



NOD

**National Ophthalmology
Database Audit**

Post-Cataract Surgery Complications

Seventh year of the prospective cataract audit version

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The master copy of the document can be found in the RCOphth shared drive

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2 Acknowledgment

The National Ophthalmology Database (NOD) Audit is conducted under the auspices of the Royal College of Ophthalmologists (RCOphth) and conducts both the annual National Cataract Audit and the National Age-related Macular Degeneration Audit.

We acknowledge the support of the hospitals that are participating in the RCOphth NOD and thank our medical and non-medical colleagues for the considerable time and effort devoted to data collection. All participating centres are listed on the RCOphth NOD website (www.nodaudit.org.uk).

We acknowledge with thanks the contribution of Professor John Sparrow who provided diligent clinical and academic oversight and leadership of the RCOphth NOD over many years to bring it to its current stature.

It is with gratitude that we remember our friend and colleague Robert Johnston, who sadly died in September 2016. Without his inspirational vision, determination and career long commitment to quality improvement in ophthalmology this work would not have been possible.

3 Introduction

The Royal College of Ophthalmologists (RCOphth) is the governing authority for the National Ophthalmology Database Audit (NOD) and conducts both The National Cataract Audit and The National Age-related Macular Degeneration (AMD) Audit. The National Cataract Audit is open to all providers of National Health Service (NHS) funded cataract surgery and providers of private funded cataract surgery in England, Guernsey, Scotland, Northern Ireland and Wales. The National AMD Audit is open to providers of NHS funded Neovascular AMD treatment with Anti-vascular endothelial growth factor (Anti-VEGF) injections. The data is collected as part of routine clinical care on electronic medical record (EMR) systems or in-house data collection systems and the analysis is performed by the RCOphth NOD Audit statisticians based in Cheltenham General Hospital.

Results are published on the RCOphth NOD website (www.nodaudit.org.uk), are provided to the Care Quality Commission and written up for publication in peer reviewed journals and annual reports. Centre level results include operations performed by trainee surgeons, but trainees are not included in the publicly available named surgeon level results.

Post-cataract surgery complications can occur at different points of time after cataract surgery, and the data could be recorded on different parts of the data collections systems. The main ophthalmic EMR systems have a section for recording the standard post-operative complications for ophthalmic treatment, while data for the occurrence of a complication could be recorded as a diagnosis, an indication for further surgery, as treatment data or as ocular measurements. Certain post-cataract surgery complications would lead to the patient attending the eye hospital immediately, whilst others may not be detected until the patient attends their post-surgery assessment.

This document details the inferring from all parts of the post-cataract surgery data supplied to the National Cataract Audit that applies to the post-cataract surgery complications the audit reports. This inferring applies to cases of post-cataract surgery complications, and not to the absence or non-occurrence. This is because the RCOphth NOD analyses have to assume that absence of any data equates to the non-occurrence of the post-cataract surgery complication. If an eye had post-cataract surgery diagnosis data for something other than the post-cataract surgery complications the RCOphth NOD reports, this is not inferred as no post-cataract surgery complication, otherwise the estimate of recorded or not-recorded post-cataract surgery complications is over-inflated.

As the RCOphth NOD receives data collected on multiple systems that can have different ways to record information, the terminology used in this document is the wording used in the supplied information.

4 Post-cataract surgery complications

The following post-cataract surgery complications are considered to have occurred if recorded as a post-operative complication within 2 months of cataract surgery, except for post-cataract presumed infectious endophthalmitis which is only considered if within 42 days;

- Anterior Capsulophimosis
- Choroidal Effusion / Detachment
- Corneal Oedema / Striae / Haze
- Cystoid Macular Oedema
- Diplopia
- Eyelid Oedema
- Hyphaema
- Hypotony
- IOL Decentred
- Iris to the wound / Prolapse
- Other
- Posterior Capsular Opacification
- Post-operative Scleritis
- Post-operative Uveitis
- Presumed Infectious Endophthalmitis
- Ptosis
- Raised IOP (>21 mmHg)
- Retained Soft Lens Matter
- Retinal Detachment
- Unexpected Refractive Outcome
- Vitreous Haemorrhage
- Vitreous in the AC / Section

