





Version history

Version	Date	Summary of changes
0.1	10/03/23	Initial Scope of Cataract Care Pathway
0.2	25/4/23	Revision to include only IPC component. Incorporate stakeholder feedback and consensus on discussion /expert opinion
0.3	25/5/23	Update for meeting following stakeholder review of Background and sections 1 -2.1 Expert opinion agreed and included. Appendices added
0.4	25/7/2023 27/7/2023	Review of sections 2.2 – 3.3 with stakeholders and approval of comments from v0.3 and review of Appendix 2
0.5	14/8/2023	Review of final comments for stakeholder approval agreed at final meeting on 27/7/2023
1.0	21/8/2023	Final formatted version

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Background

Cataract surgery accounts for 6% of all UK surgery and provides rapid significant improvement to quality of life for those who suffer from cataract. There are major challenges around providing this type of surgery at present and waiting lists are growing for a variety of reasons.¹

The Antimicrobial Resistance and Healthcare Associated Infection (ARHAI) Scotland Infection Prevention and Control (IPC) Short Life Working Group have been commissioned with the development of an IPC pathway in support of the Centre of Sustainable Delivery (CfSD) work into improving the delivery of cataract surgery in Scotland. In the "Improving the Delivery of Cataract Surgery in Scotland: a Blueprint for Success" document and associated toolkit have already been produced, providing support for local improvement including enabling the safe provision of higher volume cataract surgery.²

The purpose of this care pathway is to provide a consensus on agreed IPC principles underpinned by current national guidance, scientific evidence from available literature and in absence of such provide agreed expert opinion. A rapid review of the scientific literature and extant guidance was carried out to identify IPC measures to prevent and control endophthalmitis following cataract surgery. ³ Infection prevention and control is an integral part of all patient care and this pathway proposes to align to the new standards for cataract surgery in development by Healthcare Improvement Scotland. ⁴ Standard Infection Control Precautions (SICPs) should be always followed and applied by all healthcare staff in line with the National Infection Prevention and Control Manual (NIPCM) ⁵ throughout the patients care pathway. Areas should be cleaned in line with NHSScotland National Cleaning Services Specification. ⁶

ARHAI Scotland has been commissioned to ensure patient safety in relation to IPC practices, in support of the recommended target of a minimum of eight cataract procedures within a four hour session with a minimum procedure of one cataract removal every 30 minutes with bespoke centres implementing higher volume surgical throughput, 10-14 per four hour session.^{2, 7}

Three main objectives were proposed initially.

- Review patient pathway, identify and mitigate any IPC risks.
- Confirm facilities and recommendations.
- Explore and disprove/mitigate risk from any potential barriers/myths.

Section 1 Pre-operative Care

1.1 Pre-assessment

Pre-assessment for high flow surgery may vary from centre to centre. To mitigate any IPC risk during the day surgery attendance, the following should be considered.

- A clinical history/assessment may be taken at pre-assessment or by another local method but should include documentation of an assessment of eye for any infection risks pre-operatively and ensure treatment prior to surgery.⁷⁻⁹ A Patient Information Booklet or form may be sent out to patient to complete this information prior to the procedure.
- Record of past medical history. Consider if any current risk of immunosuppression, this should inform risk stratification for pathway surgery.^{2, 7, 8}
- An assessment of risk should be undertaken on the day of surgery. The centre should be notified of any infection risk identified from the pre-admission booklet. Refer to A-Z of pathogens for any suspected or confirmed infectious pathogen for further information on period of infectivity.¹⁰
- Clinical Risk Assessment in relation to Meticillin Resistant Staphylococcus Aureus (MRSA) screening is **not** deemed necessary for day cases,¹¹ therefore screening is not recommended at pre-assessment.

1.2 Admission facilities/listings

Listings will be prepared based on the procedure being undertaken, the requirement of instillation of eye drops and the ability of patients/carers to perform instillation pre-admission.⁷ Expert opinion was consensus agreed that surgery should not be contra-indicated where clinical assessment identifies evidence of seborrheic blepharitis.

1.3 Patient preparation

In addition to SICPs,⁵ the following key principles should be practiced to minimise the risk of infection.

