



National Ophthalmology Database Audit

Year 5 Annual Report – The Fourth Prospective Report
of the National Ophthalmology Database Audit

NHS or equivalent Funded Cataract Surgery:
01 September 2018 to 31 August 2019

2020

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Contents

Foreword	5	8.5 Index of multiple deprivation	20
Executive Summary	6	8.6 Preoperative Visual Acuity (VA)	21
Background	6	8.7 Ocular co-pathology and risk indicators	25
Aims of the audit	6	8.8 Operation characteristics	27
Audit measures	6	8.9 Operative complications	27
Results	7	8.10 Postoperative complications	28
Recommendations	9	8.11 Postoperative visual acuity	30
For Patients	9	8.12 Change in visual acuity	32
For Providers of cataract surgery	9	8.13 Case complexity adjusted PCR results	35
For Commissioners	10	8.14 Case complexity adjusted visual loss results	37
For the Regulators	10		
1. Introduction	11	9. Summary of Key Points	40
2. Audit Framework	12	10. Conclusions	41
3. Aims	12	11. Future of the audit	41
4. NHS Trust / Health Board and Surgeon Participation	13	12. Acknowledgements	42
5. Methodology	13	13. Funding	42
5.1 Context of the data collection	13	14. The RCOphth NOD Audit Team	43
5.2 Case ascertainment	14	Appendix 1: Data Flow	44
5.3 Data quality and completeness	14	Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey	45
5.4 Small numbers policy	14	Appendix 3: Interpreting the graphs and tables	51
5.5 Outliers policy	14	Appendix 4: Case Definitions	53
5.6 Limitations of the data	14	Appendix 5: Glossary	56
6. Data Extraction, Cleaning and Statistical Methods	15	Appendix 6: The number of eligible operations and the proportion performed by each grade of surgeon	58
7. Definitions	15	Appendix 7: Preoperative, postoperative and change in VA percentages	63
7.1 Dataset	15	Appendix 8: The percentage of first and second treated eyes with postoperative VA data	68
7.2 Surgeon grade	15	Appendix 9: Case complexity PCR and VA Loss	73
7.3 Posterior Capsule Rupture (PCR)	15	Appendix 10: Cataract audit years one to four patient details for first eye, second eye and immediate sequential bilateral cataract surgery	78
7.4 Visual Acuity (VA)	15	Appendix 11: Cataract audit years one to our case ascertainment and percentage of eyes with any ocular co-pathology / known risk indicator	80
7.5 Mixed effects modelling of PCR and Visual Acuity Loss	16		
7.6 Case complexity index	16		
8. Results	16		
8.1 Case ascertainment	16		
8.2 Surgeons	17		
8.3 Patient characteristics – age and gender	19		
8.4 First eye, second eye and immediate sequential bilateral cataract surgery	19		

Contents

Appendix 12: Cataract audit years one to four percentage of eyes with each ocular co-pathology / known risk indicator	85
Appendix 13: Cataract audit years one to four percentage of eyes with VA data	86
Appendix 14: Cataract audit years one to four case complexity adjusted PCR and VA loss	91
Appendix 15: The percentage of eyes with VA data at different time intervals	96
Appendix 16: Operative procedures combined with phacoemulsification ± IOL	101

Foreword

On behalf of the Royal College of Ophthalmologists (RCOphth), I would like to congratulate Professor John Sparrow and his team, Kathy Evans, Beth Barnes, Paul Donachie, Martina Olaitan and Lynne Sander for the continued success of the National Ophthalmology Database (NOD) Audit. It is encouraging to see that participation by the providers of cataract surgery across the NHS hospital eye service and other qualified providers remains high.

At an annual estimated cost of around £500 million, cataract surgery remains the most frequently undertaken surgical procedure in the NHS. With approximately 452,000 cataract operations undertaken in England and 20,000 in Wales during 2018-2019, understanding the outcomes of this high-volume sight restoring procedure is critically important to patients, surgeons and service commissioners.

Funding has been secured to run the RCOphth NOD Audit through participation fees from centres as well as contributions from Alcon and Bausch and Lomb. The ongoing support from participating centres and industry has allowed the RCOphth NOD to continue its ground breaking work and is much appreciated. The use of Electronic Medical Record data collected as part of routine clinical care provides a uniquely rich and complete database which allows for risk adjustment of key outcomes for participating centres and surgeons.

This fourth prospective RCOphth NOD National Cataract Audit report, reviewed data from 241,561 cataract operations performed at 73 NHS Trusts in England, four Local Health Boards in Wales, 23 independent treatment centre sites and one centre in Guernsey, representing over half of all publicly funded cataract surgery undertaken during the reporting period. No poorly performing centres or surgeons were found for posterior capsule rupture or postoperative visual acuity loss. There was a further fall in the unadjusted posterior capsule rupture rate to 1.14%, down from 1.25% last year and 1.91% since early data collection in 2010, and a continuation of the yearly reduction in the unadjusted rate for postoperative visual acuity loss to 0.51% from an initial 0.91% in 2010. These findings represent important reductions in the number of people living with the consequences of cataract surgery complications, and a significant cost saving to the NHS estimated at £2 million annually.

Finally, as Professor Sparrow steps down as the clinical lead after 10 years, I wish to thank him for all his hard work and perseverance in establishing and growing the RCOphth NOD for cataract surgery. I wish his successor Mr John Buchan the same success and look forward to the introduction of cataract Patient Reported Outcome Measures (PROMS) in future audits.



Professor Bernie Chang

President, The Royal College of Ophthalmologists

Executive Summary

Background

Cataract surgery remains the most frequently undertaken NHS surgical procedure with approximately 452,000 cataract operations undertaken in England and 20,000 in Wales during 2018-2019. The annual cost to the NHS of publicly funded cataract surgery is estimated at around £500 million.

Aims of the audit

The audit is intended to quality assure NHS and publicly funded cataract surgery for patients whose vision is adversely affected by cataract to the point where they seek and undergo surgical intervention. Should performance fall short of what can reasonably be expected by patients this is highlighted. In addition, the audit serves as a powerful driver of quality improvement with year on year reductions in complication rates as evidenced in our series of annual reports available at nodaudit.org.uk/resources/publications-annual-report. The RCOphth NOD is configured to receive data from both public and private sectors and encourages participation of all cataract surgery service providers.

The RCOphth NOD prospectively collects cataract surgery data and provides results for named centres offering NHS and publicly funded independent surgery. These include operations performed and recorded by all surgeons of all grades within centres. Outcomes for named consultant surgeons will be separately published on the RCOphth NOD Audit website and results for English and Welsh centres will be submitted to the Care Quality Commission (CQC).

Included in this fourth prospective report are **operations undertaken between 01 September 2018 and 31 August 2019.**

Audit measures

The hallmarks of high quality are low rates of adverse outcomes based on complete data submissions for all cataract procedures undertaken by contributing centres. Since the original proof of concept of a national cataract audit in 2010, there has been around a 40% reduction in PCR complications and VA Losses in cataract surgery, (Table 1, page 8) equating to approximately 3,500 fewer complications annually across the NHS and an estimated annual saving from avoided additional treatments of £2 million.

Two primary outcome indicators of surgical quality are audited. These are:

1. A complication that may occur during surgery when the capsular bag that holds the lens breaks (the index surgical intraoperative complication of significant breach of the lens-zonule barrier through rupture of the posterior lens capsule or vitreous prolapse or both, abbreviated as PCR), and
2. Visual Acuity (VA) Loss (doubling or worse of the visual angle) related to surgery (equivalent to a loss of 3 or more lines or 15 or more letters on a LogMAR chart).

These outcomes are presented as risk adjusted rates for centres and consultant surgeons, supported by relevant contextual information including surgical volumes, data completeness, case complexity, access to surgery and deprivation.

The overall rates of 1.10% for PCR and 0.90% for VA Loss which are used for risk adjustment of outcomes are based on the average rates for consultant surgeons in previous years. The risk indicators for each of these adverse events were derived from earlier data collections. Case complexity is known to be an important determinant of outcome and a case complexity index is included to document the complexity of surgery being reported. The vast majority of data

were obtained through extraction from Electronic Medical Record (EMR) systems, with a small number of centres choosing to submit data from their pre-existing audit databases.

Posterior Capsule Rupture – PCR

As an adverse operative event, PCR is relevant because it results in a significantly higher risk of harm to the eye and may impact recovery of vision. For example, there is an approximately 40-fold higher risk of a retinal detachment occurring following cataract surgery if PCR occurred. Retinal surgery, to correct the detachment, imposes additional risks, morbidity and cost.

Visual Acuity Loss – VA Loss

Since VA Loss from surgery is the opposite of the intended effect, these key primary outcomes together capture relevant safety elements of surgical quality. Determination of VA Loss depends on availability of VA measurements at both pre- and postoperative time points. Rates of missing VA data are thus important and are reported for centres.

Results

Participation

Included in this fourth prospective report are **operations undertaken between 01 September 2018 and 31 August 2019.**



Reported operations for the current period were performed in 73 English NHS Trusts and four Welsh Local Health Boards. **Approximately 65% of the 118 eligible NHS trusts in England and Wales are thus represented.** In

addition, three independent providers of NHS funded cataract surgery have supplied data for 23 individual sites and one centre from Guernsey has joined the audit. The audit received data for 252,850 cataract operations which equates to approximately 53% of operations performed in England and Wales during the audit period. The lower overall percentage of operations compared with the percentage of trusts is due to recent joiners reporting partial years.

Around 5% of cataract operations were excluded for a variety of reasons such as being done for indications other than visual improvement or being combined with other significant intra-ocular surgery; **this left 241,561 eligible cataract operations available for analysis.**



241,561

Data Quality

Data completeness was excellent at around 100% for the PCR outcome of reported operations as this is a compulsory operative field in the EMRs.

An eligible preoperative distance VA was recorded for 89.1% of eyes and a postoperative VA for 76.1% of eyes; 71.3% of eyes had both a preoperative and a postoperative VA measurement. There was significant variation between centres for completeness of VA data, reflecting variations in EMR use and patient pathways.

Findings

For all surgeons, 1.14% of operations were affected by PCR. This is slightly above the current consultant only based average rate of 1.1% used for risk adjustment and approximately 40% lower than in 2010.

A 'good' postoperative VA of 0.30 LogMAR (=6/12, required to drive) or better was achieved in 91.5% of eyes overall, 96.2% of eyes with no ocular co-pathology and 85.9% of eyes with a recorded co-pathology. The median preoperative VA was 0.50 LogMAR units (6/19 Snellen Equivalent); the median postoperative VA was 0.10 LogMAR units (6/7.5 Snellen); and the median change in VA was a 0.38 LogMAR gain.

Overall, the VA Loss rate was 0.51%, lower than the 0.9% rate used for risk adjustment and approximately 44% lower than in 2010. The samples used for the VA Loss results is smaller than those used for the PCR results due to missing presenting (pre-) and / or postoperative VA measurements as well as a shorter time period of 10 months to cater for postoperative recovery and VA reporting.

Conclusions

Overall, the audit findings are favourable indicating high quality surgery is being delivered to NHS patients. Specifically, among the contributors, no outlying centres or surgeons were found for PCR or postoperative VA Loss. Whilst the audit can report on increasingly large numbers of procedures, there remain centres that have not yet joined the audit and some who have previously participated no longer doing so (Appendix 2, page 45). Until all centres join, there will remain uncertainty about outcomes across the board.



Table 1: Audit estimates for different years where each year represents the time period of 01 September to 31 August

	Prior to the prospective audit period					Prospective audit period			
	2010	2011	2012	2013	2014 (Legacy)	2015 (Year 1)	2016 (Year 2)	2017 (Year 3)	2018 (Year 4)
Number of centres	41	44	45	48	54	70	92	102	101
Number of eligible operations	69,088	86,190	92,232	105,868	116,254	155,942	197,607	222,383	241,561
Case ascertainment (%)*	–	–	–	–	–	86.1	86.7	84.0	88.8
Unadjusted PCR rate (%)	1.91	1.76	1.69	1.42	1.42	1.35	1.32	1.25	1.14
The percentage with valid preoperative VA data**	95.3	95.2	94.6	94.9	95.0	92.4	91.6	91.3	89.1
Number of operations for postoperative VA results	56,752	71,433	76,020	86,202	95,186	127,248	163,174	182,824	197,426
The percentage with valid postoperative VA data	70.3	72.5	74.4	76.0	75.6	76.9	75.8	76.2	76.1
The percentage with change in VA data	67.3	69.6	71.2	72.8	72.5	73.7	71.8	72.0	71.3
Number operations eligible for VA loss results	32,285	41,412	46,657	52,450	57,817	89,368	104,232	116,218	125,492
Unadjusted VA loss rate (%)	0.91	0.86	0.89	0.70	0.66	0.61	0.59	0.53	0.51

Over the time period above, not all centres have contributed data in consecutive data extractions and some centres have merged. The first five years include the early EMR adopting centres, while the prospective audit years will include centres initiating data collection and have not always submitting data for a complete year. Once a centre adopts electronic data collection there is often a lead time that affects data completion estimates. When a centre submits data for the first time, they have the option of submitting historic data from April 2010 onwards which is then used in results for historic time periods and increases the number of centres with data for an individual year.

*The estimate of the proportion of cases submitted to the audit is derived from the number of completed cataract operations supplied to NHS Digital or NWIS for the audit period. This estimation uses a pro rata calculation for a centre's denominator where the proportion of time during the audit cycle that a centre had been recording cataract operations was multiplied by the number of cataract operations supplied to NHS Digital or NWIS. The numerator was the number of operations a centre had supplied to the audit. Centres that had more operations submitted to the national audit than in the NHS Digital or NWIS data were all assumed to have a complete submission rate as the actual rate was not possible to estimate. The case ascertainment rates for the retrospective audit years have not been estimated as the audit was not receiving the NHS Digital or NWIS data for these years.

**Does not include VA data from one centre with reported issues affecting their submitted VA data.

Recommendations

1. Recommendations for Patients



1.1 Patients, carers and those with an interest in cataract surgery are encouraged to access information about the quality of cataract surgery and their local services, and can view information online on the [National Ophthalmology Database Audit website](#). (page 40, Summary Key Point 2, 5)

1.2 Patients should discuss and understand the risks and potential outcomes of eye

surgery with their surgeon including for their own particular risk profile

1.3 Patients interested in finding out more about cataract surgery, should access information online from their hospital trusts and health boards, as well as from charity organisations such as [Royal National Institute of Blind People](#) (RNIB)

2. Recommendations for Providers of cataract surgery



2.1 All providers of NHS and privately funded cataract surgery should submit data to the audit to publicly demonstrate their commitment to high quality care and good professional practice through participation (page 40, Summary Key Point 1)

2.2. Providers should submit complete data including all relevant risk factors for outcomes to ensure case complexity can be taken into account and results appropriately interpreted ([UK Minimum Cataract Dataset for National Audit](#)) (page 40, Summary Key Point 8)

2.3. In line with the NHS Digital Agenda, providers should use electronic data collection to improve data completeness and utilise EMR audit tools for continuous real time monitoring of results for early detection and correction of possible issues (page 40, Summary Key Point 9)

2.4. Providers should review patient pathways to maximise the recording of both preoperative and postoperative VA data for every operation (page 40, Summary Key Point 7)

2.5. Providers should use the RCOphth NOD audit for quality improvement by comparing their results against other cataract surgery providers and their past performance to identify and act on specific areas that may need improvement (page 40, Summary Key Point 5)

2.6. Providers should consider including [Patient Reported Outcome Measures \(PROMs\)](#) before and after surgery to quantify and validate patient benefit from surgery, as advised in the 2019 [NICE Quality standard for serious eye disorders \(QS180\)](#)

2.7. EMR enabled providers should review the settings on their EMR regarding mandatory data collection. Specifying mandatory collection for specific data items aids in improving data collection

2.8. Surgeons working in non-participating centres should approach their senior

management teams and emphasise the importance of participation, pointing out the benefits in terms of quality assurance, quality improvement, accountability, public perception and validation to commissioners of the service being provided

3. Recommendations for Commissioners



3.1 Service specification contracts should require quality assurance and improvement based on RCOphth NOD national audit outcomes and the 2017 [NICE cataract surgery guideline \(NG77\)](#) for management of cataracts in adults (page 40, Summary Key Point 4)

3.2. Commissioners should use quality focused service specification contracts with providers of cataract surgery which include submission of full data to the RCOphth

NOD audit, including pre- and postoperative VA for visual outcomes reporting (page 40, Summary Key Points 1, 2, 6, 7, 8). This applies to NHS providers and independent providers of NHS cataract surgery

3.3. Services where postoperative care is outsourced, e.g. to optometric practices should require return of postoperative data (VA and refraction) to the operating centre using the data return audit tools available for such purposes

4. Recommendations for the Regulators



4.1 Regulators should expect NHS services to participate in all national audits, with RCOphth NOD audit results made available to them when inspecting NHS organisations which either commission or deliver cataract surgery services (page 40, Summary Key Points 1, 6)

4.2. Regulators should ensure that all providers of NHS cataract surgical care are able

to provide quality assurance regardless of whether they are traditional NHS centres or independent providers (page 40, Summary Key Point 1)

4.3. Centres providing both publicly and privately funded surgery across the UK are now eligible to join the RCOphth NOD audit and all UK cataract surgery centres are invited and encouraged to participate

1. Introduction

A cataract is a clouding of the lens in the eye which sits just behind the iris, the coloured part of the eye. Normally the lens is clear and helps to focus light entering the eye. Developing cataracts causes sight to become cloudy, misty and unclear. Cataracts can affect one or more eyes, and usually do affect both eyes. They 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 drops that can successfully treat cataracts; surgery is the only way to treat them. Further information about cataracts for patients and the public is available on [The Royal College of Ophthalmologists' website](#).

In the 2018-2019 audit year, around 452,000 NHS cataract surgery procedures were undertaken in England and 20,000 in Wales. Cataract surgery is the most frequently performed surgical procedure in the UK. A widely accepted indicator of surgical quality is the frequency of significant breach of the lens-zonule barrier through posterior capsule rupture with or without vitreous prolapse, or zonule rupture with vitreous prolapse, events abbreviated here as PCR.

PCR is emphasised in the [NICE cataract surgery guideline \(NG77\)](#) in the context of surgical risk and is similarly used as a clinical outcome (adverse event) by the [International Consortium for Health Outcome Measurement \(ICHOM\)](#). This operative complication arises on average in approximately one operation in 80, but the risk of this event varies by as much as fifty-fold depending on preoperative risk factors associated with the patient (e.g. age) and their eye (e.g. how advanced the cataract is).

PCR is relevant as an adverse operative event because it results in a significantly higher risk of harm to the eye and may impact recovery of vision. For example, there is an approximately forty-fold higher risk of a retinal detachment occurring following cataract surgery if PCR occurred, and retinal surgery imposes additional risks, morbidity and cost. Importantly, when PCR occurs there is a six-fold higher chance of loss of vision from pre- to postoperatively in the eye undergoing surgery.

Some weeks following cataract surgery, most patients attend their community optometrist (high street optician) for updating of their glasses prescription, and at this point the final 'best-corrected' visual acuity is established. The results of this follow-up episode are currently inconsistently communicated back to the hospital to allow a definitive measure of visual acuity (VA) benefit from surgery. A web-based data return tool has been developed and was initially offered as a free EMR software enhancement to audit centres to encourage and facilitate data returns for postoperative VA and refraction. Since VA Loss from surgery is the opposite of the intended effect, these key primary outcomes together capture relevant safety elements of surgical quality. VA Loss is emphasised in the [NICE cataract surgery guideline \(NG77\)](#) in the context of surgical risk. In addition to postoperative VA, return of postoperative refraction data would expand the options for outcome reporting.

Providing risk adjusted results for centres and surgeons enables them to benchmark their own performance against their peers and acts as a prompt to reviewing practice where outcomes are less good. Our experience indicates that showing individual surgeons their performance stimulates them to be more mindful of quality generally and to improve performance where needed.

Since safety is a key domain for the NHS, embodied in the oft quoted phrase from the Hippocratic Oath "First, do no harm", the audit is primarily focused on two chosen safety metrics. The EMR data collection systems used by the majority of contributing centres allow for real time local tracking of outcomes by surgeons and centres. This empowers them to monitor their results locally and to detect adverse signals early with a view to minimising patient harm through prompt action. The report includes additional

contextual information which provides centres, surgeons and the wider NHS with secondary outcomes in terms of case complexity, access to surgery by centre and deprivation, and data completeness.

In the RCOphth NOD prospective cataract audit reports we show the case complexity adjusted rates of PCR and monocular visual acuity (VA) Loss for named centres (including all surgeons). On the [RCOphth NOD website](#) we present case complexity adjusted rates of PCR and VA Loss for participating centres and surgeons, centre results are provided to the CQC, and risk adjusted outcomes for centres and named consultant surgeons are available on the audit website for both PCR and VA Loss. Incomplete data will be highlighted and where <40% of outcome data are available for a particular centre (e.g. for VA Loss) the rate will not be reported as deemed too unreliable.

2. Audit Framework

The National Cataract Audit data in this report covers all adult phacoemulsification cataract surgical operations recorded on:

- Medisoft EMR in use at 89 contributing centres
- OpenEyes EMR in use at three centres
- Medisoft and OpenEyes EMR used in one centre
- Epic patient record system in one centre
- In-house cataract data collection systems used in seven contributing centres

For the PCR outcome, the audit included all reported cataract operations performed in the period between 01 September 2018 and 31 August 2019. For the risk adjusted VA Loss outcome, postoperative complications and postoperative visual acuity results, the reported period was 01 September 2018 to 30 June 2019 in order to allow time for postoperative data to become available following recovery from surgery. Inclusion and exclusion criteria are detailed in Appendix 4 (page 53).

Excluded were:

- Cataract operations not done by phacoemulsification
- Operations done as combined procedures along with another significant intraocular procedure (e.g. a trabeculectomy or a pars plana vitrectomy combined with other vitreoretinal procedures)
- Operations done on eyes previously damaged by ocular trauma
- Operations done on eyes with significant congenital or developmental abnormalities
- Operations on individuals aged <18 years

Centres are identified by name and allocated audit number in appendix tables.

3. Aims

The audit reports risk-adjusted rates for two primary patient safety outcomes: PCR and VA Loss in cataract surgery. PCR will have high levels of data completeness for all participating centres as recording of the absence or presence of specified operative complications is mandatory in ophthalmology EMR systems.

The preoperative risk indicator and follow up VA data are, however, expected to be less complete because of variations in patient pathways and use of the EMR in different settings.

The quality improvement aims of this report include:

- Reporting of the intraoperative risk adjusted complication rates, emphasising the need for careful risk profiling of cases in advance of surgery to anticipate and minimise avoidable surgical complications
- Reporting the rates of VA Loss, highlighting potentially avoidable visual harm where unwarranted variation is observed

There are several secondary aims developed throughout the life of the audit, for example the contextual information includes: case complexity metrics, rates of recorded valid VA data and access (preoperative VA) by centre and overall by deprivation.

4. NHS Trust / Health Board and Surgeon Participation

The audit brief is to include all NHS or publicly funded independent cataract surgery where permission for inclusion of the institutions data has been provided by Clinical leads / Medical directors and Caldicott Guardians or a Governance equivalent for centres from a region where Caldicott Guardian approval does not apply. In this report, the majority of centres were in England (96) with four centres in Wales, and one centre from Guernsey. This report includes 94 currently EMR enabled centres and seven centres using an in-house data collection system. Of the 118 eligible NHS organisations in England and Wales, 77 (65.3%) are represented, plus data from three independent sector treatment providers of NHS funded services (23 sites) and one centre from Guernsey. Results for 101 centres are reported.

5. Methodology

5.1 Context of the data collection

The audit data derive from routine data collection in ophthalmology departments providing NHS or publicly funded independent cataract surgery with no additional data collection effort required by staff. Our approach aligns directly with, and powerfully supports the NHS digital agenda, and has catalysed a major shift towards electronic working in cataract services. For the second successive year the audit has received data from >100 centres, this contrasts with 56 centres with sufficient data for inclusion in the first prospective audit report. Complications data depend on surgeons recording these faithfully. Unlike mortality figures, there is no external validation of the reported complications, although cross-checks are undertaken within the extracted data.

The EMR requires the surgeon recording the operation note to specifically indicate a 'Yes / No' response to whether a surgical complication occurred. At all centres the EMR record (or its printed copy for the paper notes) constitutes the medicolegal document of the patient's operation record.

Data completeness for other aspects of care varies between centres for several reasons. Some centres only use the electronic data collection system in theatre, which limits data completeness for items normally collected in the outpatient department at pre- and postoperative visits. Accurate follow up data on VA and refraction mostly depend on patients attending their optometrist for updating of spectacles following surgery and for this information to then be returned to the hospital EMR system. Although some centres have good paper-based systems in place for optometrists to return postoperative VA and refraction

measurements, and for staff at the hospital to enter the data electronically, it is to be expected that this VA outcome will be incomplete in many centres. The RCOphth NOD audit team has taken steps to enhance returns from optometrists through encouraging proactive local engagement with community optometrists, an active programme of engagement with national optometric professional bodies, and provision of a web-based data return tool for the National Cataract Audit. Newly adopting EMR centres can have a ‘time lag’ affecting complete implementation of the software across their hospital eye service, for example due to computer availability in theatres and implementation of electronic data recording in the eye service. This can affect the data in their first submission to the audit.

5.2 Case ascertainment

An estimate of the percentage of cataract operations submitted to the audit is based on the number reported centrally to NHS Digital or NHS Wales Informatics Service (NWIS). This is calculated pro rata for recent joiners, as reported in Appendix 6 (page 58).

As the National Cataract Audit has exclusion criteria, the estimate of case ascertainment is calculated using the number of operations performed using phacoemulsification submitted to the audit before the exclusion criteria are applied.

5.3 Data quality and completeness

Among the advantages of EMR data collection are compulsory collection of key data items (e.g. operative complications) and automatic range checking of variables (e.g. axial length) at the time of data entry. This improves data completeness and accuracy. In addition, the richness of EMR data provides a more complete picture of the patient and their state of health making it possible to infer important information through cross-checking.

Completeness of preoperative VA and postoperative VA outcome remain variable and an area for improvement in many centres. The audit tools include a web-based data return tool for use by community optometrists which is intended to facilitate return of postoperative data. This works best when optometrists are commissioned to undertake postoperative follow up in the community as contracting can make payment contingent upon data having been received by the surgical centre.

5.4 Small numbers policy

Centres with <50 eligible operations have not been included in this report. Results for individual surgeon will likewise not include data for surgeons who have undertaken <50 eligible procedures. For estimates of vision, data from centres with <50 eligible operations with a visual acuity measurement are not included, and for postoperative data no results are produced for centres with <50 eligible operations within the postoperative time period.

5.5 Outliers policy

The audit outliers’ policy is available on the [RCOphth NOD Audit](#) website. An outlying centre or surgeon is identified where the risk-adjusted adverse event rate is above the national threshold set by the mean rate plus approximately three Standard Deviations (3SD).

5.6 Limitations of the data

The RCOphth NOD includes data for cataract surgery to the first treated eye, the second treated eye and in some cases immediate sequential bilateral surgery, but for some patients the record for the first treated eye may be missing. This may arise for example if the first eye operation was performed prior to the centre adopting electronic data collection, or the first treated eye operation could have been performed in a different centre. At present the RCOphth NOD cannot link patients’ data if collected at different centres.

Patient's age, and the calculation of the index of multiple deprivation data rely on data entered directly onto the Hospital's Patient Administration System (PAS), which links into EMR systems, hence if this data is not recorded in the PAS it is not present in the data extract for EMR enabled centres with PAS connections. Centres using in-house databases can supply this data if they match their clinical data to the national indices before submitting to the audit. Deprivation data was available for most operations recorded on the Medisoft EMR system and one centre using an in-house database, but not for the other sources of data. For future cycles of the national cataract audit, the OpenEyes EMR is anticipated to include deprivation data calculated during extraction, and the audit has provided information to non-EMR centres on how they can submit deprivation data without transferring the patients' postcode.

6. Data Extraction, Cleaning and Statistical Methods

Centre participation is confirmed by agreement from the institutions Caldicott Guardian or Governance equivalent and Clinical Lead / Medical director for Ophthalmology. There are 10 sources of data included in the prospective fourth year of the National Cataract Audit, 89 centres used the [Medisoft EMR](#), three centres used the OpenEyes EMR, one very large London NHS Trust used both the Medisoft and the [OpenEyes EMR](#) systems, one centre used the [Epic patient record system](#), and seven centres used in-house data collection systems. Supplementary extractions/submissions were undertaken as necessary. Full details regarding eligibility and analysis criteria are on the RCOphth [NOD Audit website](#) following registration.

7. Definitions

7.1 Dataset

A [minimum cataract dataset](#) has been defined for purposes of the audit. These variables include those required for case complexity adjustment of outcomes.

7.2 Surgeon grade

The grade of surgeon was categorised as consultant surgeons, career grade non-consultant surgeons (associate specialists, staff grade and trust doctors), experienced trainee surgeons (fellows, registrars, speciality registrars years 3 – 7 and specialty trainees years 3 – 7) and less experienced trainee surgeons (SHO, specialty registrars years 1 – 2, specialty trainees years 1 – 2 and foundation doctors years 1 – 2).

7.3 Posterior Capsule Rupture (PCR)

Posterior capsular rupture (PCR) is defined for the purposes of the National Audit as “*posterior capsule rupture with or without vitreous prolapse or zonule rupture with vitreous prolapse*” and abbreviated as PCR. It should be noted that the definition excludes zonule dehiscence where no vitreous prolapse has occurred. PCR is thus intended to capture significant breach of the lens-zonule barrier. Detailed criteria for case definitions can be found in Appendix 4 (page 53) and on the [audit website](#).

7.4 Visual Acuity (VA)

VA definitions used were designed to maximise the usefulness of the available data with specified ‘time windows’ for pre- and postoperative measurements and criteria for preferred choices in terms of corrected VA, unaided VA and pin hole corrected VA. The detailed criteria is in Appendix 4 (page 53) and on the [audit website](#) along with interpretations for levels of VA. The percentage of eyes with VA data for each centre and different time windows are given in Appendix 15 (page 96).

7.5 Mixed effects modelling of PCR and Visual Acuity Loss

The categorisation of each covariate under investigation in the PCR and VA Loss mixed effects logistic regression models are detailed for registered users on The RCOphth [NOD Audit website](#) with operations performed in the four-year period 2011-12 to 2014-15 NHS years used to develop the current models.

The risk adjustment model equations for PCR and Visual Acuity Loss respectively were applied to the audit data for the respective results in this report where the case mix adjusted graphs have 95% and 99.8% error lines displayed which are created from consultant based means of 1.1% for PCR and 0.9% for Visual Acuity Loss. These percentages reflect the unadjusted adverse event rates for consultants performing surgery. They are slightly lower than the overall rate for all surgeons and have been used because the consultant results appear in the public domain and as such, it would be inappropriate for the average consultant rate to be artificially inflated to reflect the slightly higher overall average rate. The audit stipulates that at least 50 eligible operations are required for a centre or surgeon result, and at least 60% of operations with both pre- and postoperative VA data are required to report a result for VA Loss. On the centre level case mix adjusted funnel plots, data for all surgeons is included (i.e. including trainee surgeons whose results are risk adjusted accordingly), while on the surgeon level case-mix funnel plots, data for trainee surgeons is not included.

7.6 Case complexity index

Based on the risk prediction models a case complexity index is provided for each centre. This is taken as the overall predicted probability of an adverse outcome based on the reported case complexity for the centre. Separate complexity indices are provided for PCR and VA Loss.

8. Results

8.1 Case ascertainment

In total, 254,373 operations were submitted to the audit by 102 centres, of which 252,850 (99.4%) were performed using phacoemulsification. The estimate of case ascertainment is made by comparison with data from NHS Digital and NWIS. Case ascertainment was not calculable for three centres. One centre was excluded from the cataract audit analysis due to supplying <50 eligible operations, one centre is not subject to reporting to either NHS Digital or NWIS and one centre did not have any data available from NHS Digital.

The overall case ascertainment for all centres combined was 88.8%, 79 (79.8%) centres had a case ascertainment rate of >80% and 62 (62.6%) centres >95%. The range in the percentage of cases submitted to the audit was 13.8% to 100%, Appendix 6 (page 58), and the case ascertainment for centres and each audit year is in Appendix 11 (page 80).

Of the 254,373 operations submitted during the audit period (01 September 2018 to 31 August 2019), 12,812 (5.0%) operations are excluded from analysis; the eligibility information is on the RCOphth NOD Audit website: [NOD Audit Eligibility Criteria](#). This left 241,561 operations performed in 101 participating centres eligible for analysis. The operations were performed on 118,880 (49.2%) left eyes and 122,681 (50.8%) right eyes from 194,313 patients.

8.2 Surgeons

The 241,561 eligible operations were performed by 2,062 surgeons where:

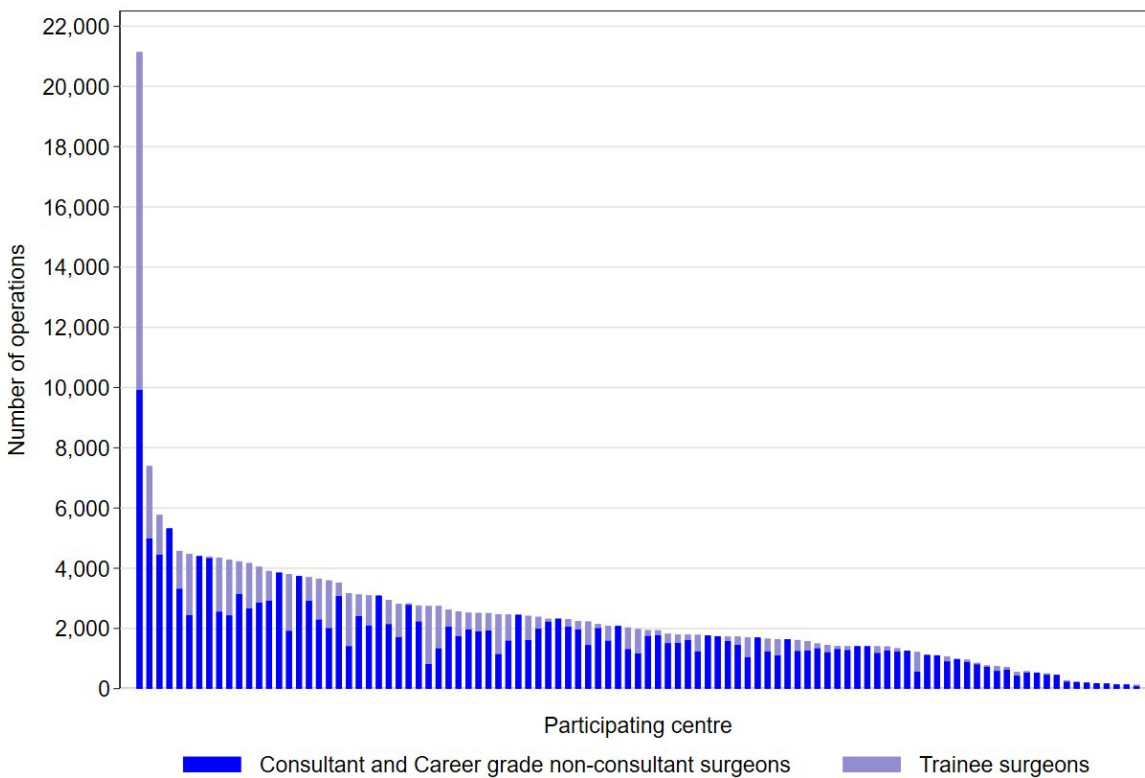
- 1,061 consultant surgeons performed 167,299 (69.3%) operations.
- 180 career grade non-consultant surgeons performed 15,755 (6.5%) operations.
- 780 more experienced trainee surgeons performed 51,591 (21.4%) operations.
- 157 less experienced trainee surgeons performed 6,916 (2.9%) operations.

