

# OUTCOMES OF GLAUCOMA FILTRATION SURGERY WITHIN THE MORECAMBE BAY HEALTH TRUST

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**Glaucoma filtering surgery has evolved over the years from full-thickness fistulas, the standard practice in the 1950s, to partial-thickness fistulas or trabeculectomy, made popular in the 1960s. The newer procedures of deep sclerectomy and viscocanaliculostomy are non-penetrating procedures, more difficult technically and require advanced subspecialty training, but are claimed to be associated with less complications.**

**Gilbert Ozuzu, consultant ophthalmologist, and his colleagues describe an audit of their practice across Morecambe Bay.**

## INTRODUCTION

Trabeculectomy remains the most common glaucoma filtering surgery in the United Kingdom. The technique involves use of corneal traction suture, fornix-based conjunctival flap, releasable/adjustable sutures, nylon sutures for conjunctival and scleral flaps and use of antifibrotic agents as appropriate. Common antifibrotic agents used include: corticosteroids, 5-fluorouracil (antimetabolite, with inhibition of thymidylate synthesis) and Mitomycin-C (antineoplastic antibiotic, which produces complete inhibition of fibroblast proliferation).

Figures 1 to 6 show some of the serious complications of trabeculectomy.

## AUDIT AIMS

To compare outcomes following trabeculectomy within the Morecambe Bay Health Trust (MBHT) with the results of the National Survey of Trabeculectomy II & III (2001-2002).

## AUDIT OBJECTIVES

- to ascertain the indication for trabeculectomy and evaluate pre- and postoperative medical therapy
- to assess the use of antimetabolites within MBHT
- to determine success and complications of trabeculectomy within hospitals in MBHT

## MATERIAL AND METHODS

All consecutive cases of trabeculectomies performed from September 2002 to September 2004 were identified via ICD-10 coding and theatre records.

Retrospective data were collected from case notes using devised proforma. Retrospective analysis of clinical outcome was carried out at three months, six months, twelve months and eighteen months.

The main outcome measure of success at one year is defined as final intraocular pressure (IOP) <2/3 pre-operative IOP. Success is further defined as 'unqualified' if the reduction is achieved with surgery alone, or 'qualified' if topical therapy has to be reinstated to achieve the reduction in IOP. In the national audit standard, 66% of cases are recorded as 'unqualified' successes, and 71% as 'qualified'

Secondary outcome measures are final IOP <21mm/Hg at one year, final IOP <16mm/Hg at one year and stable visual field. The proportion of each of these achieved in the national audit is shown in table 1.

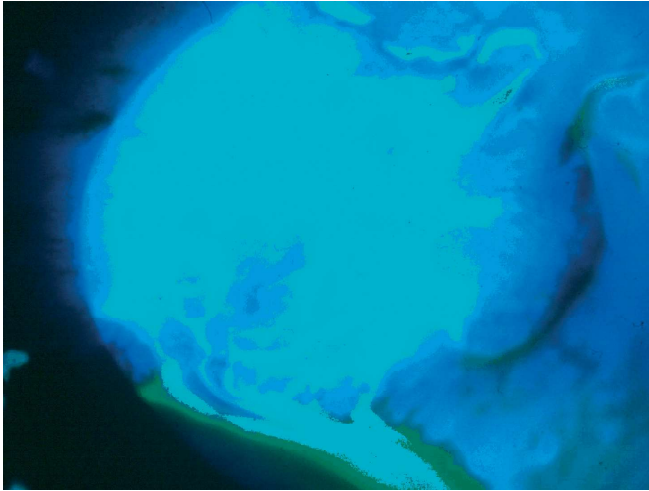
Outcome criterion	Unqualified success (%)	Qualified success (%)
<b>Primary:</b>		
Final IOP < 2/3 of preoperative IOP	66	71
<b>Secondary:</b>		
IOP at one year <21mm/Hg	84	92
IOP at one year <16mm/Hg	55	
Stable visual field	84	
<i>Table 1 Audit standards</i>		

