The Royal College of Ophthalmologists' National Ophthalmology Database: Visual outcomes for eyes with a preoperative visual acuity of Counting Fingers or worse

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Aim:

To investigate post cataract visual outcomes for eyes with a preoperative visual acuity (VA) of counting fingers (CF) or worse.

Methods:

This analysis included eligible cataract operations performed 01/04/2010 - 31/03/2024 from centres supplying data to the national cataract audit for ≥ 50 eligible operations with both preoperative and postoperative visual acuity (VA) measurement. Eyes were only included when preoperative VA was CF or worse attributable to one or more of the following pathologies: brunescent/white/mature (BMW) cataract, No fundal view/vitreous opacity (NFV), age-related macular degeneration (AMD), diabetic retinopathy (DR), glaucoma, corneal pathology, uveitis/synechiae and optic nerve/CNS diseases. UK driving standard level and severe sight impaired (SSI) level VA defined as VA ≤ 0.30 and > 1.30 LogMAR respectively. Eyes were excluded where eyes with preoperative VA of no perception of light (NPL).

Results:

58,585 operations in 203 participating centres (84 NHS and 113 ISTC, 3 Welsh local health boards, 2 private, and 1 Guernsey) by 4,225 surgeons. The preoperative VA was CF for 26,872 (45.9%) eyes, HM for 24,185 (41.3%) eyes, PL for 7,528 (12.8%) eyes. The median postoperative VA was 0.20 (0.00 – 0.60 LogMAR), Table 1.

Table 1: Percentage of surgeon grade, PCR and VA outcomes by preoperative visual acuity

Variables column %	Preoperative visual acuity			
	CF	HM	PL	Total
Number of operations	**26,872**	**24,185**	**7,528**	**58,585**
Surgeon grade				
Consultants	70.9	78.8	82.5	75.7
Career grade non-consultants	8.2	6.3	5.3	7.0
More experienced Trainees	18.3	13.7	11.6	15.5
Less experienced Trainees	2.6	1.2	0.6	1.8
Posterior capsule rupture (PCR)	**3.30**	**3.80**	**4.42**	**3.65**
Postoperative visual acuity				
Median	0.20	0.20	0.20	0.20
IQR	0.02 – 0.60	0.00 – 0.60	0.00 – 0.50	0.00 – 0.60
UK driving standard level	64.0	66.4	70.8	65.9
SSI level	9.5	11.9	11.2	10.7

Eyes with only BMW cataract without other co-pathologies (AMD, DR, glaucoma, corneal pathology, uveitis/synechiae, and optic nerve/CNS diseases).

- 26,731 (45.6%) eyes had BMW cataract. The median postoperative VA was 0.10 (IQR: 0.00 – 0.30 LogMAR), and the posterior capsule rupture (PCR) rate was 3.77%.
- 82.5% eyes achieved UK driving standard level and 3.4% eyes remained in SSI, Table 2.

Eyes with both BMW cataract and other co-pathologies.

- 8,385 (14.3%) eyes had BMW + other co-pathologies. The median postoperative VA was 0.30 (IQR: 0.10 – 0.70 LogMAR), and the PCR rate was 6.37%.
- Non-specified AMD was present in 7.9% eyes, dry AMD in 5.8% eyes, wet AMD in 10.5% eyes, DR in 29.7% eyes, glaucoma in 31.0% eyes, corneal pathology in 24.9% eyes, uveitis in 7.4% eyes and CNS diseases in 1.8% eyes.
- 58.7% eyes achieved UK driving standard level and 11.8% eyes remained in SSI, Table 2.

Eyes with other co-pathologies without BMW cataract ± NFV.

- 23,469 (40.1%) eyes had other co-pathologies and no BMW ± *NFV.* The median postoperative VA was 0.36 (IQR: 0.10 – 1.00 LogMAR), and the PCR rate was 2.54%.
- Non-specified AMD was present in 15.0% eyes, dry AMD in 13.0% eyes, wet AMD in 14.6% eyes, DR in 24.3% eyes, glaucoma in 28.4% eyes, corneal pathology in 15.3% eyes, uveitis in 5.5% eyes, and CNS diseases in 2.6% eyes.
- 49.5% eyes achieved UK driving standard level and 18.6% eyes remained in SSI, Table 2.