- Patients should have an adequate standard of personal hygiene pre-operatively. No
 evidence identified to support the routine changing into a theatre gown.¹² Expert opinion
 suggest that this would apply regardless of theatre speciality area usage.
- Patient compliance with pre-admission patient information advice for theatre preparation should be checked. Expert opinion consensus agreed this should include patients not wearing make-up or applying lotions/creams to their face on the day of surgery.
- Local policy should be followed for instillation of eye drops. This should consider:
 - all eyedrops should be single patient use, within expiry date prior to administration and the manufacturer's instructions for storage and instillation should be adhered to
 - recognition that in some settings, unregistered healthcare staff may instil eye drops. Local training and protocols should be in place to support this¹³
 - if assessed at pre-assessment that instillation of eye drops is able to be carried out pre-operatively by the patient/carer, clear instructions should be provided for use

1.4 Pre-operative checks

The following patient cataract specific pre-operative checks are recommended.

 The eye to be operated on has been checked for infection and has been visually marked.⁷⁻⁹

Section 2 Intra operative practice

2.1 General

Healthcare staff awareness of the IPC risks associated with post-cataract surgery endophthalmitis is fundamental to mitigate any potential patient risks.

The following IPC risks have been implicated in post-cataract surgery endophthalmitis. Some have been multifactorial and in approximately 20% there was no obvious or identifiable source.

- Contaminated intraprocedural solutions both extraocular (for example povidone saline) and intraocular (for example irrigating fluid, intracameral drugs including antibiotics, anti-VEGF, dyes and viscoelastic) are the commonest source in clusters of cases.⁷
- Contaminated phacoemulsification equipment and attachments.
- Defective sterilisation procedures.
- Inadequate ventilation systems providing poor air change rate per hour in the operating environment.
- Defective contaminated, or dirty instruments.⁹

All the above findings were consistent with the findings of the ARHAI rapid review 2023.3

Staff should follow strict theatre discipline to prevent contamination of preparation and sterile areas, there should be clear separation of clean and dirty areas.¹⁰ Every effort should be taken to minimise unnecessary theatre traffic.¹³

2.2 Staff/theatre resource

Having the same multidisciplinary team with enhanced competencies for this type of surgery is an important factor to facilitate smooth running of high flow lists.⁵ Other factors which may help facilitate high flow lists are:

- Jack and Jill arrangement which permits a single surgeon to work between two adjoining operating theatres^{1, 7}
- the use of two scrub teams allowing preparation and clean-up to be performed simultaneously with a shared scrub area between two theatres (less staff movement and door opening)¹

It is important to acknowledge that there will be local variations with theatre layouts and staffing arrangements.

2.3 Facilities (See Appendix 1)

A dedicated theatre for ophthalmology is recommended. ¹⁰ In rural settings where this may not be achievable services can be shared with a clean specialty. Where sharing is required this should be risk assessed and agreed locally. ¹² Risk assessment should include consideration of the time is to be allowed for a full theatre clean and adequate dilution of air between specialties, ¹⁴ Follow current guidelines for air contaminant removal fallow time following prior specialty procedure's completion, based on your room ventilation's air changes per hour (ACH). ¹⁵ Facilities should have the required planned preventative maintenance in place with validation of standards of efficacy for theatre/clean room ventilation/airflow systems. ^{2, 12}

2.4 Equipment

Each facility should have enough instrument trays, packs and consumables including back up trays available to support high flow lists.^{2, 7}

- Reusable instruments should be reprocessed in a fully compliant CDU/SSD department. Local departmental desktop sterilisation should be avoided.
- Follow manufacturers' guidelines regarding single use instruments at all times.⁷

Standard safe operational management and storage of theatre packs/trays are key to prevent compromising their sterility and risk from damage and potential environmental contamination. Best practice recommends the following. 16

- Sterile instrument trays should be stored in a designated store free from dust and moisture, on racks designed for the storage of sterile instrument trays to avoid damage to the packs. They should not be stacked on top of each other. See linked document for more detailed instructions on storage and handling of trays. ¹³
- All trays should be checked prior to use to ensure the wraps are intact and not damaged in any way or discoloured.¹⁶
- Check the sterilization indicator and the expiry date¹⁷
- If any of the former apply the tray cannot be used as it may pose an infection risk and there should always be back-up trays available.
- Once the tray is opened check instruments and do not use instruments which are damaged, faulty or show signs of poor cleaning such as debris or deposits.⁹