## RESULTS

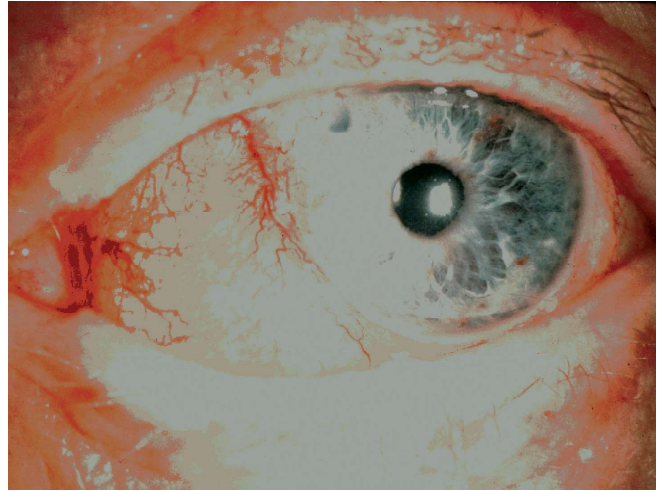
The results of the audit are represented graphically (tables 3 and 4, figures 7-14) and show that success compares favourably with national audit standards. The most important late complication is cataract, which was noted as occurring in 19% of cases. Early complications (within 3 months) are described in table 2.

	%
Hyphema	11
Wound leak	3
Hypotony	2
Choroidal detachment	6
<i>Table 2 Some early complications recorded in first three months</i>	

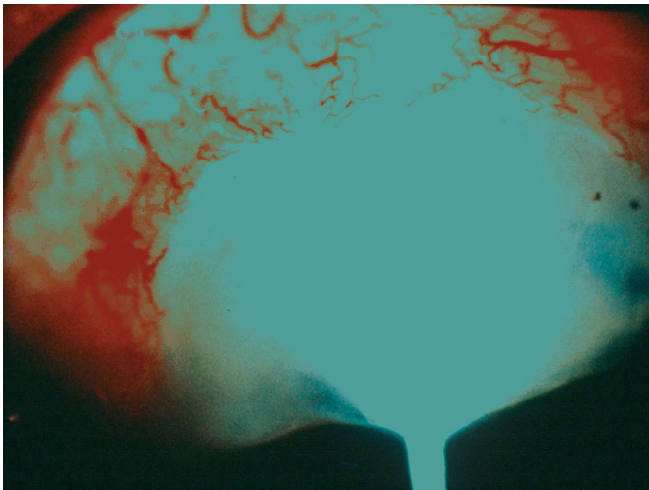
We believe that our figures are better than those of the national audit.