The percentage of operations performed by each grade of surgeon varied between contributing centres reflecting catchment area, NHS trust differences and training opportunities for junior trainee surgeons within England and Wales, Appendix 6 (page 58) and Figures 1 and 2 (page 18).

The median number of operations each surgeon had performed was 68 operations (IQR; 22 – 146: range; 1 – 4,143). For comparison, the median number of operations per surgeon was 60, 64 and 69 in audit years one, two and three respectively. In the current audit year, 19 surgeons had data for >1,000 operations, one surgeon had all their data from an NHS Trust, 12 surgeons all their data from independent sector treatment provider sites and six surgeons data from both NHS Trusts and independent sector treatment provider sites. In the current audit year, 1,212 (58.8%) surgeons performed >50 eligible operations, for comparison these percentages were 55.1% in audit year one (September 2015 to August 2016), 56.3% in audit year two (September 2016 to August 2017) and 59.5% in audit year three (September 2017 to August 2018). Of the 850 surgeons with \leq 50 operations, 401 (47.2%) were consultants or independent non-consultant surgeons, 431 (50.7%) were trainee surgeons and 18 (2.1%) had data as both a trainee and a consultant or independent non-consultant surgeon.

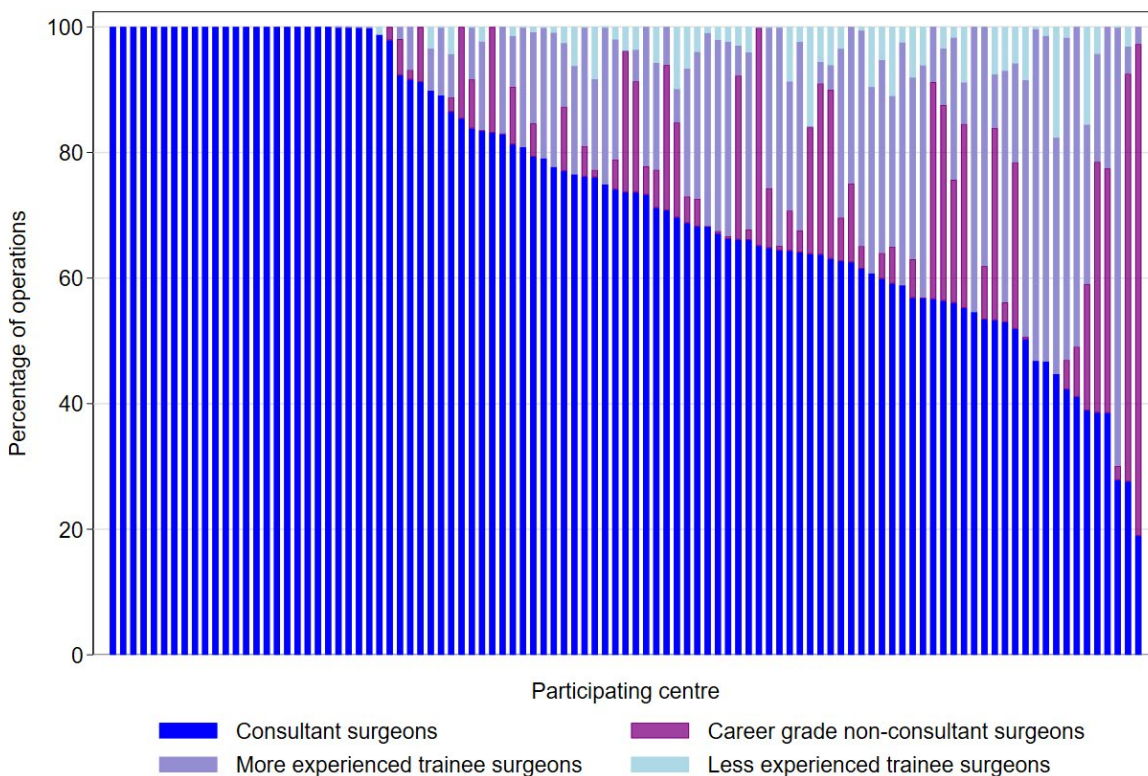
Of the 2,062 surgeons, 1,305 (63.3%) surgeons were male, 755 (36.6%) surgeons were female and the surgeon's gender was unknown for two (0.1%) surgeon's. 282 (13.7%) surgeons had data for operations performed in two participating centres, 26 (1.3%) in three participating centres and 23 (1.1%) in four or more centres, with two surgeons having data for 12 centres.

Figure 1: The number of eligible operations supplied to the national cataract audit for each contributing centre – ordered by the number of operations



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 2: The percentage of eligible operations performed by each grade of surgeon for each contributing centre – ordered by the percentage of operations performed by consultant surgeons



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.3 Patient characteristics – age and gender

Summary details of the 194,313 patients undergoing cataract surgery in the fourth year of the prospective audit were as follows:



- 194,313 patients with median age 76.0 years.
- 82,310 (42.4%) patients were men with median age 75.6 years.
- 110,425 (56.8%) patients were women with median age 76.3 years.
- The gender was not recorded for 1,578 (0.8%) patients with median age 79.4 years.
- The ethnicity was not recorded for 71,863 (37.0%) patients.
- Patient characteristics were very similar for first treated and second treated eyes.

8.4 First eye, second eye and immediate sequential bilateral cataract surgery

All cataract operations performed during the audit cycle would be in either the patient's first or second treated eye unless immediate sequential bilateral cataract surgery was performed. The RCOphth NOD Audit may not have the record for both operations or the first treated eye could have had the operation at another centre or prior to electronic data collection within the centre. For these reasons, no results on time between operations are provided in this report.

Results for first treated, second treated and immediate sequential bilateral operations are described below.

First treated eye cataract surgery:

- First eye cataract surgery was performed for 142,676 (59.3%) operations.
- The median age at first treated eye surgery was 75.7 years (range; 18.0 – 108.6).
- 24,597 (17.2%) patients were recorded as having diabetes mellitus at the time of their first cataract operation.
- 2,652 (1.9%) patients were recorded as unable to lie flat.
- 3,229 (2.3%) patients were recorded as unable to cooperate during the operation.
- 6,310 (4.4%) patients were operated on under general anaesthesia, combined with local and/or topical for 5,317 patients.

Second treated eye cataract surgery:

- Second eye cataract surgery was performed for 98,127 (40.8%) operations.
- The median age at second treated eye surgery was 76.8 years (range; 18.2 – 107.6).
- 18,877 (19.2%) patients were recorded as having diabetes mellitus at the time of their second treated eye surgery.
- 1,460 (1.5%) patients were recorded as being unable to lie flat.

- 2,150 (2.2%) patients were recorded as being unable to cooperate during the operation.
- 3,864 (3.9%) patients were operated on under general anaesthesia, combined with local and/or topical for 3,346 patients.

Immediate simultaneous bilateral cataract surgery:

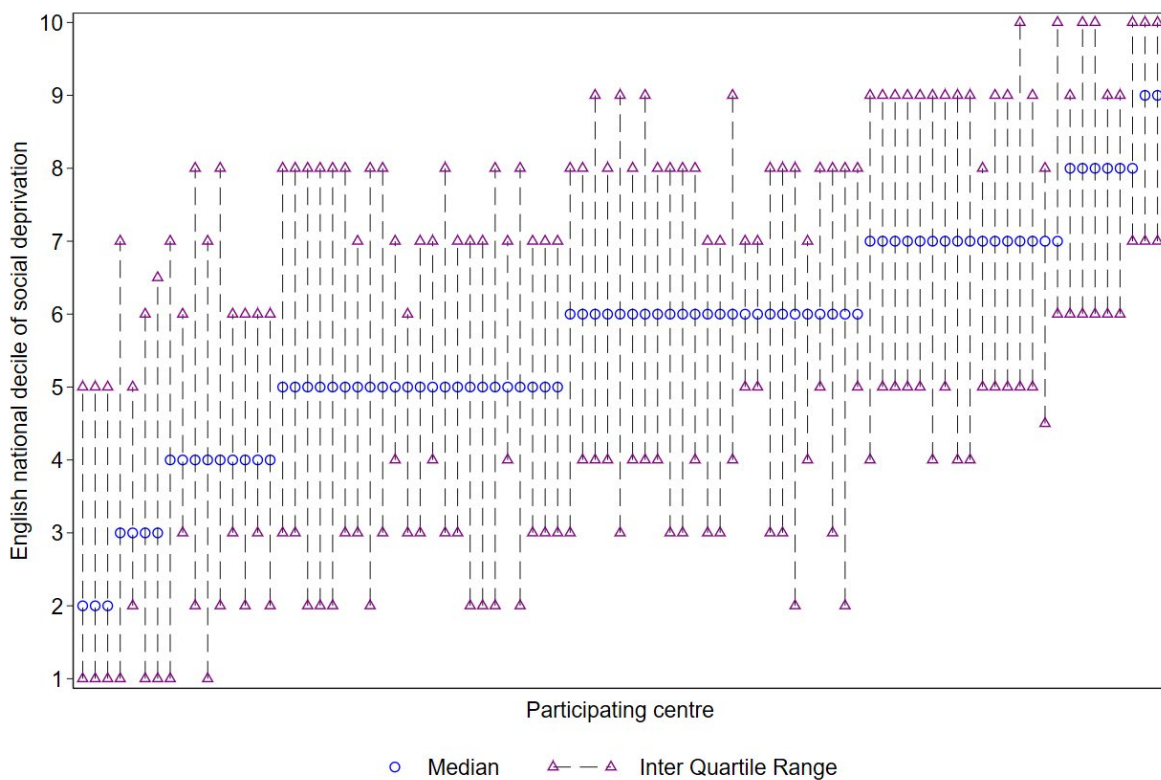
- Immediate sequential bilateral cataract surgery was performed for 379 patients by 173 surgeons from 57 centres.
- The median age was 72.2 years (range; 18.0 – 97.9), with no difference between male or female patients (mean age in years; 68.9 for males vs. 71.3 for females, $p = 0.1035$).
- 131 (34.6%) patients were male, 245 (64.6%) were female and the gender was not recorded for three (0.8%) patients.
- 60 (15.8%) patients were recorded as having diabetes mellitus.
- 46 (12.1%) patients were recorded as being unable to lie flat.
- 34 (9.0%) patients were recorded as being unable to cooperate during the operation.
- 152 (40.1%) patients were operated on under general anaesthesia, 110 combined with local or topical anaesthesia.

The patient's age, proportions for gender, those with diabetes, could lie flat, cooperate with surgery and had surgery under general anaesthesia were similar in each audit year for first eye surgery patients and second eye surgery patients. There were differences for immediate sequential bilateral surgery patients between the four audit years for the proportion of patients with diabetes, who could lie flat, cooperate with surgery or had surgery under general anaesthesia, with the most marked difference being for use of general anaesthesia which was 52.6% in year 1 and 40.1% in year 4, Appendix 10 (pages 78-79).

8.5 Index of multiple deprivation

The English index of multiple deprivation was calculated for 163,818 (98.7%) patients from 87 participating English centres with data recorded on the Medisoft EMR, or one of the contributing in-house databases. All but two centres performed cataract surgery on patients in the most deprived national decile of social deprivation (decile 1) and all but three centres performed cataract surgery on patients in the least deprived national decile of social deprivation (decile 10). The median English national decile of social deprivation for patients undergoing cataract surgery varied significantly between centres, confirming that there was variation between the participating centres in the social deprivation status of patients undergoing cataract surgery, Figure 3 (page 21). The index of multiple deprivation was not calculable for operations from the other contributing data collection systems or from the contributing Welsh and Channel Island centres where different indices are used.

Figure 3: Median and IQR national deciles of social deprivation by participating centre – ordered by median national decile within each centre



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.6 Preoperative Visual Acuity (VA)

The data from one centre (2,323 operations) is not included in any results for visual acuity due to reported issues affecting the recording of VA data. Considered for the assessment of the percentage of eligible operations with a preoperative VA are 239,238 eligible operations from 100 centres, where a preoperative visual acuity was recorded for 213,073 (89.1%) eyes and missing for 26,165 (10.9%) eyes, of which 2,039 (0.9% of operations) had a Pin Hole Visual Acuity (PHVA) measured but no Corrected Distance Visual Acuity (CDVA) or Uncorrected Distance Visual Acuity (UDVA) measurement.

There was wide variation in the percentage of eyes with a preoperative VA by contributing centre, where for nine (9.0%) centres <50% of eyes had a preoperative VA, for 83 (83.0%) centres more than 80% of eyes had a preoperative VA and for 53 (53.0%) centres more than 95% of eyes had a preoperative VA, Figure 4 (page 23).

For comparison, the overall percentages of eyes with a preoperative VA were 92.4%, 91.6% and 91.3% for the audit years one, two and three respectively. The percentage of eligible operations with a preoperative VA for contributing centres and audit years is in Appendix 13 (page 86).

From the 213,073 eyes with a preoperative VA measurement, data for 118 operations from four centres are excluded from the estimate of preoperative vision due to the centres having <50 eligible operations with a preoperative VA measurement.

Available for assessment of preoperative vision are 212,955 eligible operations from 96 centres. The VA measurement was CDVA in 146,144 (68.6%) eyes, UDVA in 64,088 (30.1%) eyes and in 2,723 (1.3%) eyes the CDVA measurement was the same as the UDVA measurement. The median preoperative VA was 0.50 LogMAR units for each grade of surgeon.

The median preoperative VA was 0.50 LogMAR units (range; -0.30 – NPL) (6/19 Snellen Equivalent); where 7,129 (3.3%) eyes were CF, 4,317 (2.0%) eyes were HM, 1,036 (0.5%) eyes were PL and 72 (<0.1%) eyes were NPL.

The preoperative VA was 0.30 LogMAR units (6/12) or better for 74,588 (35.0%) eyes, 0.60 LogMAR units (6/24) or better for 151,892 (71.3%) eyes and 1.0 LogMAR units (6/60) or better for 191,334 (89.9%) eyes.

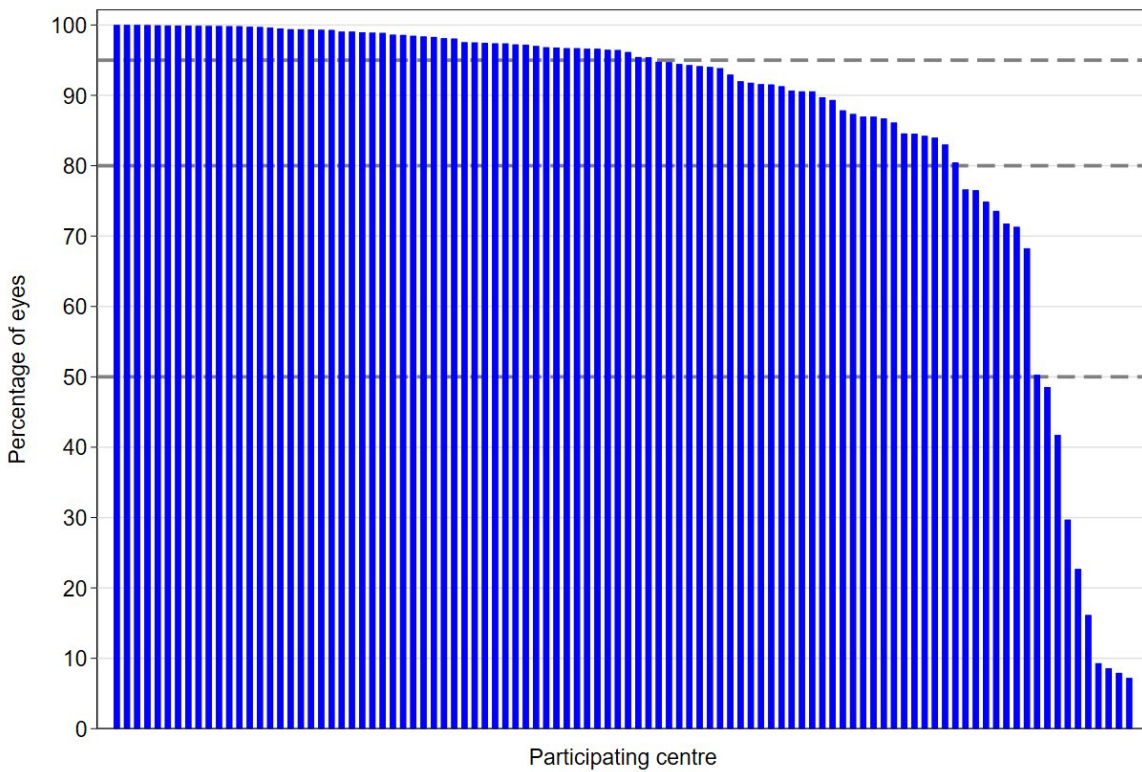
There was variability in the preoperative VA between contributing centres, where for 53 (55.2%) centres the median preoperative VA was 0.50 LogMAR and the range in the centres median preoperative VA was 0.30 – 0.60 LogMAR, Figure 5 (page 23).

Deprivation is recognised as an influential factor on the ability of individuals to access care for a variety of conditions. Here we have used preoperative VA as a proxy for cataract severity to assess whether deprivation is (or is not) related to timely access to surgery before symptoms of vision loss become advanced. On this basis, with some exceptions at the extremes, access to surgery appeared to be reasonably uniform across the Index of Multiple Deprivation (IMD) national deciles, Figure 6 (page 24). There is, however, some observed variation as demonstrated in Table 2 (page 24), where there is a statistically significant association ($p < 0.001$) between higher levels of deprivation and worse preoperative VA, for example 22.8% of the patients in the most deprived decile (decile 1) had a preoperative VA of ≥ 1.00 LogMAR, compared to 11.3% of patients in the least deprived decile (decile 10). Consistent with slightly worse access amongst the most deprived, is the observation that there were proportionally fewer operations than expected undertaken in the more deprived deciles than in the less deprived deciles (Table 2, page 24). This result might be due to bias in socioeconomic status of contributing centres (i.e. there may have been more centres serving less deprived communities).

For 41,086 patients who had both eyes undergo cataract surgery during the audit period and had a preoperative VA measurement for both eyes (excluding immediate sequential bilateral cataract surgery), the mean presenting VA was 0.12 LogMAR worse (95% CI: 0.11 to 0.12 LogMAR) for the first treated eye than for the second treated eye (means = 0.58 (6/23) and 0.46 LogMAR (6/18) respectively, $p < 0.001$). This confirms that first eye surgery is generally undertaken at a more advanced stage of cataract than second eye surgery.

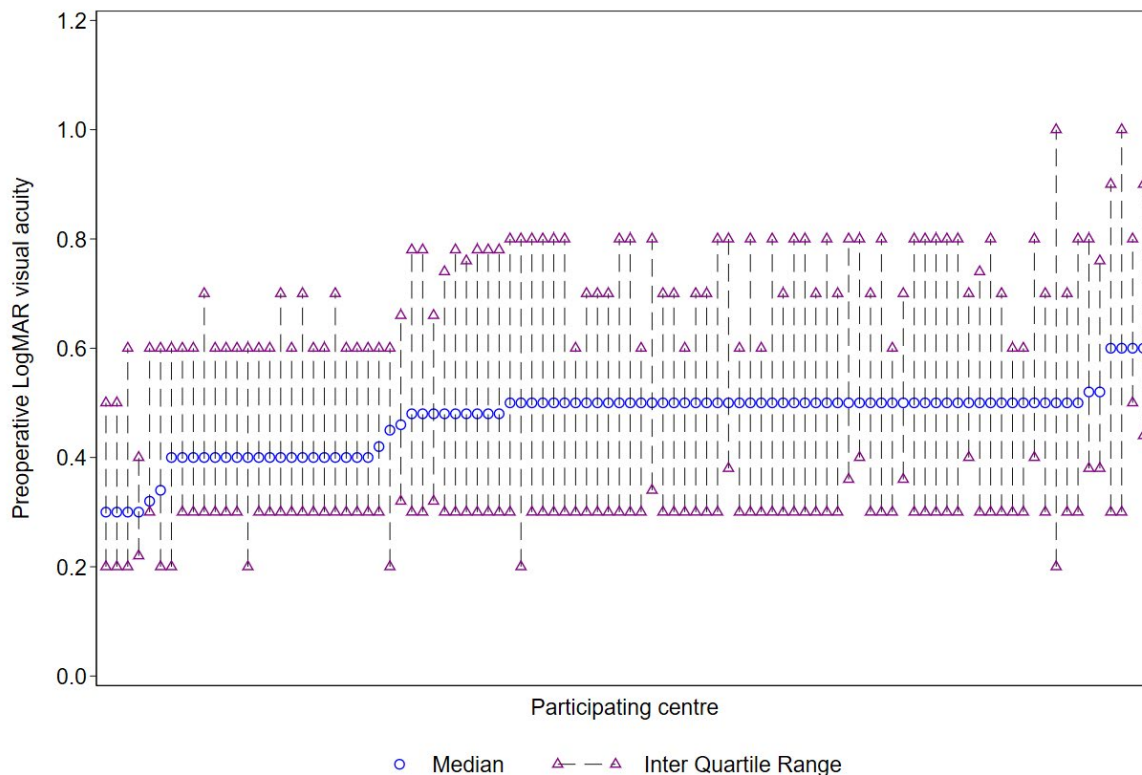
Of the 379 patients who had immediate sequential bilateral cataract surgery, 286 (75.5%) had a preoperative VA measurement for both eyes where the median difference in the VA between right and left eyes was 0.00 LogMAR units and the inter quartile range was -0.10 to +0.20 LogMAR units.

Figure 4: The percentage of cataract operations supplied to the audit with a valid preoperative VA by participating centre – ordered by the percentage of operations with preoperative VA data



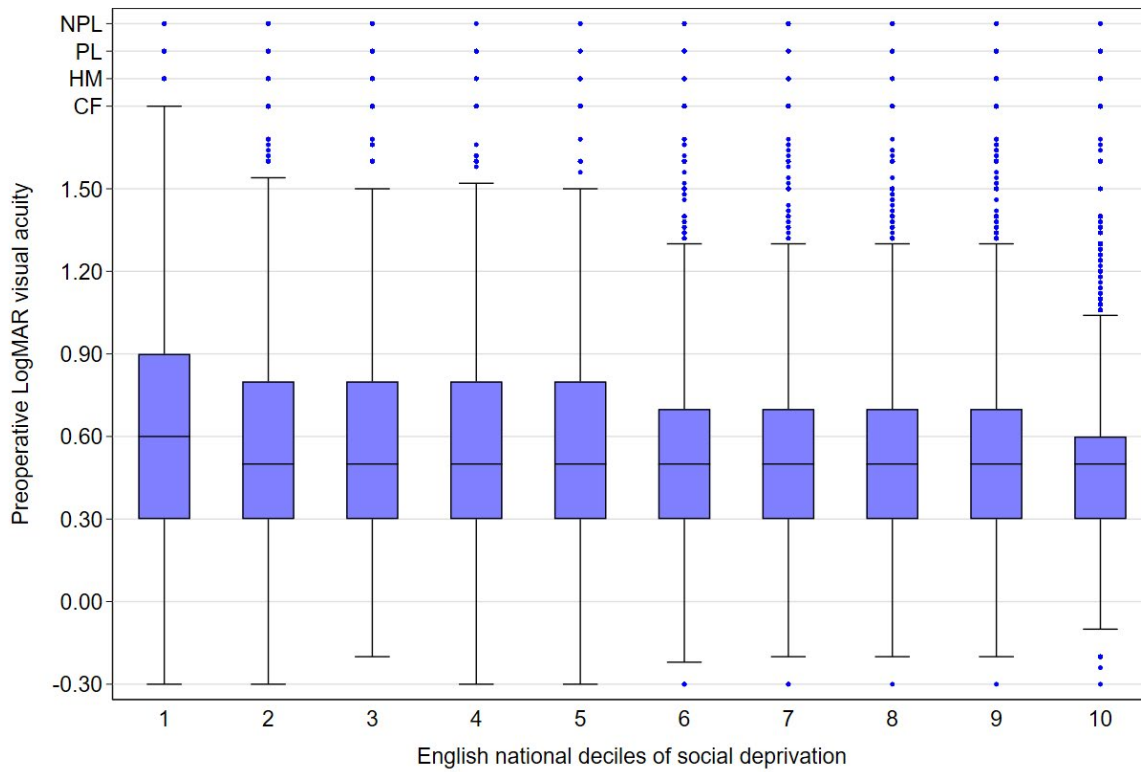
The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 5: Median and IQR for preoperative VA by participating centre – ordered by median preoperative VA



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 6: Box and whisker plots of preoperative VA by national deciles of social deprivation



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Table 2: Preoperative visual acuity and social deprivation where decile 1 is the most deprived decile and decile 10 the least deprived

Decile of social deprivation	N	Preoperative LogMAR visual acuity			
		<0.30	0.30 - <0.60	0.60 - <1.00	≥1.00
1 (Most deprived)	15,022	10.7	38.5	28.1	22.8
2	13,904	12.4	40.3	26.9	20.5
3	13,586	13.6	41.1	26.1	19.1
4	13,786	13.9	43.3	25.6	17.2
5	14,566	14.3	43.8	25.7	16.1
6	15,155	14.9	45.4	25.4	14.3
7	15,463	15.7	45.6	24.6	14.1
8	15,294	15.9	46.4	24.1	13.5
9	15,526	15.1	47.9	24.1	13.0
10 (Least deprived)	15,191	16.0	49.1	23.6	11.3
Overall	147,493	14.3	44.2	25.4	16.1

8.7 Ocular co-pathologies and risk indicators

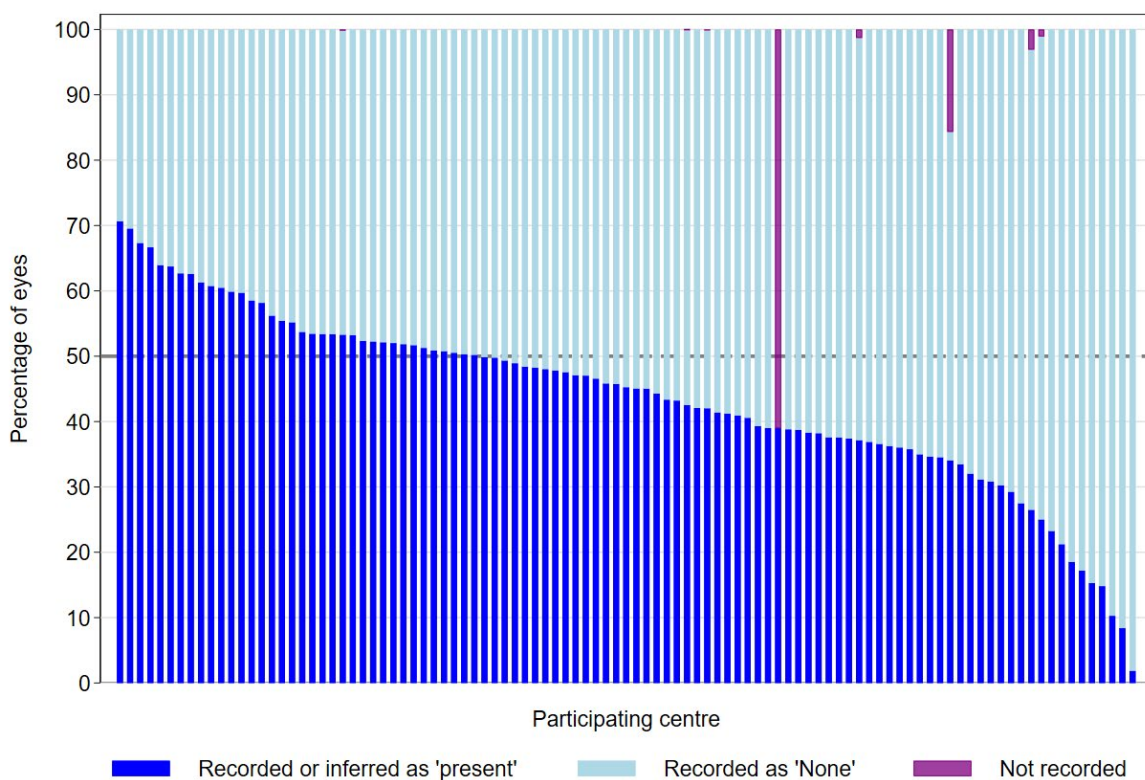
The presence or absence of an ocular co-pathology or known risk indicator was recorded for 98.6% of operated eyes and was not recorded for 1.4% of eyes. Assuming that the not recorded ocular co-pathology or known risk indicators are 'none', then an ocular co-pathology or known risk indicator was present in 104,007 (43.1%) eyes and recorded as absent (or not recorded) for 137,554 (56.9%) eyes.

The percentage of eyes with ocular co-pathology or known risk indicator data recorded (any, none or not recorded) varied between centres, where the percentage of eyes reported to have any ocular co-pathology ranged between centres from 1.9% to 70.6%, and 36 (35.6%) centres had >50% of operated eyes with an ocular co-pathology, Figure 7 (page 25).

The most commonly recorded ocular co-pathologies were age-related macular degeneration, unspecified 'other', glaucoma and diabetic retinopathy, which were recorded for 10.0%, 9.0%, 8.0% and 5.6% of operations respectively, Figure 8 (page 26). A higher proportion of operations were performed by consultant surgeons for each individual co-pathology, Figure 9 (page 26).

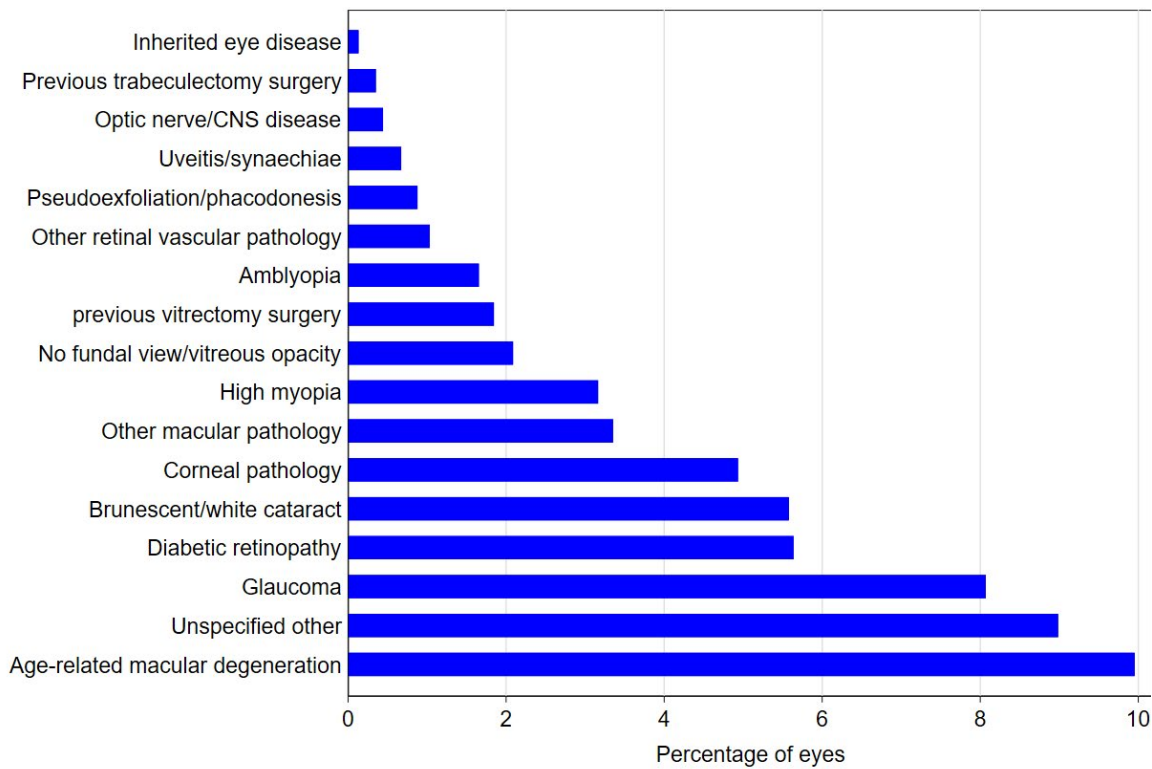
The variation between centres in the percentage of eyes with any ocular co-pathology or known risk indicator is present in all four audit years, Appendix 11 (page 80). The percentage of eyes with each of the individual ocular co-pathology or known risk indicators has been fairly consistent for most of the co-pathologies in each audit year. The main difference between the audit years is for unspecified 'other' which was highest in audit year one due to an issue with matching of diagnosis in one contributing centre, Appendix 12 (page 85).

Figure 7: The percentage of cataract operations supplied to the audit according to recorded ocular co-pathology or known risk indicator data by participating centre – ordered by the percentage of operations with a recorded ocular co-pathology or know risk factor



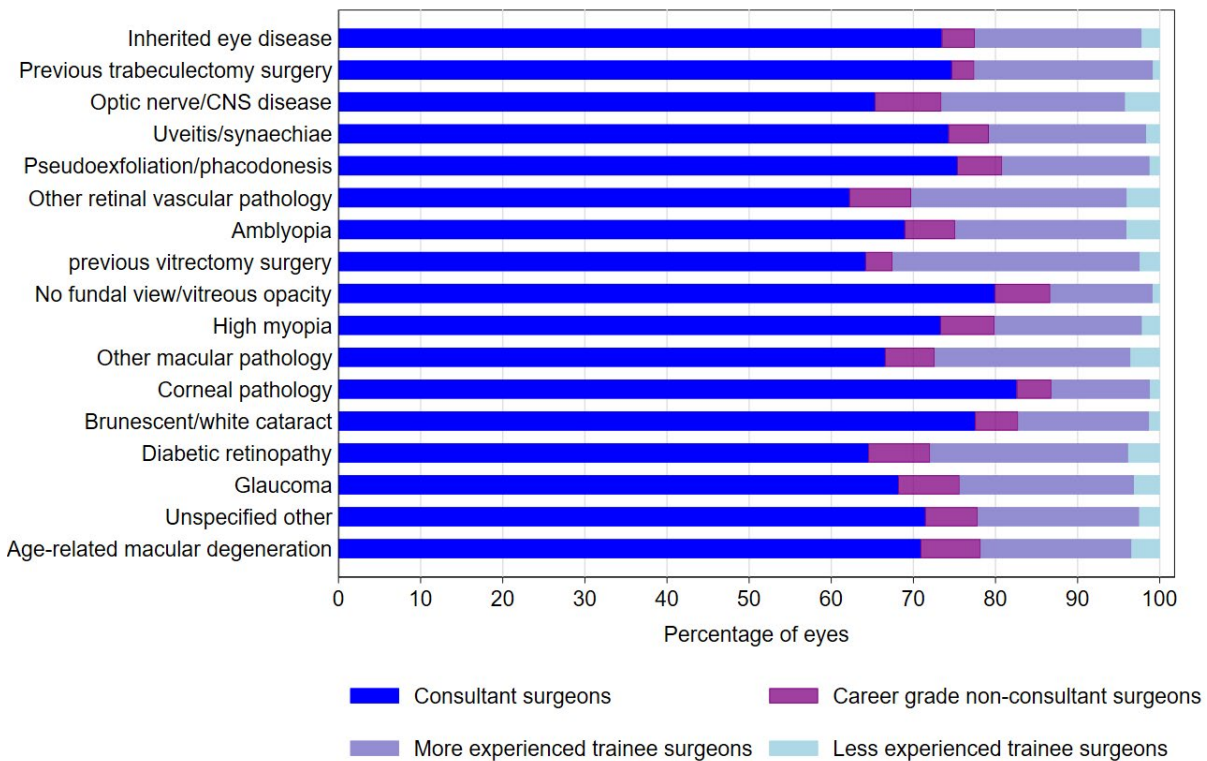
The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 8: The percentage of cataract operations supplied to the audit with individual ocular co-pathologies or known risk indicator.



