Hydrus® Standalone vs iStent in Patients with advanced POAG: Cost-Effectiveness Analysis in UK settings

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BACKGROUND

In UK, glaucoma affects approximately 4% of the population aged > 50 years, **most of whom (86.5%) have POAG**[1].

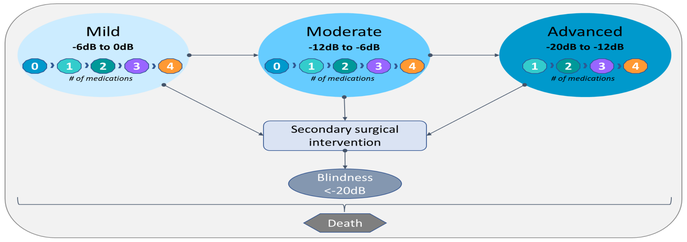
The **2-year COMPARE trial** showed that in patients with **advanced POAG** Hydrus Microstent resulted in the use of fewer medications and a lower rate of secondary incisional glaucoma surgery when used as a standalone surgery compared to 2 iStents in patients with advanced primary open angle glaucoma (POAG)[2].

This analysis **explores the cost-effectiveness** of Hydrus® Microstent vs iStent from the UK public payer perspective.

METHODOLOGY

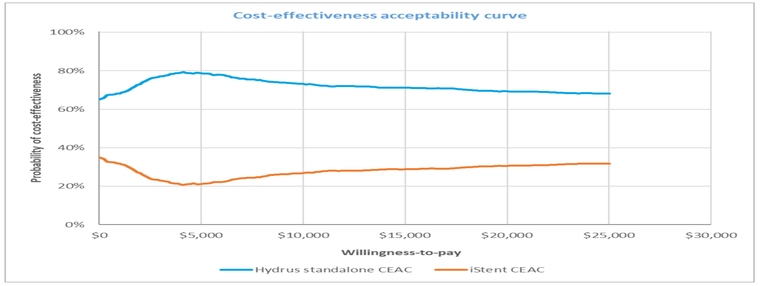
- **Type of analysis:** Cost-effectiveness analysis
- **Modeling method:** Semi-Markov model
- **Modeling approach:** Consistent with the COMPARE trial, the population was 67 years of age; 80% bilateral. Using 2-year COMPARE data, patient progression in the model was informed by **trial-based annual number of medications**, which was assumed to align with visual fields loss (VFL) changes according to the amount of VF lost per progression. As patients progress on medications and VFL increases, they transition to the next severity health state. Costs and utility weights were derived from publicly available UK sources, where possible, and publications.
- **Time horizon:** 15 years
- **Perspective:** Public Payer Perspective
- **Country:** UK
- **Intervention:** Hydrus® standalone
- **Comparator:** iStent
- **Outcomes**
  - ✓Expected Patient's Quality of Life improvement (measured using Quality Adjusted Life years (QALY*) metric)
  - ✓Incremental Cost (Hydrus® vs iStent)
  - ✓Incremental QALYs (Hydrus® vs iStent)

MODEL STRUCTURE



RESULTS (Deterministic)

Parameter	Hydrus® standalone (Intervention arm)	iStent standalone (Comparator arm)	Absolute difference	Relative Difference
Total costs per strategy	£ 25,742	£ 26,276	**-£ 534**	-2.0%
Total Falls	4.319	4.316	0.003	0.1%
Total LYs	10.622	10.613	0.008	0.1%
Total QALYs	7.439	7.371	**0.068**	0.9%
Total LYs spent blind	0.818	1.004	-0.186	-18.5%
ICER	**Dominant**	**Dominant; adds QALYs without adding cost**		
Cost per SSI avoided	-£ 10,677	**Cost saving, and averts procedures**		
SSI use – Hydrus	58.1%			
SSI use – iStent	59.1%			



Cost-effectiveness scatterplot



CONCLUSION

- Hydrus® implantation is **a cost-effective strategy versus iStent** from the public payer's perspective in patients with advanced POAG in the UK.
- Compared with iStent, patients with advanced POAG who received Hydrus® accumulated **lower costs** (£25,742 vs £26,276) and were associated with a **greater and clinically meaningful difference in QALYs** (7.439 and 7.371) over 15 years.
- The robustness of these results are further substantiated by probabilistic sensitivity analysis which predicts that at a willingness to pay threshold of £20,000/QALY, the **probability of Hydrus® being cost-effective is around 69.4%.**

GRANT/RESEARCH SUPPORT

- This study was sponsored by Alcon Vision LLC

References:

1. Chan MPY, et al. Glaucoma and intraocular pressure in EPIC-Norfolk Eye Study: cross sectional study. BMJ (Clinical research ed). 2017;358:j3889. doi:10.1136/bmj.j3889
2. Ahmed IIK, et al. A prospective randomized trial comparing Hydrus and iStent microinvasive glaucoma surgery implants for standalone treatment of open-angle glaucoma: the COMPARE study. Ophthalmology. 2020;127(1):52-61.