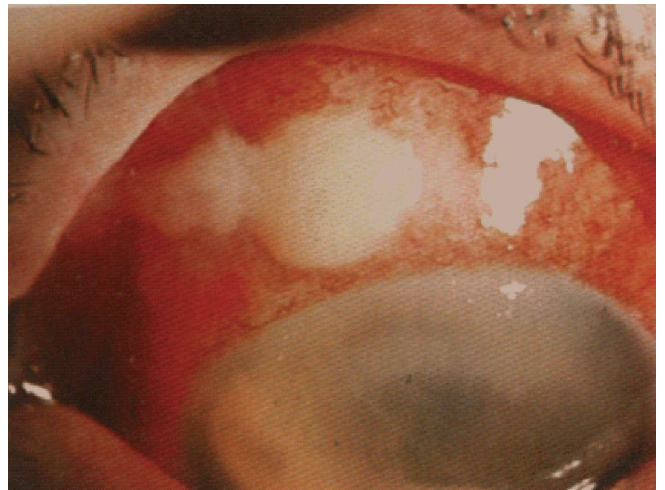
*Figure 1 Early and late bleb leakage*



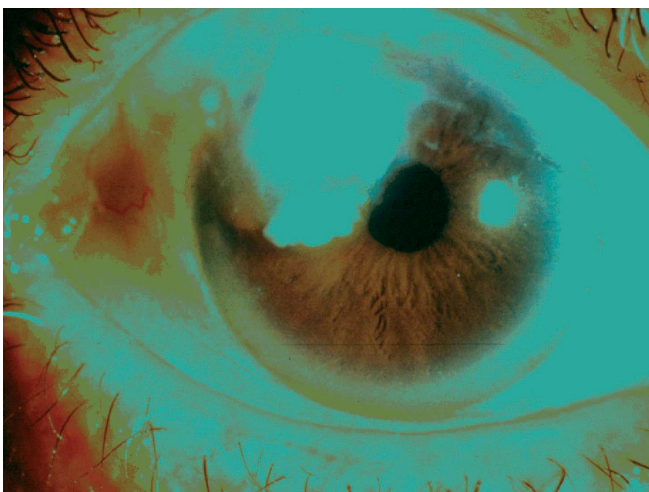
*Figure 4 Bleb dysaesthesia*



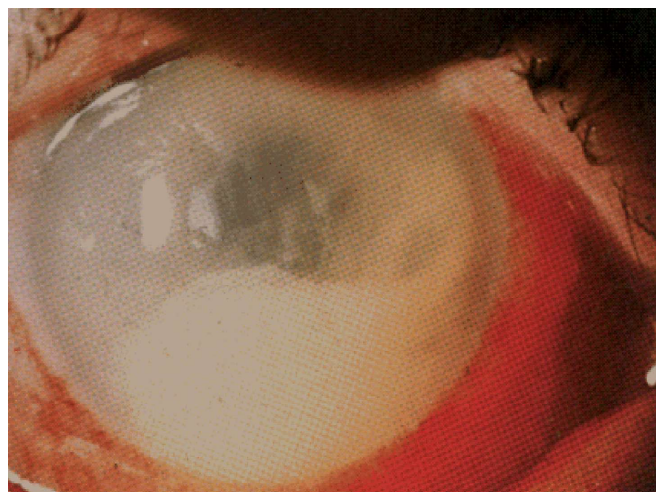
*Figure 2 Overfiltration with resultant ocular hypotony*



