



Policy Document:

# National Ophthalmology Database Cataract Audit: Outliers Policy

**1st March 2026**

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# 1. Overview

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## 1.1 Introduction

This document outlines the policy and procedures for identifying and managing outliers in the National Ophthalmology Database (NOD) Cataract Audit.

It provides clarity on the process steps for the identification and notification of outliers. It lists out what action should be taken, who should take it, and when, to ensure replicability and quality control.

Following discussion with the NOD Cataract Advisory Group and Quality, Audit and Standards Committee, the outlier policy has been updated to allow for more appropriate identification of surgeons or centres experiencing high rates of complications to promote quality and safety in cataract surgical service provision.

Why change?

- The old definition had not identified any clinically active posterior capsule rupture outlier surgeons or centre in the past decade, and a small number of Visual Acuity Loss outliers, despite over 3,000 surgeons and over 200 centres being audited. This feels like a missed opportunity to drive quality improvement.
- The previous policy only used one year of surgical data, hence would, if thresholds for outlier detection were adjusted, be susceptible to identifying outliers who had clusters of complications in a single year. An evaluation period of three years has been added for surgeons, so as to highlight performance consistently below the expected standard.

This process will be followed for the analysis of data from surgery undertaken from April 2025 onwards.

Identification of 'outlier' status indicates a statistical value and does not necessarily mean outlying performance by a surgeon or an organisation. Judgements on performance can only be made after examination of all the issues involved in the delivery of care, and this may be multi-factorial and complex. It will always be possible to trigger the outlier policy due to chance alone, and any abnormal findings may not represent poor care.

## 1.2 What is an outlier?

Every analysis of national clinical audit data is likely to detect some rates of clinical outcome that are significantly higher, or lower, than expected. High rates may indicate performance issues that may need to be addressed. Low rates may indicate excellent practice that would be beneficial to describe in detail and disseminate to other healthcare providers. Outliers are identified using statistical thresholds. Healthcare Quality Improvement Partnership (HQIP) recommends defining outliers

based on a two-sided statistical approach with threshold p-values of 0.05 for 'Alert' and 0.002 for 'Alarm'.

- "Alert" level: performance more than 2 standard deviations (SD) from the target
- "Alarm" level: performance more than 3 standard deviations from the target

### 1.3 What has changed since the March 2020 NOD outlier policy?

- i. In addition to the existing outlier identification based on 1-year of data for individual surgeon's posterior capsule rupture (PCR) rates which are publicly visible on the NOD website, the audit is adopting a rolling 3-year outlier assessment.
- ii. The RCOphth will contact surgeons and the lead clinician if, for the most recent 3-year period, a surgeon experienced a risk-adjusted PCR rate which is  $\geq 4\%$ , or  $\geq 2SD$  above the comparison value. These thresholds will be applied regardless of surgical volume.
- iii. The comparison values used for deriving the SD limits will now be updated in each audit year. The comparison value used for the website outlier identification based on a 1-year sample is the unadjusted overall rate in the latest audit year from all centres.
- iv. The comparison value for surgeons' PCR rate 3-year sample audit is the unadjusted overall rate from the latest 3-year assessment period and does not include operations performed when a surgeon was in surgical training.
- v. The risk adjustment model used for PCR adjusted results was updated in 2024.

There will, therefore, be two separate outlier identification processes in operation.

1. **National Cataract Audit Annual Quality Assurance Outlier Detection** - The first aligns with HQIP guidance and other National Audits, and is for public-facing quality assurance. This National Cataract Audit Annual Quality Assurance Outlier Detection is based on a 1-year sample, whose results are publicly visible on the NOD website. All surgeons and centres who have been evaluated against these standards and were found to be within acceptable limits ( $< 3SD$ ) will have their results listed on the NOD website with a green tick icon to denote they have passed this quality assurance process. The processes triggered by identification of outliers at the 2-standard deviation (SD) (Alert) and 3-SD (Alarm) thresholds for this single year of data are described in detail below.
2. **RCOphth NOD Quality Improvement Outlier Detection** – The new process aims to identify fully trained surgeons who have consistently been experiencing higher PCR rates than peers. A rolling 3-year sample will be evaluated against a comparator value from the same period. All surgeons experiencing a risk-adjusted PCR rate which is  $\geq 4\%$ , or  $\geq 2SD$  above the

comparison value will be contacted by the RCOphth NOD team to inform them of the rates identified (with CC to their lead clinician for the purpose of safety-netting). These thresholds will be applied regardless of surgical volume to avoid low-volume surgeons being excluded from the process.

