



*The* ROYAL COLLEGE of  
OPHTHALMOLOGISTS

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# National Ophthalmology Database Audit

Year 1 Annual Report – Piloting of the National  
Ophthalmology Database Audit Methodology

**Executive Summary 2016**



*The* ROYAL COLLEGE of  
OPHTHALMOLOGISTS

**NOD**

NATIONAL OPHTHALMOLOGY DATABASE  
AUDIT



**HQIP**

Healthcare Quality  
Improvement Partnership

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**The Royal College of Ophthalmologists** (RCOphth) is the professional body for eye doctors, who are medically qualified and have undergone or are undergoing specialist training in the treatment and management of eye disease, including surgery. As an independent charity, we pride ourselves on providing impartial and clinically based evidence, putting patient care and safety at the heart of everything we do. Ophthalmologists are at the forefront of eye health services because of their extensive training and experience. The Royal College of Ophthalmologists received its Royal Charter in 1988 and has a membership of over 4,000 consultants of all grades. We are not a regulatory body, but we work collaboratively with government, health and charity organisations to recommend and support improvements in the coordination and management of eye care both nationally and regionally.



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**Healthcare Quality Improvement Partnership** (HQIP) is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the National Clinical Audit Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh Government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.



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# Acknowledgements

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We would like to acknowledge the support and guidance we have received from the National Audit Steering Committee which includes professional members, ophthalmologists and optometrists, and patient and public representatives with individual lay members as well as patient support groups being represented. We thank the steering committee for reviewing this report.

We also acknowledge the support of the hospitals that participated in this initial phase of the Audit and thank our medical and non-medical colleagues for the considerable time and effort devoted to data collection. All participating centres are acknowledged on the NOD audit website [nodaudit.org.uk](http://nodaudit.org.uk)

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## Foreword

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Cataract surgery is an extremely successful operative procedure that changes the lives of around 330,000 people annually in England alone. Accurately auditing the complications and surgical outcomes helps to provide essential feedback and reassurance for both patients and ophthalmology departments alike. It is incumbent upon us as a profession to record and publish these findings.

Recognising patient characteristics that may affect the final result of surgery, for example pre-operative morbidity or increased risk of complicated surgery, and factoring them into the analysis, makes comparisons fair and equitable and therefore valid.

This is the first step in a process which will be rolled out through England and Wales (and ideally the rest of the UK in the fullness of time) to provide a truly national picture. It will also include other ophthalmic surgical procedures in due course.

This first audit represents an important development and Professor John Sparrow and his team are commended for delivering this programme of work and providing the valuable information in this report.

A handwritten signature in blue ink, appearing to read 'Carrie MacEwen'.

**Professor Carrie MacEwen**

President, The Royal College of Ophthalmologists

# Executive Summary

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## Background and aims of the audit

Cataract surgery is the most frequently undertaken surgical procedure on the NHS with approximately 330,000 cataract operations undertaken annually in England and 16,000 in Wales. Surgery aims to reduce visual disability in people with cataracts. The National Ophthalmology Database Audit of Cataract Surgery is designed to use data collected as part of routine clinical practice with a view to establishing an audit that will show current national performance and improve cataract care. All centres providing NHS funded cataract surgery in England and Wales will be eligible to join the audit. As of September 2015, electronic data collection audit tools started being offered to currently 'paper based' cataract surgery centres across England and Wales, to allow such centres to participate in future cycles of this electronically based national cataract surgery audit. Prospective data collection for centres with existing or freshly implemented electronic data collection facilities began in September 2015 and analysis of these data will be the subject of future reporting. In addition the programme will in due course report on the feasibility of electronic audits of macular degeneration treatment, retinal detachment surgery, glaucoma surgery and visual field preservation in people with glaucoma.

At this early stage in the programme a self-selected sample of cataract surgery centres in England have provided data for analysis. Although eligible, there are currently no participating Welsh centres. This first report from the National Ophthalmology Database Audit uses these retrospective 'historic' or 'legacy' data to test the approach for future National Cataract Audit cycles through:

1. Piloting multi-centre data extraction, cleaning, refining and analysis.
2. Assessment of data quality.
3. Updating and testing the way outcomes of surgery should be adjusted to allow for risk and complexities in individual cases.
4. Establishment of benchmark outcome standards and associated ranges of acceptable performance for future audit cycles.

The primary outcomes of the audit are surgical complications and vision loss resulting from surgery. Although the vast majority of cataract operations are uneventful, as with any surgical procedure complications may arise. The most frequent of these occurs when the back of the cataract or its supporting structures are breached and this is called posterior capsule rupture, abbreviated as PCR, with a benchmark overall rate of 2%. The importance of this is that when it happens there is a significantly higher chance of vision loss resulting from the surgery. There are many other reasons for vision loss from cataract surgery and these are reflected in the other main audit outcome, visual acuity loss, which will detect serious visual harm from any cause (including progressive co-morbidities in certain cases). The benchmark rate for this adverse outcome is 1.5% overall. The audit is thus focussed on surgical safety and harm from surgery.