5 Post-cataract surgery treatment and ocular assessments

From post-cataract surgery ocular assessments and treatment data, the following post-cataract surgery complications can be considered to have occurred if recorded within 2 months of cataract surgery;

- If the eye has an intra ocular pressure measurement of >21 mmHg then the eye is considered to have experienced “Raised IOP (>21 mmHg)”.
- If the eye has a record of a surgery that included a YAG anterior capsulotomy then “Anterior Capsulophimosis” is considered to have occurred.
- If the eye has a record of a surgery that included IOL reposition then “Decentred IOL” is considered to have occurred.
- If the eye has a record of a surgery that included a posterior capsulorhexis, posterior capsulotomy (intended) or YAG posterior capsulotomy then “Posterior Capsular Opacification” is considered to have occurred.
- If the eye has a record of a surgery that included either removal of retained lens nucleus or removal of retained lens fragments, then “Retained Soft Lens Matter” is considered to have occurred.
- If the eye has a record of a surgery that included a scleral buckle (circumferential, encircling or radial) then “Retinal Detachment” is considered to have occurred.
- If the eye has a record of a surgery that included either anterior vitrectomy or YAG vitreolysis, then “Vitreous in the AC / Section” is considered to have occurred.

From post-cataract surgery ocular assessments and treatment data, the following post-cataract surgery complication is considered to have occurred if recorded within 42 days of cataract surgery;

- If the eye has a record of a surgery that included an anterior chamber tap or vitreous biopsy then “Presumed Infectious Endophthalmitis” is considered to have occurred.
- If the eye has a record of an IVI antibiotic injection, then “Presumed Infectious Endophthalmitis” is considered to have occurred.

6 Post-cataract surgery diagnosis and indication for treatment

The following diagnostic terms can be recorded on the contributing EMR systems as either a diagnosis or an indication for surgery. The RCOphth NOD uses the recording of this information to infer the occurrence of the listed post-cataract surgery complications if recorded within 2 months of cataract surgery, except for post-cataract presumed infectious endophthalmitis which is only considered if within 42 days. All wording is as in the information that has been supplied to the RCOphth NOD.

Anterior Capsulophimosis

- Anterior capsule opacification
- Anterior capsulophimosis
- Phimosis of lens capsule
- YAG anterior capsulotomy

Choroidal Effusion / Detachment

- Choroidal detachment
- Choroidal effusion

Corneal Oedema / Striae / Haze

- Corneal oedema
- Corneal stroma striae
- Hazy cornea
- Post-operative corneal oedema
- Pseudophakic corneal oedema

Cystoid Macular Oedema

- Cystoid macular oedema

Diplopia

- Binocular diplopia
- Diplopia
- Intractable diplopia

Hyphaema

- Hyphaema
- Hyphaema associated with branch retinal vein occlusion
- Hyphaema associated with central retinal vein occlusion
- Hyphaema associated with hemi-retinal vein occlusion
- Hyphaema completely filling anterior chamber
- Hyphaema filling < 1/3 of anterior chamber
- Hyphaema filling < 2/3 of anterior chamber
- Microscopic hyphaema
- Microscopic post-operative hyphaema
- Post-operative hyphaema completely filling ac
- Post-operative hyphaema filling < 1/3 of ac
- Post-operative hyphaema filling < 2/3 of ac

Hypotony

- Hypotony

IOL decentred

- Pseudophakic IOL decentred

Iris to the wound / prolapse

- Iris prolapse
- Iris to wound

Posterior capsular opacification

- Posterior capsule capsulorhexis
- Posterior capsule opacification
- Posterior capsule opacification – surgical capsulotomy indicated
- Posterior capsule opacification – YAG capsulotomy indicated
- Posterior capsule opacification – YAG capsulotomy not indicated
- Posterior capsulotomy (intended)
- YAG indicated
- YAG not indicated
- YAG post cap
- YAG posterior capsulotomy