All levels of surgeons outside of the specialty training pathway will be included within these 2 identification processes. This will include consultants, specialty doctors, specialist doctors and locally employed doctors (LEDs).

## 1.4 Developing this guidance

The RCOphth NOD follows the principles of outlier management developed with HQIP, information is available on the HQIP website [https://www.hqip.org.uk/wp-content/uploads/2025/11/NCAPOP-Outlier-Guidance\\_2025-Oct-Update-v2.pdf](https://www.hqip.org.uk/wp-content/uploads/2025/11/NCAPOP-Outlier-Guidance_2025-Oct-Update-v2.pdf). This guidance is based on the HQIP/Department of Health 'Detection and management of outliers: Guidance prepared by National Clinical Audit Advisory Group (31 January 2011, Gateway Reference 14911) and the HQIP 'Technical Manual for the Clinical Outcomes Publication (COP), HQIP's 'Detection and management of outliers for National Clinical Audits (May 2018) and Detection and management of outliers for National Clinical Audits in Wales (November 2018). This document should be read in conjunction with these documents.

## 2. Responsibilities

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Clinical audit and quality improvement within provider organisations is a shared responsibility. It is the responsibility of the organisation Board, through the medical director, to assure that audit activity is taking place and leading to quality improvement and reassurance. To ensure this takes place:

- Provider organisations have a responsibility for submitting accurate and complete data
- Individual clinicians have personal responsibility for data accuracy and responding to audit results
- The Royal College of Ophthalmologists (RCOphth) NOD team manages the outlier detection and communication process
- Responsible officers must ensure appropriate investigation of outliers

### 2.1 Alert: Annual Quality Assurance Outlier Detection

Surgeons and their Lead Clinicians will be contacted regarding outlier status at the Alert level based on a 1-year sample. RCOphth NOD team members making this contact will ask for confirmation of receipt of notification and feedback regarding action taken. If feedback is not received within a month of notification, then an additional contact will be made with the centre's Medical Director/Chief Medical Officer to safety net the communication.

## **2.2 Alarm: Annual Quality Assurance Outlier Detection**

After verification of the results leading to this denotation with the surgeon/centre, notification will be made to the Surgeon, Lead Clinician and Responsible Officer. For an Alarm regarding an individual surgeon, anonymous notification will be made to the GMC that there is an individual data alarm in a named organisation. For alarm level outliers in England, the CQC expects to see evidence of appropriate initial and substantive action plans. The CQC will consider the data as part of its monitoring process. The CQC will not usually take regulatory action if organisations respond appropriately to each stage of the outlier management process at alert and alarm level.

For Alarm level outliers in Wales, the Welsh Government monitors the actions of organisations and takes further action as and when required. Health Inspectorate Wales (HIW) does not act as regulator and cannot take regulatory action in relation to NHS providers. However, HIW can request information on the actions undertaken by organisations to ensure safe services are being delivered. The Welsh Government can share information with HIW where appropriate and advise on the robustness of plans in place to improve audit results and outcomes.

## **2.3 RCOphth outlier management: Annual Quality Assurance Outlier Detection**

### **2.3.1 Individual outlier: Annual Quality Assurance Outlier Detection**

1. For an individual outlier at the “alarm” level, the RO of that individual should have a discussion with the GMC Employer Liaison Officer (ELA) so that the ELA is aware of the situation and local steps taken to address these concerns. RCOphth NOD would seek assurance from the RO that this communication with GMC ELA has taken place.

### **2.3.2 Organisation Outlier: Annual Quality Assurance Outlier Detection**

- 1 Communication from the College’s National Audit Clinical Lead to the outlier organisation’s Ophthalmology Clinical Lead to inform them of their responsibility to inform the relevant organisations and individuals.
- 2 If there is no reassurance from the organisation to the RCOphth that such communication has taken place or if there is a refusal to communicate, the RCOphth audit clinical lead will communicate directly with the relevant regulator.

## **2.4 RCOphth outlier management: Quality Improvement Outlier Detection**

### **2.4.1 Individual Outlier: RCOphth NOD Quality Improvement Outlier Detection**

1. The RCOphth will communicate with the clinician and the department clinical lead.

2. Acknowledgment of receipt of notification from both the surgeon and the lead clinician will be recorded, and pursued via centre senior management if no response is received.
3. Feedback regarding action taken will be requested, with the aim of compiling a candidate list of potential interventions as a tool-kit for quality improvement for dissemination to future outliers.