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 9: The percentage of cataract operations supplied to the audit with individual ocular co-pathologies or known risk indicator by grade of surgeon.



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.8 Operation characteristics

Phacoemulsification ± IOL was performed in all eligible cataract operations and for 227,660 (94.2%) operations was the only operative procedure performed. Phacoemulsification ± IOL was combined with one other procedure in 12,514 (5.2%) operations, with ≥2 other procedures in 1,387 (0.6%) operations.

The most frequently performed operative procedures combined with phacoemulsification ± IOL were insertion of pupil ring expander, insertion of iris hooks and anterior vitrectomy, which were performed in 1.2%, 0.7% and 0.6% of operations respectively. A full list of operative procedures combined with phacoemulsification ± IOL is in Appendix 16 (page 101).

8.9 Operative complications

One or more intraoperative complication was recorded for 5,963 (2.5%) operations, with the most frequently recorded being PCR which was reported for 2,762 (1.1%) operations. The ‘any’ intraoperative complication rates were higher for the less experienced grade of surgeons, while the rates for individual intraoperative complications were similar across the grades of surgeon except for PCR, which were higher for the less experienced grades, Table 3 (page 27).

Table 3: Recorded Intraoperative complications for cataract operations for the fourth year of the National Cataract Audit by grade of surgeon

Intraoperative complications N (column %)	Consultant surgeons (N = 167,299)	Career grade non-consultant surgeons (N = 15,755)	More experienced trainee surgeons (N = 51,591)	Less experienced trainee surgeons (N = 6,916)	Total (N = 241,561)
Eyes with no complications	163,877 (98.0)	15,349 (97.4)	49,796 (96.5)	6,576 (95.1)	235,598 (97.5)
Eyes with ≥1 complication	3,422 (2.0)	406 (2.6)	1,795 (3.5)	340 (4.9)	5,963 (2.5)
Recorded intraoperative complications*					
Posterior capsular rupture	1,552 (0.9)	194 (1.2)	849 (1.6)	167 (2.4)	2,762 (1.1)
Zonule rupture – no vitreous loss	416 (0.2)	46 (0.3)	202 (0.4)	29 (0.4)	693 (0.3)
Corneal epithelial abrasion	316 (0.2)	43 (0.3)	105 (0.2)	40 (0.6)	504 (0.2)
Torn iris / damage from the phaco	201 (0.1)	21 (0.1)	96 (0.2)	22 (0.3)	340 (0.1)
Anterior capsular tear	95 (<0.1)	20 (0.1)	118 (0.2)	11 (0.2)	244 (0.1)
Iris prolapse	100 (<0.1)	9 (<0.1)	114 (0.2)	8 (0.1)	231 (0.1)
Lens exchange required / other IOL problems	135 (<0.1)	7 (<0.1)	51 (0.1)	8 (0.1)	201 (<0.1)
Iris trauma	93 (<0.1)	21 (0.1)	72 (0.1)	7 (0.1)	193 (<0.1)
Endothelial damage / Descemet’s tear	121 (<0.1)	10 (<0.1)	39 (<0.1)	11 (0.2)	181 (<0.1)
Corneal oedema	85 (<0.1)	4 (<0.1)	32 (<0.1)	8 (0.1)	129 (<0.1)
Hyphaema	75 (<0.1)	8 (<0.1)	19 (<0.1)	4 (<0.1)	106 (<0.1)
Phaco burn / wound problems	33 (<0.1)	2 (<0.1)	21 (<0.1)	10 (0.1)	66 (<0.1)
Choroidal / suprachoroidal haemorrhage	29 (<0.1)	4 (<0.1)	10 (<0.1)	3 (<0.1)	46 (<0.1)
Unspecified other**	525 (0.3)	60 (0.4)	235 (0.5)	41 (0.6)	861 (0.4)

Posterior capsular rupture (PCR) is defined for the purposes of the National Cataract Audit as “posterior capsule rupture with or without vitreous prolapse or zonule rupture with vitreous prolapse” and abbreviated simply as PCR. Retained lens fragments in the vitreous implies PCR.

*Each operation can have more than one intraoperative complication recorded.

**The unspecified other included one canalicular trauma, two corneal burns, two vitreous haemorrhages, eight instances when the operation was cancelled and 18 decentred IOLs.

8.10 Postoperative complications

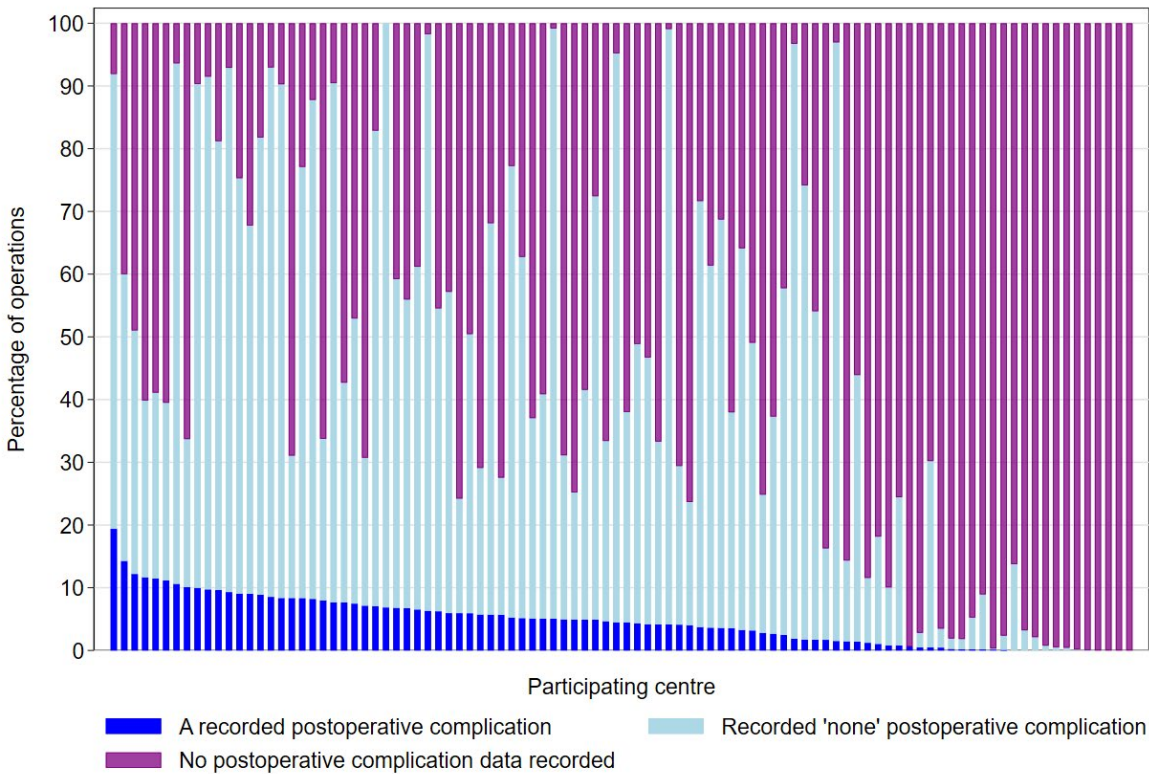
In order to submit postoperative complication data to the audit there needs to be enough time after the operation for patients to receive postoperative follow-up. Therefore, the audit reports on operations performed before 30 June 2019 for this aspect of the audit. This allows the potential for two months' follow-up.

Of the 241,561 eligible cataract operations submitted to the audit, 199,276 (82.5%) operations from 101 centres were performed before 30 June 2019 and had the potential for two months' follow-up. Data from three centres (90 operations) are excluded due to these centres having <50 eligible operations in the postoperative qualifying time period. This left 199,186 eligible operations from 98 centres available for postoperative complication results. No postoperative complication data was recorded for 111,981 (56.2%) operations, for 77,308 (38.8%) operations 'none' was recorded as the postoperative complication, and 9,897 (5.0%) operations had at least one postoperative complication recorded. The variation in data likely reflects differences in cataract surgery patient pathways across centres.

The percentage of operations with a postoperative complication record (none or a complication), or no postoperative complication record, varied significantly between the participating centres, with 12 centres having no records of any specific postoperative complications, Figure 10 (page 29).

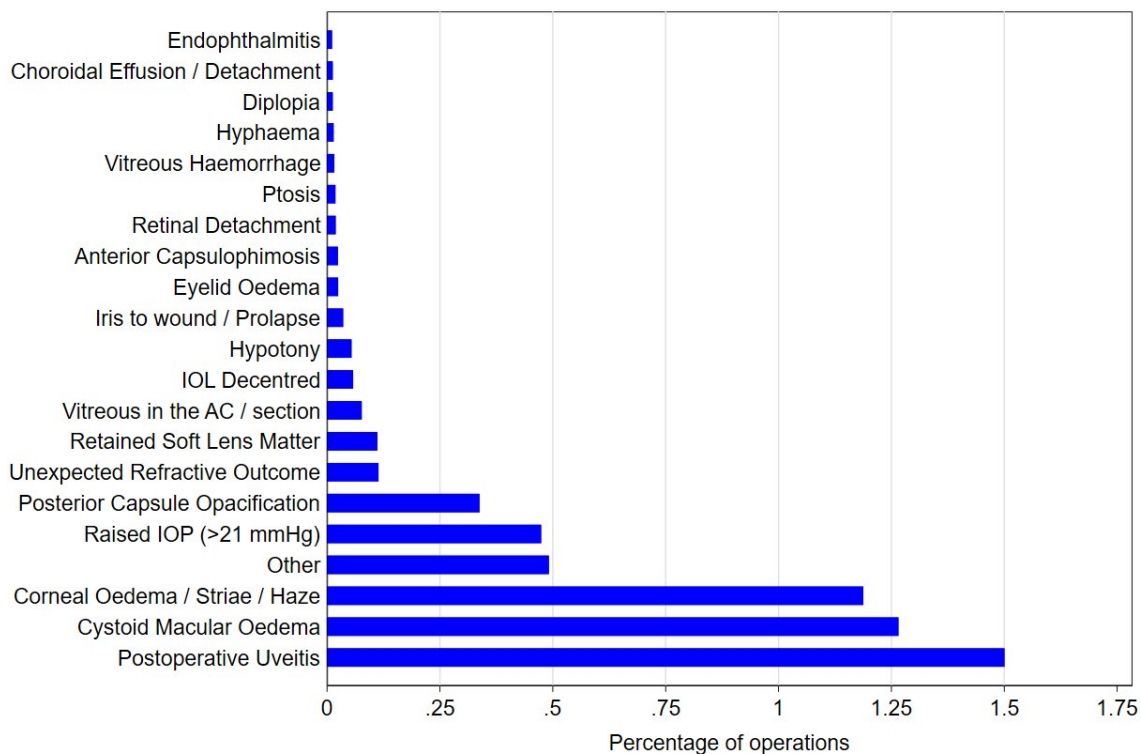
The most frequently recorded postoperative complications were postoperative uveitis, cystoid macular oedema and corneal oedema / striae / haze which were the only individual postoperative complications recorded for >1.0% of operations, Figure 11 (page 29).

Figure 10: The percentage of cataract operations supplied to the audit with and without postoperative complication data by participating centre – ordered by the percentage of operations with an actual postoperative complication



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 11: The percentage of cataract operations supplied to the audit with each individual postoperative complication.



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.11 Postoperative visual acuity

From the 241,561 eligible operations from 101 centres, 199,276 (82.5%) operations were performed before 30 June 2019 and had the potential for two months' follow-up. Data from three centres (90 operations) are excluded due to these centres having <50 eligible operations in the postoperative qualifying time period, and 1,760 operations from the centre whose VA data is excluded due to reported issues affecting the recording of VA data. This left 197,426 eligible operations from 97 centres available for the assessment of the percentage of eyes with a postoperative VA measurement. Of these, a postoperative visual acuity was recorded for 150,156 (76.1%) eyes and missing for 47,270 (23.9%) eyes. For comparison the percentage of eyes with a postoperative VA were 76.9%, 75.8% and 76.2% for audit years one, two and three respectively. The percentage of eyes with a postoperative VA for contributing centres and each audit year is in Appendix 13 (page 86).

There was wide variation in the percentage of eyes with postoperative VA by contributing centre; for 17 (17.5%) centres <50% of eyes had a postoperative VA, for 57 (58.8%) centres >80% of eyes had a postoperative VA and for 13 (13.4%) centres >95% of eyes had a postoperative VA, Figure 12 (page 31) and Appendix 7 (page 63). Influencing this result are operations performed in the latter part of the audit period where not all patients could have sufficient follow-up for all postoperative results to be available. Another factor is discharge to the community for the postoperative refraction and visual acuity assessments, as these measurements are not always sent back to the hospitals for recording on the hospitals' EMR system.

Overall, the percentage of first and second treated eyes with postoperative VA data was 77.7% for first treated eyes and 73.7% for second treated eyes. The percentage of first and second treated eyes with postoperative VA data varied between centres, where 84 (86.6%) centres had a higher percentage of first treated eyes with postoperative VA data than second treated eyes, for 13 centres this difference was >10% points and for five centres >25% points, Appendix 8 (page 68).

From the 150,156 eyes with a postoperative VA measurement, data from three centres (54 operations) are excluded from the estimate of postoperative vision due to the centres having <50 eligible operations with a postoperative VA measurement. Eligible for assessing postoperative vision are 150,102 operations from 94 contributing centres.

For the 150,102 eyes eligible for postoperative VA assessment, the best measurement was CDVA in 46,472 (31.0%) eyes, UDVA in 44,313 (29.5%) eyes, PHVA in 30,184 (20.1%) eyes; the best measurement was the same for two of the assessment methods for 27,045 (18.0%) eyes and the same for all three methods in 2,088 (1.4%) eyes.

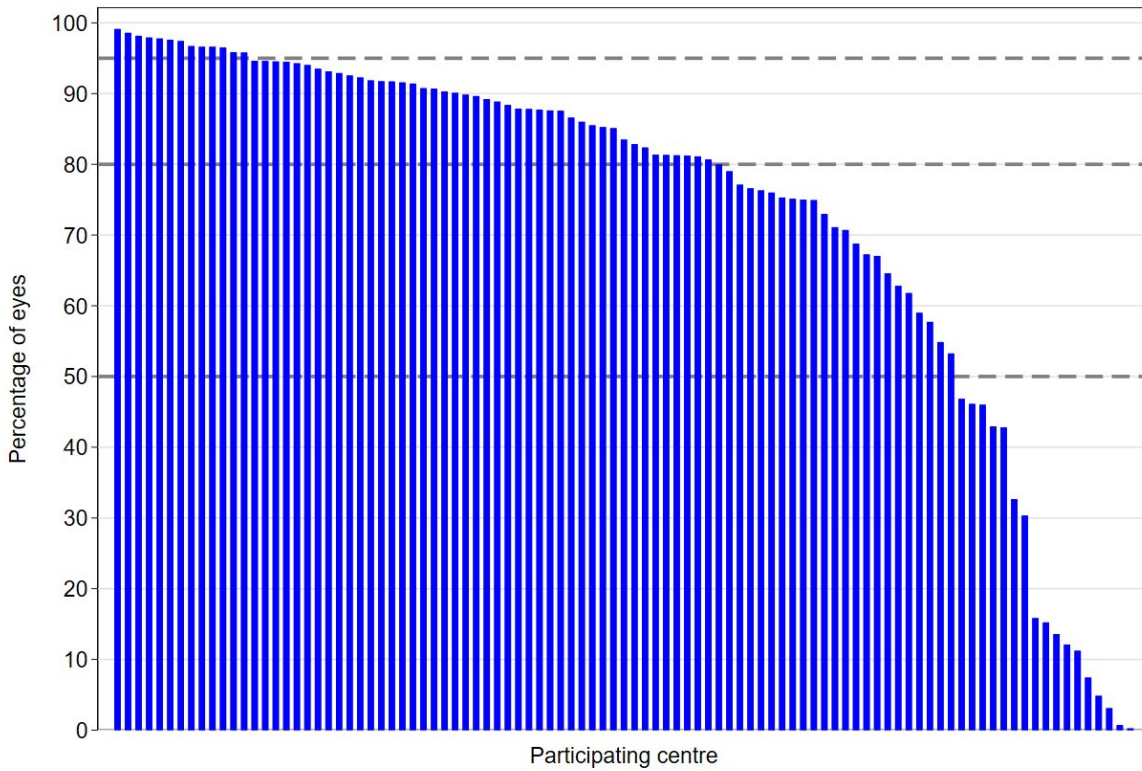
The median postoperative VA was 0.10 LogMAR units (range; -0.30 – NPL) (6/7.5 Snellen equivalent); where 460 (0.3%) eyes were CF, 268 (0.2%) eyes were HM, 51 (<0.1%) eyes were PL and 11 (<0.1%) eyes were NPL.

The postoperative VA was 0.30 LogMAR units (6/12) or better for 136,924 (91.2%) eyes, 0.60 LogMAR units (6/24) or better for 145,498 (96.9%) eyes and 1.0 LogMAR units (6/60) or better for 148,467 (98.9%) eyes.

The postoperative VA was stable across participating centres, although there was some variation where the median postoperative VA was 0.00 LogMAR for 22 (23.4%) centres, 0.10 LogMAR for 49 (52.1%) centres and 0.20 LogMAR for 12 (12.8%) centres. The overall median postoperative VA for centres was 0.10 LogMAR with a range in the centres median postoperative VA of 0.00 – 0.32 LogMAR, Figure 13 (page 31).

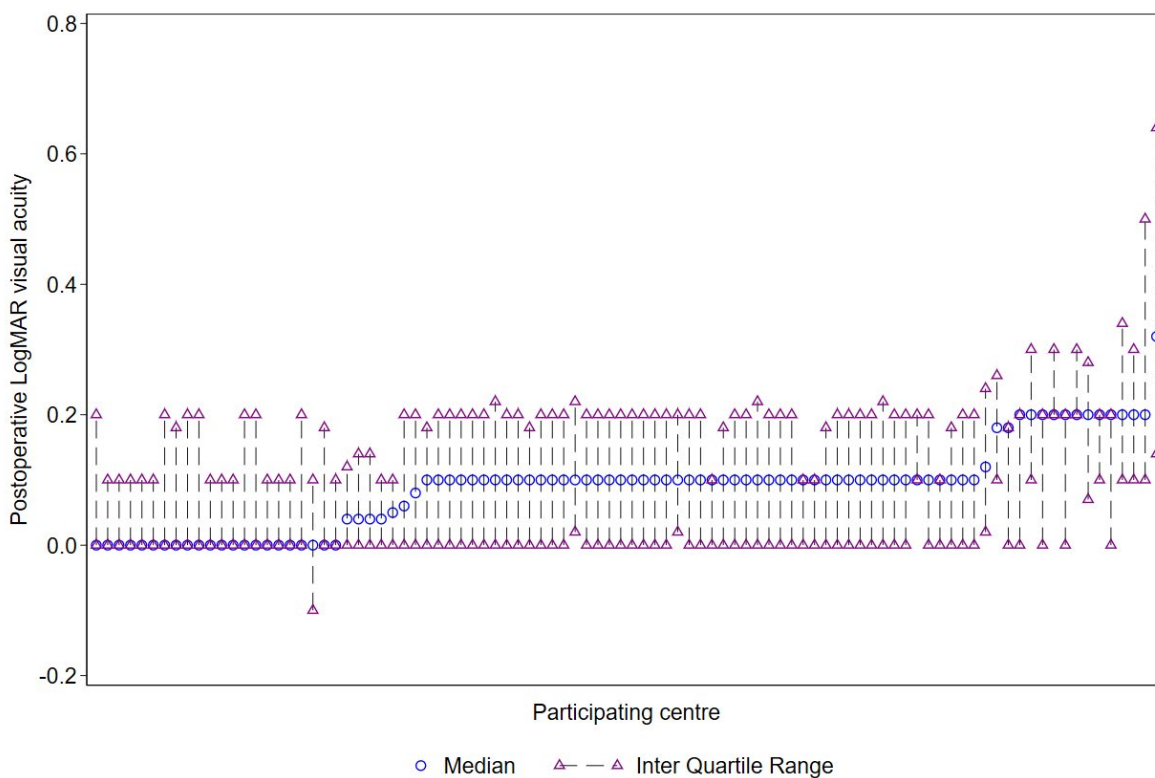
Overall, VA outcomes were as expected, though data completeness remains an area for improvement and results for centres with small numbers will be subject to significant statistical uncertainty and potential bias.

Figure 12: The percentage of cataract operations supplied to the audit with a valid postoperative VA by participating centre – ordered by the percentage of eligible operations with a postoperative VA measurement



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 13: Median and IQR for postoperative VA by participating centre – ordered by median postoperative VA



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.12 Change in visual acuity

Of the 199,276 eligible cataract operations submitted to the audit performed before 30 June 2019. Data from three centres (90 operations) are excluded from change in VA results due these centres having <50 eligible operations in the qualifying time period, and 1,760 operations from one centre are excluded due to reported issues affecting the recording of VA data. This left 197,426 eligible operations from 97 centres considered for the reporting of the percentage of eyes with change in VA data, where 140,848 (71.3%) eyes had both a preoperative VA and a postoperative VA measurement. Nineteen (19.6%) centres had <50% of eligible eyes with both a preoperative and postoperative VA, 47 (48.5%) centres had >80% of eyes with both VA measurements and five (5.2%) centres had >95% with both VA measurements, Figure 14 (page 33). For comparison, the percentages of eyes with change in VA data were 73.7%, 71.8% and 72.0% for audit years one, two and three respectively. Data completeness for this measure remains stable, averaging around 70%. The audit will continue to encourage centres to collect and record both preoperative and postoperative VA to allow for determination of this measure.

From the 140,848 eyes with both a preoperative and postoperative VA measurement, data from five centres (93 operations) are excluded from the change in VA analysis due to the centres having <50 eligible operations with both a preoperative and a postoperative VA measurement. Eligible for change in VA analysis are 140,755 operations from 91 participating centres.

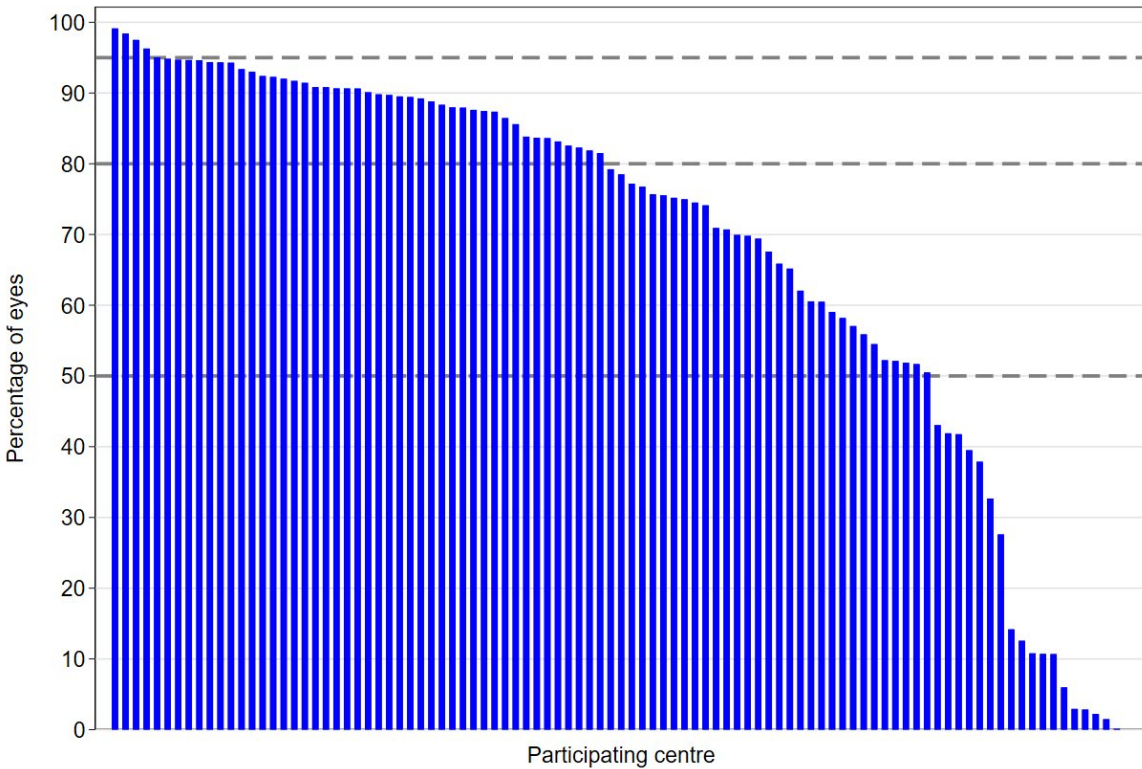
The median change in VA from baseline was a 0.38 LogMAR gain (IQR; 0.20 – 0.60 gain). A loss of >0.10 LogMAR (-1 line) was experienced by 3,261 (2.3%) eyes, a change of ± 0.10 LogMAR (± 1 line) by 15,870 (11.3%) eyes and a gain of >0.10 LogMAR (+1 line) by 121,624 (86.4%) eyes. The change in VA was stable between the participating centres, Figure 15 (page 33). Overall, the majority of cataract surgery operations resulted in a significant improvement in visual acuity for patients, as illustrated in Figure 16 (page 34) where for all 91 centres assessed for change in VA, the median postoperative VA was better than the median preoperative VA.

74% of eyes with a preoperative VA of 0.00 LogMAR or better had a postoperative VA of 0.00 LogMAR or better and 98% of eyes with a preoperative VA of 0.30 LogMAR or better had a postoperative VA of 0.30 LogMAR or better.

Eyes that had an ocular co-pathology or experienced an intraoperative complication or PCR during surgery had worse postoperative VA than eyes that did not have any of these problems. >90% of eyes without these problems had a postoperative VA of 0.30 LogMAR (6/12 Snellen) or better, Table 4 (page 35).

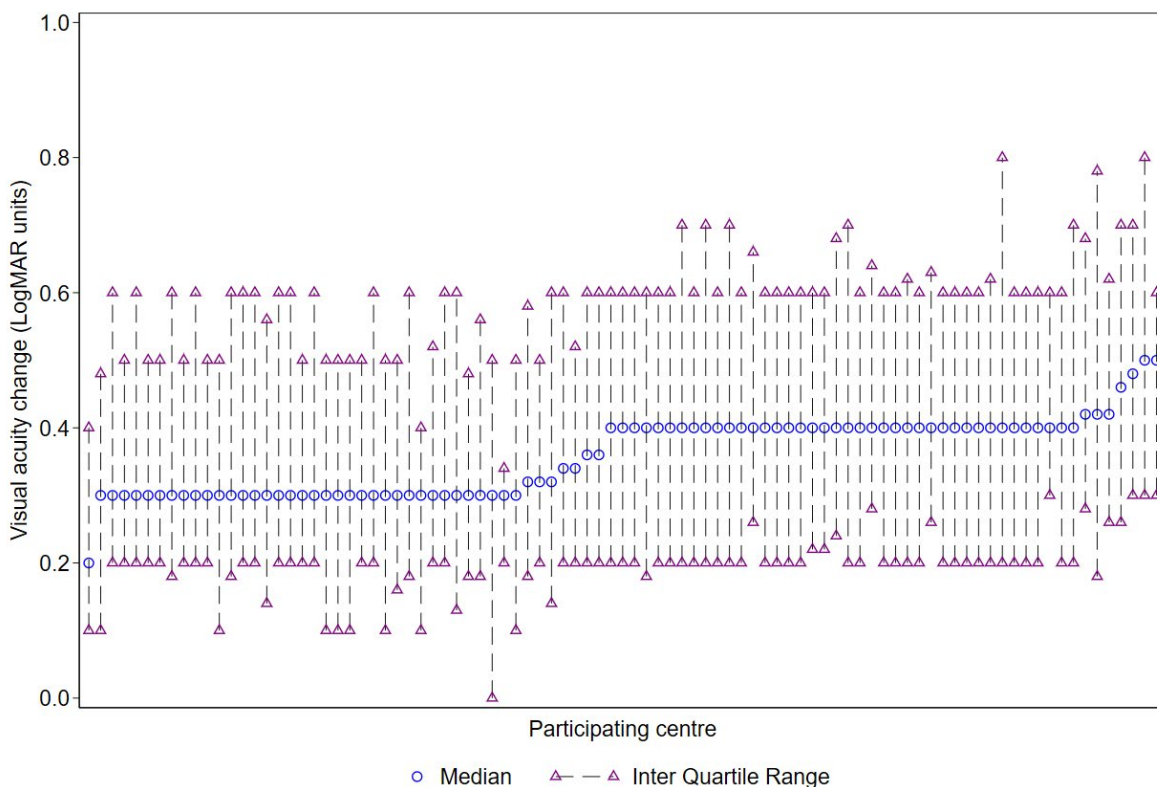
The percentage of operations from each participating centre with preoperative VA, postoperative VA and both pre- and postoperative VA data varied between participating centres, Appendix 7 (page 63).

Figure 14: The percentage of eligible operations with both a preoperative and a postoperative VA measurement by participating centre – ordered by the percentage of operations with both VA measurements



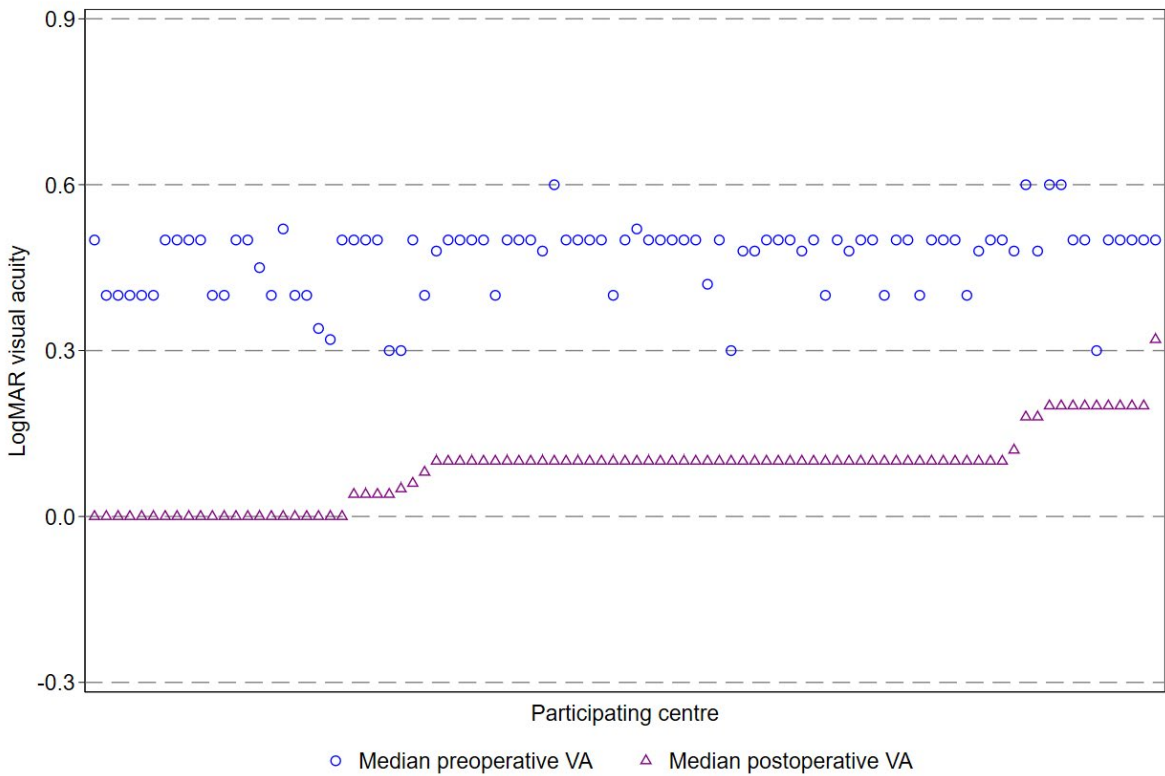
The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 15: Median and IQR for change in VA by participating centre – ordered by median change in VA



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 16: Median preoperative and postoperative VA by participating centre – ordered by median postoperative VA



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Table 4: Postoperative VA by preoperative VA, ocular co-pathology / known risk indicator and intraoperative complications

Percentages are row % (Approximate Snellen)	Postoperative LogMAR visual acuity				
	≤0.00 (6/6 or better)	≤0.18 (6/9 or better)	≤0.30 (6/12 or better)	≤0.60 (6/24 or better)	≤1.00 (6/60 or better)
All eyes (N = 140,755)	43.9	68.7	91.5	97.0	98.9
Preoperative LogMAR VA (Snellen)					
≤0.00 (N = 2,958)	74.3	89.9	99.0	99.9	100.0
≤0.18 (N = 9,294)	63.8	90.4	98.8	99.8	99.9
≤0.30 (N = 48,970)	52.9	78.1	98.0	99.8	99.9
≤0.60 (N = 100,663)	46.7	72.9	95.6	99.5	99.9
≤1.00 (N = 126,695)	45.2	70.6	93.4	98.6	99.8
Ocular co-pathology / risk indicator					
No (N = 75,721)	50.7	76.2	96.2	99.2	99.8
Yes (N = 65,034)	36.0	59.9	85.9	94.5	97.8
Intraoperative complications					
No (N = 137,633)	44.2	69.1	91.7	97.2	99.0
Yes (N = 3,122)	29.5	51.1	80.9	90.4	95.6
PCR					
No (N = 139,245)	44.1	68.9	91.6	97.1	99.0
Yes (N = 1,510)	25.4	43.2	75.7	86.8	93.4

8.13 Case complexity adjusted PCR results

Unadjusted for case complexity PCR rates for the 101 participating centres are shown in Figure 17 (page 36) and an adjusted for case complexity graph in Figure 18 (page 36). No participating centres were outliers in the fourth year of the audit. Details of the unadjusted and adjusted for case complexity PCR results for the 101 participating centres is in Appendix 9 (page 73), along with a case complexity index which is the overall predicted probability of PCR for all the cases reported for each centre. The case complexity adjusted PCR rate for contributing centres in each audit year is in Appendix 14 (page 91).

