

Press Release

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New report shows potential to improve cataract surgery outcomes through advanced IOL data reporting

The Royal College of Ophthalmologists (RCOphth) recommends eye care centres monitor their own data to identify how their use of Intraocular Lenses (IOLs) affects the rate of a post-operative cataract surgical complication known as Posterior Capsular Opacification (PCO).

[Read the RCOphth Feasibility study of Post-cataract Posterior Capsule Opacification Report 2021](#)

New analysis of over 600,000 cataract operations suggests that there is considerable potential to reduce PCO and reduce costs. Clinics could take steps to make better informed decisions on procurement, by improving data collection and moving to utilisation of Electronic Medical Records (EMR) across their whole eye service.

Analysis of the RCOphth [National Ophthalmology Database](#) (NOD) Cataract Audit dataset – which includes 601,084 cataract operations performed by 2,566 surgeons in 58 eye care centres – revealed vast variation in observed post-cataract PCO rates between different contributing centres and different IOL materials and designs, such as the higher observed PCO rate in IOLs with a hydrophilic component.

The analysis is published today in a report by RCOphth. The authors are Paul Donachie, John Buchan, and John Sparrow. This work was made possible with funding from Alcon, who are supporting the NOD programme.

PCO is a complication which can occur months or years after cataract surgery. PCO occurs when a cloudy layer of scar tissue forms behind the lens implant; this can cause blurred or hazy vision or glare from lights. PCO is estimated to occur in roughly one in five eyes that have cataract surgery and is usually treated by Yttrium Aluminium Garnet (YAG) laser surgery.

Although there were multiple surgical and ocular factors found to influence the risk of PCO YAG, none of these alone can account for the vast variation in observed PCO rates in the report. However, better monitoring of performance of IOLs to reduce complications could result in fewer clinic visits by patients, freeing up resource in the ophthalmic workforce. Fewer YAG capsulotomy surgeries conducted could reduce the current annual £8 million NHS expenditure¹ on these corrective procedures and improve patient outcomes.

John Buchan, NOD Cataract Audit Clinical Lead and consultant ophthalmologist, Leeds Teaching Hospitals NHS Trust explains:

“The extent of variation that we found suggests that there could be substantial benefits to patients and to the NHS from further work to identify the IOL’s or other modifiable risk factors that impact PCO rates in individual centres. Reductions in the incidence of PCO YAG could benefit thousands of patients, by avoiding YAG laser surgery thus reducing hospital visits, improving patient outcomes and liberating NHS resources”.

Cataract surgery is the most frequently performed surgical procedure in the UK, with around 472,000 carried out in the NHS (England and Wales). It is also cost effective and highly successful in providing patients with improved quality of life.

The report recommends that individual eye care centres should:

- Compare PCO rates for different IOL's utilised within the same centre to identify IOLs (and other modifiable risk factors) which minimise the rates of PCO.
- Investigate measures to improve data collection, including moving to utilisation of EMR across their whole eye service including any community-based follow-up.
- Recognise the false economy for NHS providers to opt for less expensive IOLs with higher rates of PCO, given the negative effects on patients (who are often elderly) and the average cost to the NHS of the YAG laser capsulotomy needed to correct PCO.

Key findings:

- The overall post-operative one-, three-, and five-year PCO rates in patients for whom follow up data was available were 4.0%, 18.0% & 31.2% respectively.
- About half of the centres have a single preferred IOL model which they use in >90% of cases.
- The strong association of centres with IOL models coupled with the very large variation in PCO rates between centres, introduces a great deal of uncertainty about the source of variation in the observed PCO rates.
- Therefore, this analysis of RCOphth NOD cataract audit data cannot definitively state that any individual IOL put the patient at higher risk of developing PCO.
- Consequently, the RCOphth NOD cannot advise changes in clinical practice regarding which IOL to use.

Mike Turner, Surgical Business Unit Head, Alcon UK & Ireland, commented "Alcon is delighted to partner with the National Ophthalmology Database and The Royal College of Ophthalmologists. As the global leader in eye care, we are committed to ensuring that we continue to develop innovative technologies and solutions with patient outcomes and health system specific benefits at the centre of what we are trying to achieve. This partnership is a great opportunity to future-proof the ability of the NHS to measure these outcomes through objective means, both now and in the future."

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Cataracts are treated by surgery, during which the cloudy lens is removed and replaced by an artificial lens. The artificial lens is known as an intraocular lens (IOL). There are no medicines or eye drops that can successfully treat cataracts; surgery is the only way to treat them. For most patients, avoidance of intraoperative complications is achieved and follow up is completed after the assessment of postoperative visual acuity (VA). Unfortunately, there are some known long-term issues affecting patients who have cataract surgery, for example Posterior Capsular Opacification (PCO).

The National Ophthalmology Database Audit: Cataract Surgery England and Wales is managed by the Royall College of Ophthalmologists, and currently funded through participation fees from centres as well as contributions from Alcon Eye Care UK Limited and Bausch + Lomb. The RCOphth is grateful for these donations.

Further information about the [National Ophthalmology Database Audit can be found here](#).

¹Data from NHS Digital shows that the HRG most frequently used for YAG capsulotomy (BZ33Z) was recorded over 60,000 times in England during the NHS 2018/19 year with a mean cost of £132, hence incurring the expenditure of >£8 million.