### 3. Background

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The previous Outlier Policy is available on the [NOD website](#).

For the RCOphth NOD national cataract audit, the outlier analysis takes into account the complexity of the operations undertaken through the risk adjustment process. This risk adjustment model for PCR has been updated since the last Outlier Policy and was published in the journal *Eye* in 2024 under the title "[The Royal College of Ophthalmologists' National Ophthalmology Database study of cataract surgery: Report 17, A risk factor model for posterior capsule rupture.](#)" PY Sim, PHJ Donachie, AC Day, JC Buchan.

### 4. Indemnity

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Although the RCOphth NOD is no longer part of the HQIP NCAPOP, the RCOphth NOD follows the guidance that national clinical audit providers to obtain a) professional indemnity and b) public liability insurance cover for a minimum of £5 million for both a) and b).

### 5. Data Validation

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Complete case ascertainment with full data still requires the data to be valid. Both the outcome data fields and those used for risk adjustment must be valid or analyses may produce inaccurate information.

Outcomes data are the most crucial fields. Even small errors in either the numerator or denominator of an analysis may have profound implications.

Organisations are given the opportunity to check and add/amend data where necessary prior to publication. A recommended timeline for data validation is noted in Appendix 1.

Contributing surgeons are invited to check their data behind a secure log in on the audit website prior to publication via an email from the RCOphth NOD. Where possible errors are identified these must be referred to the RCOphth NOD for checking. Any outlier surgeon or centre will be contacted individually regarding checking accuracy of data.

The RCOphth NOD data can be run as a real time audit in ophthalmology departments with EMRs that have the functionality to run real time reports. In this way, any individual whose outcome data strays close to unacceptable confidence limits will be identified at an early stage. This will enable prompt identification of any underlying adverse issues enabling the individual to be aware of this and work within the department and organisation to rectify the situation so that the chance that patients may have a poor experience will be minimised. In addition, the individual, the department and the provider organisation can be assured that all patients are experiencing good care.

A medical director, when faced with information suggesting one of their surgeons is an outlier, would need to discuss the situation with the surgeon, who should ideally already be aware, and with the Clinical Lead for the department. Prior to initiating exclusion or investigative actions, the Medical Director should seek help and advice from the RCOphth, Professional Society or the audit clinical lead. Organisational HR input may or may not be appropriate. There will be occasions when the medical director is concerned that patient safety may be compromised and, under Maintaining High Professional Standards, might wish to exclude or restrict an individual pending an investigation. The MD/RO should also consider discussing the issue with their GMC Employment Liaison Adviser (ELA). The Clinical Audit Lead for the audit and NOD audit team are available for discussion with the MD if requested so that such issues could be discussed, and unnecessary exclusions avoided.

Analysis suggests complication rates that are higher than expected should trigger appropriate discussion and action within the organisation concerned. The provider organisation Board must always be reassured that their services are safe and effective.

**We emphasise that medical practice should not be restricted or suspended, unless indicated as necessary by other factors, while the above processes are being followed.**

## 6. Point of Contact

Point of contact to help support decision making and process for resolving potential conflicts that arise as a result [noa.project@rcophth.ac.uk](mailto:noa.project@rcophth.ac.uk)

## 7. Presentation of Information

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Information is presented on the RCOphth NOD website: <https://www.nodaudit.org.uk/>

## Appendix 1: Outlier Management for Annual Quality Assurance Outlier Detection

Stage	Action	Who?	Timing
1.	Performance indicators suggesting negative outliers at the 'Alert' or 'Alarm' level will lead the RCOphth NOD team to contact the centre/surgeon and ask them to re-check the data.	RCOphth NOD	Contact centres/surgeons within 10 working days of analysis identifying potential outlier
2	Lead Clinician and Surgeon to provide acknowledgement of potential outlier notification to the RCOphth.  <i>If no acknowledgement is received a reminder is sent with the provider Medical Director/Chief Medical Officer copied in</i>	Provider Lead Clinician and Surgeon	Within 10 working days of notification from NOD team
3	Lead Clinician in the provider organisation (and surgeon involved for surgeon outlier) identify any data errors or justifiable data explanations.  All relevant data and analyses should be made available to the Lead Clinician (and surgeon).	Centre/ surgeon to respond NOD clinical audit lead/ Chair Quality, Audit and Standards Committee	Within 10 working days of being contacted by the NOD team
4	Any data revisions are then incorporated and re-analyses undertaken to determine if there is:  <b>'No case to answer'</b> <ul style="list-style-type: none"> <li>It is confirmed that the data originally supplied by the provider contained inaccuracies. Reanalysis of accurate data no longer indicate outlier status.</li> <li>Data and results revised in audit records.</li> <li>Details of the provider's response and review result are recorded.</li> <li>Request from the RCOphth NOD audit lead to provider organisation Lead Clinician as to why the original data was inaccurate and what has been put in place to prevent a reoccurrence.</li> </ul>	RCOphth NOD team	Within 10 working days of response from potential outlier centres and surgeons