There are a number of secondary outcomes which will be developed and refined as the audit becomes established and progresses through its initial stages. Judging improvement from surgery by measuring postoperative monocular visual acuity (VA) is not a particularly good way to assess overall improvement to a person's vision from cataract surgery and this is therefore not included as a primary outcome of this audit, it is however one of the secondary outcomes, as is access to surgery by deprivation index.

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The audit governance structure includes significant patient and public representation. The membership of the audit steering committee includes a patient representative from the Royal College of Ophthalmologists' Lay Advisory Group as well as representation from three relevant national patient support organisations. The committee convenes quarterly to review progress with the audit and to advise the audit provider on the audit procedures and processes. In this initial report however the target audiences remain largely professional and methodological, future reports will include named surgeon and centre outcomes.

### **Data Collection and Methodology**

Included in this first report are 75,827 cataract operations undertaken during the 2014-15 NHS year in 34 English NHS cataract surgical centres. This represents around a quarter of all potentially eligible NHS trusts in England and Wales, and approximately 20% of the eligible cataract surgery undertaken during this period. The centres included in this pilot phase of the audit were self-selected following an invitation to all EMR enabled NHS trusts known to be using an EMR for cataract care. This number of operative procedures should be sufficient for piloting the data extraction procedures and analytical processes required for delivery of future 'prospective' audit cycles, where it is expected that uptake of the audit will increase. The current report contains fully anonymised contextual and outcomes information.

Data completeness was excellent (100%) for the PCR outcome as this is a compulsory operative field in the EMR. An eligible pre-operative distance VA was recorded for 81.0% of eyes and a post-operative VA for 65.2% of eyes, 52.7% of eyes had both a pre-operative and a post-operative VA measurement. There was significant variation between centres for completeness of VA data, a reflection of variations in current modes of use of the EMR in diverse patient pathways.

The likelihood of each of these adverse events occurring varies depending on certain parameters related to individual patients and the state of their eye health. For example, surgery for a hard, brown, advanced cataract has a much higher chance of running into difficulty than an operation for a softer less advanced cataract. In order to ensure as fair a comparison as possible amongst surgeons and centres, statistical models known as 'risk adjustment models' have been developed. These models were developed by reviewing the operations for patients from the NHS years 2011-12 to 2014-15 inclusive to determine the features that most influenced patient outcomes. The key outcome measures being reported in this and future audit cycles will be the risk adjusted rate for the complication of posterior capsule rupture (PCR) during surgery, and the risk adjusted rate of visual acuity (VA) loss from before to after surgery. In this initial report the benchmark values (means) of 2.0% for PCR and 1.5% for Visual Loss were used. All the participating surgeons and centres were found to be within the acceptable range for the 2014-15 NHS year audited.

### **Recommendations and Next Steps**

At this early stage of the audit recommendations will be limited.

1. Surgeons are reminded that risk adjustment can only be successfully applied if the risk indicator data are recorded in the EMR. With these data surgeons can be given appropriate credit for the complexity of their case mix using the risk adjustment model.
2. Centres and surgeons are requested to review their patient pathways in order to maximise the recording of both pre- and postoperative VA data. Returns of VA and refraction from optometrists can be encouraged in a variety of ways, including through use of the electronic data return tool available to all participating centres as part of the free audit tool kit.

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3. Centres are reminded that all NCAPOP audits are mandated and a timely response to the audit providers and their subcontractors is expected in regard to arrangements for participation in the audit.
  4. Commissioners are reminded that participation in this audit, as part of the NCAPOP, is a requirement of the NHS Standard Contract. They are reminded to check their contracts with all NHS funded providers to ensure that participation in the audit is included in the service specification in order to take full advantage of the quality assurance opportunity for the population they serve.

In conclusion, the piloting of the audit methodology for this National Ophthalmology Database Audit of Cataract Surgery has set the scene for future prospective audit cycles. National audits such as this are mandated and participation with complete data collection are encouraged. Providing electronic audit tools to centres which are currently paper based will avoid duplicate data collection and facilitate uptake and participation. As the audit becomes established, opportunities to include other EMRs and local databases collecting compliant data will be explored. In future audit cycles results for named surgeons and centres will be published. It is anticipated that highlighting performance in this way will facilitate identification of any possible poor practice and act as a quality improvement driver. In future, centres and surgeons with particularly good outcomes may provide opportunities for learning and cascade of best practice.

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