- Do not clear blocked instrument lumens, for example of an irrigation-aspiration cannula, during the procedure as this may cause contamination of the site.⁹
- Follow manufacturers' guidelines on cleaning, disinfection and sterilisation of instruments and devices.¹⁶

2.5 Peri Operative Practice

Due to rapid turnover, it can be advantageous to have a clean preparation room adjoining the theatre for instrument lay-up. Note that this room must meet the specification for a preparation room.¹⁸

- Instrument lay-up for the first case can be conducted in theatre directly before surgery.
- Lay up for subsequent cases may be carried out in an adjoining clean preparation room.
 It is not recommended to lay up for more than one case ahead of time in the prep room.^{12,15}
- If there is no separate clean preparation room, layup for each case must not commence until the previous case has left theatre and all equipment has been cleaned and dirty instruments removed from the theatre. The one exception is where immediate bilateral sequential cataract surgery (IBSCS) is being carried out (See below).
- In circumstances where (IBSCS) is required, this should be viewed as two separate procedures with the same patient to avoid cross contamination between each eye with the requirement of individual trays for each procedure.

Local risk assessment may indicate the need for a "complications trolley". If locally agreed, the boards should ensure the trolley is stored safely, clean, and away from risk of environmental contamination. The frequency of cleaning should be specified on the departmental local cleaning schedule. All equipment should be checked prior to the list to ensure it is intact and within the expiry date in line with the NIPCM.⁵

2.5.1 Instillation of local anaesthesia

Local anaesthesia preparations should be single-patient use and within the expiry date prior to administration. These may be administered prior to entering theatre. All preparations must be administered using non touch/aseptic technique.^{5, 9}

2.5.2 Theatre attire and scrub procedures

Staff should wear theatre attire in line with local policy and guidelines¹² and PPE in line with National Infection Prevention and Control Manual.³

Surgical scrub/rubbing should be performed in line with NIPCM, appendix 3 and 4⁵ Additional information can be found in the 2023 ARHAI Scotland 'Hand Hygiene: Surgical hand antisepsis in the clinical setting literature review'.¹²

2.5.3 Draping and cleaning the eye

Scrub professionals can be trained and able to prep the skin, drape and insert the speculum.^{2,}

⁷ Expert opinion specifies this should be positioned to occlude the eye lashes and eyelids from the surgical field.¹⁹ Published evidence suggests it is best practice to use pre-prepared

individually packaged and licensed preparations for intraocular instillation,¹⁵ expert opinion suggests consideration of quantifiable risk and mitigations therefore risk assessment and local policies may be considered driven by local surveillance.

Antiseptic selection is used in line with manufacturer's instructions to mitigate against post-operative endophthalmitis. Povidone iodine 5 % is recommended for use for instillation into the conjunctival sac prior to commencement (minims)⁹ and is the preferred product for skin cleansing although aqueous chlorhexidine may be used in rare circumstances of confirmed allergy to povidone iodine.

Risks from Chlorhexidine use should be considered. These include the use of an unlicensed product. Therefore, the risks should be discussed with the patient and a disclaimer documented. This antiseptic requires a longer time to be effective and may confer an increased risk of infection in comparison to Povidine iodine⁹ Expert opinion advises consideration of other risks such as corneal toxicity and significant corneal pathology.

2.5.4 Intra operative antimicrobial prophylaxis

Antibiotics should be administered in line with local policy aligned to national guidelines and best practice for routine prophylaxis against endopthalmitis.^{6,7}

- All antibiotic vials must be single-patient use, and within expiry date prior to administration using non-touch/aseptic technique.
- Commercially prepared or pharmacy prepared intracameral antibiotic solutions are recommended to prevent dilution errors and risk of cross-contamination.

 True anaphylactoid allergy in relation intracameral antibiotics is rare however a local risk assessment should be undertaken for each patient prior to the procedure.²⁰

2.5.5 Environmental cleaning

The cleaning of operating theatres should follow the instructions within NHSScotland National Cleaning Specification for departmental cleaning. In between cases of cataract surgery all touch surfaces e.g. patient trolley/chair, reusable equipment, work surfaces etc should be cleaned as per <u>NIPCM appendix 7</u>.²¹ At the end of the operating list a full theatre clean should be carried out as per the NHSScotland National Cleaning Specification⁴.