	<ul style="list-style-type: none"> <li>Request from the RCOphth NOD audit lead to provider organisation Lead Clinician (and surgeon if surgeon outlier) to make relevant corrections to source data to correct errors in local patient records.</li> </ul> <p><b>‘Case to answer’</b></p> <ul style="list-style-type: none"> <li>It is confirmed that although the data originally supplied by the provider were inaccurate, analysis still indicates outlier status; or.</li> <li>It is confirmed that the data originally supplied were accurate, thus confirming the initial designation of outlier status.</li> </ul> <p><i>Proceed to stage 5</i></p> <p><i>If no response received the RCOphth NOD audit lead will escalate to provider Medical Director/ Chief Medical Officer</i></p>		
5	<p><b>Surgeon ‘Alert’ Level</b> Lead clinician and surgeon are contacted by email, prior to written confirmation of outlier status reported to Medical Director/Chief Medical Officer. All relevant data and statistical analysis, including previous response from the Lead Clinician, will be made available to the Medical Director/Chief Medical Officer.</p> <p><b>Surgeon ‘Alarm’ Level</b> Lead Clinician and surgeon are contact prior to written confirmation of outlier status to Responsible Officer and Medical Director/Chief Medical Officer. All relevant data and statistical analysis, including previous responses from Lead Clinician will be made available to the Medical Director/Chief Medical Officer and Responsible Officer. Anonymous notification will be made to the GMC of an ‘Alarm’ level surgeon outlier.</p> <p><b>Organisation ‘Alert’ Level</b> Lead Clinician is contacted prior to written confirmation of outlier status to Medical Director. All relevant data and statistical analysis, including previous response from the Lead Clinician, will be made available to the Medical Director/Chief</p>	RCOphth NOD audit lead	Within 5 working days of confirmed ‘case to answer’

	<p>Medical Officer</p> <p><b>Organisation ‘Alarm’ Level</b> Lead Clinician is contacted prior to written confirmation of outlier status to Medical Director/Chief Medical Officer and Chief Executive Officer. All relevant data and statistical analysis, including previous response from the Lead Clinician, will be made available to the Medical Director/Chief Medical Officer and Chief Executive Officer.</p> <p>RCOPhth NOD team will inform the appropriate regulator that an ‘Alarm’ level outlier has been identified.</p>		
6	<p><b>Surgeon ‘Alert’ Level</b> Acknowledgement of receipt of the letter by the Medical Director/Chief Medical Officer confirming a local investigation will be undertaken.</p> <p><b>Surgeon ‘Alarm’ Level</b> Acknowledgement of receipt of the letter by the Medical Director/Chief Medical Officer and Surgeon’s Responsible Officer confirming a local investigation will be undertaken and that GMC Employment Liaison Advisor.</p> <p><b>Organisation ‘Alert’ Level</b> Acknowledgement of receipt of the letter by the Medical Director/Chief Medical Officer confirming a local investigation will be undertaken.</p> <p><b>Organisation ‘Alarm’ Level</b> Acknowledgement of receipt of the letter by the Medical Director/Chief Medical Officer and Chief Executive Officer confirming a local investigation will be undertaken.</p> <p>Provider Chief Executive Officer should inform commissioners and NHS regional teams.</p>	<p>Provider Medical Director, Responsible Officer or Chief Executive</p>	<p>Within 10 working days of receipt of letter</p>

	<i>If no acknowledgement is received within 10 working days a reminder will be sent copied to relevant regulator. If data are found to be inaccurate during further local investigation this should be corrected and the NOD team informed within 25 working days of notification letter receipt.</i>		
7	<p><b>Surgeon ‘Alert’ Level</b> No further action required (although provider feedback on action taken will be anonymised and stored for future QI idea-sharing)</p> <p><b>Surgeon ‘Alarm’ Level</b> Action plan from local investigation should be shared with the NOD audit team.</p> <p><b>Organisation ‘Alert’ Level</b> No further action required (although provider feedback on action taken will be anonymised and stored for future QI idea-sharing)</p> <p><b>Organisation ‘Alarm’ Level</b> Action plan from local investigation should be shared with the NOD audit team.</p>		Within 25 working days of notification letter receipt.