Post-operative Scleritis

- Brawny scleritis
- Choroidal folds associated with scleritis
- Diffuse anterior scleritis
- Localised anterior scleritis
- Necrotising scleritis
- Nodular scleritis
- Orbital scleritis
- Posterior scleritis
- Scleritis
- Superficial scleritis

Post-operative uveitis

- 1+ vitreous inflammation
- 2+ vitreous inflammation
- 3+ vitreous inflammation
- 4+ vitreous inflammation
- Acute and subacute iridocyclitis
- Acute anterior uveitis
- Acute iritis
- Anterior uveitis
- Chronic anterior uveitis
- Cyclitis
- Inflammatory disorder of the eye
- Intermediate uveitis
- Iritis
- Keratouveitis
- Macular oedema associated with uveitis
- Non-infectious anterior uveitis
- Panophthalmitis
- Pars planitis
- Panuveitis
- Phacoantigenic uveitis
- Posterior uveitis
- Post-operative uveitis
- Sclerouveitis
- Subacute anterior uveitis
- Subacute iritis
- Sympathetic uveitis
- Uveitic glaucoma
- Uveitis
- Uveitis related cystoid macular oedema
- Vitreous inflammation
- Vitreous inflammation - red reflex present

Presumed Infectious Endophthalmitis

- Endophthalmitis
- Infective uveitis
- Post-operative endophthalmitis

Ptosis

- Involutional ptosis
- Mechanical ptosis
- Post-operative ptosis
- Ptosis
- Ptosis due to simple superior rectus weakness
- Ptosis repair aponeurotic repair
- Ptosis repair brow suspension
- Ptosis repair levator resection
- Ptosis repair levator transposition
- Ptosis repair levator weakening
- Ptosis repair other
- Ptosis repair tarso-conjunctival resection

Raised IOP (>21 mmHg)

- Raised intraocular pressure

Retained soft lens matter

- Retained soft lens matter in the capsular bag

Retinal detachment

- 1 quadrant of retina detached
- 2 quadrants of retina detached
- 3 quadrants of retina detached
- 4 quadrants of retina detached
- Chronic rhegmatogenous retinal detachment
- Chronic rhegmatogenous retinal detachment - macula off
- Chronic rhegmatogenous retinal detachment - macula on
- Giant retinal tear
- Largest retinal break 4 clock hours
- Largest retinal break 7 clock hours
- Largest retinal break 8 clock hours
- Largest retinal break 10 clock hours
- New partial retinal detachment with giant retinal tear defect
- New partial retinal detachment with multiple defects
- Partial recent retinal detachment with single defect
- Retinal detachment
- Retinal detachment associated with myopia
- Retinal detachment – subretinal fluid
- Retinal detachment with retinal defect
- Rhegmatogenous retinal detachment
- Rhegmatogenous retinal detachment - macula off
- Rhegmatogenous retinal detachment - macula on
- Rhegmatogenous retinal detachment (1 previous operation for RD)
- Rhegmatogenous retinal detachment (2 previous operations for RD)
- Rhegmatogenous retinal detachment (>2 previous operations for RD)
- Rhegmatogenous retinal detachment (primary)
- Rhegmatogenous retinal detachment associated with myopia
- Unsuccessfully treated retinal detachment
- Untreated retinal break caused failed retinal detachment surgery

Vitreous haemorrhage

- 1+ vitreous haemorrhage
- 2+ vitreous haemorrhage
- 3+ vitreous haemorrhage
- 4+ vitreous haemorrhage
- Vitreous haemorrhage – no red reflex
- Vitreous haemorrhage – red reflex present

Vitreous in the AC / section

- Vitreous in the anterior chamber
- Vitreous to the section

7 Pre-cataract surgery record of the post-surgery complication

If any of the following post-cataract surgery complications are recorded prior to surgery, then the post-surgery record is changed to 'none' under the assumption that the post-surgery record is for an existing problem, and not a new occurrence for the post-surgery complication. For some of these, the pre-cataract record is only considered if within a specified time period prior to cataract surgery;

- Choroidal Effusion / Detachment
- Corneal Oedema / Striae / Haze
- Cystoid Macular Oedema
- Diplopia
- Eyelid Oedema
- Hyphaema
- Hypotony
- Iris to the wound / Prolapse
- Ptosis
- Raised IOP (>21 mmHg)
- Retinal Detachment
- Vitreous Haemorrhage

Summarized in Table is information for each post-cataract surgery complication regarding if inferred or not considered if recorded pre-cataract surgery. For the not considered if recorded pre-cataract surgery criteria, the time period that applies is provided.