Section 3 Post operative care

3.1 Discharge

Some specific practice points should be considered and are recommended as follows.

• Eye shields **do not need** to be used routinely for all lower risk patients unless there are residual effects of anaesthesia at time of discharge.^{7,8} Expert opinion consensus agrees that this relates to regional block for example sub-Tenons or peri-bulbar and is not applicable to topical or general anaesthesia.

3.2 Post operative eye drops

National guidelines are available for recommended standard eye drops to reduce the risk post-operative complications.⁷ Practitioners should rely on current evidence to make informed decisions regarding prophylaxis choices that may be included post-operative eye drops, with this in mind local policy may be followed.

3.3 Post operative information leaflet

Documented information should be provided for each patient/carer recognition with advice of what action to take on recognition of any post-operative complication.⁸

Information specific to eye infections should include looking for increasing redness, and/or discharge from the eye. Increasing pain each day and/or severe pain could be early indicators that may result in loss of vision that all require timely discussion with a healthcare professional.^{7, 8}

An agreed local pathway for care and advice should be in place to permit timely advise with treatment available 24 hours a day, 7 days a week. This should include details of accessible contact numbers to enable patients to receive emergency care through the agreed Pathway.⁷

Consideration of local alert surveillance/reporting systems should be used for recognition and detection of potential healthcare infection incidents and single cases of an infection that has severe outcomes for an individual patient. These should be assessed and reported in line with Chapter 3 of the NIPCM.²²

