UK T&E practice. Furthermore, faricimab is now also licensed with three loading doses[60] rather than the four used in TENAYA/LUCERNE, meaning modelled injection frequencies may overestimate real-world treatment burden.

List prices were used but actual NHS net prices are unknown and discounts may not be proportional across drugs.[61] The assumed 70% biosimilar price reductions may not be realised given the complexity of biologic manufacturing.[62] Furthermore, we have not considered price reductions of the other two drugs. A rationale decision-maker may seek to negotiate these and these could change conclusions on cost-effectiveness. Utility values were based on Czoski-Murray TTO data, which are not EQ-5D based.[43] However, this was chosen in line with NICE, given EQ-5D's suggested insensitivity to vision-related QoL change.[23,63]

Practice and research implications

Aflibercept 8mg is cost-saving and produces better outcomes than comparators under current NHS pricing and should be considered the treatment of choice. Biosimilar aflibercept 2mg could displace it its price is substantially reduced. However, price reductions for aflibercept 8mg could restore results in favour of this therapy. Reduced injection burden with aflibercept 8mg and faricimab may also improve acceptability, service feasibility and equity of access.

All estimates relied on data from different trials, so differences in key inputs including injection frequency or vision may reflect trial heterogeneity. Indirect comparisons could be better provided through network meta-analysis, but this is limited by use of summary level data from different studies with inconsistent designs. Ultimately a head-to-head trial would provide the most reliable comparative evidence. Analysis of early suboptimal responders was exploratory and highly uncertain due to the lack of trial or real-world evidence. Research should prioritise this group, focusing on optimal switch timing and treatment choice for best visual outcomes.

Future models should incorporate clinic capacity constraints to better reflect NHS system pressures, include hidden costs of frequent injection regimens and account for VA worsening with treatment delay.[51,64] This is especially important for biosimilar aflibercept 2mg, as lower drug prices may be offset by high appointment requirements in systems with limited capacity. Models could also consider therapy switching, societal costs, heterogeneity and scenario analysis with different long-term trajectories in injection frequency, EQ-5D utilities and possible NHS drug net prices.

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Figures

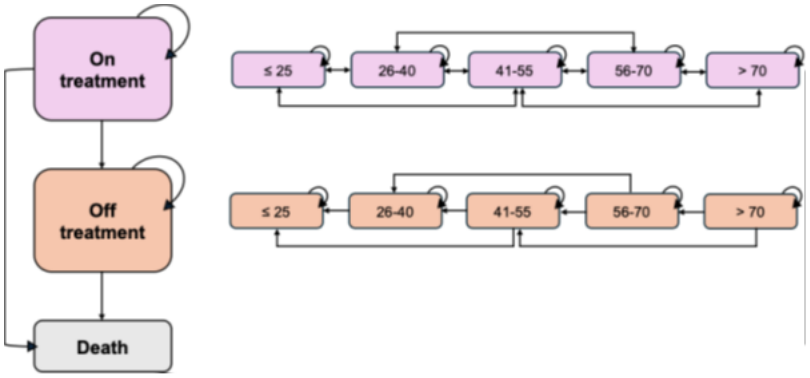


Figure 1

Markov model simulating visual acuity outcomes in nAMD

Patients transition through visual acuity substates based on Early Treatment Diabetic Retinopathy Study scores. A higher score indicates better vision. Arrows represent transitions between health states.

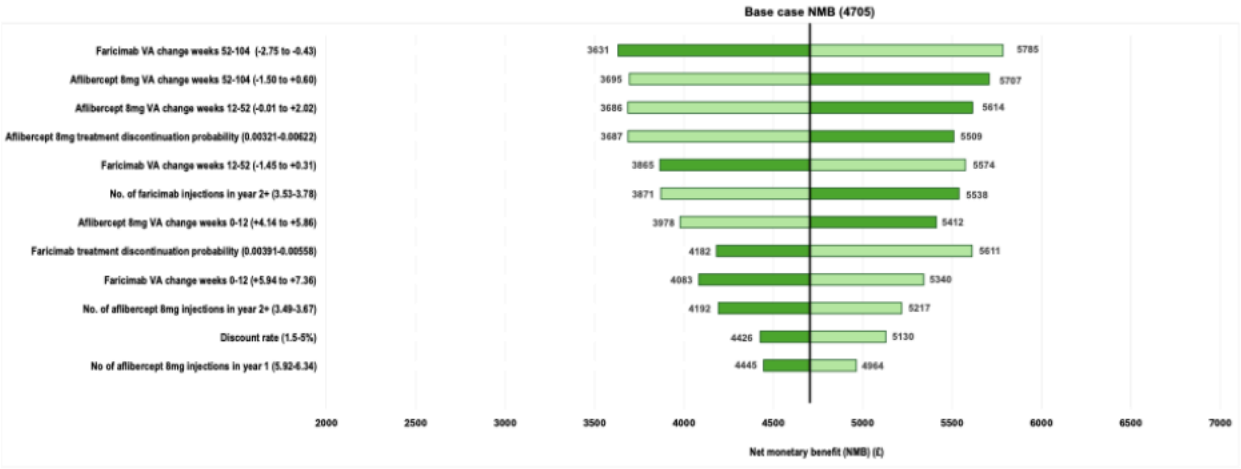


Figure 2

Tornado diagram showing NMB of Aflibercept 8mg vs Faricimab in one-way sensitivity analysis

Light vs dark green bars = NMB change at minimum vs maximum input value.

