



Health Economic and Environmental Impact of Omitting Day 1 Post-Operative Review After Vitrectomy Surgery

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52.9%

eligible for D1 omission per CPP

BACKGROUND & METHODS

• In the UK, there is still wide variation in practice regarding postoperative review after vitreoretinal (VR) surgery

• Meta-analysis: only 4.7% intervention rate at Day 1 (D1), mainly due to ocular hypertension (OHT)¹

• RCOphth Concise Practice Points (CPP) enable safe D1 omission in selected patients³

(rcophth.ac.uk/standards-publications-research/clinical-guidelines)

• Phase 1 (retrospective, n=74): ~60% could safely skip D1, saving £79/patient²

• Phase 2 (prospective, n=51): health economic (HE) and carbon footprint (CF) analysis of D1 omission

• Patient experience captured at Week 2 post operatively, using survey developed by the authors

• Design: Arm 1 (D1 review, n=31) vs Arm 2 (no D1, n=20). Both reviewed at 2 weeks

• HE: Cost minimisation justified by Phase 1 quality-adjusted life year (QALY) equivalence. Costs: travel, parking, income loss, NHS visit

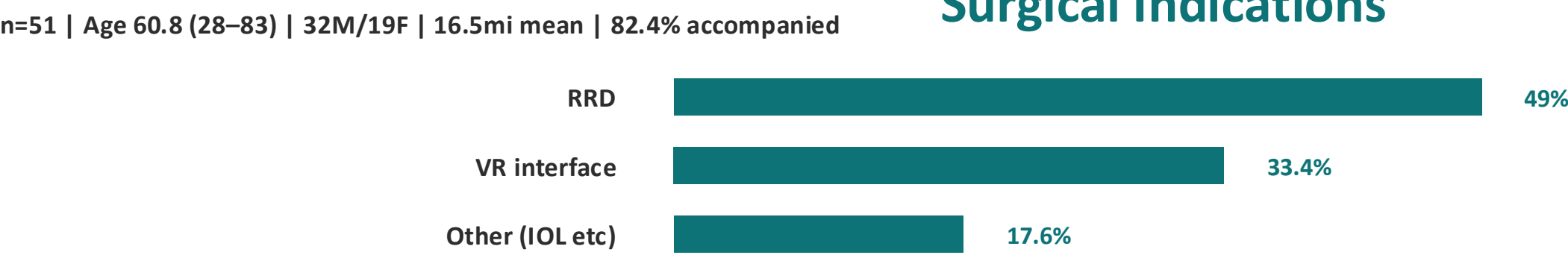
• CF: UK Government DEFRA 2024 greenhouse gas conversion factors⁵ × Google Maps verified distances

PHASE 1 vs PHASE 2

Metric	Phase 1	Phase 2	p
Patients	74	51	
Mean age	66.8	60.8	
CPP-eligible	~60%	52.9%	
Unplanned contact	12.2%	13.7%	0.79
Cost/visit	£79*	£185.57†	
Carbon/visit	—	15.4 kgCO ₂ e	

*OOP (out-of-pocket) only; †OOP+NHS; Fisher's exact test

Surgical Indications



REFERENCES

1. Bheemidi AR et al. Ophthalmic Surg Lasers Imaging Retina. 2021;52(9):513-518.
2. D'Alterio FM et al. Day 1 post-op review after vitrectomy. Gonin 2024.
3. RCOphth. CPP: D1 post-op review in modern vitrectomy surgery. 2025.
4. NHS Digital. Hospital Episode Statistics. 2018.
5. UK Gov DEFRA. Greenhouse Gas Conversion Factors. 2024.

TWO-TIER CPP ELIGIBILITY

51 vitrectomy patients

24 need D1 review (complex / OHT / oil)

27 eligible

TIER 1

POD1 NOT REQUIRED

Air / no tamponade
No ocular hypertension
(OHT)/glaucoma
Uncomplicated

8/51

(15.7%)

TIER 2

POD1 NOT ALWAYS REQUIRED

Gas tamponade
+ Intra-ocular pressure (IOP) prophylaxis
No OHT, uncomplicated

19/51

(37.3%)

COMBINED: 27/51 (52.9%) — replicates Phase 1

UNNECESSARY D1 REVIEWS PER CPP

16/31 (51.6%)

of D1 reviews were unnecessary per RCOphth CPP criteria

3 (9.7%)

Tier 1: didn't need D1

13 (41.9%)

Tier 2: didn't need D1 with IOP prophylaxis

PATIENT EXPERIENCE

64.7%

did not want D1 contact

82.4%

accompanied by companion

£50.57

patient out-of-pocket

COST PER AVOIDED VISIT

£185.57

per avoided visit

Patient costs £50.57

Travel £16.06

Parking £5.33

Pt income £13.37

Companion £15.80

NHS visit cost £135.00

CARBON FOOTPRINT

15.4 kgCO₂e per visit

221 tonnes CO₂e/yr if extrapolated to UK

UK & GLOBAL SCALING

£2.65M

annual NHS savings

if extrapolated to UK (27,000 VR/yr)⁴

	Tier 1	Tier 1+2
UK (27,000 VR/yr) ⁴		
Avoidable visits	4,235	14,294
Cost saved	£786K	£2.65M
CO ₂ e saved	65 t	221 t
Global (1.8M VR/yr)		
Avoidable visits	282K	953K
CO ₂ e saved	4,359 t	14,711 t

CONCLUSION

1. 52.9% can safely have D1 omitted under RCOphth CPP — replicating Phase 1 (~60%)

2. Two-tier model: definite omission (15.7%) + conditional with IOP prophylaxis & gas tamponade (37.3%)

3. £185.57 and 15.4 kgCO₂e saved per avoided visit. UK: £2.65M and 221t CO₂e/yr

4. 64.7% did not want D1 contact, confirming patient acceptability

Routine D1 review is unnecessary for over half of vitrectomy patients and should be replaced by risk-stratified follow-up per the RCOphth CPP.

Transport: Car 66.7% • Public Transport 23.5% • Taxi 7.8% • Walk 2.0%