Displayed on the public section of the [audit website](#) will be case complexity adjusted PCR results for participating centres and fully qualified surgeons (consultants and career grade non-consultants) with at least 50 eligible operations. The case complexity adjusted PCR graph for the surgeons whose result will be available on the audit website is in Figure 19 (page 37) for 175,120 operations performed in 101 participating centres by 788 surgeons. No surgeons were outliers in audit year four and results for trainee surgeons are not displayed publicly.

Figure 17: Unadjusted for case complexity PCR funnel plot for participating centres

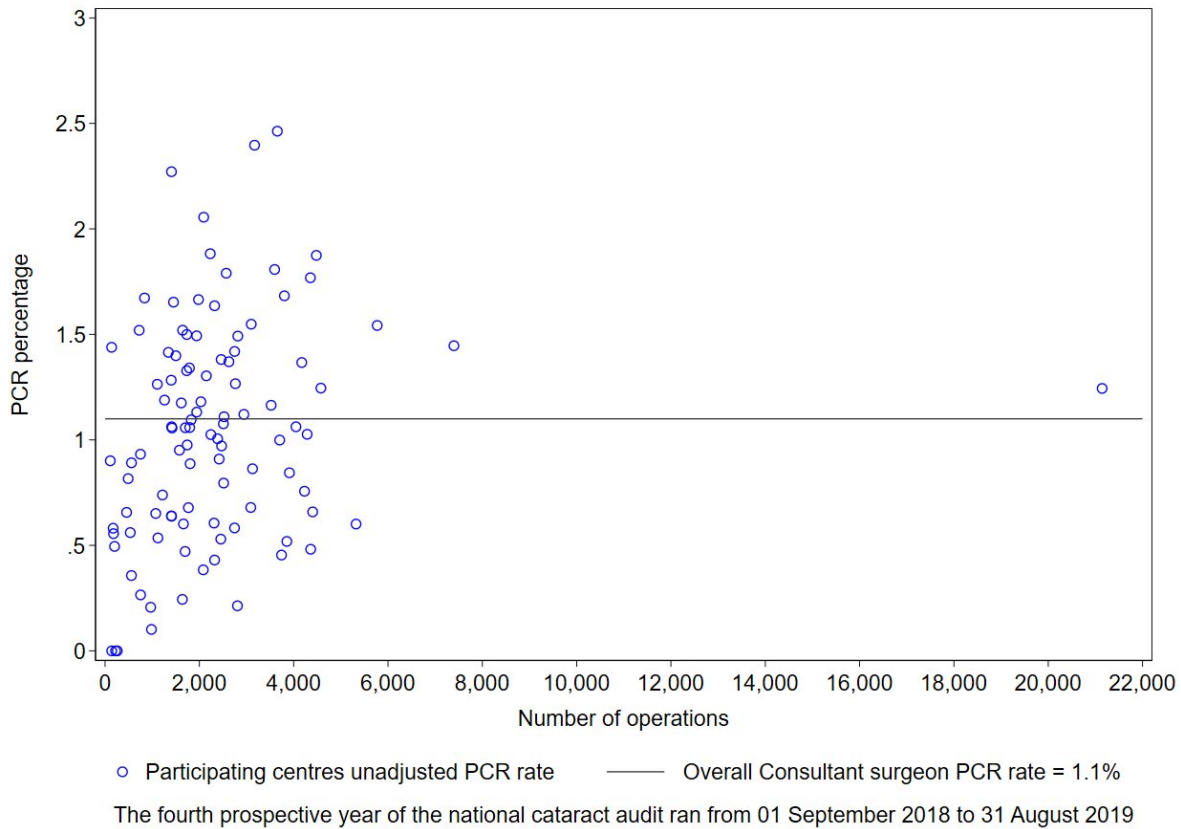
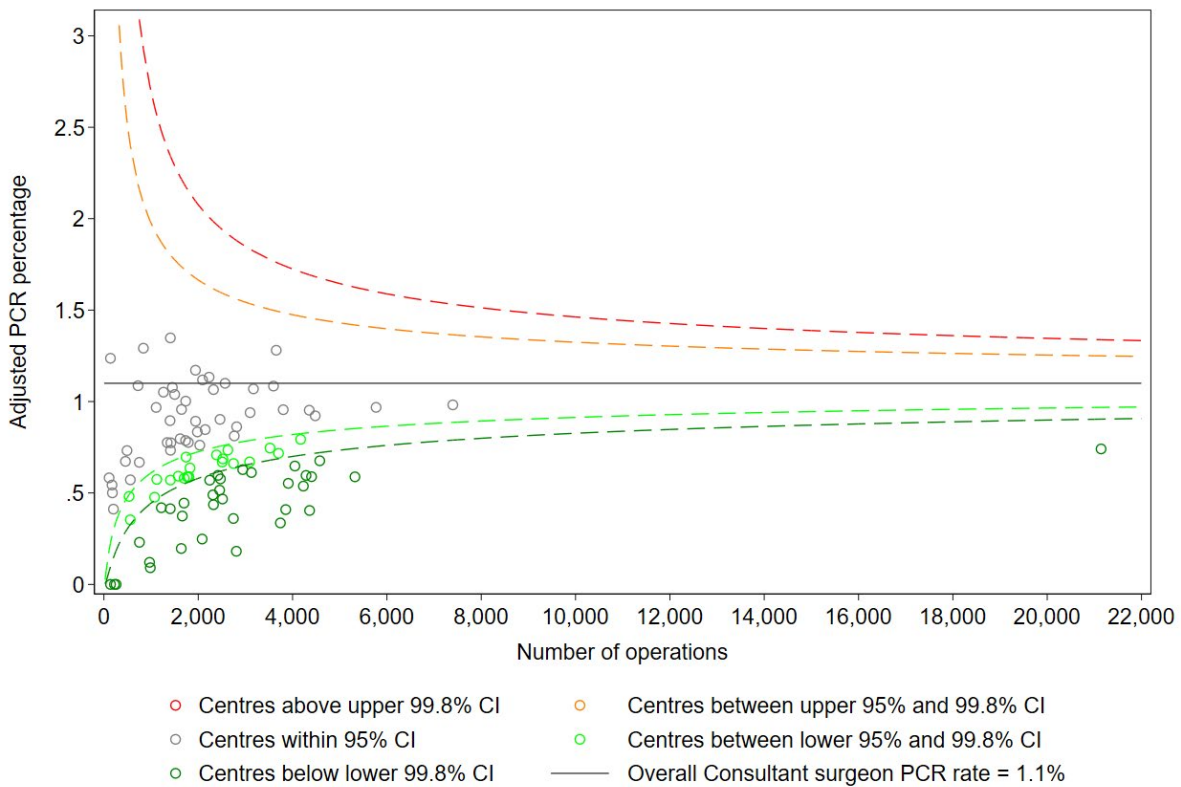
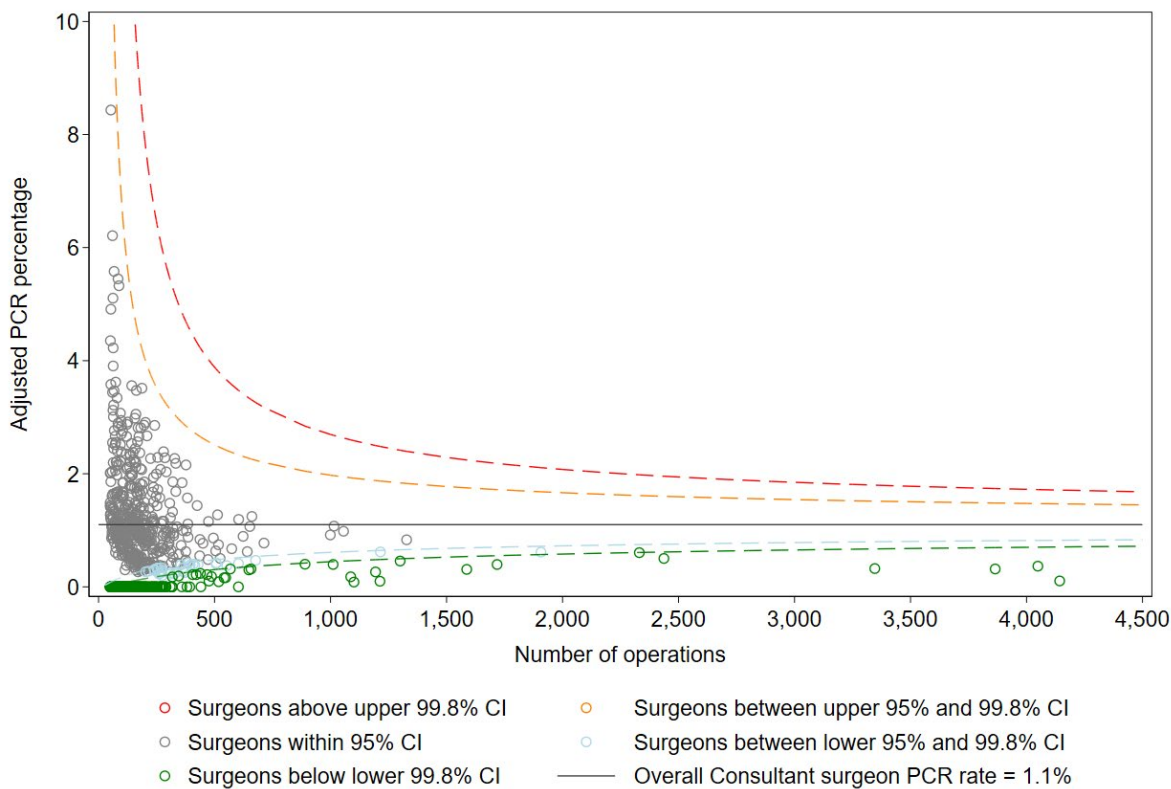


Figure 18: Adjusted for case complexity PCR funnel plot for participating centres with confidence intervals (CI)



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 19: Adjusted for case complexity PCR funnel plot for fully qualified surgeons with confidence intervals (CI)



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

8.14 Case complexity adjusted visual loss results

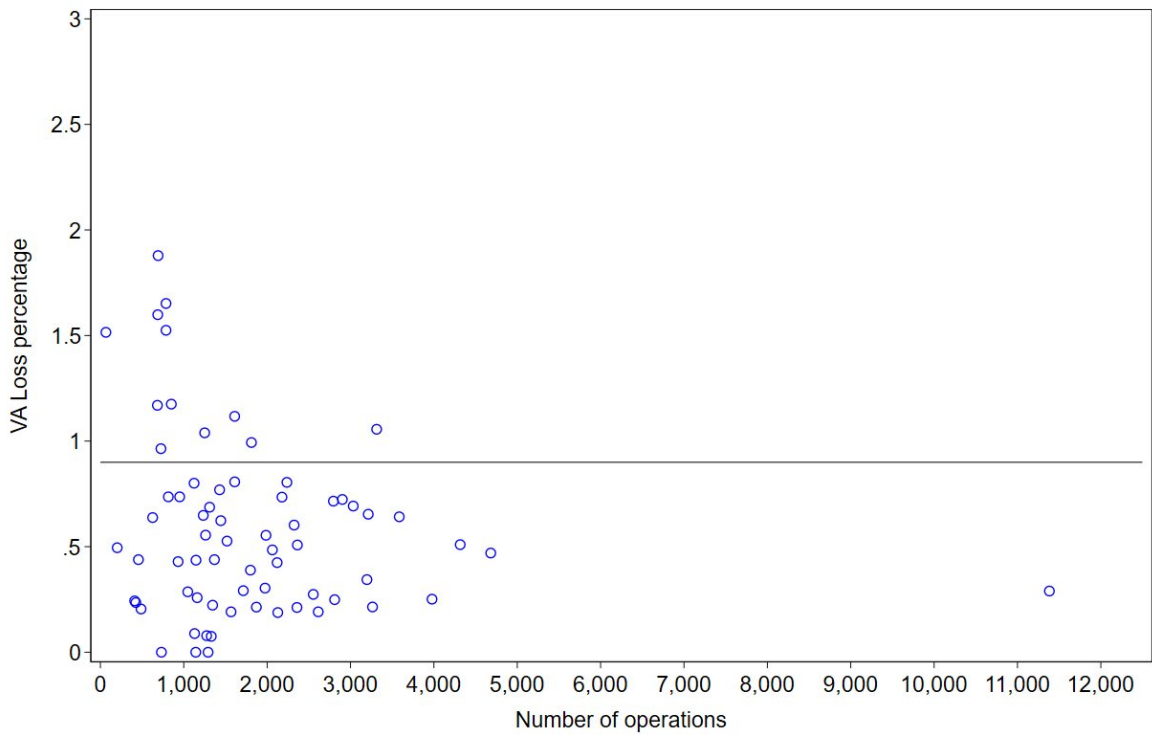
Of the 241,561 eligible operations, 199,276 operations were performed up to 30 June 2019 and had the potential for two months' follow-up. Data from three centres (90 operations) are excluded from the postoperative VA Loss results due these centres having <50 eligible operations in the qualifying time period, and 1,760 operations from one centre are excluded due to reported issues affecting the recording of VA data. This left 197,426 eligible operations from 97 centres with at least 50 eligible operations in the postoperative qualifying time period. From these, 125,492 (63.6%) operations from 68 centres were performed in centres where a preoperative and postoperative VA was recorded for at least 60% of the operations and in at least 50 operations per centre.

An unadjusted for case complexity funnel plot of VA Loss is shown in Figure 20 (page 38) and an adjusted for case complexity funnel plot in Figure 21 (page 39). Details of the unadjusted and adjusted for case complexity VA Loss results is in Appendix 9 (page 73), along with a case complexity index which is the overall predicted probability of VA Loss for the cases reported by each centre. The case complexity adjusted VA Loss rate for contributing centres in each audit year is in Appendix 14 (page 91). Centres with >40% operations without VA measurements and centres with <50 operations with both a preoperative and postoperative VA have not been reported as the estimates would be too unreliable.

Displayed on the public section of the [audit website](#) will be case complexity adjusted VA Loss results for participating centres and fully qualified surgeons (consultants and career grade non-consultants) with sufficient data for a result to be produced. The case complexity adjusted VA Loss graph for the surgeons whose result will be available on the audit website is in Figure 22 (page 39) for 90,184 operations performed in 81 participating centres by 489 surgeons. No surgeons were outliers in audit year four and results for trainee surgeons are not displayed publicly.

The percentage rate used in the case complexity adjusted results for VA Loss was lowered from 1.5% to 0.9% for audit year two to reflect the observed VA Loss rate for consultant and career grade surgeons whose results are published in the public domain. The actual observed VA Loss rate for the year four VA Loss sample was 0.51%, which is lower than the percentage rate used for complexity adjustment. These changes in the VA Loss rate are not an unexpected finding, as there is variation between centres in the percentage of reported operations, percentage of operations with a preoperative VA and percentage of operations with a postoperative VA, all of which are necessary for visual loss estimation.

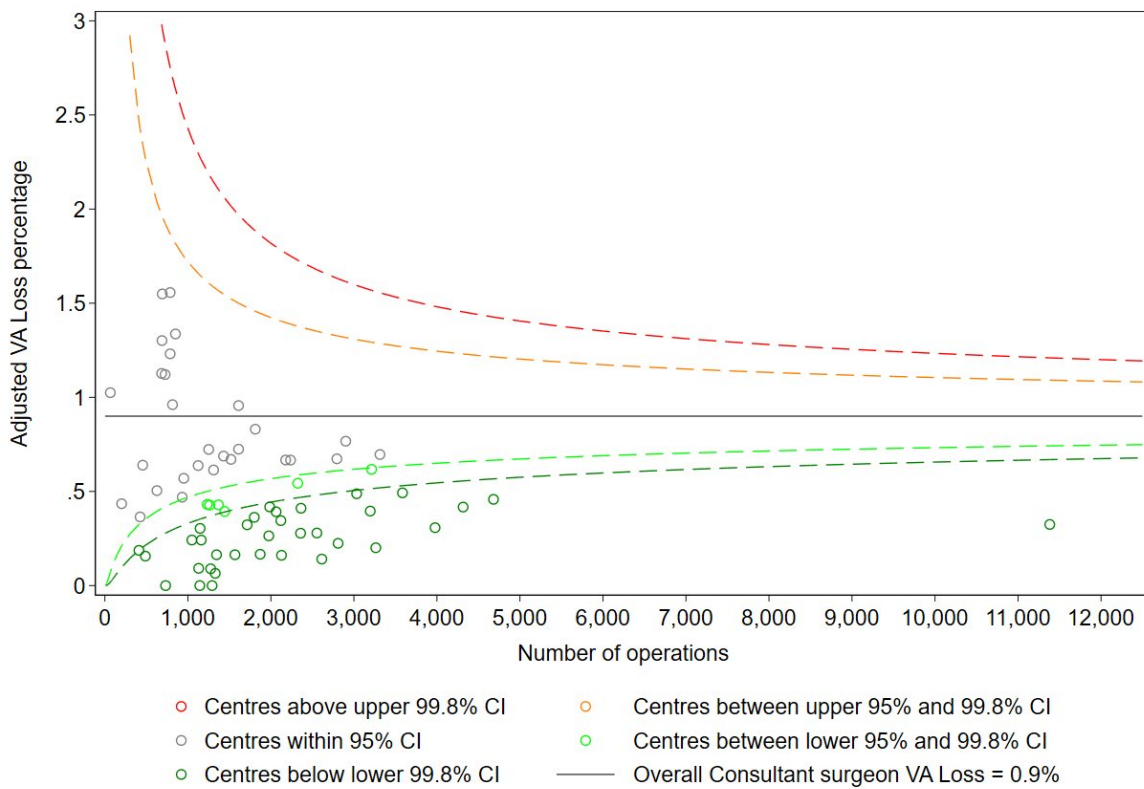
Figure 20: Unadjusted for case complexity VA Loss funnel plot for participating centres



○ Participating centres unadjusted VA Loss rate — Overall Consultant surgeon VA Loss rate = 0.9%

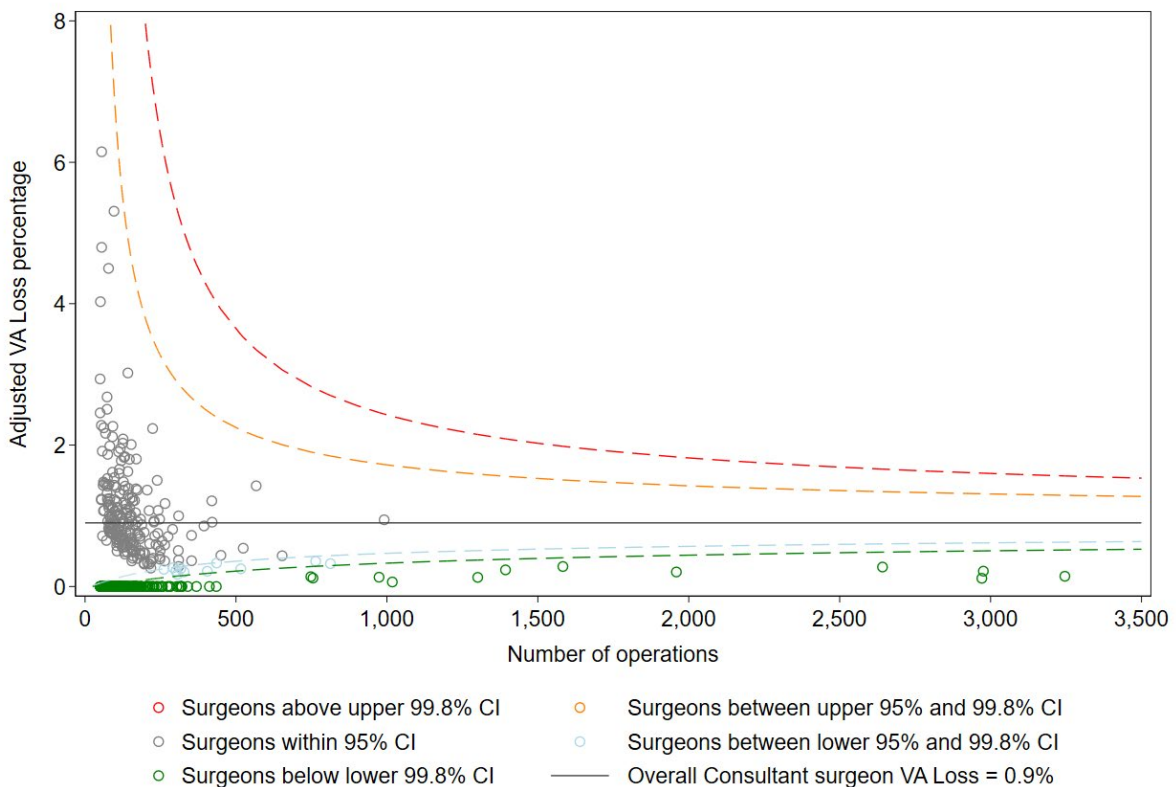
The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 21: Adjusted for case complexity VA Loss funnel plot for participating centres with confidence intervals (CI)



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

Figure 22: Adjusted for case complexity VA Loss funnel plot for fully qualified surgeons with confidence intervals (CI)



The fourth prospective year of the national cataract audit ran from 01 September 2018 to 31 August 2019

9. Summary of Key Points

This is the fourth annual report from The Royal College of Ophthalmologists' National Ophthalmology Database Audit to report results for prospectively collected data on cataract surgery for a one-year period.

1. Good progress has been made in terms of expanding the number of centres to above 100 centres in successive audit years, with 101 centres in this report, 73 English NHS trusts, four Welsh Local Health Boards, three independent sector treatment providers reporting 23 sites and one centre from Guernsey. Looking ahead, 105 centres providing cataract surgery have indicated that they wish to participate in future audit cycles.
2. Named surgeon and centre results are available on the [NOD Audit website](#).
3. Established markers of surgical quality – PCR and VA Loss – are used as metrics for risk-adjusted outcomes. PCR is the most frequent intraoperative complication and is associated with increased postoperative loss of vision. VA Loss is intended to capture all eyes where there has been an adverse outcome, whether or not associated with PCR.
4. Overall, PCR has reduced by 40% and VA Loss by 44% since 2010, Table 1 (page 8). The reduction in PCR complications in cataract surgery since 2010 equates to approximately 3,500 fewer complications annually across the NHS. Cost savings from avoided PCR complications are estimated at approximately £2 million per annum and the avoidance of VA Loss can have multiple benefits for a patient due to the importance of vision in daily life.
5. This is the fourth prospective cataract audit report to include the reporting of named centre results for all submitted operations with results for named consultant surgeons appearing on the [NOD website](#). For the centres included in this report, outcomes have been found to be within expectation, i.e. risk adjusted outcomes within 3SD of the consultant average. This reflects the high-quality outcomes for patients at participating centres.
6. Case ascertainment overall, at most contributing centres, is high although there remain some notable exceptions (Appendix 6, page 58 and Appendix 11, page 80).
7. Data completeness of reported surgery is excellent for PCR (100%), though less so for VA, particularly for postoperative VA. This is an area where many centres could do better, with a few centres having poor VA data returns following surgery. The collection of this important postoperative data could generally be improved (Appendix 7, page 63).
8. Quality improvement drivers in this audit take the form of risk-adjusted results for surgical complications and vision loss from before to after surgery. These key measures are risk-adjusted, to acknowledge case complexity and provide credit to surgeons and centres undertaking complex work. Without conscientious completion of risk indicator data, surgeons and centres run the risk of not being given credit for the complexity of the work undertaken. An important message for participants to take on board both when planning surgery and when recoding their patient notes.
9. The RCOphth NOD Audit is aligned to, and is driving, the NHS digital agenda in the move toward electronic working in ophthalmology. This is exemplified by the 117 centres who have submitted data to at least one of the four prospective audit years from England, Wales and Guernsey, including 23 sites from the independent sector. One further centre has submitted data for <50 eligible operations and will be submitting sufficient data for inclusion in future audit years and a further ten centres in England are

known to have an EMR and have not yet signed-up to participate (Appendix 2, page 45). The majority of these centres collect their data as part of routine clinical activity with no additional effort required for submission of data to the audit. Furthermore, the EMR audit tools allow for real time tracking of adverse surgical events locally which facilitates monitoring of complications by centres and surgeons. In the event of an adverse signal becoming apparent, timely corrective action can be taken to avoid unnecessary harm to patients and avoid centres or surgeons being identified as outliers in national audit reports going forward.

10. Conclusions

- The current report provides assurance that delivery of NHS and publicly funded cataract surgery in the 101 participating centres is of overall good quality
- It is encouraging to note that since 2010, when this work feeding back cataract surgical results to centres and surgeons began, there has been a 40% overall reduction in PCR complications and a 44% reduction in VA Loss. Progress with quality improvement thus far is providing obvious benefits to over 3,500 patients annually in terms of reduced morbidity as well as significant NHS cost savings from avoided complications of around £2 million annually
- In the forthcoming period, it is planned to further extend the audit coverage to include all traditional NHS centres, and more of the independent providers of cataract surgical care. All providers of NHS and publicly funded care are accountable to the public for the quality of services they provide. It is pleasing to note that three independent sector treatment providers with 23 sites have joined the audit and are included in the current report
- Further outcomes are being considered in order to provide a broader, more patient focused and more easily interpreted assessment of NHS service quality in cataract care
- The criteria used in the audit analysis that could be affected by service changes due to COVID 19 will be assessed, and if needed amended to better reflect altered patient pathways in contributing centres, for example by extending the time windows used for preoperative and postoperative visual acuity measurements.

11. Future of the audit

- The audit relies on the contribution of data and funding from participating centres augmented by donations from industry, and while this continues the RCOphth plan to continue to run the national cataract audit. Reported in 2021 will be the fifth prospective audit year where the audit period will move to align with the NHS year (April to March). This will aid centres with the planning of services and align the national cataract audit to other reporting services that report on the NHS year.
- We anticipate the fifth audit year will report on fewer operations from each centre as this audit year will include the period of national lockdown due to COVID 19 where routine cataract surgery was suspended. Some contributing centres have been informed that when routine surgery re-commences the surgery for their patients will be performed in nearby independent sector treatment provider sites, and not all of these are electronically enabled.
- Electronic data collection for cataract surgery is being implemented in Northern Ireland who wish to participate as a region in future audit years.

- The RCOphth NOD is committed to further developing the collection of the existing patient reported outcome measure (PROM) for cataract surgery, with the aim of implementing this in the national cataract audit.
- Initial steps have been taken towards establishing a national audit in wet age-related macular degeneration and it is anticipated that this will commence within the next two years.

12. Acknowledgements

We would like to acknowledge the support and guidance we have received from the RCOphth Executive Committee, Professional Standards Committee, Informatics and Audit Subcommittee and the Lay Advisory Group. Their guidance has helped us to ensure that the audit has relevance for not only the professional readership but also patients, their relatives and carers. We thank all the members for reviewing this report.

We also acknowledge the support of the hospitals that are participating in the prospective audit and thank our medical and non-medical colleagues for the considerable time and effort devoted to conscientious electronic data collection as they go about caring for their patients. All participating centres are acknowledged in Appendix 2 (page 45) and on the RCOphth [NOD audit website](#).

13. Funding

The RCOphth NOD National Cataract Audit is currently funded through participation fees from centres as well as contributions from [Alcon](#) and [Bausch + Lomb](#). We are grateful for the donations received from these organisations.

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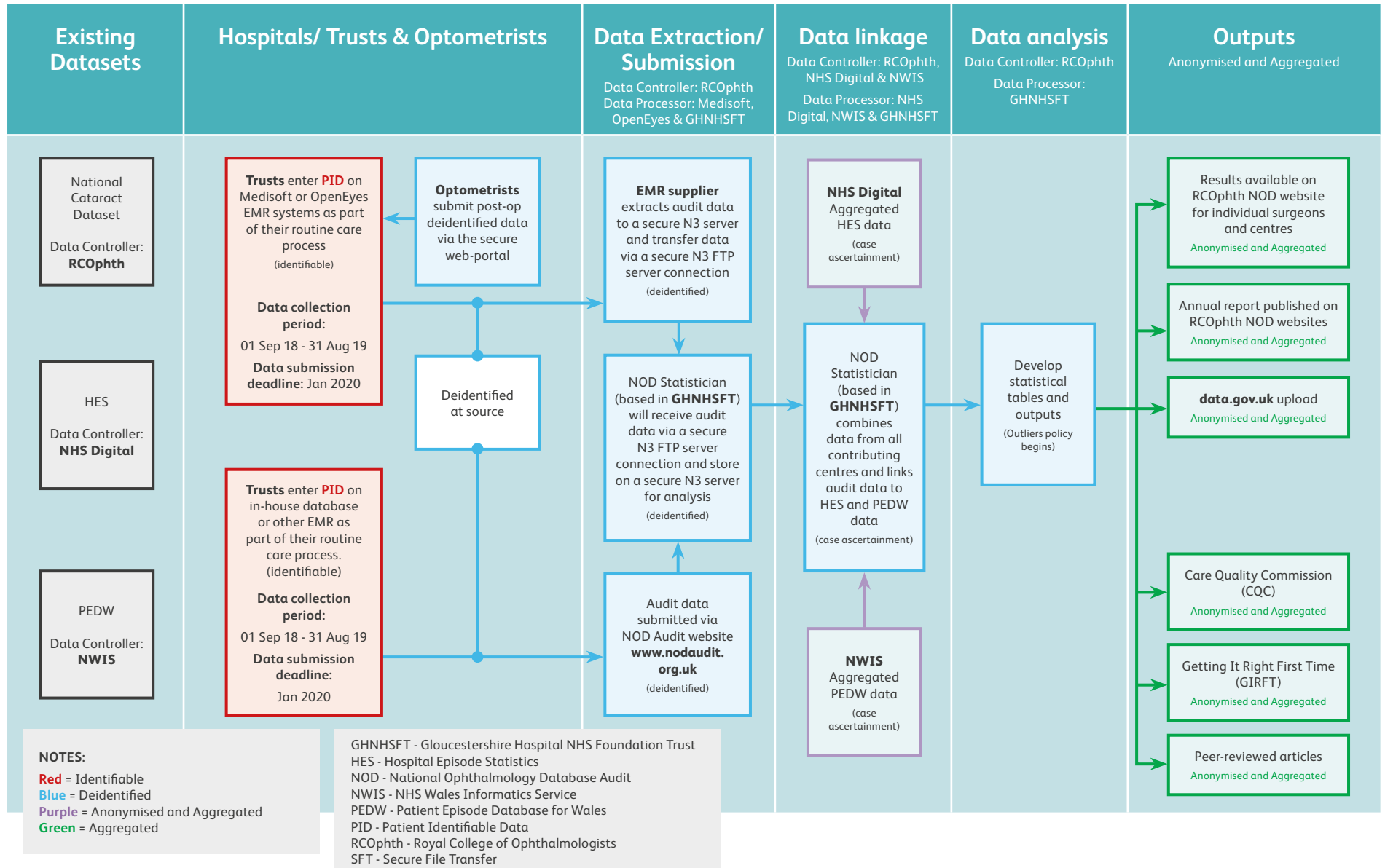
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It is with deep regret that we note the death of our friend and colleague Robert Johnston, who sadly died in September 2016. Without his inspirational vision, determination and career long commitment to quality improvement in ophthalmology this work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

Appendix 1: Data Flow

National Ophthalmology Database Audit – Data Flow



Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

Category	Organisation name	Data collection system
Centres first included in the year 1 report	Barking, Havering and Redbridge University Hospitals NHS Trust	Medisoft
	Barnsley Hospital NHS Foundation Trust	In-house
	Barts Health NHS Trust	Medisoft
	Bedford Hospital NHS Trust – Moorfields ¹	Medisoft
	Blackpool Teaching Hospitals NHS Foundation Trust ⁷	Medisoft
	Bradford Teaching Hospitals NHS Foundation Trust ²	Medisoft
	Calderdale and Huddersfield NHS Foundation Trust ¹⁷	Medisoft
	Cardiff and Vale University Health Board	Medisoft
	Chesterfield Royal Hospital NHS Foundation Trust	Medisoft
	Croydon Health Services NHS Trust – Moorfields ¹	Medisoft
	Epsom and St Helier University Hospitals NHS Trust	Medisoft
	Frimley Health NHS Foundation Trust	Medisoft
	Gloucestershire Hospitals NHS Foundation Trust	Medisoft
	Hampshire Hospitals NHS Foundation Trust	Medisoft
	Harrogate and District NHS Foundation Trust	Medisoft
	Isle of Wight NHS Trust	Medisoft
	King's College Hospital NHS Foundation Trust	Medisoft
	Leeds Teaching Hospitals NHS Trust	Medisoft
	Liverpool University Hospitals NHS Foundation Trust ¹¹	Medisoft
	London North West University Healthcare NHS Trust ¹⁷	In-house
	Manchester University NHS Foundation Trust	Medisoft
	Mid Cheshire Hospitals NHS Foundation Trust	Medisoft
	Mid Essex Hospital Services NHS Trust	Medisoft
	Moorfields Eye Hospital NHS Foundation Trust ¹	OpenEyes
	Norfolk and Norwich University Hospitals NHS Foundation Trust	Medisoft
	Northern Devon Healthcare NHS Trust	Medisoft
	North West Anglia NHS Foundation Trust ³	Medisoft
	Nottingham University Hospitals NHS Trust	Medisoft
	Oxford University Hospitals NHS Trust	Medisoft
	Royal Berkshire NHS Foundation Trust ¹⁷	Medisoft
Royal Cornwall Hospitals NHS Trust	Medisoft	
Royal Free London NHS Foundation Trust	Medisoft	
Royal United Hospital Bath NHS Trust ¹⁷	Medisoft	

Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

Category	Organisation name	Data collection system
Centres first included in the year 1 report	Salisbury NHS Foundation Trust	Medisoft
	Sandwell and West Birmingham Hospitals NHS Trust	Medisoft
	Sheffield Teaching Hospitals NHS Foundation Trust	Medisoft
	Shrewsbury and Telford Hospital NHS Trust ¹⁷	Medisoft
	South Tees Hospitals NHS Foundation Trust	Medisoft
	South Warwickshire NHS Foundation Trust	Medisoft
	St Helens and Knowsley Hospitals NHS Trust	Medisoft
	The Hillingdon Hospitals NHS Foundation Trust	Medisoft
	The Mid Yorkshire Hospitals NHS Trust	Medisoft
	The Newcastle Upon Tyne Hospitals NHS Foundation Trust	Medisoft
	The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	Medisoft
	University Hospital Southampton NHS Foundation Trust	Medisoft
	University Hospitals Birmingham NHS Foundation Trust ⁴	Medisoft
	University Hospitals Bristol NHS Foundation Trust	Medisoft
	University Hospitals Coventry and Warwickshire NHS Trust	Medisoft
	University Hospitals of Morecambe Bay NHS Foundation Trust ⁸	Medisoft
	University Hospitals Plymouth NHS Trust	Medisoft
	Warrington and Halton Hospitals NHS Foundation Trust	Medisoft
	Wirral University Teaching Hospital NHS Foundation Trust	Medisoft
	Wrightington, Wigan and Leigh NHS Foundation Trust	Medisoft
Yeovil District Hospital NHS Foundation Trust	Medisoft	
York Teaching Hospital NHS Foundation Trust	In-house	
Centres first included in the year 2 report	Bolton NHS Foundation Trust	OpenEyes
	Cambridge University Hospitals NHS Foundation Trust	EPIC
	County Durham and Darlington NHS Foundation Trust	Medisoft
	Cwm Taf University Health Board	Medisoft
	East Kent Hospitals University NHS Foundation Trust	OpenEyes
	East Lancashire Hospitals NHS Trust ⁹	Medisoft
	East Sussex Healthcare NHS Trust ⁶	Medisoft
	Great Western Hospitals NHS Foundation Trust	Medisoft
	Imperial College Healthcare NHS Trust	Medisoft
	James Paget University Hospitals NHS Foundation Trust	Medisoft

Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

Category	Organisation name	Data collection system
Centres first included in the year 2 report	Kingston Hospital NHS Trust	Medisoft
	Northampton General Hospital NHS Trust	In-house
	Northern Lincolnshire and Goole Hospitals NHS Foundation Trust ¹⁷	In-house
	Portsmouth Hospitals NHS Trust	Medisoft
	Royal Surrey County Hospital NHS Foundation Trust	In-house
	Sherwood Forest Hospitals NHS Foundation Trust	Medisoft
	Southport and Ormskirk Hospital NHS Trust	Medisoft
	SpaMedica – Bolton	Medisoft
	SpaMedica – Liverpool	Medisoft
	SpaMedica – Manchester	Medisoft
	SpaMedica – Newton-le-willows	Medisoft
	SpaMedica – Wakefield	Medisoft
	SpaMedica – Birkenhead	Medisoft
	Stockport NHS Foundation Trust ¹⁷	Medisoft
	East Suffolk and North Essex NHS Foundation Trust ⁵	Medisoft
	The Princess Alexandra Hospital NHS Trust ¹⁷	Medisoft
	The Rotherham NHS Foundation Trust ¹⁷	In-house
	Torbay and South Devon NHS Foundation Trust	Medisoft
	United Lincolnshire Hospitals NHS Trust ¹²	In-house
Wye Valley NHS Trust ¹⁷	Medisoft	
Centres first included in the year 3 report	Aneurin Bevan University Health Board	In-house
	Brighton and Sussex University Hospitals NHS Trust	Medisoft
	Care UK (Emersons Green NHS Treatment Centre)	Medisoft
	Care UK (North East London NHS Treatment Centre)	Medisoft
	Care UK (Peninsula NHS Treatment Centre)	Medisoft
	Care UK (Rochdale Ophthalmology Clinical Assessment and Treatment Service)	Medisoft
	Care UK (SH Devizes NHS Treatment Centre)	Medisoft
	Care UK (Shepton Mallet NHS Treatment Centre)	Medisoft
	Care UK (Southampton NHS Treatment Centre)	Medisoft
	Care UK (St. Mary's NHS Treatment Centre)	Medisoft
	Care UK (Will Adams NHS Treatment Centre)	Medisoft

Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

Category	Organisation name	Data collection system
Centres first included in the year 3 report	East Cheshire NHS Trust ¹⁷	Medisoft
	North Cumbria University Hospital NHS Trust	Medisoft
	North Middlesex University Hospital NHS Trust	Medisoft
	SpaMedica (Birmingham)	Medisoft
	SpaMedica (Sheffield)	Medisoft
	St Stephens Gate Medical Practice	In-house
	Surrey and Sussex Healthcare NHS Trust ¹⁷	Medisoft
	Swansea Bay University Local Health Board ¹⁷	OpenEyes
	The Dudley Group NHS Foundation Trust	Medisoft
Centre, first included in the year 4 report	Buckinghamshire Healthcare NHS Trust	Medisoft
	George Eliot Hospital NHS Trust	Medisoft
	Guy's and St Thomas' NHS Foundation Trust	OpenEyes
	Hywel Dda University Local Health Board	Medisoft
	Kettering General Hospital NHS Foundation Trust	Medisoft
	Medical Specialist Group Guernsey ¹⁴	Medisoft
	Southend University Hospital NHS Foundation Trust	Medisoft
	SpaMedica - Bradford	Medisoft
	SpaMedica - Chelmsford	Medisoft
	SpaMedica - Newcastle Under Lyme	Medisoft
	SpaMedica - Skelmersdale ¹⁵	Medisoft
	SpaMedica - Widnes	Medisoft
	Taunton and Somerset NHS Foundation Trust ¹⁶	Medisoft
	Western Sussex Hospitals NHS Trust	Medisoft
Submitted data, but for <50 eligible cases	SpaMedica - Hull ¹⁰	Medisoft

Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

Category	Organisation name	Data collection system
Yet to sign up or declined participation for the audit from year 4 onwards	Ashford and St Peter's Hospitals NHS Foundation Trust	TBC
	Betsi Cadwaladr University Local Health Board	TBC
	Chelsea and Westminster Hospital NHS Foundation Trust	TBC
	Countess of Chester Hospital NHS Foundation Trust	Medisoft
	Doncaster and Bassetlaw Hospitals NHS Foundation Trust	Medisoft
	Dorset County Hospital NHS Foundation Trust	TBC
	East and North Hertfordshire NHS Trust	TBC
	Hull University Teaching Hospitals NHS Trust	Medisoft
	Lancashire Teaching Hospitals NHS Foundation Trust	TBC
	Luton and Dunstable Hospital NHS Foundation Trust	TBC
	Maidstone and Tunbridge Wells NHS Trust	OpenEyes
	Milton Keynes Hospital NHS Foundation Trust	TBC
	Pennine Acute Hospitals NHS Trust	OpenEyes
	Powys Teaching Local Health Board	TBC
	Queen Victoria Hospital NHS Foundation Trust	Medisoft
	Royal Devon and Exeter NHS Foundation Trust	TBC
	The Queen Elizabeth Hospital King's Lynn NHS Foundation Trust	TBC
	The Royal Wolverhampton NHS Trust	Medisoft
	South Tyneside and Sunderland NHS Foundation Trust	TBC
	University Hospitals of Derby and Burton NHS Foundation Trust	TBC
	University Hospitals of Leicester NHS Trust	Medisoft
	University Hospitals of North Midlands NHS Trust	TBC
West Hertfordshire Hospitals NHS Trust	TBC	
West Suffolk NHS Foundation Trust	OpenEyes	
Worcestershire Acute Hospitals NHS Trust	OpenEyes	

- 1: Data combined and reported as Moorfields Eye Hospital NHS Foundation Trust.
- 2: Includes patients from Airedale NHS Foundation Trust.
- 3: This is a new NHS Trust formed from a merger of two participating NHS Trusts that both had data in the year 1 prospective report, these NHS Trusts were Peterborough and Stamford Hospitals NHS Foundation Trust and Hinchingbrooke Health Care NHS Trust.
- 4: This is a new NHS Trust formed from a merger of two participating NHS Trusts, University Hospitals Birmingham NHS Foundation Trust who have contributed to the audit since year 1 and Heart of England NHS Foundation Trust who first contributed in year 2.
- 5: This is a new NHS Trust formed from a merger of two NHS Trusts, The Ipswich Hospital NHS Trust who first contributed to year 2 and Colchester Hospital University NHS Foundation Trust who did not contribute data while a separate entity.
- 6: This centre participated in the year 1 prospective audit, but due to a data extraction problem the data from this centre could not be included in the year 1 report.

Appendix 2: Eligible cataract surgical centres in England, Wales and Guernsey

- 7: This centre had sufficient eligible cases for inclusion in the year 1 report, but did not submit ≥ 50 eligible operations for year 2 and has not contributed data to audit years 3 or 4.
- 8: This centre had sufficient eligible cases for inclusion in both the year 1 and 2 report, and has not contributed to subsequent audit years 3 or 4.
- 9: This centre had sufficient eligible cases for inclusion in the year 2 report, and has not contributed to subsequent audit years 3 or 4.
- 10: This centres has contributed data for < 50 operations.
- 11: This is a new NHS Trust formed from a merger of two NHS Trusts, Aintree University Hospital NHS Foundation Trust who have contributed data since audit year 1 and Royal Liverpool and Broadgreen University Hospitals NHS Trust who first contributed to year 3.
- 12: This NHS Trust has contributed data to audit years 2, 3 and 4 from an in-house data collection system, and will be contributing data in the future from the Medisoft EMR.
- 13: This is a new NHS Trust formed by a merger of North Cumbria University Hospital NHS Trust who contributed to audit year 3 and a non-cataract providing NHS Trust.
- 14: The institution is based in Guernsey and provides NHS equivalent care; they first contributed data to the RCOphth NOD in audit year 3 but were not included in the year 3 report due to not being located in either England or Cymru.
- 15: This institution first supplied data for audit year 3, but were not included in the year 3 report due to supplying data for < 50 eligible operations.
- 16: This NHS Trust merged with a non-cataract providing NHS Trust to form Somerset NHS Foundation Trust. The merger occurred after the completion of the audit year 4 data collection period and the RCOphth NOD have been asked to report the Trust's results for audit year 4 under the name of the former cataract providing NHS Trust as that institution was responsible for the provision of care.
- 17: These centres all contributed to the national audit when funded by The Healthcare Quality Improvement Partnership (years 1 – 3), but choose not to continue participating for audit year 4.
- TBC – To be confirmed.

Appendix 3: Interpreting the graphs and tables

Among the results there are five types of graphs;

- Bar charts – these are either horizontally or vertically aligned depending on the data being plotted. One axis displays the categorical element, usually contributing centre and when bar charts are sub-divided by another category, the length of each bar indicates the quantity of interest for the sub-category as read from the numeric axis. Some vertically aligned bar charts have horizontal dashed reference lines at specific points on the y-axis, these relate to cut-off points used in the reporting of results, for example 50%. Each bar chart is ordered (sorted) by a quantity being plotted, i.e. percentage. Figure 4 (page 23) is an example of a bar chart.
- Box and Whisker plots – the spread for the variable of interest is shown where the central line is the median or ‘middle’ value. The box outlines the inter quartile range (25% and 75% centiles), and the horizontal lines above and below the inter quartile range display either the position of the furthest value or a value at a ‘reasonable’ stretch from the middle. Extreme values are the dots beyond that. Figure 6 (page 24) is an example of a Box and Whisker plot.
- Funnel plots – The spread of dots on these looks like a funnel going from left to right. Each dot represents a result for a centre or surgeon as read off the vertical axis (proportion or rate). The funnel effect results from increasing statistical precision as the numbers get higher going along the horizontal axis, for example Figure 17 (page 36). Some of the plots have lines on them showing what is expected. A result above the top line (three standard deviations) would be deemed unacceptably high, for example Figure 18 (page 36).
- Median and IQR plots – These display for each contributing centre, the median and IQR for a numeric quantity as read from the vertical axis. These estimates indicate variation between centres and by not including the range these graphs allow magnification on the y-axis and a clearer view of the distribution of the median and IQR across contributing centres. Each of these graphs are ordered (sorted) by a quantity being plotted, i.e. the median. Figure 5 (page 23) is an example of a Median and IQR graph.
- Scatter plots – The display for each contributing centre an estimate of interest which can be read from the y-axis. Each scatter plot is ordered (sorted) by a quantity of interest. Figure 16 (page 34) is an example of a scatter plot.

Appendix tables with results for named centres;

On all tables that display results for contributing centres the centres are ordered by the number allocated to them in the RCOphth NOD database, where a number is created for a centre in the first audit year they submit at least 50 eligible operations. This number is equivalent to a ranking within the audit year of first submission, based on the total number of eligible operations contributed by each centre, where the lowest number is allocated to the centre with the most operations.

Centres 1 – 56 are the centres that were included in the first audit year report, where centre 1 had the most operations and centre 56 the fewest. Centres 57 – 87 are the centres first appearing in the second audit year report, where centre 57 had the most operations and centre 87 the fewest. Centres 88 – 108 are the centres first appearing in the third audit year report, where centre 88 had the most operations and centre 108 the fewest. Centres 109 – 122 are the centres first appearing in the fourth audit year report, where centre 109 has the most operations and centre 122 the fewest. This numbering system allows a reader to see which audit year a centres first submitted at least 50 eligible operations.

Appendix 3 continued: Interpreting the graphs and tables

On tables that include equivalent results for previous audit years, the centres who have a result for an audit year before they first contributed sufficient data are the centres who have submitted historic data for time periods before the first audit year they contributed to. Some centre numbers have become redundant due to mergers of NHS Trusts or one NHS Trust taking over the ophthalmology service in another NHS Trust and some centres have contributed data to an audit year and not done so in subsequent audit years.

Appendix 4: Case Definitions

Eligible Cataract Surgery Criteria

- Operation performed between 01 September 2018 – 31 August 2019
- Operation performed in adults (aged 18 or above)
- Operation included a phacoemulsification procedure
- Operative data includes a surgeon identifier and valid surgeon grade
- Operation included a 'cataract' indication for surgery (see the RCOphth [NOD Audit website](#) for details)
- Operation without any of the ineligible indications for surgery (see the RCOphth [NOD Audit website](#) for details)
- Operation did not include certain operative procedures (see the RCOphth [NOD Audit website](#) for details)
- Operations that included a pars plana vitrectomy with no vitreoretinal indication for surgery and no other vitreoretinal procedures except for sponge and scissor vitrectomy or automated anterior vitrectomy
- Operation not for a traumatic injury
- Operations in eyes with certain current or historic diagnosis (see the RCOphth [NOD Audit website](#) for details)
- A minimum of 50 eligible cataract operations for each participated centre

For comparisons against previous prospective audit years, all the above apply except for the date period criteria which is as follows;

- Audit year one – 01 September 2015 – 31 August 2016
- Audit year two – 01 September 2016 – 31 August 2017
- Audit year three – 01 September 2017 – 31 August 2018

Appendix 4 continued: Case Definitions

PCR – Posterior Capsule Rupture or Vitreous Prolapse or both

PCR was deemed to have occurred if any of the following intra-operative complications are recorded during surgery; Zonule rupture – vitreous loss, PC rupture ± vitreous loss, Vitreous to the section at end of surgery, Vitreous loss, Nuclear/ epinuclear fragment into vitreous, intra-ocular lens (IOL) into the vitreous, lens fragments into vitreous, or if any of the following occurred.

- The operation includes any of ‘Sponge and scissors vitrectomy’, ‘Automated anterior vitrectomy’ or ‘Scleral fixed IOL’
- The operative procedure includes ‘Fragmatome lensectomy ± IOL’ with a previous or concurrent phacoemulsification procedure
- The operative procedure includes ‘Removal of retained lens fragments’ combined with a pars plana vitrectomy
- If either of ‘vitreous to the section’ or ‘vitreous in the anterior chamber’ were recorded within eight weeks of cataract surgery, this includes the day of cataract surgery in the time frame
- If there is a record of a dropped nucleus operation with 90 days of cataract surgery, this includes the day of cataract surgery in the time frame

Visual Acuity (VA)

Visual acuity measurements are reported using the LogMAR scale with numeric substitutions of 2.10, 2.40, 2.70 and 3.00 for the ability to count fingers (CF), the ability to distinguish hand movements (HM), perception of light (PL) and no perception of light (NPL) respectively.

Preoperative VA was defined as the better of corrected distance visual acuity (CDVA) and uncorrected distance visual acuity (UDVA) recorded within a six month ‘time window’ prior to surgery. Where there are multiple occasions of measurement the VA measurement closest to the date of surgery is used and measurements recorded on the same day as cataract surgery are considered as preoperative measurements.

Postoperative VA was defined as the best measurement of CDVA or UDVA or pinhole visual acuity (PHVA) within the ‘time window’ of between eight days and six months of cataract surgery (inclusive).

At least 50 eligible operations with VA data are required for a VA result to be produced. Postoperative VA results were restricted to operations performed up to 30th June 2019 to allow for at least two months potential follow up. At least 50 eligible operations within the postoperative time period are required for a result to be produced. For VA Loss results, only centres with <40% missing pre and postoperative VA data were included.

Appendix 4 continued: Case Definitions

Visual loss was defined as:

- For eyes with a preoperative VA of <1.00 LogMAR, a loss of ≥ 0.30 LogMAR (doubling or worse of the visual angle) between the preoperative and postoperative VA measurements
- For eyes with a preoperative VA of ≥ 1.00 LogMAR and <CF, VA loss is designated if the postoperative VA is HM, PL or NPL
- For eyes with a preoperative VA of CF, VA loss is designated if the postoperative VA is PL or NPL
- For eyes with a preoperative VA of HM, VA loss is designated if the postoperative VA is NPL
- For eyes with a preoperative VA of PL or NPL no VA loss is considered

LogMAR VA is a continuous scale which allows arithmetic operations and parametric statistical methods to be employed in the analysis. Conversion between LogMAR and approximate Snellen scores, and their interpretations, are as follows:

Approximate Snellen to LogMAR Conversion

LogMAR	Snellen	VA Interpretation
-0.1	6/5	Excellent
0.0	6/6	Very Good
0.2	6/9	Good
0.3	6/12	Reasonably Good
0.5	6/18	Moderate
0.6	6/24	Moderate Sight Impairment
0.8	6/36	Sight Impairment
0.9	6/48	Sight Impairment
1.0	6/60	UK Severe Sight Impairment
1.1	5/60	UK Severe Sight Impairment
1.2	4/60	UK Severe Sight Impairment
1.3	3/60	WHO Severe Sight Impairment
2.1	Count Fingers (CF)	WHO Severe Sight Impairment
2.4	Hand Movements (HM)	WHO Severe Sight Impairment
2.7	Perception of Light (PL)	WHO Severe Sight Impairment
3.0	No Perception of Light (NPL)	WHO Severe Sight Impairment

Appendix 5: Glossary

Abbreviation	Description
CDVA	Corrected distance visual acuity
CF	The ability to count fingers
CI	Confidence Interval
COVID 19	Coronavirus Disease 2019
CQC	Care Quality Commission
EMR	Electronic Medical Record
HM	The ability to distinguish hand movements
IOL	Intra-ocular lens is an artificial lens generally inserted into the capsule of the lens after cataract removal
ICHOM	International Consortium for Health Outcomes Measurement
IQR	Inter Quartile Range
LogMAR	Logarithm of the Minimum Angle of Resolution
N/A	Not Applicable
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NOD	National Ophthalmology Database
NPL	No perception of light
NWIS	NHS Wales Informatics Service
PAS	Patient Administration System
PCR	Posterior capsule rupture is a break in the posterior capsule of the lens, usually as a complication of cataract surgery. It may allow vitreous to move forward into the anterior chamber of the eye.
PHVA	Pin hole visual acuity – The pinhole is an eye shield with several small holes which allow light rays to reach the retina without the interference of optical problems of the eye. It is used to test visual acuity.
PL	Perception of light
PROM	Patient Reported Outcome Measures
RCOphth	The Royal College of Ophthalmologists
RNIB	Royal National Institute of Blind People
SD	Standard Deviation
UDVA	Uncorrected distance visual acuity
UK	United Kingdom

Appendix 5 continued: Glossary

Abbreviation	Description
VA	Visual acuity is the sharpness of vision, measured by the ability to distinguish letters or numbers at a given distance according to a fixed standard. We have reported VA using the LogMAR scale (base 10 Log of the reciprocal of the visual angle). A normal LogMAR VA is 0.0 and the number increases as vision gets worse. LogMAR=0.3 would be at the boundary for driving a car and 1.0 would be at the level of registrable severe sight impairment. A postoperative VA of 0.3 or better is often used as a measure of a favourable outcome from surgery.
WHO	World Health Organisation

Appendix 6: The number of eligible operations and the proportion performed by each grade of surgeon

Appendix 6 table: The number of eligible operations with the percentage performed by each grade of surgeon for the participating centre

Centre name	Centre number	Date of first cataract operation during the audit period	Number of eligible operations	Estimate of cases submitted to the audit (%)*	Number of surgeons	The percentage of operations performed by			
						Consultant surgeons	Career grade non-consultant surgeons	More experienced trainee surgeons	Less experienced trainee surgeons
Moorfields Eye Hospital NHS Foundation Trust	1	01/09/2018	21,143	98.2	264	42.3	4.7	51.3	1.7
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	01/09/2018	7,398	95.1	60	67.1	0.5	30.4	2.0
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	03/09/2018	4,229	98.7	27	64.8	9.5	25.6	0.1
Leeds Teaching Hospitals NHS Trust	4	03/09/2018	4,286	99.3	46	56.8	0.1	37.0	6.1
York Teaching Hospital NHS Foundation Trust	5	01/09/2018	3,910	100.0	32	74.9	0.0	25.1	0.0
Oxford University Hospitals NHS Foundation Trust	6	01/09/2018	4,354	98.4	46	58.9	0.0	38.7	2.4
University Hospitals Bristol NHS Foundation Trust	7	03/09/2018	4,481	96.8	61	54.6	0.0	45.4	0.0
Gloucestershire Hospitals NHS Foundation Trust	8	03/09/2018	2,944	98.4	30	68.8	4.3	20.3	6.6
Sheffield Teaching Hospitals NHS Foundation Trust	9	03/09/2018	4,049	100.0	41	64.3	6.4	20.6	8.7
Sandwell and West Birmingham Hospitals NHS Trust	10	01/09/2018	3,654	93.5	80	56.8	6.2	28.9	8.0
University Hospital Southampton NHS Foundation Trust	11	01/09/2018	3,100	90.7	50	66.1	1.7	28.2	4.0
Mid Cheshire Hospitals NHS Foundation Trust	14	03/09/2018	2,523	100.0	21	51.9	26.6	15.7	5.8
The Mid Yorkshire Hospitals NHS Trust	15	03/09/2018	1,795	100.0	14	63.1	27.0	3.9	6.1
Cardiff & Vale University Local Health Board	16	03/09/2018	2,570	94.6	35	68.2	0.1	30.8	0.9
Epsom and St Helier University Hospitals NHS Trust	17	03/09/2018	2,815	98.7	29	60.8	0.0	29.7	9.6
Barts Health NHS Trust	18	03/09/2018	4,171	98.9	45	59.9	4.1	30.7	5.3
Frimley Health NHS Foundation Trust	19	01/09/2018	3,703	98.9	29	74.1	4.8	19.1	2.0
Bradford Teaching Hospitals NHS Foundation Trust	20	03/09/2018	2,092	98.4	33	76.5	0.0	17.3	6.2
University Hospitals Plymouth NHS Trust	22	03/09/2018	2,515	96.5	21	56.1	19.6	22.7	1.7
University Hospitals Birmingham NHS Foundation Trust	23	03/09/2018	4,577	98.8	67	68.2	4.4	23.4	4.0

Appendix 6 table continued: The number of eligible operations with the percentage performed by each grade of surgeon for the participating centre

						The percentage of operations performed by			
Centre name	Centre number	Date of first cataract operation during the audit period	Number of eligible operations	Estimate of cases submitted to the audit (%)*	Number of surgeons	Consultant surgeons	Career grade non-consultant surgeons	More experienced trainee surgeons	Less experienced trainee surgeons
Hampshire Hospitals NHS Foundation Trust	24	03/09/2018	2,312	76.5	17	89.1	0.0	10.9	0.0
Royal Cornwall Hospitals NHS Trust	25	01/09/2018	2,244	97.8	21	56.4	31.2	9.0	3.4
Manchester University NHS Foundation Trust	26	01/09/2018	3,596	60.5	59	52.9	3.2	36.9	7.0
King's College Hospital NHS Foundation Trust	27	03/09/2018	5,771	97.6	69	71.2	6.1	17.0	5.7
The Hillingdon Hospitals NHS Foundation Trust	30	03/09/2018	1,982	99.6	30	38.9	20.1	25.4	15.5
Liverpool University Hospitals NHS Foundation Trust	31	03/09/2018	3,803	86.1	73	50.2	0.4	40.9	8.4
Chesterfield Royal Hospital NHS Foundation Trust	33	03/09/2018	1,409	100.0	12	85.4	14.6	0.0	0.0
Mid Essex Hospital Services NHS Trust	34	03/09/2018	1,403	99.2	13	63.7	27.3	3.4	5.6
Harrogate and District NHS Foundation Trust	35	03/09/2018	1,407	100.0	12	69.7	15.1	5.3	9.9
North West Anglia NHS Foundation Trust	36	03/09/2018	2,764	99.5	28	76.2	4.9	18.9	0.1
Northern Devon Healthcare NHS Trust	37	04/09/2018	1,662	99.9	10	62.5	12.6	24.9	0.0
Wirral University Teaching Hospital NHS Foundation Trust	39	03/09/2018	1,218	98.6	18	46.7	0.0	51.9	1.4
South Warwickshire NHS Foundation Trust	40	03/09/2018	1,742	99.4	8	83.1	16.9	0.0	0.0
Isle of Wight NHS Trust	41	03/09/2018	1,412	99.2	10	56.7	34.6	8.8	0.0
St Helens and Knowsley Teaching Hospitals NHS Trust	42	03/09/2018	1,452	70.8	17	63.8	20.2	0.2	15.8
Wrightington, Wigan and Leigh NHS Foundation Trust	43	04/09/2018	1,108	98.1	9	91.2	8.8	0.0	0.0
Warrington and Halton Hospitals NHS Foundation Trust	44	03/09/2018	1,075	89.4	15	79.3	5.3	14.5	0.8
South Tees Hospitals NHS Foundation Trust	45	03/09/2018	2,231	83.6	28	64.4	0.7	34.8	0.1
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	03/09/2018	3,128	75.3	23	76.1	1.2	14.5	8.3
Barking, Havering and Redbridge University Hospitals NHS Trust	47	04/09/2018	2,387	87.2	20	83.4	0.2	14.1	2.3
Royal Free London NHS Foundation Trust	48	03/09/2018	2,033	50.8	41	59.1	5.9	24.0	11.0
University Hospitals Coventry and Warwickshire NHS Trust	49	03/09/2018	2,627	94.4	48	38.6	40.0	17.2	4.3
Barnsley Hospital NHS Foundation Trust	50	03/09/2018	223	13.8	3	100.0	0.0	0.0	0.0

Appendix 6 table continued: The number of eligible operations with the percentage performed by each grade of surgeon for the participating centre

						The percentage of operations performed by			
Centre name	Centre number	Date of first cataract operation during the audit period	Number of eligible operations	Estimate of cases submitted to the audit (%)*	Number of surgeons	Consultant surgeons	Career grade non-consultant surgeons	More experienced trainee surgeons	Less experienced trainee surgeons
Salisbury NHS Foundation Trust	51	03/09/2018	1,577	99.9	9	80.8	0.0	19.1	0.1
Nottingham University Hospitals NHS Trust	55	03/09/2018	2,748	78.3	49	27.8	2.3	69.9	0.0
Yeovil District Hospital NHS Foundation Trust	56	03/09/2018	1,420	100.0	12	91.6	1.5	6.8	0.0
SpaMedica - Manchester	57	04/09/2018	3,855	100.0	15	100.0	0.0	0.0	0.0
SpaMedica - Wakefield	58	03/09/2018	5,323	99.7	20	100.0	0.0	0.0	0.0
East Sussex Healthcare NHS Trust	59	01/09/2018	3,522	100.0	21	77.1	10.3	10.1	2.6
Imperial College Healthcare NHS Trust	60	01/09/2018	3,171	97.7	69	44.7	0.0	37.7	17.6
Portsmouth Hospitals NHS Trust	61	03/09/2018	2,420	97.7	29	66.2	0.5	31.0	2.4
Cambridge University Hospitals NHS Foundation Trust	63	03/09/2018	2,471	97.1	43	46.8	0.0	52.8	0.4
East Kent Hospitals University NHS Foundation Trust	64	03/09/2018	2,148	95.4	22	70.8	23.2	6.1	0.0
East Suffolk and North Essex NHS Foundation Trust	65	03/09/2018	2,462	40.6	18	61.5	3.6	34.3	0.6
SpaMedica - Birkenhead	66	05/09/2018	2,808	98.4	6	100.0	0.0	0.0	0.0
County Durham and Darlington NHS Foundation Trust	67	03/09/2018	2,323	99.3	23	73.7	22.6	0.0	3.8
United Lincolnshire Hospitals NHS Trust	68	03/09/2018	1,826	52.9	13	82.9	0.2	16.9	0.0
SpaMedica - Newton-le-Willows	69	04/09/2018	1,640	98.1	10	100.0	0.0	0.0	0.0
Northampton General Hospital NHS Trust	70	03/09/2018	1,617	76.9	27	73.3	4.5	22.2	0.0
SpaMedica - Liverpool	71	04/09/2018	1,698	98.3	9	100.0	0.0	0.0	0.0
James Paget University Hospitals NHS Foundation Trust	72	02/09/2018	1,944	93.8	13	81.3	9.2	8.1	1.4
Bolton NHS Foundation Trust	73	03/09/2018	1,732	98.7	21	53.3	30.7	8.5	7.5
Kingston Hospital NHS Foundation Trust	74	01/09/2018	1,942	81.3	17	83.8	7.8	8.3	0.1
Torbay and South Devon NHS Foundation Trust	77	03/09/2018	1,790	99.3	27	62.7	7.0	26.9	3.5
Great Western Hospitals NHS Foundation Trust	78	03/09/2018	1,734	84.8	15	73.6	17.7	5.0	3.6
SpaMedica - Bolton	79	01/09/2018	4,361	100.0	15	100.0	0.0	0.0	0.0
Cwm Taf Morgannwg University Local Health Board	82	03/09/2018	1,343	81.6	16	66.1	26.1	4.8	3.0
Sherwood Forest Hospitals NHS Foundation Trust	83	03/09/2018	1,804	91.8	15	55.2	29.4	6.6	8.8
Royal Surrey County Hospital NHS Foundation Trust	84	13/09/2018	259	14.7	7	92.3	5.8	1.9	0.0

Appendix 6 table continued: The number of eligible operations with the percentage performed by each grade of surgeon for the participating centre

						The percentage of operations performed by			
Centre name	Centre number	Date of first cataract operation during the audit period	Number of eligible operations	Estimate of cases submitted to the audit (%)*	Number of surgeons	Consultant surgeons	Career grade non-consultant surgeons	More experienced trainee surgeons	Less experienced trainee surgeons
Southport and Ormskirk Hospital NHS Trust	86	04/09/2018	968	94.5	11	27.6	65.0	4.3	3.1
Care UK - Shepton Mallet NHS Treatment Centre	88	03/09/2018	1,768	100.0	6	100.0	0.0	0.0	0.0
Care UK - St Marys NHS Treatment Centre	89	03/09/2018	3,090	100.0	8	100.0	0.0	0.0	0.0
Care UK - Emersons Green NHS Treatment Centre	90	03/09/2018	2,083	100.0	5	100.0	0.0	0.0	0.0
Care UK - Will Adams NHS Treatment Centre	91	01/09/2018	2,454	100.0	12	100.0	0.0	0.0	0.0
SpaMedica - Sheffield	92	01/09/2018	4,403	99.2	18	100.0	0.0	0.0	0.0
Care UK - Peninsula NHS Treatment Centre	93	06/09/2018	2,323	100.0	5	100.0	0.0	0.0	0.0
North Cumbria Integrated Care NHS Foundation Trust	94	03/09/2018	837	35.0	9	65.1	34.8	0.0	0.1
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	03/09/2018	1,262	100.0	6	100.0	0.0	0.0	0.0
Care UK - North East London NHS Treatment Centre	97	03/09/2018	984	100.0	8	100.0	0.0	0.0	0.0
North Middlesex University Hospital NHS Trust	98	01/09/2018	1,501	97.2	14	89.9	0.0	6.7	3.4
Brighton and Sussex University Hospitals NHS Trust	99	03/09/2018	2,746	89.9	27	41.1	8.0	50.9	0.0
Care UK - SH Devizes NHS Treatment Centre	100	07/09/2018	560	100.0	4	99.8	0.0	0.2	0.0
Aneurin Bevan University Local Health Board	102	03/09/2018	561	15.2	22	77.7	0.0	21.4	0.9
Care UK - Southampton NHS Treatment Centre	103	06/09/2018	1,121	84.6	2	100.0	0.0	0.0	0.0
SpaMedica - Birmingham	104	06/09/2018	3,742	100.0	13	100.0	0.0	0.0	0.0
St. Stephens Gate Medical Practice	105	04/10/2018	202	**	2	100.0	0.0	0.0	0.0
The Dudley Group NHS Foundation Trust	106	04/09/2018	724	40.1	19	86.5	2.3	6.9	4.3
Southend University Hospital NHS Foundation Trust	109	03/09/2018	2,509	71.1	24	38.5	39.0	22.5	0.0
Guy's and St Thomas' NHS Foundation Trust	110	03/09/2018	1,702	60.5	42	53.4	8.5	38.1	0.0
Buckinghamshire Healthcare NHS Trust	111	15/03/2019	1,645	80.2	30	64.1	3.5	30.0	2.4
SpaMedica - Bradford	112	02/11/2018	1,410	100.0	11	100.0	0.0	0.0	0.0
SpaMedica - Skelmersdale	113	20/09/2018	754	99.4	10	99.9	0.0	0.1	0.0

Appendix 6 table continued: The number of eligible operations with the percentage performed by each grade of surgeon for the participating centre

Centre name	Centre number	Date of first cataract operation during the audit period	Number of eligible operations	Estimate of cases submitted to the audit (%)*	Number of surgeons	The percentage of operations performed by			
						Consultant surgeons	Career grade non-consultant surgeons	More experienced trainee surgeons	Less experienced trainee surgeons
Taunton and Somerset NHS Foundation Trust	114	23/04/2019	751	95.1	17	79.1	0.0	20.8	0.1
Medical specialists group Guernsey	115	03/09/2018	535	***	4	100.0	0.0	0.0	0.0
Hywel Dda University Local Health Board	116	18/10/2018	490	25.7	9	98.8	0.0	0.0	1.2
George Eliot Hospital NHS Trust	117	19/12/2018	457	42.3	6	100.0	0.0	0.0	0.0
SpaMedica - Newcastle Under Lyme	118	25/04/2019	180	100.0	8	100.0	0.0	0.0	0.0
SpaMedica - Widnes	119	07/06/2019	172	100.0	5	100.0	0.0	0.0	0.0
Kettering General Hospital NHS Foundation Trust	120	12/03/2019	141	22.5	5	97.9	2.1	0.0	0.0
SpaMedica - Chelmsford	121	15/04/2019	139	100.0	5	100.0	0.0	0.0	0.0
Western Sussex Hospitals NHS Foundation Trust	122	12/06/2019	111	16.2	7	18.9	78.4	2.7	0.0
Overall for all centres	N/A	01/09/2018	241,561	88.8	2,062	69.3	6.5	21.4	2.9

*The estimate of the proportion of cases submitted to the audit is derived from the number of completed cataract operations supplied to NHS digital or NWIS for the audit period. This estimation uses a pro-rata calculation for a centre's denominator where the proportion of time during the audit cycle that a centre had been recording cataract operations was multiplied by the number of cataract operations supplied to NHS digital or NWIS. The numerator was the number of operations a centre supplied to the audit. Centre's that had more operations submitted to the national audit than in the NHS digital or NWIS data were all assumed to have a complete submission rate as the actual rate was not possible to estimate.