Figure 1: Cumulative frequency curve of postoperative visual acuity.

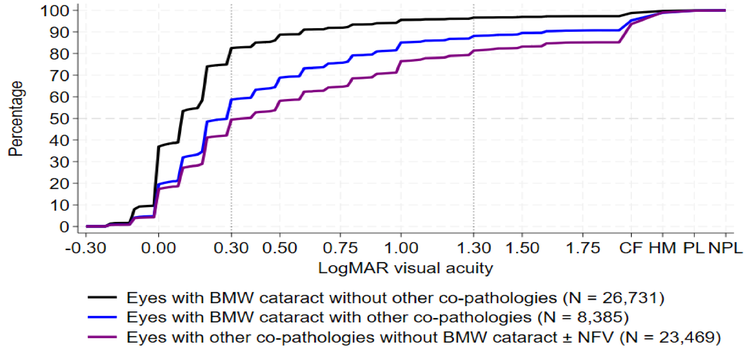


Table 2: Postoperative visual acuity outcomes of eyes with BMW cataract ± other co-pathologies

Variables Row %	Number of operations	Postoperative visual acuity		
		≤ 0.30	> 1.30	Median
Total	**58,585**	**65.9**	**10.7**	**0.20 (0.00 - 0.60)**
BMW cataract only	**26,731**	**82.5**	**3.4**	**0.10 (0.00 - 0.30)**
BMW and Co-pathologies	**8,385**	**58.7**	**11.8**	**0.30 (0.10 - 0.70)**
BMW + Dry AMD	482	36.7	22.6	0.60 (0.20 - 1.30)
BMW + Wet AMD	877	31.1	15.2	0.60 (0.30 - 1.00)
BMW + AMD (Non- specific)	665	40.0	25.6	0.50 (0.20 - 1.38)
BMW + DR	2,492	62.0	8.4	0.20 (0.10 - 0.60)
BMW + Glaucoma	2,596	57.0	15.7	0.30 (0.10 - 0.80)
BMW + Corneal pathology	2,090	66.9	8.1	0.20 (0.10 - 0.50)
BMW + Uveitis/synechiae	623	58.8	11.9	0.30 (0.10 - 0.70)
BMW + optic nerve/CNS diseases	153	34.0	30.7	0.60 (0.20 - 2.10)
Co-pathologies with no BMW ± NFV	**23,469**	**49.5**	**18.6**	**0.36 (0.10 - 1.00)**
Dry AMD	3,039	34.0	27.1	0.80 (0.20 - 1.50)
Wet AMD	3,423	24.1	24.6	0.80 (0.34 - 1.30)
AMD (Non-specific)	3,514	32.2	32.6	0.80 (0.22 - 2.10)
DR	5,704	56.1	11.4	0.30 (0.10 - 0.80)
Glaucoma	6,670	53.8	18.9	0.30 (0.10 - 1.00)
Corneal Pathology	3,581	67.6	8.8	0.20 (0.00 - 0.50)
Uveitis/synechiae	1,284	56.6	12.2	0.30 (0.10 - 0.80)
Optic nerve/CNS diseases	616	36.9	34.6	0.80 (0.20 - 2.10)

Conclusion:

UK driving standard VA was achieved by 82.5% eyes with preoperative VA of CF or worse due to advance cataract. For eyes with both advance cataract and co-pathologies, the UK driving standard was achieved by 58.7% eyes. Even where co-pathologies were identified (primarily AMD, DR and Glaucoma etc) and the advanced cataract and NFV was not recorded, the UK driving standard was achieved by 49.5% of eyes. This information is useful for preoperative counselling the informed consent process.

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With deep regret we note the death of our friend and colleague Robert Johnston, who sadly died in September 2016. Without his inspirational vision, determination and career long commitment to quality improvement this work would not have been possible.

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