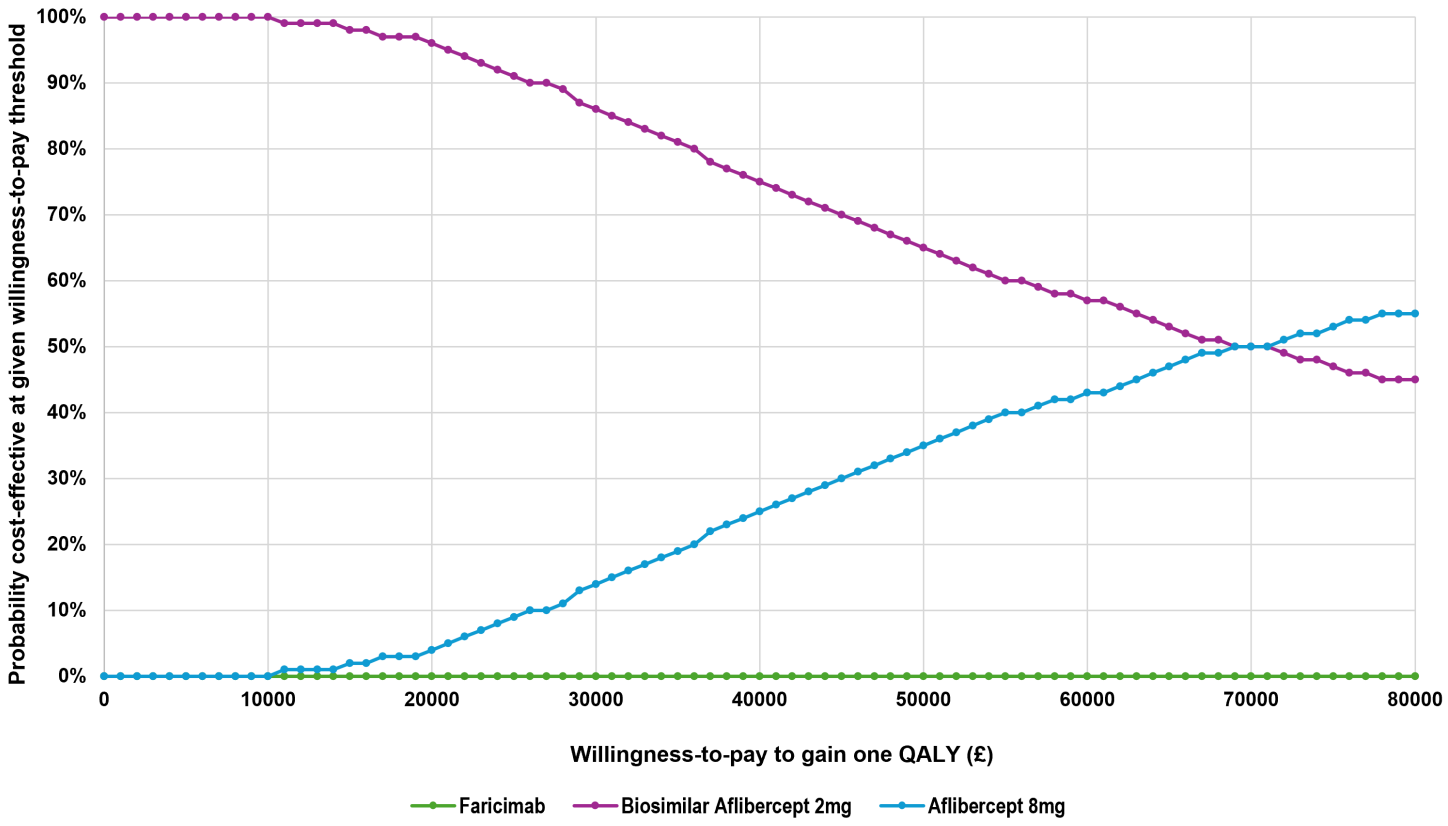


Figure 3

Cost-effectiveness acceptability curve for treatment naïve cohort: biosimilar aflibercept 2mg vs faricimab vs aflibercept 8mg

Supplementary Files

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