**This centre had no data in the NHS digital data.

***This centre does not have to report to either NHS Digital or NWIS.

Appendix 7: Preoperative, postoperative and change in VA percentages

Appendix 7 table: The percentage of eyes with preoperative VA, postoperative VA and change in VA data for participating centres in the audit

Centre name	Centre number	Estimate of cases submitted to the audit (%)*	Number of eligible operations	% with preoperative VA data	Number of operations eligible for postoperative VA results	% with postoperative VA data	% with change in VA data
Moorfields Eye Hospital NHS Foundation Trust	1	98.2	21,143	73.6	17,466	73.0	65.2
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	95.1	7,398	91.6	6,186	81.1	75.7
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	98.7	4,229	94.7	3,491	15.2	14.2
Leeds Teaching Hospitals NHS Trust	4	99.3	4,286	98.1	3,618	85.5	83.8
York Teaching Hospital NHS Foundation Trust	5	100.0	3,910	68.3	3,416	81.4	59.0
Oxford University Hospitals NHS Foundation Trust	6	98.4	4,354	86.1	3,761	30.3	27.6
University Hospitals Bristol NHS Foundation Trust	7	96.8	4,481	98.1	3,769	89.7	87.9
Gloucestershire Hospitals NHS Foundation Trust	8	98.4	2,944	71.8	2,597	74.9	51.9
Sheffield Teaching Hospitals NHS Foundation Trust	9	100.0	4,049	99.3	3,337	96.6	96.3
Sandwell and West Birmingham Hospitals NHS Trust	10	93.5	3,654	96.8	3,102	93.1	90.1
University Hospital Southampton NHS Foundation Trust	11	90.7	3,100	97.2	2,568	94.5	92.0
Mid Cheshire Hospitals NHS Foundation Trust	14	100.0	2,523	94.3	2,099	81.3	76.8
The Mid Yorkshire Hospitals NHS Trust	15	100.0	1,795	99.4	1,484	83.5	83.2
Cardiff & Vale University Local Health Board	16	94.6	2,570	91.3	2,114	46.1	41.8
Epsom and St Helier University Hospitals NHS Trust	17	98.7	2,815	98.6	2,334	91.9	90.8
Barts Health NHS Trust	18	98.9	4,171	91.5	3,527	88.9	82.3
Frimley Health NHS Foundation Trust	19	98.9	3,703	98.3	2,923	75.3	74.5
Bradford Teaching Hospitals NHS Foundation Trust	20	98.4	2,092	90.7	1,656	82.9	75.5
University Hospitals Plymouth NHS Trust	22	96.5	2,515	99.4	2,127	88.4	88.0
University Hospitals Birmingham NHS Foundation Trust	23	98.8	4,577	97.5	3,773	97.4	95.0
Hampshire Hospitals NHS Foundation Trust	24	76.5	2,312	91.8	1,929	76.3	70.9
Royal Cornwall Hospitals NHS Trust	25	97.8	2,244	87.3	1,871	87.8	77.2

Appendix 7 table continued: The percentage of eyes with preoperative VA, postoperative VA and change in VA data for participating centres in the audit

Centre name	Centre number	Estimate of cases submitted to the audit (%)*	Number of eligible operations**	% with preoperative VA data	Number of operations eligible for postoperative VA results	% with postoperative VA data	% with change in VA data
Manchester University NHS Foundation Trust	26	60.5	3,596	98.4	2,954	87.9	86.5
King's College Hospital NHS Foundation Trust	27	97.6	5,771	97.4	4,761	92.9	90.7
The Hillingdon Hospitals NHS Foundation Trust	30	99.6	1,982	96.8	1,709	86.6	83.7
Liverpool University Hospitals NHS Foundation Trust	31	86.1	3,803	90.6	3,018	81.3	74.1
Chesterfield Royal Hospital NHS Foundation Trust	33	100.0	1,409	98.6	1,191	95.8	94.4
Mid Essex Hospital Services NHS Trust	34	99.2	1,403	80.5	1,170	7.4	6.0
Harrogate and District NHS Foundation Trust	35	100.0	1,407	97.4	1,111	87.6	85.6
North West Anglia NHS Foundation Trust	36	99.5	2,764	97.5	2,375	85.3	83.6
Northern Devon Healthcare NHS Trust	37	99.9	1,662	96.7	1,421	91.4	88.8
Wirral University Teaching Hospital NHS Foundation Trust	39	98.6	1,218	83.0	1,018	81.2	67.6
South Warwickshire NHS Foundation Trust	40	99.4	1,742	99.0	1,444	80.0	79.2
Isle of Wight NHS Trust	41	99.2	1,412	89.7	1,144	67.0	60.5
St Helens and Knowsley Teaching Hospitals NHS Trust	42	70.8	1,452	96.1	1,292	67.3	65.9
Wrightington, Wigan and Leigh NHS Foundation Trust	43	98.1	1,108	97.2	880	91.7	89.4
Warrington and Halton Hospitals NHS Foundation Trust	44	89.4	1,075	94.1	834	79.0	75.2
South Tees Hospitals NHS Foundation Trust	45	83.6	2,231	76.5	1,883	59.0	50.5
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	75.3	3,128	84.2	2,596	71.1	62.1
Barking, Havering and Redbridge University Hospitals NHS Trust	47	87.2	2,387	87.0	2,005	64.6	57.1
Royal Free London NHS Foundation Trust	48	50.8	2,033	90.6	1,591	46.0	43.1
University Hospitals Coventry and Warwickshire NHS Trust	49	94.4	2,627	94.4	2,199	94.5	89.8
Barnsley Hospital NHS Foundation Trust	50	13.8	223	16.1	175	76.0	12.6
Salisbury NHS Foundation Trust	51	99.9	1,577	99.0	1,364	98.2	97.5
Nottingham University Hospitals NHS Trust	55	78.3	2,748	86.7	2,293	90.1	78.5
Yeovil District Hospital NHS Foundation Trust	56	100.0	1,420	99.9	1,065	98.6	98.4
SpaMedica - Manchester	57	100.0	3,855	99.8	3,132	89.8	89.7

Appendix 7 table continued: The percentage of eyes with preoperative VA, postoperative VA and change in VA data for participating centres in the audit

Centre name	Centre number	Estimate of cases submitted to the audit (%)*	Number of eligible operations**	% with preoperative VA data	Number of operations eligible for postoperative VA results	% with postoperative VA data	% with change in VA data
SpaMedica - Wakefield	58	99.7	5,323	99.9	4,389	90.7	90.6
East Sussex Healthcare NHS Trust	59	100.0	3,522	84.0	2,955	82.4	69.8
Imperial College Healthcare NHS Trust	60	97.7	3,171	94.8	2,596	94.6	89.5
Portsmouth Hospitals NHS Trust	61	97.7	2,420	96.6	1,995	94.0	90.8
Cambridge University Hospitals NHS Foundation Trust	63	97.1	2,471	93.8	2,103	85.1	81.5
East Kent Hospitals University NHS Foundation Trust	64	95.4	2,148	92.0	1,818	62.8	58.2
East Suffolk and North Essex NHS Foundation Trust	65	40.6	2,462	96.5	2,072	43.0	41.9
SpaMedica - Birkenhead	66	98.4	2,808	99.8	2,279	93.5	93.4
County Durham and Darlington NHS Foundation Trust	67	99.3	2,323	84.5	1,898	97.8	82.6
United Lincolnshire Hospitals NHS Trust	68	52.9	1,826	96.6	1,517	53.3	51.7
SpaMedica - Newton-le-Willows	69	98.1	1,640	99.8	1,413	91.6	91.4
Northampton General Hospital NHS Trust	70	76.9	1,617	71.3	1,338	15.8	10.7
SpaMedica - Liverpool	71	98.3	1,698	99.7	1,458	87.7	87.4
James Paget University Hospitals NHS Foundation Trust	72	93.8	1,944	87.9	1,628	75.0	69.4
Bolton NHS Foundation Trust	73	98.7	1,732	98.9	1,483	89.2	88.3
Kingston Hospital NHS Foundation Trust	74	81.3	1,942	7.9	1,606	0.2	0.1
Torbay and South Devon NHS Foundation Trust	77	99.3	1,790	84.6	1,437	61.8	52.1
Great Western Hospitals NHS Foundation Trust	78	84.8	1,734	95.4	1,401	86.0	81.9
SpaMedica - Bolton	79	100.0	4,361	100.0	3,559	91.7	91.7
Cwm Taf Morgannwg University Local Health Board	82	81.6	1,343	87.0	1,113	80.7	70.7
Sherwood Forest Hospitals NHS Foundation Trust	83	91.8	1,804	74.9	1,528	68.8	52.2
Royal Surrey County Hospital NHS Foundation Trust	84	14.7	259	98.5	213	96.7	94.8
Southport and Ormskirk Hospital NHS Trust	86	94.5	968	96.7	783	90.3	87.4
Care UK - Shepton Mallet NHS Treatment Centre	88	100.0	1,768	98.9	1,422	95.9	94.7
Care UK - St Marys NHS Treatment Centre	89	100.0	3,090	99.7	2,552	92.6	92.4
Care UK - Emersons Green NHS Treatment Centre	90	100.0	2,083	99.6	1,908	54.9	54.5
Care UK - Will Adams NHS Treatment Centre	91	100.0	2,454	99.4	2,026	75.1	75.0

Appendix 7 table continued: The percentage of eyes with preoperative VA, postoperative VA and change in VA data for participating centres in the audit

Centre name	Centre number	Estimate of cases submitted to the audit (%)*	Number of eligible operations**	% with preoperative VA data	Number of operations eligible for postoperative VA results	% with postoperative VA data	% with change in VA data
SpaMedica - Sheffield	92	99.2	4,403	99.9	3,527	90.8	90.6
Care UK - Peninsula NHS Treatment Centre	93	100.0	2,323	*****	1,760	*****	*****
North Cumbria Integrated Care NHS Foundation Trust	94	35.0	837	94.0	775	11.2	10.7
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	100.0	1,262	99.0	1,038	70.7	69.9
Care UK - North East London NHS Treatment Centre	97	100.0	984	97.5	776	96.5	94.3
North Middlesex University Hospital NHS Trust	98	97.2	1,501	92.9	1,301	96.6	89.2
Brighton and Sussex University Hospitals NHS Trust	99	89.9	2,746	89.3	2,322	3.1	2.8
Care UK - SH Devizes NHS Treatment Centre	100	100.0	560	100.0	460	99.1	99.1
Aneurin Bevan University Local Health Board	102	15.2	561	96.4	544	57.7	55.9
Care UK - Southampton NHS Treatment Centre	103	84.6	1,121	41.7	953	42.8	37.9
SpaMedica - Birmingham	104	100.0	3,742	99.9	2,761	94.6	94.6
St. Stephens Gate Medical Practice	105	**	202	99.5	202	32.7	32.7
The Dudley Group NHS Foundation Trust	106	40.1	724	50.3	638	77.1	39.5
Southend University Hospital NHS Foundation Trust	109	71.1	2,509	48.5	2,079	4.9	2.9
Guy's and St Thomas' NHS Foundation Trust	110	60.5	1,702	76.6	1,346	76.6	60.5
Buckinghamshire Healthcare NHS Trust	111	80.2	1,645	9.3	987	13.6	2.2
SpaMedica - Bradford	112	100.0	1,410	99.9	1,010	92.3	92.3
SpaMedica - Skelmersdale	113	99.4	754	99.9	557	87.6	87.6
Taunton and Somerset NHS Foundation Trust	114	95.1	751	29.7	380	46.8	10.8
Medical specialists group Guernsey	115	***	535	97.0	434	97.9	94.7
Hywel Dda University Local Health Board	116	25.7	490	8.6	405	12.1	1.5
George Eliot Hospital NHS Trust	117	42.3	457	95.4	457	97.6	93.0
SpaMedica - Newcastle Under Lyme	118	100.0	180	100.0	70	94.3	94.3
SpaMedica - Widnes	119	100.0	172	100.0	32	****	****
Kettering General Hospital NHS Foundation Trust	120	22.5	141	22.7	141	0.7	0.0

Appendix 7 table continued: The percentage of eyes with preoperative VA, postoperative VA and change in VA data for participating centres in the audit

Centre name	Centre number	Estimate of cases submitted to the audit (%)*	Number of eligible operations**	% with preoperative VA data	Number of operations eligible for postoperative VA results	% with postoperative VA data	% with change in VA data
SpaMedica - Chelmsford	121	100.0	139	99.3	22	****	****
Western Sussex Hospitals NHS Foundation Trust	122	16.2	111	7.2	36	****	****
Overall for all centres	N/A	88.8	239,238	89.1	197,426	76.1	71.3

*The estimate of the proportion of cases submitted to the audit is derived from the number of completed cataract operations supplied to NHS Digital or NWIS for the audit period. This estimation uses a pro rata calculation for a centre's denominator where the proportion of time during the audit cycle that a centre had been recording cataract operations was multiplied by the number of cataract operations supplied to NHS Digital or NWIS. The numerator was the number of operations a centre had supplied to the audit. Centres that had more operations submitted to the national audit than in the NHS Digital or NWIS data were all assumed to have a complete submission rate as the actual rate was not possible to estimate.

**This centre had no data in the NHS digital data.

***This centre does not have to report to either NHS Digital or NWIS.

****No estimate is produced for centres with <50 eligible operations in the postoperative qualifying time period.

*****This centre's VA data is excluded due to reported issues affecting the recording of VA data. This centre had 1,760 eligible operations in the postoperative qualifying period and 1,535 with both a preoperative and postoperative VA measurement.

Appendix 8: The percentage of first and second treated eyes with postoperative VA data

Appendix 8 table: The percentage of first and second treated eyes with postoperative VA data for participating centres in the audit

Centre name	Centre number	Number of operations eligible for postoperative VA results	% with preoperative VA data	Number of first treated eyes	% first treated eyes with postoperative VA data	Number of second treated eyes	% second treated eyes with postoperative VA data
Moorfields Eye Hospital NHS Foundation Trust	1	17,466	73.0	10,505	72.5	6,961	73.7
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	6,186	81.1	3,760	92.1	2,426	64.1
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	3,491	15.2	1,995	16.9	1,496	13.0
Leeds Teaching Hospitals NHS Trust	4	3,618	85.5	1,940	93.8	1,678	76.0
York Teaching Hospital NHS Foundation Trust	5	3,416	81.4	1,932	81.8	1,484	80.8
Oxford University Hospitals NHS Foundation Trust	6	3,761	30.3	2,312	33.5	1,449	25.3
University Hospitals Bristol NHS Foundation Trust	7	3,769	89.7	2,192	91.3	1,577	87.3
Gloucestershire Hospitals NHS Foundation Trust	8	2,597	74.9	1,427	86.9	1,170	60.3
Sheffield Teaching Hospitals NHS Foundation Trust	9	3,337	96.6	2,013	96.7	1,324	96.5
Sandwell and West Birmingham Hospitals NHS Trust	10	3,102	93.1	1,797	93.4	1,305	92.7
University Hospital Southampton NHS Foundation Trust	11	2,568	94.5	1,423	95.7	1,145	93.0
Mid Cheshire Hospitals NHS Foundation Trust	14	2,099	81.3	1,128	87.1	971	74.6
The Mid Yorkshire Hospitals NHS Trust	15	1,484	83.5	843	90.2	641	74.7
Cardiff & Vale University Local Health Board	16	2,114	46.1	1,259	46.2	855	46.0
Epsom and St Helier University Hospitals NHS Trust	17	2,334	91.9	1,246	93.3	1,088	90.2
Barts Health NHS Trust	18	3,527	88.9	1,905	91.0	1,622	86.4
Frimley Health NHS Foundation Trust	19	2,923	75.3	1,709	81.8	1,214	66.1
Bradford Teaching Hospitals NHS Foundation Trust	20	1,656	82.9	942	85.9	714	78.9
University Hospitals Plymouth NHS Trust	22	2,127	88.4	1,173	96.2	954	78.8
University Hospitals Birmingham NHS Foundation Trust	23	3,773	97.4	2,202	97.2	1,571	97.8
Hampshire Hospitals NHS Foundation Trust	24	1,929	76.3	1,107	79.3	822	72.3
Royal Cornwall Hospitals NHS Trust	25	1,871	87.8	1,054	95.9	817	77.4

Appendix 8 table continued: The percentage of first and second treated eyes with postoperative VA data for participating centres in the audit

Centre name	Centre number	Number of operations eligible for postoperative VA results	% with preoperative VA data	Number of first treated eyes	% first treated eyes with postoperative VA data	Number of second treated eyes	% second treated eyes with postoperative VA data
Manchester University NHS Foundation Trust	26	2,954	87.9	1,675	93.5	1,279	80.5
King's College Hospital NHS Foundation Trust	27	4,761	92.9	2,677	95.3	2,084	89.8
The Hillingdon Hospitals NHS Foundation Trust	30	1,709	86.6	969	90.1	740	82.0
Liverpool University Hospitals NHS Foundation Trust	31	3,018	81.3	1,751	81.9	1,267	80.5
Chesterfield Royal Hospital NHS Foundation Trust	33	1,191	95.8	768	95.8	423	95.7
Mid Essex Hospital Services NHS Trust	34	1,170	7.4	709	9.9	461	3.7
Harrogate and District NHS Foundation Trust	35	1,111	87.6	654	87.6	457	87.5
North West Anglia NHS Foundation Trust	36	2,375	85.3	1,371	86.1	1,004	84.1
Northern Devon Healthcare NHS Trust	37	1,421	91.4	769	92.2	652	90.5
Wirral University Teaching Hospital NHS Foundation Trust	39	1,018	81.2	580	81.2	438	81.3
South Warwickshire NHS Foundation Trust	40	1,444	80.0	877	90.4	567	63.8
Isle of Wight NHS Trust	41	1,144	67.0	670	66.6	474	67.7
St Helens and Knowsley Teaching Hospitals NHS Trust	42	1,292	67.3	720	71.4	572	62.1
Wrightington, Wigan and Leigh NHS Foundation Trust	43	880	91.7	516	93.4	364	89.3
Warrington and Halton Hospitals NHS Foundation Trust	44	834	79.0	490	80.2	344	77.3
South Tees Hospitals NHS Foundation Trust	45	1,883	59.0	1,120	59.5	763	58.3
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	2,596	71.1	1,645	74.0	951	66.0
Barking, Havering and Redbridge University Hospitals NHS Trust	47	2,005	64.6	1,196	67.6	809	60.1
Royal Free London NHS Foundation Trust	48	1,591	46.0	984	57.5	607	27.3
University Hospitals Coventry and Warwickshire NHS Trust	49	2,199	94.5	1,287	94.7	912	94.3
Barnsley Hospital NHS Foundation Trust	50	175	76.0	126	78.6	49	69.4
Salisbury NHS Foundation Trust	51	1,364	98.2	799	98.1	565	98.2
Nottingham University Hospitals NHS Trust	55	2,293	90.1	1,447	91.5	846	87.7
Yeovil District Hospital NHS Foundation Trust	56	1,065	98.6	649	99.4	416	97.4

Appendix 8 table continued: The percentage of first and second treated eyes with postoperative VA data for participating centres in the audit

Centre name	Centre number	Number of operations eligible for postoperative VA results	% with preoperative VA data	Number of first treated eyes	% first treated eyes with postoperative VA data	Number of second treated eyes	% second treated eyes with postoperative VA data
SpaMedica - Manchester	57	3,132	89.8	1,833	93.6	1,299	84.5
SpaMedica - Wakefield	58	4,389	90.7	2,545	93.5	1,844	86.8
East Sussex Healthcare NHS Trust	59	2,955	82.4	1,701	83.1	1,254	81.3
Imperial College Healthcare NHS Trust	60	2,596	94.6	1,361	95.4	1,235	93.8
Portsmouth Hospitals NHS Trust	61	1,995	94.0	1,004	93.0	991	95.1
Cambridge University Hospitals NHS Foundation Trust	63	2,103	85.1	1,314	86.3	789	83.1
East Kent Hospitals University NHS Foundation Trust	64	1,818	62.8	1,120	66.3	698	57.2
East Suffolk and North Essex NHS Foundation Trust	65	2,072	43.0	1,405	44.3	667	40.2
SpaMedica - Birkenhead	66	2,279	93.5	1,440	94.1	839	92.5
County Durham and Darlington NHS Foundation Trust	67	1,898	97.8	1,168	98.2	730	97.1
United Lincolnshire Hospitals NHS Trust	68	1,517	53.3	1,098	52.3	419	55.8
SpaMedica - Newton-le-Willows	69	1,413	91.6	839	94.2	574	87.8
Northampton General Hospital NHS Trust	70	1,338	15.8	821	16.6	517	14.7
SpaMedica - Liverpool	71	1,458	87.7	938	90.0	520	83.7
James Paget University Hospitals NHS Foundation Trust	72	1,628	75.0	1,026	75.8	602	73.6
Bolton NHS Foundation Trust	73	1,483	89.2	847	91.0	636	86.8
Kingston Hospital NHS Foundation Trust	74	1,606	0.2	1,046	0.2	560	0.4
Torbay and South Devon NHS Foundation Trust	77	1,437	61.8	861	65.7	576	55.9
Great Western Hospitals NHS Foundation Trust	78	1,401	86.0	780	87.6	621	84.1
SpaMedica - Bolton	79	3,559	91.7	2,069	93.7	1,490	89.1
Cwm Taf Morgannwg University Local Health Board	82	1,113	80.7	720	81.8	393	78.6
Sherwood Forest Hospitals NHS Foundation Trust	83	1,528	68.8	1,016	69.3	512	67.8
Royal Surrey County Hospital NHS Foundation Trust	84	213	96.7	120	97.5	93	95.7
Southport and Ormskirk Hospital NHS Trust	86	783	90.3	479	90.6	304	89.8
Care UK - Shepton Mallet NHS Treatment Centre	88	1,422	95.9	764	97.8	658	93.6
Care UK - St Marys NHS Treatment Centre	89	2,552	92.6	1,589	94.8	963	88.9
Care UK - Emersons Green NHS Treatment Centre	90	1,908	54.9	1,146	53.1	762	57.6

Appendix 8 table continued: The percentage of first and second treated eyes with postoperative VA data for participating centres in the audit

Centre name	Centre number	Number of operations eligible for postoperative VA results	% with preoperative VA data	Number of first treated eyes	% first treated eyes with postoperative VA data	Number of second treated eyes	% second treated eyes with postoperative VA data
Care UK - Will Adams NHS Treatment Centre	91	2,026	75.1	1,143	74.8	883	75.5
SpaMedica - Sheffield	92	3,527	90.8	2,043	93.8	1,484	86.6
Care UK - Peninsula NHS Treatment Centre	93	1,760	**	1,062	**	698	**
North Cumbria Integrated Care NHS Foundation Trust	94	775	11.2	509	12.2	266	9.4
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	1,038	70.7	566	98.9	472	36.9
Care UK - North East London NHS Treatment Centre	97	776	96.5	483	97.5	293	94.9
North Middlesex University Hospital NHS Trust	98	1,301	96.6	756	96.7	545	96.5
Brighton and Sussex University Hospitals NHS Trust	99	2,322	3.1	1,463	4.1	859	1.4
Care UK - SH Devides NHS Treatment Centre	100	460	99.1	296	99.7	164	98.2
Aneurin Bevan University Local Health Board	102	544	57.7	283	59.4	261	55.9
Care UK - Southampton NHS Treatment Centre	103	953	42.8	589	43.3	364	42.0
SpaMedica - Birmingham	104	2,761	94.6	1,912	95.3	849	93.1
St. Stephens Gate Medical Practice	105	202	32.7	113	30.1	89	36.0
The Dudley Group NHS Foundation Trust	106	638	77.1	394	77.7	244	76.2
Southend University Hospital NHS Foundation Trust	109	2,079	4.9	1,430	5.3	649	3.9
Guy's and St Thomas' NHS Foundation Trust	110	1,346	76.6	998	76.8	348	76.1
Buckinghamshire Healthcare NHS Trust	111	987	13.6	808	14.2	179	10.6
SpaMedica - Bradford	112	1,010	92.3	656	93.6	354	89.8
SpaMedica - Skelmersdale	113	557	87.6	364	89.3	193	84.5
Taunton and Somerset NHS Foundation Trust	114	380	46.8	328	50.0	52	26.9
Medical specialists group Guernsey	115	434	97.9	260	97.7	174	98.3
Hywel Dda University Local Health Board	116	405	12.1	319	10.0	86	19.8
George Eliot Hospital NHS Trust	117	457	97.6	370	97.8	87	96.6
SpaMedica - Newcastle Under Lyme	118	70	94.3	52	96.2	18	88.9
SpaMedica - Widnes	119	32	*	*	*	*	*

Appendix 8 table continued: The percentage of first and second treated eyes with postoperative VA data for participating centres in the audit

Centre name	Centre number	Number of operations eligible for postoperative VA results	% with preoperative VA data	Number of first treated eyes	% first treated eyes with postoperative VA data	Number of second treated eyes	% second treated eyes with postoperative VA data
Kettering General Hospital NHS Foundation Trust	120	141	0.7	114	0.9	27	0.0
SpaMedica - Chelmsford	121	22	*	*	*	*	*
Western Sussex Hospitals NHS Foundation Trust	122	36	*	*	*	*	*
Overall for all centres	N/A	197,426	76.1	117,612	77.7	79,814	73.7

Note: Both eyes from a patient undergoing immediate sequential bilateral cataract surgery are included as 'first treated' eyes.

*No estimate is produced for centres with <50 eligible operations in the postoperative qualifying time period.

**This centre's VA data is excluded due to reported issues affecting the recording of VA data.

Appendix 9: Case complexity PCR and VA Loss

Appendix 9 table: Posterior capsular rupture and VA Loss results for participating centres in the audit

		Posterior Capsular Rupture Overall Consultant Surgeon PCR rate = 1.1%				Visual Acuity Loss Overall Consultant Surgeon VA Loss rate = 0.9%			
Centre name	Centre number	Number of operations	Unadjusted PCR rate (%)	Case complexity index (%)	Adjusted PCR rate (%)	Number of operations	Unadjusted VA Loss rate (%)	Case complexity index (%)	Adjusted VA Loss rate (%)
Moorfields Eye Hospital NHS Foundation Trust	1	21,143	1.24	1.85	0.74	11,383	0.29	0.80	0.32
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	7,398	1.45	1.62	0.98	4,682	0.47	0.92	0.46
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	4,229	0.76	1.55	0.54				
Leeds Teaching Hospitals NHS Trust	4	4,286	1.03	1.89	0.60	3,033	0.69	1.28	0.49
York Teaching Hospital NHS Foundation Trust	5	3,910	0.84	1.68	0.55				
Oxford University Hospitals NHS Foundation Trust	6	4,354	1.77	2.04	0.95				
University Hospitals Bristol NHS Foundation Trust	7	4,481	1.87	2.24	0.92	3,314	1.06	1.37	0.70
Gloucestershire Hospitals NHS Foundation Trust	8	2,944	1.12	1.96	0.63				
Sheffield Teaching Hospitals NHS Foundation Trust	9	4,049	1.06	1.80	0.65	3,213	0.65	0.95	0.62
Sandwell and West Birmingham Hospitals NHS Trust	10	3,654	2.46	2.12	1.28	2,795	0.72	0.96	0.67
University Hospital Southampton NHS Foundation Trust	11	3,100	1.55	1.81	0.94	2,363	0.51	1.11	0.41
Mid Cheshire Hospitals NHS Foundation Trust	14	2,523	1.11	1.78	0.69	1,611	0.81	1.00	0.72
The Mid Yorkshire Hospitals NHS Trust	15	1,795	1.06	1.98	0.59	1,234	0.65	1.35	0.43
Cardiff & Vale University Local Health Board	16	2,570	1.79	1.79	1.10				
Epsom and St Helier University Hospitals NHS Trust	17	2,815	1.49	1.90	0.86	2,120	0.42	1.11	0.35
Barts Health NHS Trust	18	4,171	1.37	1.90	0.79	2,902	0.72	0.85	0.77
Frimley Health NHS Foundation Trust	19	3,703	1.00	1.53	0.72	2,178	0.73	0.99	0.67
Bradford Teaching Hospitals NHS Foundation Trust	20	2,092	2.06	2.02	1.12	1,251	1.04	1.29	0.72
University Hospitals Plymouth NHS Trust	22	2,515	0.80	1.87	0.47	1,871	0.21	1.16	0.17
University Hospitals Birmingham NHS Foundation Trust	23	4,577	1.25	2.03	0.68	3,585	0.64	1.17	0.49
Hampshire Hospitals NHS Foundation Trust	24	2,312	0.61	1.36	0.49	1,368	0.44	0.92	0.43
Royal Cornwall Hospitals NHS Trust	25	2,244	1.02	1.98	0.57	1,444	0.62	1.43	0.39
Manchester University NHS Foundation Trust	26	3,596	1.81	1.83	1.08	2,554	0.27	0.88	0.28

Appendix 9 table continued: Posterior capsular rupture and VA Loss results for participating centres in the audit

		Posterior Capsular Rupture Overall Consultant Surgeon PCR rate = 1.1%				Visual Acuity Loss Overall Consultant Surgeon VA Loss rate = 0.9%			
Centre name	Centre number	Number of operations	Unadjusted PCR rate (%)	Case complexity index (%)	Adjusted PCR rate (%)	Number of operations	Unadjusted VA Loss rate (%)	Case complexity index (%)	Adjusted VA Loss rate (%)
King's College Hospital NHS Foundation Trust	27	5,771	1.54	1.75	0.97	4,316	0.51	1.10	0.42
The Hillingdon Hospitals NHS Foundation Trust	30	1,982	1.66	2.20	0.83	1,430	0.77	1.01	0.69
Liverpool University Hospitals NHS Foundation Trust	31	3,803	1.68	1.94	0.96	2,237	0.80	1.09	0.67
Chesterfield Royal Hospital NHS Foundation Trust	33	1,409	2.27	1.85	1.35	1,124	0.80	1.13	0.64
Mid Essex Hospital Services NHS Trust	34	1,403	1.28	1.58	0.90				
Harrogate and District NHS Foundation Trust	35	1,407	0.64	1.70	0.41	951	0.74	1.16	0.57
North West Anglia NHS Foundation Trust	36	2,764	1.27	1.72	0.81	1,986	0.55	1.19	0.42
Northern Devon Healthcare NHS Trust	37	1,662	0.60	1.77	0.37	1,262	0.55	1.17	0.43
Wirral University Teaching Hospital NHS Foundation Trust	39	1,218	0.74	1.94	0.42	688	1.60	1.11	1.30
South Warwickshire NHS Foundation Trust	40	1,742	0.98	1.54	0.70	1,144	0.00	1.31	0.00
Isle of Wight NHS Trust	41	1,412	1.06	1.59	0.73	692	1.88	1.09	1.55
St Helens and Knowsley Teaching Hospitals NHS Trust	42	1,452	1.65	1.69	1.08	851	1.18	0.79	1.34
Wrightington, Wigan and Leigh NHS Foundation Trust	43	1,108	1.26	1.44	0.97	787	1.52	0.88	1.56
Warrington and Halton Hospitals NHS Foundation Trust	44	1,075	0.65	1.50	0.48	627	0.64	1.14	0.50
South Tees Hospitals NHS Foundation Trust	45	2,231	1.88	1.83	1.13				
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	3,128	0.86	1.55	0.61	1,611	1.12	1.05	0.96
Barking, Havering and Redbridge University Hospitals NHS Trust	47	2,387	1.01	1.56	0.71				
Royal Free London NHS Foundation Trust	48	2,033	1.18	1.71	0.76				
University Hospitals Coventry and Warwickshire NHS Trust	49	2,627	1.37	2.05	0.73	1,975	0.30	1.04	0.26
Barnsley Hospital NHS Foundation Trust	50	223	0.00	1.35	0.00				
Salisbury NHS Foundation Trust	51	1,577	0.95	1.77	0.59	1,330	0.08	1.04	0.06
Nottingham University Hospitals NHS Trust	55	2,748	1.42	2.36	0.66	1,800	0.39	0.97	0.36
Yeovil District Hospital NHS Foundation Trust	56	1,420	1.06	1.50	0.77	1,048	0.29	1.06	0.24
SpaMedica - Manchester	57	3,855	0.52	1.39	0.41	2,810	0.25	1.00	0.22

Appendix 9 table continued: Posterior capsular rupture and VA Loss results for participating centres in the audit

		Posterior Capsular Rupture Overall Consultant Surgeon PCR rate = 1.1%				Visual Acuity Loss Overall Consultant Surgeon VA Loss rate = 0.9%			
Centre name	Centre number	Number of operations	Unadjusted PCR rate (%)	Case complexity index (%)	Adjusted PCR rate (%)	Number of operations	Unadjusted VA Loss rate (%)	Case complexity index (%)	Adjusted VA Loss rate (%)
SpaMedica - Wakefield	58	5,323	0.60	1.12	0.59	3,978	0.25	0.74	0.31
East Sussex Healthcare NHS Trust	59	3,522	1.16	1.72	0.75	2,063	0.48	1.11	0.39
Imperial College Healthcare NHS Trust	60	3,171	2.40	2.47	1.07	2,324	0.60	1.00	0.54
Portsmouth Hospitals NHS Trust	61	2,420	0.91	1.68	0.60	1,812	0.99	1.08	0.83
Cambridge University Hospitals NHS Foundation Trust	63	2,471	0.97	1.85	0.58	1,714	0.29	0.81	0.32
East Kent Hospitals University NHS Foundation Trust	64	2,148	1.30	1.69	0.85				
East Suffolk and North Essex NHS Foundation Trust	65	2,462	1.38	1.68	0.90				
SpaMedica - Birkenhead	66	2,808	0.21	1.30	0.18	2,128	0.19	1.05	0.16
County Durham and Darlington NHS Foundation Trust	67	2,323	1.64	1.69	1.07	1,567	0.19	1.05	0.16
United Lincolnshire Hospitals NHS Trust	68	1,826	1.10	1.89	0.64				
SpaMedica - Newton-le-Willows	69	1,640	0.24	1.37	0.20	1,292	0.00	1.09	0.00
Northampton General Hospital NHS Trust	70	1,617	1.18	1.62	0.80				
SpaMedica - Liverpool	71	1,698	0.47	1.17	0.44	1,275	0.08	0.79	0.09
James Paget University Hospitals NHS Foundation Trust	72	1,944	1.13	1.40	0.89	1,130	0.09	0.87	0.09
Bolton NHS Foundation Trust	73	1,732	1.33	1.86	0.79	1,310	0.69	1.01	0.61
Kingston Hospital NHS Foundation Trust	74	1,942	1.49	1.40	1.17				
Torbay and South Devon NHS Foundation Trust	77	1,790	1.34	1.90	0.78				
Great Western Hospitals NHS Foundation Trust	78	1,734	1.50	1.65	1.00	1,147	0.44	1.29	0.30
SpaMedica - Bolton	79	4,361	0.48	1.31	0.40	3,264	0.21	0.96	0.20
Cwm Taf Morgannwg University Local Health Board	82	1,343	1.41	2.01	0.78	787	1.65	1.21	1.23
Sherwood Forest Hospitals NHS Foundation Trust	83	1,804	0.89	1.66	0.59				
Royal Surrey County Hospital NHS Foundation Trust	84	259	0.00	1.21	0.00	202	0.50	1.02	0.43
Southport and Ormskirk Hospital NHS Trust	86	968	0.21	1.88	0.12	684	1.17	0.93	1.13
Care UK - Shepton Mallet NHS Treatment Centre	88	1,768	0.68	1.27	0.59	1,346	0.22	1.22	0.16
Care UK - St Marys NHS Treatment Centre	89	3,090	0.68	1.12	0.67	2,358	0.21	0.69	0.28
Care UK - Emersons Green NHS Treatment Centre	90	2,083	0.38	1.70	0.25				