*Figure 5 Blebitis and enophthalmitis*



*Figure 3 Bleb dysaesthesia*



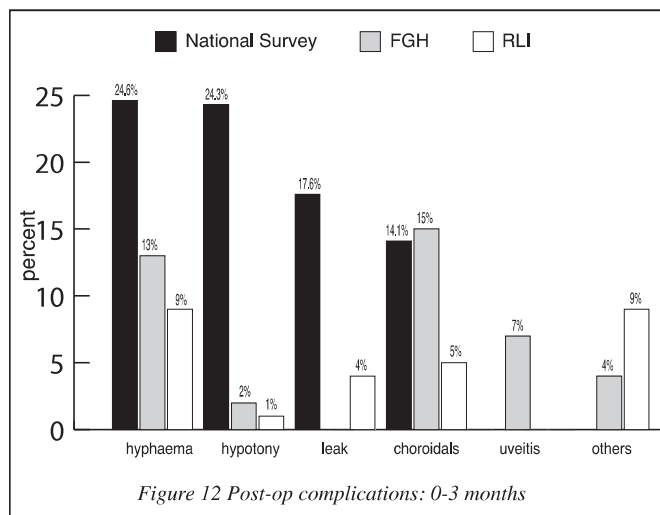
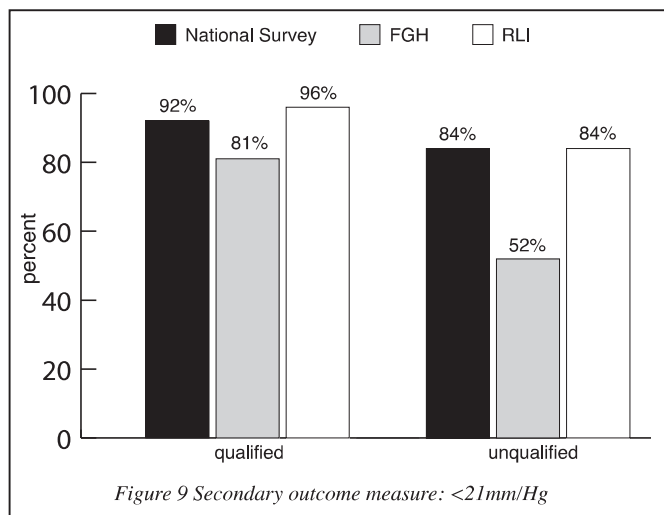
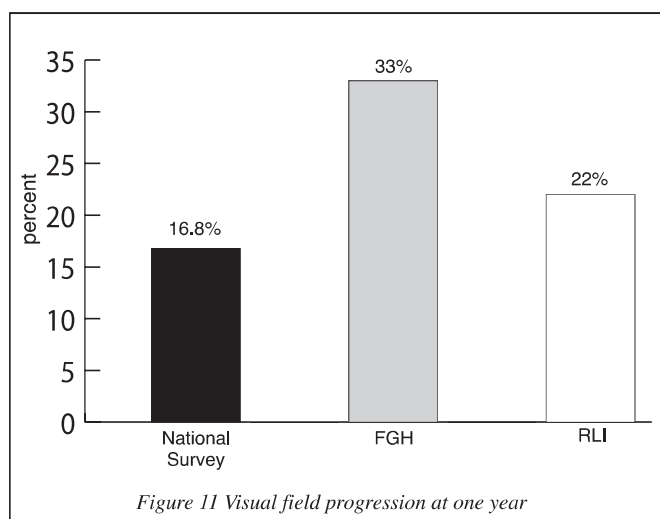
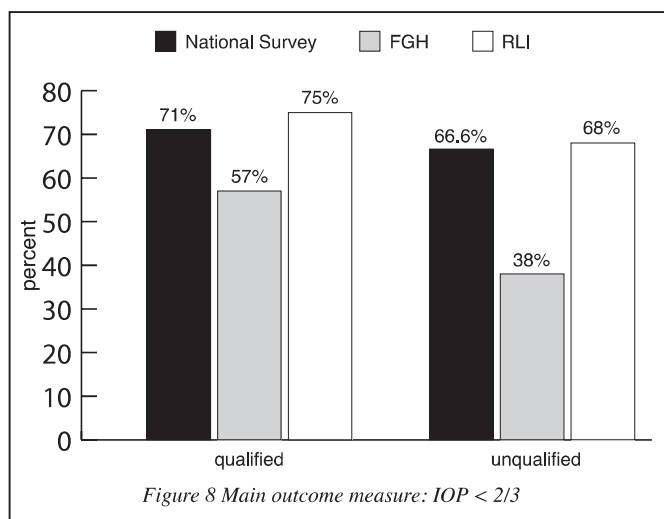
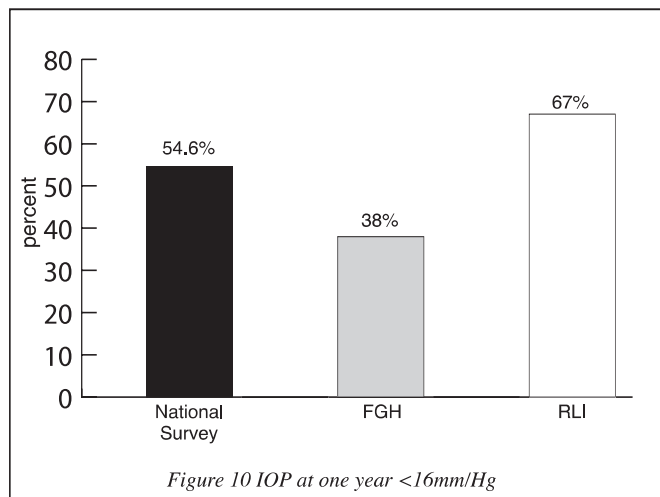
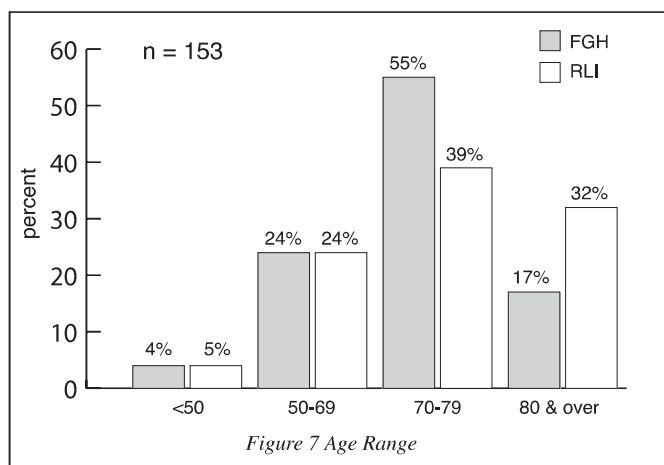
*Figure 6 Blebitis and enophthalmitis*

Total number	153
Unobtainable data	9
Mean age	72.4
Males/females (%)	40.5/59.5
<b>Diagnosis (% of cases)</b>	
Primary open angle glaucoma	77
Narrow angle glaucoma	10
Uveitis glaucoma	5
Normal tension glaucoma	3
Pseudo-exfoliation glaucoma	3
Others	2
<b>Indications for surgery* (% of cases)</b>	
Failed medical therapy	71
Progressive visual field loss	26
Failed previous glaucoma surgery	9
Poor drug compliance	8
Others	8