## Appendix 2: Outlier Management for Quality Improvement Outlier Detection

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Stage	Action	Who?	Timing
1.	Performance indicators suggesting negative outliers at the 'Alert' or 'Alarm' level will lead the RCOphth NOD team to contact the centre/surgeon and ask them to re-check the data.	RCOphth NOD to contact centre/surgeon	Contact centres within 10 working days of analysis identifying potential outlier
2	Lead Clinician and Surgeon to provide acknowledgement of potential outlier notification to the RCOphth.  <i>If no acknowledgement is received a reminder is sent with the provider Medical Director copied in</i>	Provider Lead Clinician and Surgeon	Within 10 working days of notification from NOD team
3	Lead clinician and Surgeon to complete requested review of surgical data to identify any data errors or justifiable data explanations. Lead Clinician should inform the NOD team of the outcome of this review.  <i>If no response is received a reminder is sent with the provider Medical Director copied in</i>	Provider Lead Clinician and Surgeon	Within 25 working days of original notification from NOD team
4	Review of Lead Clinician's response to determine:  <b>'No case to answer'</b> <ul style="list-style-type: none"> <li>It is confirmed that the data originally supplied by the provider contained inaccuracies. Reanalysis of accurate data no longer indicate outlier status.</li> <li>Data and results revised in audit records. Details of the provider's response and review result recorded by NOD team.</li> <li>Lead Clinician and surgeon if surgeon outlier notified in writing</li> </ul>	NOD team and NOD Cataract audit lead	Within 20 working days of response from Lead Clinician

	<ul style="list-style-type: none"> <li>Request from the RCOphth NOD audit lead to provider organisation Lead Clinician as to why the original data was inaccurate and what has been put in place to prevent a reoccurrence.</li> <li>Request from the RCOphth NOD audit lead to provider organisation Lead Clinician (and surgeon if surgeon outlier) to make relevant corrections to source data to correct errors in local patient records.</li> </ul> <p><b>‘Case to answer’</b></p> <ul style="list-style-type: none"> <li>It is confirmed that although the data originally supplied by the provider were inaccurate, analysis still indicates outlier status; or.</li> <li>It is confirmed that the data originally supplied were accurate, thus confirming the initial designation of outlier status.</li> </ul> <p><i>Proceed to stage 5</i></p> <p><i>If no response received the RCOphth NOD audit lead will escalate to provider Medical Director/Chief Medical Officer</i></p>		
5	Lead Clinician and Surgeon are informed of a confirmed outlier status under the NOD Quality Improvement Outlier policy. RCOphth NOD team to provide quality improvement ‘tool-kit’ to support further actions.	RCOphth NOD audit lead	Within 5 working days of confirmation of ‘case to answer’
6	Lead Clinician and Surgeon to feedback planned actions to further develop RCOphth ‘tool-kit’	Lead Clinician and Surgeon	Within 25 working days of notification of outlier status

## Appendix 3 Glossary of Terms and Version History

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CQC	Care Quality Commission
ELA	Employment Liaison Adviser (GMC)
EMR	Electronic Medical Record
GMC	General Medical Council
HES	Hospital Episode Statistics
HIW	Health Inspectorate Wales
HR	Human Resources
HQIP	Healthcare Quality Improvement Partnership
MD	Medical Director
NCA	National Clinical Audit
NCAPOP	National Clinical Audit and Patient Outcomes Programme
NOD	National Ophthalmology Database
PCR	Posterior Capsular Rupture
RCOphth	Royal College of Ophthalmologists
RO	Responsible Officer
VA	Visual Acuity

### Version History

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.1	BB	06/01/2020	N/A	N/A	First draft
1.2	BB	22/01/2020			Amendments following feedback from JS, and Northern Ireland
1.3	BB	06/03/2020	N/A	N/A	Amendments following feedback from HQIP and Wales

1.4	BB	10/03/2020	Professional Standards Committee	07/02/2020	Approval granted by Professional Standards Committee subject to NOD team finalising any outstanding queries from Wales
1.5	JB	1/3/2026	Quality, Audit and Standards Committee	23/1/2026	Inclusion of quality improvement outlier process