Appendix 9 table continued: Posterior capsular rupture and VA Loss results for participating centres in the audit

		Posterior Capsular Rupture Overall Consultant Surgeon PCR rate = 1.1%				Visual Acuity Loss Overall Consultant Surgeon VA Loss rate = 0.9%			
Centre name	Centre number	Number of operations	Unadjusted PCR rate (%)	Case complexity index (%)	Adjusted PCR rate (%)	Number of operations	Unadjusted VA Loss rate (%)	Case complexity index (%)	Adjusted VA Loss rate (%)
Care UK - Will Adams NHS Treatment Centre	91	2,454	0.53	1.13	0.52	1,519	0.53	0.71	0.67
SpaMedica - Sheffield	92	4,403	0.66	1.23	0.59	3,197	0.34	0.78	0.40
Care UK - Peninsula NHS Treatment Centre	93	2,323	0.43	1.09	0.44	1,535	*	*	*
North Cumbria Integrated Care NHS Foundation Trust	94	837	1.67	1.42	1.29				
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	1,262	1.19	1.24	1.05	726	0.96	0.77	1.12
Care UK - North East London NHS Treatment Centre	97	984	0.10	1.23	0.09	732	0.00	0.69	0.00
North Middlesex University Hospital NHS Trust	98	1,501	1.40	1.48	1.04	1,161	0.26	0.96	0.24
Brighton and Sussex University Hospitals NHS Trust	99	2,746	0.58	1.78	0.36				
Care UK - SH Devides NHS Treatment Centre	100	560	0.36	1.11	0.35	456	0.44	0.62	0.64
Aneurin Bevan University Local Health Board	102	561	0.89	1.71	0.57				
Care UK - Southampton NHS Treatment Centre	103	1,121	0.54	1.03	0.57				
SpaMedica - Birmingham	104	3,742	0.45	1.49	0.34	2,613	0.19	1.22	0.14
St. Stephens Gate Medical Practice	105	202	0.50	1.32	0.41				
The Dudley Group NHS Foundation Trust	106	724	1.52	1.54	1.09				
Southend University Hospital NHS Foundation Trust	109	2,509	1.08	1.77	0.67				
Guy's and St Thomas' NHS Foundation Trust	110	1,702	1.06	2.00	0.58	815	0.74	0.69	0.96
Buckinghamshire Healthcare NHS Trust	111	1,645	1.52	1.75	0.96				
SpaMedica - Bradford	112	1,410	0.64	1.23	0.57	932	0.43	0.82	0.47
SpaMedica - Skelmersdale	113	754	0.27	1.27	0.23	488	0.20	1.18	0.16
Taunton and Somerset NHS Foundation Trust	114	751	0.93	1.54	0.67				
Medical specialists group Guernsey	115	535	0.56	1.28	0.48	411	0.24	1.17	0.19
Hywel Dda University Local Health Board	116	490	0.82	1.23	0.73				
George Eliot Hospital NHS Trust	117	457	0.66	1.07	0.67	425	0.24	0.58	0.36
SpaMedica - Newcastle Under Lyme	118	180	0.56	1.22	0.50	66	1.52	1.33	1.02
SpaMedica - Widnes	119	172	0.58	1.18	0.54				

Appendix 9 table continued: Posterior capsular rupture and VA Loss results for participating centres in the audit

		Posterior Capsular Rupture Overall Consultant Surgeon PCR rate = 1.1%				Visual Acuity Loss Overall Consultant Surgeon VA Loss rate = 0.9%			
Centre name	Centre number	Number of operations	Unadjusted PCR rate (%)	Case complexity index (%)	Adjusted PCR rate (%)	Number of operations	Unadjusted VA Loss rate (%)	Case complexity index (%)	Adjusted VA Loss rate (%)
Kettering General Hospital NHS Foundation Trust	120	141	0.00	1.27	0.00				
SpaMedica - Chelmsford	121	139	1.44	1.28	1.24				
Western Sussex Hospitals NHS Foundation Trust	122	111	0.90	1.70	0.58				
Overall for all centres	N/A	241,561	1.14	1.70	0.74	125,492	0.51	1.00	0.46

The case complexity index is an estimate of the overall predicted probability of the adverse event based on the reported case complexity.

*This centre's VA data is excluded due to reported issues affecting the recording of VA data.

Appendix 10: Cataract audit years one to four patient details for first eye, second eye and immediate sequential bilateral cataract surgery

Appendix 10 table A: First eye surgery patient details in each audit year

First eye surgery	Audit year			
	Year 1	Year 2	Year 3	Year 4
Number patients	92,345	117,997	130,530	142,676
Patient age in years				
Median	76.0	75.9	75.8	75.7
Range	18.3 – 114.4	18.0 – 107.7	18.0 – 117.5	18.0 – 108.6
Percentage of patients				
Males	42.6	42.8	42.8	42.6
Females	57.3	57.0	57.0	56.5
Gender not recorded	<0.1	0.3	0.2	0.9
With diabetes	18.1	17.7	18.0	17.2
Unable to lie flat during surgery	1.9	1.8	1.9	1.9
Unable to cooperate with surgery	2.5	2.4	2.2	2.3
General anaesthesia used	4.6	4.7	4.4	4.4

Appendix 10 table B: Second eye surgery patient details in each audit year

Second eye surgery	Audit year			
	Year 1	Year 2	Year 3	Year 4
Number patients	63,293	79,220	91,369	98,127
Patient age in years				
Median	77.0	77.0	76.9	76.8
Range	18.0 – 103.8	18.2 – 104.4	18.0 – 104.7	18.2 – 107.6
Percentage of patients				
Males	40.9	41.1	41.4	41.1
Females	59.0	58.7	58.5	58.4
Gender not recorded	<0.1	0.2	0.1	0.6
With diabetes	19.0	19.1	19.3	19.2
Unable to lie flat during surgery	1.8	1.7	1.7	1.5
Unable to cooperate with surgery	2.5	2.4	2.3	2.2
General anaesthesia used	4.6	4.3	4.1	3.9

Appendix 10 table C: Immediate sequential bilateral cataract surgery patient details in each audit year

First eye surgery	Audit year			
	Year 1	Year 2	Year 3	Year 4
Number patients	152	195	242	379
Patient age in years				
Median	75.8	73.3	73.1	72.2
Range	24.9 - 100	22.1 – 97.9	22.6 – 97.7	18.0 – 97.9
Percentage of patients				
Males	37.5	39.5	35.5	34.6
Females	62.5	60.5	64.5	64.6
Gender not recorded	0.0	0.0	0.0	0.8
With diabetes	13.2	11.8	16.1	15.8
Unable to lie flat during surgery	9.9	9.7	9.5	12.1
Unable to cooperate with surgery	8.6	10.8	7.0	9.0
General anaesthesia used	52.6	50.8	52.1	40.1

Appendix 11: Cataract audit years one to four case ascertainment and percentage of eyes with any ocular co-pathology / known risk indicator

Appendix 11 table: Case ascertainment and the percentage of eyes with any ocular co-pathology / known risk indicator in each audit year for participating centres in the audit

Centre name	Centre number	Case ascertainment %*				Any co-pathology / known risk indicator %			
		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Moorfields Eye Hospital NHS Foundation Trust	1	99.3	100.0	96.3	98.2	86.8	30.7	28.7	26.5
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	97.4	99.3	98.4	95.1	36.1	36.4	39.6	38.8
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	100.0	100.0	99.0	98.7	33.6	36.7	37.9	37.6
Leeds Teaching Hospitals NHS Trust	4	100.0	100.0	98.6	99.3	52.2	54.3	54.8	58.2
York Teaching Hospital NHS Foundation Trust	5	90.0	91.8	100.0	100.0	29.8	37.8	39.7	39.0
Oxford University Hospitals NHS Foundation Trust	6	100.0	98.9	98.8	98.4	36.9	36.6	48.2	47.1
University Hospitals Bristol NHS Foundation Trust	7	100.0	100.0	99.2	96.8	50.7	51.2	56.8	62.7
Gloucestershire Hospitals NHS Foundation Trust	8	100.0	100.0	99.9	98.4	46.2	45.0	48.3	56.2
Sheffield Teaching Hospitals NHS Foundation Trust	9	79.7	100.0	100.0	100.0	43.6	51.0	52.7	50.5
Sandwell and West Birmingham Hospitals NHS Trust	10	****	90.9	93.7	93.5	****	59.9	50.8	49.3
University Hospital Southampton NHS Foundation Trust	11	100.0	100.0	87.9	90.7	54.4	50.4	56.1	55.2
Royal Berkshire NHS Foundation Trust	12	60.8	62.1	56.3		42.0	39.2	37.6	
Calderdale and Huddersfield NHS Foundation Trust	13	100.0	100.0	98.9		48.3	47.7	56.4	
Mid Cheshire Hospitals NHS Foundation Trust	14	98.9	98.7	100.0	100.0	38.1	38.2	39.5	36.6
The Mid Yorkshire Hospitals NHS Trust	15	99.7	99.6	99.6	100.0	60.7	58.6	65.0	62.6
Cardiff & Vale University Local Health Board	16	*****	92.7	96.2	94.6	40.7	43.2	46.2	45.8
Epsom and St Helier University Hospitals NHS Trust	17	100.0	100.0	98.8	98.7	47.0	51.8	52.5	47.0
Barts Health NHS Trust	18	88.9	91.5	99.3	98.9	45.7	45.7	46.6	47.6
Frimley Health NHS Foundation Trust	19	92.1	100.0	98.7	98.9	40.0	35.4	34.9	37.4
Bradford Teaching Hospitals NHS Foundation Trust	20	100.0	94.4	98.4	98.4	48.7	43.4	54.4	60.8
University Hospitals Plymouth NHS Trust	22	84.6	99.0	94.9	96.5	47.0	59.4	61.4	60.5

Appendix 11 table continued: Case ascertainment and the percentage of eyes with any ocular co-pathology / known risk indicator in each audit year for participating centres in the audit

Centre name	Centre number	Case ascertainment %*				Any co-pathology / known risk indicator %			
		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Birmingham NHS Foundation Trust	23	95.9	99.1	99.1	98.8	54.2	54.3	60.9	59.9
Hampshire Hospitals NHS Foundation Trust	24	60.4	74.6	77.0	76.5	37.7	37.7	38.8	38.3
Royal Cornwall Hospitals NHS Trust	25	100.0	100.0	97.8	97.8	44.2	54.9	65.6	67.3
Manchester University NHS Foundation Trust	26	46.0	61.3	56.1	60.5	32.3	39.3	50.4	41.2
King's College Hospital NHS Foundation Trust	27	32.3	77.6	95.4	97.6	33.9	39.6	36.6	45.1
Shrewsbury and Telford Hospital NHS Trust	28	100.0	100.0	95.9		41.9	40.2	38.1	
The Hillingdon Hospitals NHS Foundation Trust	30	99.4	99.3	100.0	99.6	36.7	36.2	38.0	47.8
Liverpool University Hospitals NHS Foundation Trust	31	99.9	100.0	56.0	86.1	40.7	46.8	54.8	48.3
Royal United Hospitals Bath NHS Foundation Trust	32	94.7	97.9	100.0		36.2	41.1	52.2	
Chesterfield Royal Hospital NHS Foundation Trust	33	99.9	98.1	98.9	100.0	61.0	57.3	65.2	63.7
Mid Essex Hospital Services NHS Trust	34	****	97.2	99.8	99.2	****	42.6	36.6	45.0
Harrogate and District NHS Foundation Trust	35	99.9	99.8	99.7	100.0	35.7	41.6	43.4	50.3
North West Anglia NHS Foundation Trust	36	100.0	100.0	99.6	99.5	47.3	56.0	55.5	53.7
Northern Devon Healthcare NHS Trust	37	99.9	100.0	100.0	99.9	48.6	52.0	47.6	50.8
Wirral University Teaching Hospital NHS Foundation Trust	39	100.0	100.0	96.3	98.6	51.3	54.5	51.6	50.9
South Warwickshire NHS Foundation Trust	40	100.0	100.0	99.7	99.4	53.0	55.2	65.3	61.3
Isle of Wight NHS Trust	41	96.1	100.0	93.8	99.2	35.3	41.8	45.3	50.2
St Helens and Knowsley Teaching Hospitals NHS Trust	42	62.4	74.0	74.0	70.8	38.9	34.8	37.4	38.2
Wrightington, Wigan and Leigh NHS Foundation Trust	43	64.5	98.1	99.1	98.1	29.3	28.8	35.9	38.7
Warrington and Halton Hospitals NHS Foundation Trust	44	68.8	89.1	81.3	89.4	34.5	42.0	42.2	48.9
South Tees Hospitals NHS Foundation Trust	45	26.3	57.6	76.4	83.6	47.4	51.2	53.9	52.3
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	32.8	64.1	64.2	75.3	31.3	30.4	37.9	39.3
Barking, Havering and Redbridge University Hospitals NHS Trust	47	36.8	64.2	73.2	87.2	34.2	43.2	43.7	43.4
Royal Free London NHS Foundation Trust	48	17.4	44.3	47.5	50.8	47.2	34.6	32.3	30.3

Appendix 11 table continued: Case ascertainment and the percentage of eyes with any ocular co-pathology / known risk indicator in each audit year for participating centres in the audit

Centre name	Centre number	Case ascertainment %*				Any co-pathology / known risk indicator %			
		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Coventry and Warwickshire NHS Trust	49	26.6	93.5	95.3	94.4	42.8	45.7	53.4	53.4
Barnsley Hospital NHS Foundation Trust	50	**	69.2	13.3	13.8	51.1	60.1	42.0	52.0
Salisbury NHS Foundation Trust	51	47.7	100.0	99.4	99.9	37.9	42.2	52.5	53.4
London North West University Healthcare NHS Trust	52	54.3	92.0	89.8		44.1	57.7	55.6	
Blackpool Teaching Hospitals NHS Foundation Trust	53	12.5				16.7			
University Hospitals of Morecambe Bay NHS Foundation Trust	54	11.1	7.0			42.7	33.6		
Nottingham University Hospitals NHS Trust	55	7.9	35.5	57.8	78.3	57.0	53.0	50.5	51.3
Yeovil District Hospital NHS Foundation Trust	56	54.7	97.7	100.0	100.0	44.9	44.8	53.5	49.8
SpaMedica - Manchester	57	54.9	100.0	100.0	100.0	39.9	53.8	51.5	53.4
SpaMedica - Wakefield	58	**	100.0	100.0	99.7	63.3	41.1	30.1	18.5
East Sussex Healthcare NHS Trust	59	100.0	99.7	100.0	100.0	49.0	48.6	49.7	52.4
Imperial College Healthcare NHS Trust	60	97.8	100.0	98.1	97.7	47.5	53.3	57.2	55.4
Portsmouth Hospitals NHS Trust	61	100.0	100.0	97.4	97.7	46.3	47.0	53.2	51.7
Cambridge University Hospitals NHS Foundation Trust	63		100.0	97.0	97.1		31.5	27.9	34.1
East Kent Hospitals University NHS Foundation Trust	64		88.2	93.9	95.4		23.3	28.7	42.0
East Suffolk and North Essex NHS Foundation Trust	65		49.1	44.5	40.6		40.1	43.5	42.5
SpaMedica - Birkenhead	66	**	99.5	100.0	98.4	43.9	52.6	48.9	44.3
County Durham and Darlington NHS Foundation Trust	67	100.0	100.0	98.3	99.3	45.7	45.3	53.2	46.6
United Lincolnshire Hospitals NHS Trust	68		46.7	47.0	52.9		30.8	39.0	48.4
SpaMedica - Newton-le-Willows	69	**	100.0	100.0	98.1	45.0	65.6	69.5	52.1
Northampton General Hospital NHS Trust	70		77.9	82.4	76.9		19.7	33.6	37.2
SpaMedica - Liverpool	71	**	100.0	100.0	98.3	42.8	51.6	31.5	31.2
James Paget University Hospitals NHS Foundation Trust	72		77.1	90.1	93.8		32.8	40.8	45.3
Bolton NHS Foundation Trust	73		86.5	99.9	98.7		37.0	39.9	42.1
Kingston Hospital NHS Foundation Trust	74		47.8	69.9	81.3		44.9	37.7	40.6
Northern Lincolnshire and Goole NHS Foundation Trust	75		34.1	34.1			45.4	35.3	
The Rotherham NHS Foundation Trust	76		36.5	61.1			57.9	56.6	

Appendix 11 table continued: Case ascertainment and the percentage of eyes with any ocular co-pathology / known risk indicator in each audit year for participating centres in the audit

Centre name	Centre number	Case ascertainment %*				Any co-pathology / known risk indicator %			
		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Torbay and South Devon NHS Foundation Trust	77		60.5	98.1	99.3		55.2	57.6	58.5
Great Western Hospitals NHS Foundation Trust	78	5.8	38.5	86.6	84.8	43.2	58.5	67.0	69.6
SpaMedica - Bolton	79		100.0	100.0	100.0		44.7	46.1	43.2
The Princess Alexandra Hospital NHS Trust	80		40.2	92.8			38.7	48.2	
Wye Valley NHS Trust	81		22.4	5.6			53.5	63.4	
Cwm Taf Morgannwg University Local Health Board	82		34.5	100.0	81.6		58.8	59.8	59.7
Sherwood Forest Hospitals NHS Foundation Trust	83		30.2	63.0	91.8		35.2	31.9	29.3
Royal Surrey County Hospital NHS Foundation Trust	84		13.3	18.0	14.7		50.8	37.6	39.0
East Lancashire Hospitals NHS Trust	85		18.8				7.3		
Southport and Ormskirk Hospital NHS Trust	86		64.9	90.8	94.5		39.9	36.4	33.5
Stockport NHS Foundation Trust	87		18.2	6.1			28.1	20.6	
Care UK - Shepton Mallet NHS Treatment Centre	88	100.0	100.0	100.0	100.0	67.1	59.8	59.0	41.0
Care UK - St Marys NHS Treatment Centre	89	98.9	100.0	99.8	100.0	12.8	13.5	14.2	14.8
Care UK - Emersons Green NHS Treatment Centre	90	100.0	100.0	100.0	100.0	44.6	44.5	37.3	51.8
Care UK - Will Adams NHS Treatment Centre	91	100.0	100.0	98.2	100.0	12.2	7.6	10.5	17.2
SpaMedica - Sheffield	92			100.0	99.2			33.9	27.5
Care UK - Peninsula NHS Treatment Centre	93	100.0	100.0	100.0	100.0	29.3	24.0	18.7	15.3
North Cumbria Integrated Care NHS Foundation Trust	94			53.8	35.0			25.3	30.8
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	100.0	100.0	100.0	100.0	29.1	28.9	23.7	34.5
Care UK - North East London NHS Treatment Centre	97	82.4	90.2	98.4	100.0	10.9	12.1	20.1	21.2
North Middlesex University Hospital NHS Trust	98			88.0	97.2			46.9	45.8
Brighton and Sussex University Hospitals NHS Trust	99			16.1	89.9			36.9	36.3
Care UK - SH Devizes NHS Treatment Centre	100	100.0	100.0	100.0	100.0	10.8	6.7	4.7	8.4
Surrey and Sussex Healthcare NHS Trust	101			19.6				20.5	
Aneurin Bevan University Local Health Board	102			36.7	15.2			59.5	53.3

Appendix 11 table continued: Case ascertainment and the percentage of eyes with any ocular co-pathology / known risk indicator in each audit year for participating centres in the audit

Centre name	Centre number	Case ascertainment %*				Any co-pathology / known risk indicator %			
		Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Care UK - Southampton NHS Treatment Centre	103		31.0	35.4	84.6		13.7	9.0	1.9
SpaMedica - Birmingham	104			97.8	100.0			63.0	70.7
St. Stephens Gate Medical Practice	105			**	**			32.2	34.7
The Dudley Group NHS Foundation Trust	106			23.9	40.1			53.2	35.8
Swansea Bay University Local Health Board	107			2.5				43.5	
East Cheshire NHS Trust	108			52.7				20.0	
Southend University Hospital NHS Foundation Trust	109			36.4	71.1			38.8	35.0
Guy's and St Thomas' NHS Foundation Trust	110				60.5				25.0
Buckinghamshire Healthcare NHS Trust	111				80.2				36.9
SpaMedica - Bradford	112				100.0				23.3
SpaMedica - Skelmersdale	113				99.4				49.9
Taunton and Somerset NHS Foundation Trust	114				95.1				41.4
Medical specialists group Guernsey	115	***	***	***	***	50.0	45.0	45.7	48.0
Hywel Dda University Local Health Board	116				25.7				32.0
George Eliot Hospital NHS Trust	117				42.3				10.3
SpaMedica - Newcastle Under Lyme	118				100.0				66.7
SpaMedica - Widnes	119				100.0				64.0
Kettering General Hospital NHS Foundation Trust	120				22.5				37.6
SpaMedica - Chelmsford	121				100.0				53.2
Western Sussex Hospitals NHS Foundation Trust	122				16.2				36.0
Overall for all centres	N/A	86.1	86.7	84.0	88.8	47.7	42.2	43.5	43.1

*The estimate of the proportion of cases submitted to the audit is derived from the number of completed cataract operations supplied to NHS Digital or NWIS for the audit period. This estimation uses a pro rata calculation for a centre's denominator where the proportion of time during the audit cycle that a centre had been recording cataract operations was multiplied by the number of cataract operations supplied to NHS Digital or NWIS. The numerator was the number of operations a centre had supplied to the audit. Centres that had more operations submitted to the national audit than in the NHS Digital or NWIS data were all assumed to have a complete submission rate as the actual rate was not possible to estimate.

**These centres had no data in the indicated years NHS digital data.

***This centre does not have to report to either NHS Digital or NWIS.

****These two centres contributed to audit year 1 and requested their audit year 1 outcome data was not published after discovering faults with data collection.

*****Data from NWIS was not received for audit year 1.

Appendix 12: Cataract audit years one to four percentage of eyes with each ocular co-pathology / known risk indicator

Appendix 12 table: The percentage of eyes with each ocular co-pathology / known risk indicator in each audit year

Ocular co-pathology / know risk indicator	Audit year			
	Year 1	Year 2	Year 3	Year 4
Age-related macular degeneration	10.2	10.1	10.4	10.0
Unspecified other	15.4	8.6	9.4	9.0
Glaucoma	7.9	8.3	8.5	8.1
Diabetic retinopathy	5.4	5.6	5.8	5.6
Brunescent/white cataract	4.1	4.8	5.2	5.6
Corneal pathology	3.5	3.8	4.0	4.9
Other macular pathology	2.5	2.8	3.0	3.4
High myopia	3.3	3.4	3.5	3.2
No fundal view/vitreous opacity	1.5	1.7	1.9	2.1
previous vitrectomy surgery	1.7	1.8	1.9	1.8
Amblyopia	1.5	1.6	1.7	1.7
Other retinal vascular pathology	1.0	1.0	1.0	1.0
Pseudoexfoliation/phacodonesis	1.0	0.9	1.0	0.9
Uveitis/synaechiae	0.7	0.7	0.7	0.7
Optic nerve/CNS disease	0.4	0.4	0.5	0.4
Previous trabeculectomy surgery	0.4	0.4	0.4	0.4
Inherited eye disease	0.1	0.1	0.1	0.1

Appendix 13: Cataract audit years one to four percentage of eyes with VA data

Appendix 13 table: The percentage of eyes with preoperative and postoperative visual acuity data for participating centres in the audit

		Preoperative VA %				Postoperative VA %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Moorfields Eye Hospital NHS Foundation Trust	1	71.7	71.7	73.3	73.6	68.8	68.2	71.1	73.0
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	97.6	96.2	94.3	91.6	84.8	84.5	84.0	81.1
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	95.0	96.0	94.5	94.7	13.5	15.8	14.4	15.2
Leeds Teaching Hospitals NHS Trust	4	99.0	98.6	97.2	98.1	85.8	86.4	89.6	85.5
York Teaching Hospital NHS Foundation Trust	5	81.5	85.4	78.9	68.3	75.2	78.4	79.7	81.4
Oxford University Hospitals NHS Foundation Trust	6	92.7	89.4	92.4	86.1	64.5	68.0	32.2	30.3
University Hospitals Bristol NHS Foundation Trust	7	98.8	98.4	98.3	98.1	89.1	89.0	88.8	89.7
Gloucestershire Hospitals NHS Foundation Trust	8	93.9	92.8	92.8	71.8	93.2	86.0	83.0	74.9
Sheffield Teaching Hospitals NHS Foundation Trust	9	97.6	97.4	97.6	99.3	93.1	96.4	97.3	96.6
Sandwell and West Birmingham Hospitals NHS Trust	10	*	92.6	94.2	96.8	*	92.3	92.6	93.1
University Hospital Southampton NHS Foundation Trust	11	95.2	94.9	96.4	97.2	84.6	89.5	94.9	94.5
Royal Berkshire NHS Foundation Trust	12	98.8	99.0	97.6		93.2	96.2	97.1	
Calderdale and Huddersfield NHS Foundation Trust	13	91.7	95.3	97.1		79.0	82.5	82.7	
Mid Cheshire Hospitals NHS Foundation Trust	14	95.6	93.8	93.7	94.3	74.4	73.6	69.6	81.3
The Mid Yorkshire Hospitals NHS Trust	15	92.1	96.8	98.5	99.4	82.0	80.6	80.0	83.5
Cardiff & Vale University Local Health Board	16	93.4	94.4	89.6	91.3	37.0	45.4	50.5	46.1
Epsom and St Helier University Hospitals NHS Trust	17	97.6	98.2	96.9	98.6	91.3	90.9	89.9	91.9
Barts Health NHS Trust	18	90.7	87.0	90.0	91.5	77.5	82.5	84.6	88.9
Frimley Health NHS Foundation Trust	19	98.9	96.5	97.2	98.3	52.3	52.7	61.0	75.3
Bradford Teaching Hospitals NHS Foundation Trust	20	88.2	84.6	94.5	90.7	38.8	42.5	63.5	82.9
University Hospitals Plymouth NHS Trust	22	96.9	99.2	98.8	99.4	71.6	92.8	89.8	88.4

Appendix 13 table continued: The percentage of eyes with preoperative and postoperative visual acuity data for participating centres in the audit

		Preoperative VA %				Postoperative VA %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Birmingham NHS Foundation Trust	23	97.6	97.9	96.8	97.5	96.8	97.1	96.6	97.4
Hampshire Hospitals NHS Foundation Trust	24	96.5	96.8	95.2	91.8	82.0	73.1	72.9	76.3
Royal Cornwall Hospitals NHS Trust	25	98.2	97.8	90.5	87.3	75.3	84.9	85.2	87.8
Manchester University NHS Foundation Trust	26	98.1	97.6	97.8	98.4	92.7	90.7	92.7	87.9
King's College Hospital NHS Foundation Trust	27	97.8	96.0	96.4	97.4	83.8	88.7	92.9	92.9
Shrewsbury and Telford Hospital NHS Trust	28	94.4	87.3	84.7		78.6	76.0	80.8	
The Hillingdon Hospitals NHS Foundation Trust	30	98.6	98.6	97.2	96.8	95.0	82.3	86.3	86.6
Liverpool University Hospitals NHS Foundation Trust	31	92.3	90.6	92.8	90.6	77.7	81.6	68.2	81.3
Royal United Hospitals Bath NHS Foundation Trust	32	83.8	90.3	89.0		53.5	56.6	67.3	
Chesterfield Royal Hospital NHS Foundation Trust	33	96.2	93.0	96.3	98.6	97.0	95.5	96.4	95.8
Mid Essex Hospital Services NHS Trust	34	*	79.4	87.0	80.5	*	63.6	62.0	7.4
Harrogate and District NHS Foundation Trust	35	96.8	97.9	95.9	97.4	86.9	84.8	86.0	87.6
North West Anglia NHS Foundation Trust	36	96.3	97.2	97.5	97.5	85.1	85.3	86.9	85.3
Northern Devon Healthcare NHS Trust	37	99.4	99.4	98.6	96.7	88.9	91.6	89.4	91.4
Wirral University Teaching Hospital NHS Foundation Trust	39	84.8	71.5	78.0	83.0	76.1	77.1	81.3	81.2
South Warwickshire NHS Foundation Trust	40	98.2	98.7	97.4	99.0	84.4	76.5	78.0	80.0
Isle of Wight NHS Trust	41	88.7	87.6	91.6	89.7	82.1	81.1	86.5	67.0
St Helens and Knowsley Teaching Hospitals NHS Trust	42	96.9	96.7	98.1	96.1	72.0	67.6	59.2	67.3
Wrightington, Wigan and Leigh NHS Foundation Trust	43	96.6	99.2	99.4	97.2	73.8	94.1	93.6	91.7
Warrington and Halton Hospitals NHS Foundation Trust	44	98.1	94.5	96.7	94.1	10.5	22.6	84.9	79.0
South Tees Hospitals NHS Foundation Trust	45	98.5	98.4	96.3	76.5	54.7	66.6	56.7	59.0
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	99.3	97.9	92.7	84.2	71.9	81.7	61.5	71.1
Barking, Havering and Redbridge University Hospitals NHS Trust	47	92.8	85.7	86.9	87.0	30.6	52.8	52.2	64.6
Royal Free London NHS Foundation Trust	48	93.7	95.8	96.1	90.6	19.0	43.8	27.2	46.0

Appendix 13 table continued: The percentage of eyes with preoperative and postoperative visual acuity data for participating centres in the audit

		Preoperative VA %				Postoperative VA %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Coventry and Warwickshire NHS Trust	49	91.8	92.4	95.9	94.4	22.5	83.7	94.2	94.5
Barnsley Hospital NHS Foundation Trust	50	79.3	78.0	11.2	16.1	35.8	17.6	9.0	76.0
Salisbury NHS Foundation Trust	51	99.6	98.4	99.4	99.0	88.5	97.6	98.3	98.2
London North West University Healthcare NHS Trust	52	61.0	85.0	73.2		24.3	94.7	67.0	
Blackpool Teaching Hospitals NHS Foundation Trust	53	87.0				52.0			
University Hospitals of Morecambe Bay NHS Foundation Trust	54	88.9	89.4			32.6	3.5		
Nottingham University Hospitals NHS Trust	55	94.6	89.8	88.2	86.7	88.9	82.8	88.0	90.1
Yeovil District Hospital NHS Foundation Trust	56	98.7	99.3	100.0	99.9	56.5	83.6	98.1	98.6
SpaMedica - Manchester	57	99.8	100.0	99.8	99.8	87.8	91.2	89.4	89.8
SpaMedica - Wakefield	58	100.0	99.9	99.9	99.9	96.6	90.8	90.4	90.7
East Sussex Healthcare NHS Trust	59	93.9	90.6	89.4	84.0	66.5	76.4	76.7	82.4
Imperial College Healthcare NHS Trust	60	89.9	95.2	92.9	94.8	72.0	93.0	94.3	94.6
Portsmouth Hospitals NHS Trust	61	93.7	93.2	96.6	96.6	92.4	93.3	93.9	94.0
Cambridge University Hospitals NHS Foundation Trust	63		73.7	86.9	93.8		80.2	78.6	85.1
East Kent Hospitals University NHS Foundation Trust	64		82.9	85.5	92.0		43.9	58.1	62.8
East Suffolk and North Essex NHS Foundation Trust	65		91.8	94.4	96.5		10.2	25.1	43.0
SpaMedica - Birkenhead	66	99.8	99.9	99.9	99.8	89.2	93.1	92.7	93.5
County Durham and Darlington NHS Foundation Trust	67	98.0	96.0	92.3	84.5	97.9	97.3	97.4	97.8
United Lincolnshire Hospitals NHS Trust	68		94.0	94.8	96.6		62.5	57.1	53.3
SpaMedica - Newton-le-Willows	69	99.9	100.0	99.9	99.8	89.3	91.7	90.4	91.6
Northampton General Hospital NHS Trust	70		71.2	70.7	71.3		17.1	24.7	15.8
SpaMedica - Liverpool	71	100.0	100.0	100.0	99.7	93.0	88.9	87.7	87.7
James Paget University Hospitals NHS Foundation Trust	72		86.6	88.4	87.9		47.7	75.0	75.0
Bolton NHS Foundation Trust	73		97.3	99.4	98.9		81.6	89.2	89.2
Kingston Hospital NHS Foundation Trust	74		52.8	26.7	7.9		18.9	5.0	0.2
Northern Lincolnshire and Goole NHS Foundation Trust	75		77.7	76.2			94.9	96.6	
The Rotherham NHS Foundation Trust	76		97.0	95.8			21.3	47.6	

Appendix 13 table continued: The percentage of eyes with preoperative and postoperative visual acuity data for participating centres in the audit

		Preoperative VA %				Postoperative VA %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Torbay and South Devon NHS Foundation Trust	77		97.3	93.9	84.6		54.4	46.9	61.8
Great Western Hospitals NHS Foundation Trust	78	90.5	98.9	90.8	95.4	96.8	87.3	83.7	86.0
SpaMedica - Bolton	79		100.0	100.0	100.0		93.8	88.5	91.7
The Princess Alexandra Hospital NHS Trust	80		98.9	97.3			72.6	90.8	
Wye Valley NHS Trust	81		61.6	76.8			69.5	79.5	
Cwm Taf Morgannwg University Local Health Board	82		57.2	81.8	87.0		64.7	81.1	80.7
Sherwood Forest Hospitals NHS Foundation Trust	83		41.7	61.8	74.9		4.0	10.8	68.8
Royal Surrey County Hospital NHS Foundation Trust	84		98.8	97.7	98.5		94.3	96.2	96.7
East Lancashire Hospitals NHS Trust	85		2.7				0.0		
Southport and Ormskirk Hospital NHS Trust	86		9.8	58.7	96.7			71.0	90.3
Stockport NHS Foundation Trust	87		14.1	8.4				0.0	
Care UK - Shepton Mallet NHS Treatment Centre	88	98.2	99.0	99.1	98.9	94.9	97.5	96.5	95.9
Care UK - St Marys NHS Treatment Centre	89	98.7	98.6	99.8	99.7	60.6	42.3	86.4	92.6
Care UK - Emersons Green NHS Treatment Centre	90	100.0	99.6	99.6	99.6	85.2	57.3	58.3	54.9
Care UK - Will Adams NHS Treatment Centre	91	99.6	99.5	99.3	99.4	99.0	98.3	98.5	75.1
SpaMedica - Sheffield	92			100.0	99.9			87.3	90.8
Care UK - Peninsula NHS Treatment Centre	93	***	***	***	***	***	***	***	***
North Cumbria Integrated Care NHS Foundation Trust	94			97.5	94.0			14.4	11.2
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	98.5	98.9	98.6	99.0	98.6	98.6	76.5	70.7
Care UK - North East London NHS Treatment Centre	97	94.3	86.5	88.2	97.5	85.0	91.2	95.2	96.5
North Middlesex University Hospital NHS Trust	98			74.3	92.9			86.9	96.6
Brighton and Sussex University Hospitals NHS Trust	99			98.5	89.3			7.6	3.1
Care UK - SH Devides NHS Treatment Centre	100	98.9	99.3	100.0	100.0	98.9	99.5	99.2	99.1
Surrey and Sussex Healthcare NHS Trust	101			67.3				2.3	

Appendix 13 table continued: The percentage of eyes with preoperative and postoperative visual acuity data for participating centres in the audit

		Preoperative VA %				Postoperative VA %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Aneurin Bevan University Local Health Board	102			95.3	96.4			50.0	57.7
Care UK - Southampton NHS Treatment Centre	103		100.0	86.2	41.7		97.9	88.1	42.8
SpaMedica - Birmingham	104			100.0	99.9				94.6
St. Stephens Gate Medical Practice	105			99.5	99.5			89.3	32.7
The Dudley Group NHS Foundation Trust	106			32.8	50.3			57.0	77.1
Swansea Bay University Local Health Board	107			83.5				29.8	
East Cheshire NHS Trust	108			6.0					
Southend University Hospital NHS Foundation Trust	109			74.5	48.5			22.5	4.9
Guy's and St Thomas' NHS Foundation Trust	110				76.6				76.6
Buckinghamshire Healthcare NHS Trust	111				9.3				13.6
SpaMedica - Bradford	112				99.9				92.3
SpaMedica - Skelmersdale	113				99.9				87.6
Taunton and Somerset NHS Foundation Trust	114				29.7				46.8
Medical specialists group Guernsey	115	97.2	99.2	99.0	97.0	98.8	98.4	98.8	97.9
Hywel Dda University Local Health Board	116				8.6				12.1
George Eliot Hospital NHS Trust	117				95.4				97.6
SpaMedica - Newcastle Under Lyme	118				100.0				94.3
SpaMedica - Widnes	119				100.0				**
Kettering General Hospital NHS Foundation Trust	120				22.7				0.7
SpaMedica - Chelmsford	121				99.3				**
Western Sussex Hospitals NHS Foundation Trust	122				7.2				**
Overall for all centres	N/A	92.4	91.6	91.3	89.1	76.9	75.8	76.2	76.1

*These 2 centres contributed to audit year one and requested their audit year one outcome data was not published after discovering faults with data collection.