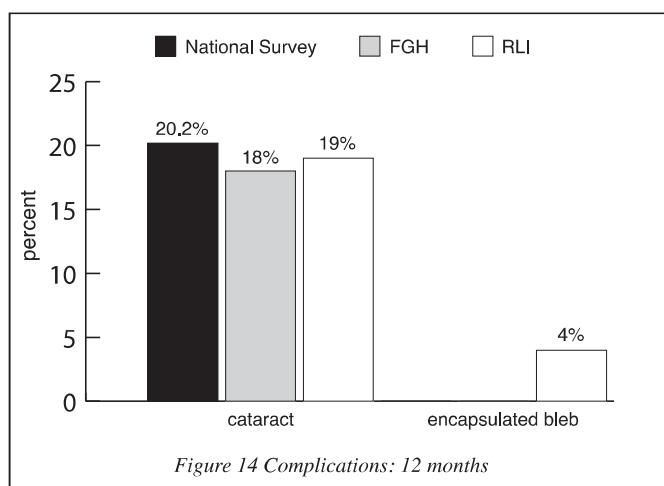
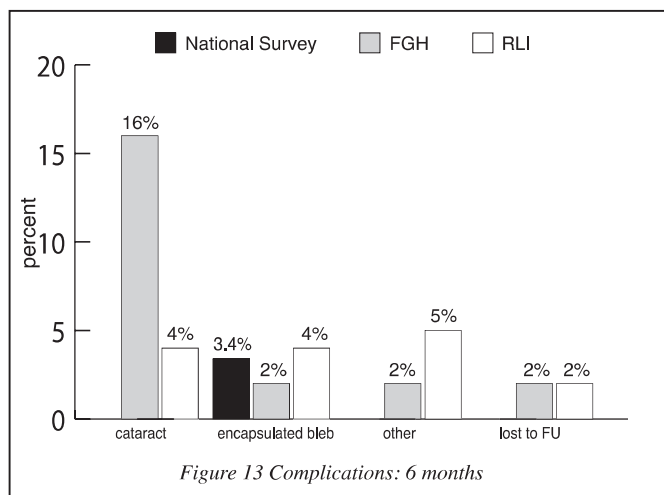
*Table 3 Results of the audit*  
(\*Some cases had more than one indication for surgery)

Procedure	No augmentation	5FU	MMC
Trabeculectomy (previous h/o topical glaucoma therapy)	75 (49.3%)	3 (2%)	—
Phacotrabeculectomy	47 (30.9%)	2 (1.3%)	—
1st re-do trabeculectomy	8 (5.2%)	1 (0.7%)	—
1st re-do trab and phaco	—	2 (1.3%)	1 (0.7%)
2nd re-do trabeculectomy	2 (1.3%)	—	—
Trabeculectomy (previous ocular surgery)	5 (3.3%)	1 (0.7%)	4 (2.6%)
Primary trabeculectomy	1 (0.7%)	—	—

*Table 4 Procedures within MBHT. Total patients = 152 (not stated = 1)*







## CONCLUSIONS

From our audit we have concluded that:

- the success rates compare favourably with The National Survey of Trabeculectomy
- postoperative complications are low
- a longer follow-up period is required to determine longterm benefits
- there is limited use of antimetabolites within hospitals at MBHT. This has resulted in the reduced postoperative complication rate noted within the Trust
- cataract remains a significant late postoperative complication. However, cataract surgery can be carried out when necessary late in the postoperative period and the benefits of trabeculectomy far outweigh the risk of cataract surgery
- there appears to be some difference in main outcome measures of success between the Royal Lancaster

Infirmary (RLI) and Furness General Hospital (FGH) sites. This may be due in part to early re-introduction of glaucoma topical therapy by junior medical staff, as there does not appear to be a dedicated glaucoma clinic at FGH

## RECOMMENDATIONS

For future reference we recommend:

- senior medical staff are involved in early postoperative management of trabeculectomy to identify early signs of failure and institute early intervention
- avoidance of unnecessary use of glaucoma drops in the early postoperative period
- tertiary referrals to the glaucoma clinic should be considered where appropriate
- this review should be repeated in 2007, in order to evaluate long term benefits of this procedure within MBHT

## FURTHER READING

Edmunds B, Thompson JR, Salmon JF, Wormald RP. The National Survey of Trabeculectomy. I. Sample and methods. Eye 1999;13(Pt 4):524-30

Edmunds B, Thompson JR, Salmon JF, Wormald RP. The National Survey of Trabeculectomy. II. Variations in operative technique and outcome. Eye 2001;15 (Pt 4):441-8

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Murthy S, Clearkin HG. The National Survey of Trabeculectomy. II. Variations in operative technique and outcome. Eye 2002;16(5):677-8

Edmunds B, Bunce CV, Thompson JR, Salmon JF, Wormald RP. Factors associated with success in first-time trabeculectomy for patients at lower risk of failure with chronic open-angle glaucoma. Ophthalmology 2004;111(1): 97-103

## ACKNOWLEDGEMENTS

### Co-workers

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