Table 1: Information for which post-cataract surgery complications inferring and not considering if also recorded pre-cataract surgery

Post-cataract surgery complication	Infer from diagnosis and indication for surgery	Infer from treatment and ocular assessments	Not consider if recorded pre-cataract surgery
Anterior Capsulophimosis	Yes	Yes (from surgery records)	N/A
Choroidal Effusion / Detachment	Yes	No	Yes (within 2 years prior to cataract surgery)
Corneal Oedema / Striae / Haze	Yes	No	Yes (within 2 years prior to cataract surgery)
Cystoid Macular Oedema	Yes	No	Yes (within 1 year prior to cataract surgery)
Diplopia	Yes	No	Yes (within 1 year prior to cataract surgery)
Eyelid Oedema	No	No	Yes
Hyphaema	Yes	No	Yes
Hypotony	Yes	No	Yes
IOL Decentred	Yes	Yes (from surgery records)	N/A
Iris to the wound / Prolapse	Yes	No	Yes
Other	No	No	No
Posterior Capsular Opacification	Yes	Yes (from surgery records)	N/A
Post-operative Scleritis	Yes	No	No
Post-operative Uveitis	Yes	No	No
Presumed Infectious Endophthalmitis	Yes	Yes (from surgery records)	No
Ptosis*	Yes (limited selection only)	No	Yes

Raised IOP (>21 mmHg)	Yes	Yes (from IOP measurements)	Yes
Retained Soft Lens Matter	Yes	Yes (from surgery records)	N/A
Retinal Detachment	Yes	Yes (from surgery records)	Yes (within 3 months prior to cataract surgery)
Post-operative Scleritis	Yes	No	No
Unexpected Refractive Outcome	No	No	N/A
Vitreous Haemorrhage	Yes	No	Yes
Vitreous in the AC / Section	Yes	Yes (from surgery records)	N/A

*For not considering if recorded prior to cataract surgery the following diagnostic terms are used for pre-cataract ptosis

- Aberrant innervation of III nerve associated with ptosis
- Aberrant innervation of VI nerve associated with ptosis
- Aberrant innervation of VII nerve associated with ptosis
- Blepharophimosis epicanthus inversus ptosis syndrome
- Congenital neurogenic ptosis
- Congenital simple ptosis
- Involutional ptosis
- Mechanical ptosis
- Myopathic ptosis
- Myopathic ptosis due to CPEO
- Neurogenic ptosis
- Post-operative ptosis
- Ptosis
- Ptosis associated with congenital jaw wink
- Ptosis due to a III nerve palsy
- Ptosis due to anophthalmic socket
- Ptosis due to chronic progressive external ophthalmoplegia
- Ptosis due to congenital Horner syndrome

- Ptosis due to congenital simple double elevator palsy
- Ptosis due to Horner syndrome
- Ptosis due to mitochondrial myopathy
- Ptosis due to myasthenia
- Ptosis due to myotonic myopathy
- Ptosis due to oculopharyngeal myopathy
- Ptosis due to simple superior rectus weakness
- Ptosis due to trauma
- Ptosis due to unspecified myopathy
- Ptosis due to unspecified neurogenic cause
- Ptosis repair aponeurotic repair
- Ptosis repair blepharophimosis
- Ptosis repair brow suspension
- Ptosis repair levator resection
- Ptosis repair levator transposition
- Ptosis repair levator weakening
- Ptosis repair other
- Ptosis repair tarso-conjunctival resection