**No estimate is produced for centres with <50 eligible operations in the postoperative qualifying time period.

***This centre's VA data is excluded due to reported issues affecting the recording of VA data.

Appendix 14: Cataract audit years one to four case complexity adjusted PCR and VA Loss

Appendix 14 table: Case complexity adjusted PCR and VA Loss rates for participating centres in the audit

		Posterior Capsule Rupture %				Postoperative Visual Acuity Loss %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Moorfields Eye Hospital NHS Foundation Trust	1	0.63	0.86	0.82	0.74	0.36	0.47	0.36	0.32
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	0.88	0.77	0.97	0.98	0.46	0.61	0.45	0.46
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	0.72	0.74	0.50	0.54				
Leeds Teaching Hospitals NHS Trust	4	0.83	0.77	0.59	0.60	0.69	0.66	0.37	0.49
York Teaching Hospital NHS Foundation Trust	5	0.65	0.58	0.59	0.55	0.69	0.52	0.28	
Oxford University Hospitals NHS Foundation Trust	6	0.87	0.95	1.14	0.95	1.04	1.02		
University Hospitals Bristol NHS Foundation Trust	7	0.84	1.19	0.94	0.92	0.46	0.60	0.62	0.70
Gloucestershire Hospitals NHS Foundation Trust	8	0.90	0.98	0.75	0.63	0.34	0.26	0.59	
Sheffield Teaching Hospitals NHS Foundation Trust	9	0.72	0.66	0.89	0.65	1.00	0.76	0.67	0.62
Sandwell and West Birmingham Hospitals NHS Trust	10	*	1.21	1.16	1.28	*	0.85	0.68	0.67
University Hospital Southampton NHS Foundation Trust	11	1.17	0.92	0.95	0.94	0.68	0.69	0.26	0.41
Royal Berkshire NHS Foundation Trust	12	0.99	0.82	0.69		0.19	0.30	0.26	
Calderdale and Huddersfield NHS Foundation Trust	13	0.97	1.04	0.64		0.59	0.46	0.48	
Mid Cheshire Hospitals NHS Foundation Trust	14	1.10	0.90	0.71	0.69	0.82	0.59	0.66	0.72
The Mid Yorkshire Hospitals NHS Trust	15	0.53	0.60	0.74	0.59	0.61	0.43	0.41	0.43
Cardiff & Vale University Local Health Board	16	1.25	1.19	0.93	1.10				
Epsom and St Helier University Hospitals NHS Trust	17	1.04	0.64	1.22	0.86	0.54	0.34	0.09	0.35
Barts Health NHS Trust	18	1.20	1.27	0.89	0.79	0.93	0.65	0.48	0.77
Frimley Health NHS Foundation Trust	19	0.94	0.86	0.87	0.72				0.67
Bradford Teaching Hospitals NHS Foundation Trust	20	1.55	1.35	0.70	1.12				0.72
University Hospitals Plymouth NHS Trust	22	0.54	0.51	0.34	0.47	0.91	0.34	0.45	0.17

Appendix 14 table continued: Case complexity adjusted PCR and VA Loss rates for participating centres in the audit

		Posterior Capsule Rupture %				Postoperative Visual Acuity Loss %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Birmingham NHS Foundation Trust	23	1.40	1.05	0.94	0.68	0.53	0.50	0.56	0.49
Hampshire Hospitals NHS Foundation Trust	24	0.71	0.58	0.76	0.49	0.24	0.26	0.48	0.43
Royal Cornwall Hospitals NHS Trust	25	0.49	0.83	0.90	0.57	0.93	0.42	0.46	0.39
Manchester University NHS Foundation Trust	26	0.88	0.78	0.94	1.08	0.62	0.85	0.28	0.28
King's College Hospital NHS Foundation Trust	27	1.51	1.12	1.01	0.97	0.99	0.67	0.83	0.42
Shrewsbury and Telford Hospital NHS Trust	28	1.32	1.08	0.75		0.95	0.09	1.13	
The Hillingdon Hospitals NHS Foundation Trust	30	0.83	0.75	0.97	0.83	0.81	1.30	0.37	0.69
Liverpool University Hospitals NHS Foundation Trust	31	1.21	1.58	1.33	0.96	0.75	0.56	1.14	0.67
Royal United Hospitals Bath NHS Foundation Trust	32	0.69	0.54	0.53				1.05	
Chesterfield Royal Hospital NHS Foundation Trust	33	1.75	1.44	1.54	1.35	0.52	0.24	0.57	0.64
Mid Essex Hospital Services NHS Trust	34	*	2.10	1.50	0.90	*			
Harrogate and District NHS Foundation Trust	35	0.24	0.41	0.30	0.41	0.63	0.92	0.65	0.57
North West Anglia NHS Foundation Trust	36	0.81	0.85	0.77	0.81	0.41	0.48	0.26	0.42
Northern Devon Healthcare NHS Trust	37	0.82	0.91	0.70	0.37	0.53	0.23	0.51	0.43
Wirral University Teaching Hospital NHS Foundation Trust	39	0.79	0.70	0.34	0.42	0.78		1.09	1.30
South Warwickshire NHS Foundation Trust	40	0.86	0.42	0.50	0.70	0.20	0.38	0.29	0.00
Isle of Wight NHS Trust	41	1.09	0.60	0.53	0.73	0.64	0.55	0.89	1.55
St Helens and Knowsley Teaching Hospitals NHS Trust	42	1.10	1.29	0.92	1.08	0.93	1.15		1.34
Wrightington, Wigan and Leigh NHS Foundation Trust	43	0.77	0.74	0.64	0.97	0.86	0.49	0.76	1.56
Warrington and Halton Hospitals NHS Foundation Trust	44	0.59	0.77	0.42	0.48			0.85	0.50
South Tees Hospitals NHS Foundation Trust	45	1.20	0.64	0.68	1.13		0.53		
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	1.41	0.66	0.58	0.61	1.68	0.99		0.96
Barking, Havering and Redbridge University Hospitals NHS Trust	47	0.90	0.62	1.03	0.71				
Royal Free London NHS Foundation Trust	48	0.85	0.89	0.84	0.76				

Appendix 14 table continued: Case complexity adjusted PCR and VA Loss rates for participating centres in the audit

		Posterior Capsule Rupture %				Postoperative Visual Acuity Loss %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
University Hospitals Coventry and Warwickshire NHS Trust	49	0.65	0.66	0.47	0.73		0.20	0.26	0.26
Barnsley Hospital NHS Foundation Trust	50	0.13	0.00	0.53	0.00				
Salisbury NHS Foundation Trust	51	2.01	1.75	0.98	0.59	0.00	0.46	0.09	0.06
London North West University Healthcare NHS Trust	52	1.80	0.58	1.05			0.25		
Blackpool Teaching Hospitals NHS Foundation Trust	53	1.27							
University Hospitals of Morecambe Bay NHS Foundation Trust	54	1.01	0.76						
Nottingham University Hospitals NHS Trust	55	1.06	0.58	0.71	0.66	0.00	0.55	0.75	0.36
Yeovil District Hospital NHS Foundation Trust	56	0.00	0.84	1.69	0.77		0.41	0.46	0.24
SpaMedica - Manchester	57	0.66	0.64	0.41	0.41	0.53	0.33	0.07	0.22
SpaMedica - Wakefield	58	1.10	0.41	0.39	0.59	0.00	0.19	0.22	0.31
East Sussex Healthcare NHS Trust	59	0.82	1.30	0.86	0.75	0.86	0.41	0.32	0.39
Imperial College Healthcare NHS Trust	60	1.06	1.38	1.34	1.07	1.22	0.80	0.78	0.54
Portsmouth Hospitals NHS Trust	61	0.97	0.78	1.08	0.60	0.86	0.36	0.40	0.83
Cambridge University Hospitals NHS Foundation Trust	63		0.75	0.63	0.58			0.30	0.32
East Kent Hospitals University NHS Foundation Trust	64		0.84	0.70	0.85				
East Suffolk and North Essex NHS Foundation Trust	65		0.81	0.85	0.90				
SpaMedica - Birkenhead	66	0.38	0.34	0.27	0.18	0.07	0.19	0.23	0.16
County Durham and Darlington NHS Foundation Trust	67	1.40	1.44	0.64	1.07	0.36	0.48	0.32	0.16
United Lincolnshire Hospitals NHS Trust	68		1.42	0.86	0.64				
SpaMedica - Newton-le-Willows	69	0.52	0.34	0.16	0.20	0.08	0.25	0.17	0.00
Northampton General Hospital NHS Trust	70		0.51	0.74	0.80				
SpaMedica - Liverpool	71	0.57	0.23	0.42	0.44	0.22	0.00	0.11	0.09
James Paget University Hospitals NHS Foundation Trust	72		1.29	0.73	0.89			0.43	0.09
Bolton NHS Foundation Trust	73		0.59	0.67	0.79		1.15	0.70	0.61
Kingston Hospital NHS Foundation Trust	74		0.41	1.18	1.17				
Northern Lincolnshire and Goole NHS Foundation Trust	75		1.39	1.16			2.40	1.05	
The Rotherham NHS Foundation Trust	76		0.08	0.47					

Appendix 14 table continued: Case complexity adjusted PCR and VA Loss rates for participating centres in the audit

		Posterior Capsule Rupture %				Postoperative Visual Acuity Loss %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Torbay and South Devon NHS Foundation Trust	77		0.99	1.11	0.78				
Great Western Hospitals NHS Foundation Trust	78	0.00	0.26	0.70	1.00	0.00	0.39	0.71	0.30
SpaMedica - Bolton	79		0.36	0.36	0.40		1.39	0.32	0.20
The Princess Alexandra Hospital NHS Trust	80		0.94	1.44			1.12	0.91	
Wye Valley NHS Trust	81		0.63	0.61				0.00	
Cwm Taf Morgannwg University Local Health Board	82		0.74	0.67	0.78			1.18	1.23
Sherwood Forest Hospitals NHS Foundation Trust	83		0.26	0.28	0.59				
Royal Surrey County Hospital NHS Foundation Trust	84		0.00	0.00	0.00		0.00	1.16	0.43
East Lancashire Hospitals NHS Trust	85		0.00						
Southport and Ormskirk Hospital NHS Trust	86		0.48	0.49	0.12				1.13
Stockport NHS Foundation Trust	87		1.22	1.40					
Care UK - Shepton Mallet NHS Treatment Centre	88	0.19	0.20	0.24	0.59	0.04	0.27	0.24	0.16
Care UK - St Marys NHS Treatment Centre	89	1.01	0.76	0.81	0.67	0.24		0.07	0.28
Care UK - Emersons Green NHS Treatment Centre	90	0.55	0.15	0.53	0.25	0.47			
Care UK - Will Adams NHS Treatment Centre	91	0.44	0.94	0.74	0.52	0.47	0.50	0.51	0.67
SpaMedica - Sheffield	92			0.84	0.59			0.19	0.40
Care UK - Peninsula NHS Treatment Centre	93	0.40	0.15	0.24	0.44	**	**	**	**
North Cumbria Integrated Care NHS Foundation Trust	94			0.68	1.29				
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	1.20	0.72	0.62	1.05	0.62	0.43	1.08	1.12
Care UK - North East London NHS Treatment Centre	97	0.46	0.23	0.37	0.09	0.27	0.58	1.13	0.00
North Middlesex University Hospital NHS Trust	98			0.66	1.04			0.51	0.24
Brighton and Sussex University Hospitals NHS Trust	99			0.47	0.36				
Care UK - SH Devizes NHS Treatment Centre	100	0.00	0.00	0.00	0.35	0.00	1.14	0.41	0.64
Surrey and Sussex Healthcare NHS Trust	101			2.10					
Aneurin Bevan University Local Health Board	102			0.00	0.57				

Appendix 14 table continued: Case complexity adjusted PCR and VA Loss rates for participating centres in the audit

		Posterior Capsule Rupture %				Postoperative Visual Acuity Loss %			
Centre name	Centre number	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Care UK - Southampton NHS Treatment Centre	103		0.69	1.39	0.57		0.00	0.00	
SpaMedica - Birmingham	104			0.97	0.34				0.14
St. Stephens Gate Medical Practice	105			0.00	0.41			0.00	
The Dudley Group NHS Foundation Trust	106			0.33	1.09				
Swansea Bay University Local Health Board	107			0.93					
East Cheshire NHS Trust	108			1.72					
Southend University Hospital NHS Foundation Trust	109			0.84	0.67				
Guy's and St Thomas' NHS Foundation Trust	110				0.58				0.96
Buckinghamshire Healthcare NHS Trust	111				0.96				
SpaMedica - Bradford	112				0.57				0.47
SpaMedica - Skelmersdale	113				0.23				0.16
Taunton and Somerset NHS Foundation Trust	114				0.67				
Medical specialists group Guernsey	115	1.05	0.81	0.85	0.48	0.19	0.79	0.00	0.19
Hywel Dda University Local Health Board	116				0.73				
George Eliot Hospital NHS Trust	117				0.67				0.36
SpaMedica - Newcastle Under Lyme	118				0.50				1.02
SpaMedica - Widnes	119				0.54				
Kettering General Hospital NHS Foundation Trust	120				0.00				
SpaMedica - Chelmsford	121				1.24				
Western Sussex Hospitals NHS Foundation Trust	122				0.58				
Overall for all centres	N/A	0.86	0.85	0.80	0.74	0.56	0.53	0.47	0.46

*These 2 centres contributed to audit year one and requested their audit year one outcome data was not published after discovering faults with data collection.

**This centres VA data is excluded due to reported issues affecting the recording of VA data.

Appendix 15: The percentage of eyes with VA data at different time intervals

Appendix 15 table: The percentage of eyes with visual acuity measurements at different time intervals for participating centres in the audit

Centre name	Centre number	Preoperative VA					Postoperative VA				
		Number of eligible operations	6 months %	5 months %	4 months %	3 months %	Number of eligible operations	3 months %	4 months %	5 months %	6 months %
Moorfields Eye Hospital NHS Foundation Trust	1	21,143	73.6	72.4	69.4	62.1	17,466	69.7	71.2	72.2	73.0
The Newcastle upon Tyne Hospitals NHS Foundation Trust	2	7,398	91.6	88.3	81.4	69.4	6,186	79.6	80.2	80.7	81.1
Norfolk and Norwich University Hospitals NHS Foundation Trust	3	4,229	94.7	92.7	89.1	80.8	3,491	13.8	14.6	14.9	15.2
Leeds Teaching Hospitals NHS Trust	4	4,286	98.1	97.4	92.5	77.1	3,618	83.4	84.2	85.0	85.5
York Teaching Hospital NHS Foundation Trust	5	3,910	68.3	55.9	44.9	38.7	3,416	76.5	79.0	80.5	81.4
Oxford University Hospitals NHS Foundation Trust	6	4,354	86.1	79.1	70.6	58.8	3,761	22.7	25.7	28.5	30.3
University Hospitals Bristol NHS Foundation Trust	7	4,481	98.1	95.1	89.6	81.2	3,769	74.4	85.1	88.3	89.7
Gloucestershire Hospitals NHS Foundation Trust	8	2,944	71.8	64.9	57.0	50.9	2,597	71.9	73.6	74.5	74.9
Sheffield Teaching Hospitals NHS Foundation Trust	9	4,049	99.3	98.8	97.7	95.7	3,337	95.2	95.8	96.4	96.6
Sandwell and West Birmingham Hospitals NHS Trust	10	3,654	96.8	95.7	93.1	87.9	3,102	90.5	91.8	92.6	93.1
University Hospital Southampton NHS Foundation Trust	11	3,100	97.2	95.6	91.6	83.4	2,568	86.1	91.2	93.5	94.5
Mid Cheshire Hospitals NHS Foundation Trust	14	2,523	94.3	93.4	91.9	89.3	2,099	77.8	79.5	80.4	81.3
The Mid Yorkshire Hospitals NHS Trust	15	1,795	99.4	98.9	97.4	94.4	1,484	79.9	81.3	82.3	83.5
Cardiff & Vale University Local Health Board	16	2,570	91.3	90.8	90.4	90.0	2,114	42.8	44.4	45.3	46.1
Epsom and St Helier University Hospitals NHS Trust	17	2,815	98.6	98.0	93.1	69.5	2,334	90.6	91.2	91.5	91.9
Barts Health NHS Trust	18	4,171	91.5	89.1	85.1	77.4	3,527	81.4	85.6	87.6	88.9
Frimley Health NHS Foundation Trust	19	3,703	98.3	97.5	95.3	91.8	2,923	68.7	71.9	73.8	75.3
Bradford Teaching Hospitals NHS Foundation Trust	20	2,092	90.7	84.9	74.5	61.9	1,656	76.1	78.2	81.0	82.9
University Hospitals Plymouth NHS Trust	22	2,515	99.4	97.9	94.5	88.2	2,127	86.1	87.5	88.2	88.4
University Hospitals Birmingham NHS Foundation Trust	23	4,577	97.5	94.6	87.7	81.3	3,773	90.5	96.2	97.1	97.4
Hampshire Hospitals NHS Foundation Trust	24	2,312	91.8	87.2	81.7	76.0	1,929	74.5	74.9	75.5	76.3

Appendix 15 table continued: The percentage of eyes with visual acuity measurements at different time intervals for participating centres in the audit

Centre name	Centre number	Preoperative VA					Postoperative VA				
		Number of eligible operations	6 months %	5 months %	4 months %	3 months %	Number of eligible operations	3 months %	4 months %	5 months %	6 months %
Royal Cornwall Hospitals NHS Trust	25	2,244	87.3	79.5	67.4	52.0	1,871	85.7	86.9	87.7	87.8
Manchester University NHS Foundation Trust	26	3,596	98.4	97.8	97.0	95.4	2,954	86.3	87.2	87.7	87.9
King's College Hospital NHS Foundation Trust	27	5,771	97.4	95.7	92.3	86.1	4,761	91.1	92.0	92.6	92.9
The Hillingdon Hospitals NHS Foundation Trust	30	1,982	96.8	94.6	90.7	84.7	1,709	78.9	82.1	84.6	86.6
Liverpool University Hospitals NHS Foundation Trust	31	3,803	90.6	88.0	83.9	77.7	3,018	73.3	77.8	79.9	81.3
Chesterfield Royal Hospital NHS Foundation Trust	33	1,409	98.6	97.8	95.9	90.3	1,191	95.4	95.6	95.7	95.8
Mid Essex Hospital Services NHS Trust	34	1,403	80.5	80.3	80.3	80.0	1,170	4.7	6.2	6.8	7.4
Harrogate and District NHS Foundation Trust	35	1,407	97.4	96.9	95.7	95.5	1,111	86.5	87.1	87.4	87.6
North West Anglia NHS Foundation Trust	36	2,764	97.5	96.8	95.1	90.8	2,375	81.7	83.5	84.5	85.3
Northern Devon Healthcare NHS Trust	37	1,662	96.7	94.3	91.9	88.5	1,421	88.0	90.0	90.9	91.4
Wirral University Teaching Hospital NHS Foundation Trust	39	1,218	83.0	78.2	72.3	65.7	1,018	79.0	80.2	81.0	81.2
South Warwickshire NHS Foundation Trust	40	1,742	99.0	97.4	93.2	88.3	1,444	56.6	67.0	75.4	80.0
Isle of Wight NHS Trust	41	1,412	89.7	86.0	83.1	81.0	1,144	66.0	66.3	66.7	67.0
St Helens and Knowsley Teaching Hospitals NHS Trust	42	1,452	96.1	95.2	92.6	88.2	1,292	63.2	64.8	66.3	67.3
Wrightington, Wigan and Leigh NHS Foundation Trust	43	1,108	97.2	93.8	88.0	81.6	880	89.5	90.2	91.0	91.7
Warrington and Halton Hospitals NHS Foundation Trust	44	1,075	94.1	92.1	89.0	84.9	834	77.0	77.9	78.5	79.0
South Tees Hospitals NHS Foundation Trust	45	2,231	76.5	73.1	70.1	67.0	1,883	55.7	57.6	58.3	59.0
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust	46	3,128	84.2	77.7	70.3	62.0	2,596	68.1	69.8	70.3	71.1
Barking, Havering and Redbridge University Hospitals NHS Trust	47	2,387	87.0	84.8	81.4	78.5	2,005	58.8	61.1	62.9	64.6
Royal Free London NHS Foundation Trust	48	2,033	90.6	88.3	84.9	80.0	1,591	38.7	41.2	44.2	46.0
University Hospitals Coventry and Warwickshire NHS Trust	49	2,627	94.4	92.4	88.5	82.7	2,199	93.4	94.0	94.4	94.5
Barnsley Hospital NHS Foundation Trust	50	223	16.1	15.7	15.2	13.5	175	76.0	76.0	76.0	76.0
Salisbury NHS Foundation Trust	51	1,577	99.0	98.0	95.4	81.6	1,364	97.8	98.0	98.0	98.2
Nottingham University Hospitals NHS Trust	55	2,748	86.7	77.9	61.7	38.6	2,293	87.5	88.4	89.2	90.1

Appendix 15 table continued: The percentage of eyes with visual acuity measurements at different time intervals for participating centres in the audit

Centre name	Centre number	Preoperative VA					Postoperative VA				
		Number of eligible operations	6 months %	5 months %	4 months %	3 months %	Number of eligible operations	3 months %	4 months %	5 months %	6 months %
Yeovil District Hospital NHS Foundation Trust	56	1,420	99.9	99.5	99.3	99.1	1,065	98.0	98.5	98.5	98.6
SpaMedica - Manchester	57	3,855	99.8	99.5	98.4	95.8	3,132	87.1	88.4	89.3	89.8
SpaMedica - Wakefield	58	5,323	99.9	99.5	98.5	97.1	4,389	88.2	89.5	90.2	90.7
East Sussex Healthcare NHS Trust	59	3,522	84.0	77.9	71.4	62.0	2,955	64.7	75.7	80.8	82.4
Imperial College Healthcare NHS Trust	60	3,171	94.8	91.5	86.1	76.0	2,596	91.8	93.3	94.2	94.6
Portsmouth Hospitals NHS Trust	61	2,420	96.6	95.2	94.0	91.9	1,995	93.8	93.9	93.9	94.0
Cambridge University Hospitals NHS Foundation Trust	63	2,471	93.8	85.6	74.9	61.5	2,103	74.4	78.7	82.2	85.1
East Kent Hospitals University NHS Foundation Trust	64	2,148	92.0	88.8	83.9	76.4	1,818	55.8	58.6	61.2	62.8
East Suffolk and North Essex NHS Foundation Trust	65	2,462	96.5	95.4	94.6	92.5	2,072	32.9	36.2	38.9	43.0
SpaMedica - Birkenhead	66	2,808	99.8	99.5	99.0	97.2	2,279	91.1	92.2	93.2	93.5
County Durham and Darlington NHS Foundation Trust	67	2,323	84.5	74.0	55.6	35.7	1,898	97.0	97.4	97.6	97.8
United Lincolnshire Hospitals NHS Trust	68	1,826	96.6	96.5	96.4	95.5	1,517	51.0	52.0	52.7	53.3
SpaMedica - Newton-le-Willows	69	1,640	99.8	99.6	99.0	97.3	1,413	90.2	90.7	91.1	91.6
Northampton General Hospital NHS Trust	70	1,617	71.3	69.4	67.6	63.5	1,338	14.2	15.2	15.5	15.8
SpaMedica - Liverpool	71	1,698	99.7	99.4	98.5	97.2	1,458	84.4	86.4	87.1	87.7
James Paget University Hospitals NHS Foundation Trust	72	1,944	87.9	83.6	79.3	74.7	1,628	74.6	74.8	75.0	75.0
Bolton NHS Foundation Trust	73	1,732	98.9	98.3	96.4	92.2	1,483	86.5	87.9	88.7	89.2
Kingston Hospital NHS Foundation Trust	74	1,942	7.9	7.6	7.2	7.0	1,606	0.2	0.2	0.2	0.2
Torbay and South Devon NHS Foundation Trust	77	1,790	84.6	78.9	73.7	66.3	1,437	55.4	58.0	59.8	61.8
Great Western Hospitals NHS Foundation Trust	78	1,734	95.4	92.7	87.6	78.9	1,401	83.2	84.8	85.4	86.0
SpaMedica - Bolton	79	4,361	100.0	99.8	98.9	97.2	3,559	90.1	91.1	91.4	91.7
Cwm Taf Morgannwg University Local Health Board	82	1,343	87.0	84.8	83.1	79.8	1,113	78.7	80.0	80.7	80.7
Sherwood Forest Hospitals NHS Foundation Trust	83	1,804	74.9	72.2	66.8	57.1	1,528	67.2	67.5	67.9	68.8
Royal Surrey County Hospital NHS Foundation Trust	84	259	98.5	97.7	94.6	85.3	213	95.3	95.3	96.2	96.7
Southport and Ormskirk Hospital NHS Trust	86	968	96.7	95.6	93.1	88.4	783	88.9	89.8	89.9	90.3
Care UK - Shepton Mallet NHS Treatment Centre	88	1,768	98.9	98.1	95.5	88.3	1,422	95.3	95.6	95.8	95.9
Care UK - St Marys NHS Treatment Centre	89	3,090	99.7	99.7	98.7	96.7	2,552	91.5	92.4	92.6	92.6

Appendix 15 table continued: The percentage of eyes with visual acuity measurements at different time intervals for participating centres in the audit

Centre name	Centre number	Preoperative VA					Postoperative VA				
		Number of eligible operations	6 months %	5 months %	4 months %	3 months %	Number of eligible operations	3 months %	4 months %	5 months %	6 months %
Care UK - Emersons Green NHS Treatment Centre	90	2,083	99.6	99.2	98.4	94.1	1,908	53.9	54.6	54.9	54.9
Care UK - Will Adams NHS Treatment Centre	91	2,454	99.4	98.3	94.6	90.3	2,026	72.4	74.0	74.7	75.1
SpaMedica - Sheffield	92	4,403	99.9	99.5	98.9	97.2	3,527	89.0	89.8	90.3	90.8
Care UK - Peninsula NHS Treatment Centre	93	2,323	**	**	**	**	1,760	**	**	**	**
North Cumbria Integrated Care NHS Foundation Trust	94	837	94.0	90.2	88.2	86.5	775	6.5	8.6	9.3	11.2
Care UK - Rochdale Ophthalmology Clinical Assessment and Treatment Service	95	1,262	99.0	97.9	96.0	89.9	1,038	68.6	69.4	70.2	70.7
Care UK - North East London NHS Treatment Centre	97	984	97.5	96.2	94.3	88.6	776	96.1	96.4	96.5	96.5
North Middlesex University Hospital NHS Trust	98	1,501	92.9	88.5	77.1	56.6	1,301	96.0	96.2	96.5	96.6
Brighton and Sussex University Hospitals NHS Trust	99	2,746	89.3	88.1	86.2	82.0	2,322	1.4	1.9	2.4	3.1
Care UK - SH Devides NHS Treatment Centre	100	560	100.0	100.0	98.4	93.8	460	98.9	99.1	99.1	99.1
Aneurin Bevan University Local Health Board	102	561	96.4	95.9	94.1	87.5	544	56.1	56.8	57.2	57.7
Care UK - Southampton NHS Treatment Centre	103	1,121	41.7	41.1	39.8	35.8	953	41.1	41.6	42.6	42.8
SpaMedica - Birmingham	104	3,742	99.9	99.6	98.8	96.9	2,761	91.7	93.2	94.1	94.6
St. Stephens Gate Medical Practice	105	202	99.5	98.0	97.0	93.6	202	29.2	31.2	32.7	32.7
The Dudley Group NHS Foundation Trust	106	724	50.3	42.0	35.6	30.9	638	76.0	76.2	76.8	77.1
Southend University Hospital NHS Foundation Trust	109	2,509	48.5	42.8	39.6	36.5	2,079	3.9	4.1	4.5	4.9
Guy's and St Thomas' NHS Foundation Trust	110	1,702	76.6	75.4	72.0	63.0	1,346	71.1	73.8	75.3	76.6
Buckinghamshire Healthcare NHS Trust	111	1,645	9.3	9.2	9.0	8.4	987	11.2	12.2	12.7	13.6
SpaMedica - Bradford	112	1,410	99.9	99.8	99.1	97.4	1,010	87.9	90.2	91.9	92.3
SpaMedica - Skelmersdale	113	754	99.9	99.2	98.7	97.7	557	85.6	87.3	87.4	87.6
Taunton and Somerset NHS Foundation Trust	114	751	29.7	29.7	29.7	27.3	380	19.2	25.3	39.5	46.8
Medical specialists group Guernsey	115	535	97.0	94.2	90.7	82.1	434	97.7	97.9	97.9	97.9
Hywel Dda University Local Health Board	116	490	8.6	8.2	7.6	6.9	405	7.9	9.9	10.6	12.1
George Eliot Hospital NHS Trust	117	457	95.4	88.2	47.9	12.3	457	96.9	97.6	97.6	97.6
SpaMedica - Newcastle Under Lyme	118	180	100.0	100.0	100.0	100.0	70	94.3	94.3	94.3	94.3

Appendix 15 table continued: The percentage of eyes with visual acuity measurements at different time intervals for participating centres in the audit

		Preoperative VA					Postoperative VA				
Centre name	Centre number	Number of eligible operations	6 months %	5 months %	4 months %	3 months %	Number of eligible operations	3 months %	4 months %	5 months %	6 months %
SpaMedica - Widnes	119	172	100.0	100.0	100.0	100.0	32	*	*	*	*
Kettering General Hospital NHS Foundation Trust	120	141	22.7	22.0	22.0	22.0	141	0.0	0.0	0.0	0.7
SpaMedica - Chelmsford	121	139	99.3	99.3	98.6	97.8	22	*	*	*	*
Western Sussex Hospitals NHS Foundation Trust	122	111	7.2	7.2	7.2	7.2	36	*	*	*	*
Overall for all centres	500	239,238	89.1	86.7	82.8	76.4	197,426	72.3	74.2	75.3	76.1

*No estimate is produced for centres with <50 eligible operations in the postoperative qualifying time period.

**This centres VA data is excluded due to reported issues affecting the recording of VA data.

Appendix 16: Operative procedures combined with phacoemulsification ± IOL

Operative procedure	Frequency
Insertion of pupil ring expander	2,907
Insertion of Iris hooks	1,628
Automated anterior vitrectomy	1,554
Limbal relaxing incisions / Opposite clear corneal incisions	1,092
Intravitreal injection	961
Capsular tension ring	852
Capsulectomy	487
Synaechiolysis	444
Stretching of the Iris	358
Injection of bleb (antimetabolite)	287
Injection into anterior chamber	273
Pars plana vitrectomy	164
Intraoperative phenylephrine	123
I/C Miochol	96
Suture of Cornea	63
Sphincterotomy	59
Anterior chamber of eye and/or lens operations	52
Washout of anterior chamber	38
Removal of retained lens fragments	27
Sub-conjunctival injection	24
Examination under anaesthesia	23
IOL exchange	21
Orbital floor injection	14
IOL removal	13
Removal Cornea sutures	11
Fragmatone lensectomy	10
Peripheral iridectomy	10
Other operation on iris	9
Incision of Cornea	7
Broad iridectomy	5
Insertion of punctal plug	5
Photocoagulation of ciliary body	4
Perfect capsule	3
Subtenon steroid injection	3
Lacrimal punctoplasty	2
Other conjunctiva operation	2
Removal of stent from Baerveldt tube	2
Scleral-fixed IOL	2
Excision of prolapsed iris	1
Insertion of Cypass implant	1
Insertion of stent suture into Baerveldt tube	1
Pupilloplasty	1
Zonulolysis	1

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