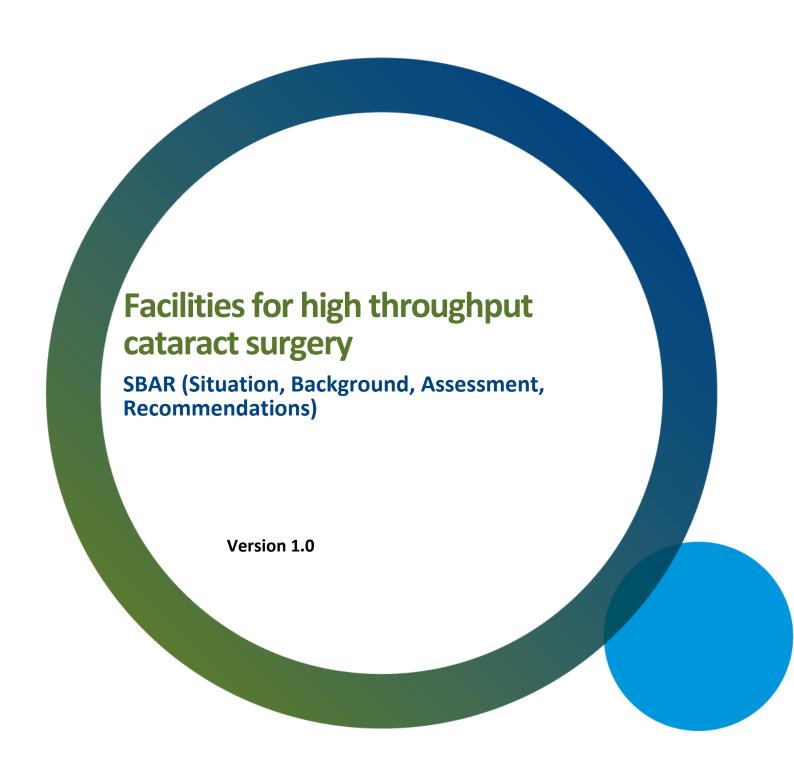
References

- Ah-See KL, Blaikie A, Boyle N, et al. Cataract Surgery Redesign: Meeting Increasing Demand, Training, Audit and Patient-Centered Care. *Clinical ophthalmology* (Auckland, NZ) 2021; 15: 289-297. 2021/02/04. DOI: 10.2147/opth.S268190.
- NHS Scotland Centre for Sustainable Delivery (The Cataract Sub-Specialty Delivery Group). Cataract, https://www.nhscfsd.co.uk/our-work/modernising-patient-pathways/specialty-delivery-groups/cataract/ (2022, accessed 23rd May 2023).
- NHS National Services Scotland. Rapid review of the Literature Post-cataract surgery endophthalmitis, (2023).
- Health Improvement Scotland. Standards for cataract surgery: all complexity, all healthcare settings, https://www.healthcareimprovementscotland.org/our_work/standards_and_guid_elines/stnds/cataract_surgery_standards.aspx (2023, accessed 31st July 2023).
- NHS National Services Scotland. National Infection Prevention and Control Manual. Chapter 1 - Standard Infection Control Precautions (SICPs), https://www.nipcm.hps.scot.nhs.uk/chapter-1-standard-infection-control-precautions-sicps/ (2022).
- Health Facilities Scotland. The NHSScotland National Cleaning Services Specification, https://www.nss.nhs.scot/media/1969/shfn-01-02-v50-jun-2016.pdf
 (2016, accessed 23rd May 2023).
- The Royal College of Ophthalmologists. Ophthalmic Services Document. High Flow Cataract Surgery, Version 2.0, https://www.rcophth.ac.uk/wp-content/uploads/2022/02/High-Flow-Cataract-Surgery_V2.pdf (2022, accessed 23rd May 2023).
- National Institute for Health and Care Excellence. Cataracts in adults: management, https://www.nice.org.uk/guidance/ng77/resources/cataracts-in-adults-management-pdf-1837639266757
 (2017, accessed 31st July 2023).
- The Royal College of Ophthamologists. Ophthalmic Services Guidance, Managing an outbreak of postoperative endophthalmitis, https://www.rcophth.ac.uk/wp-content/uploads/2016/07/Managing-an-outbreak-of-postoperative-endophthalmitis-Final-2022.pdf (2022, accessed 31st July 2023).

- NHS National Services Scotland. National Infection Prevention and Control Manual. A-Z Pathogens, https://www.nipcm.hps.scot.nhs.uk/a-z-pathogens/ (2023, accessed 31st July 2023).
- Health Protection Scotland. Protocol for CRA MRSA Screening National Rollout in Scotland, https://hpspubsrepo.blob.core.windows.net/hps-website/nss/1899/documents/1_cra-mrsa-screening-national-rollout-in-scotland-v1.10.pdf (2019).
- The Association for Perioperative Practice. Infection Control, https://www.afpp.org.uk/filegrab/afpp-infection-control.pdf?ref=2319
 (2020, accessed 31st July 2023).
- The Royal College of Ophthalmologists. Ophthalmic Services Guidance, Eye Drops
 Instillation by Unregistered Health Care Professionals for use within NHS Ophthalmic
 Services https://www.rcophth.ac.uk/wp-content/uploads/2021/12/Eye-Drops-lnstillation-by-Unregistered-Health-Care-Professionals-for-use-within-NHS-Ophthalmic-Services.pdf (2020, accessed 31st July 2023).
- Centers for Disease Control and Prevention (CDC). Environmental Infection Control
 Guidelines, Part IV Appendices, Appendix B. Air,
 https://www.cdc.gov/infectioncontrol/guidelines/environmental/appendix/air.htm
 https://www.cdc.gov/infectioncontrol/guidelines/environmental/air.htm
 https://www.cdc.gov/infectioncontrol/guidelines/environmental/air.htm
 <a href="https://www.cdc.gov/infectio
- 15. NHS National Services Scotland. National Infection Prevention and Control Manual. Appendix 17: Aerosol Generating Procedures (AGPs) and post AGP Fallow time (PAGPFT), https://www.nipcm.hps.scot.nhs.uk/media/1861/appendix-17-final-300921.pdf (2021, accessed 31st July 2023).
- Health Facilities Scotland. Theatres and CDU Guidance. Management of reusable surgical instruments during transportation, storage and after clinical use GUID 5010.
 Part B Operational guidance, https://www.nss.nhs.scot/media/1773/guid-5010-part-b-v10-dec-2014.pdf (2014, accessed 31st July 2023).
- The Royal College of Ophthalmologists. Ophthalmic Services Guidance, Ophthalmic Instrument Decontamination, https://www.rcophth.ac.uk/wp-content/uploads/2020/09/Ophthalmic-Instrument-Decontamination.pdf (2016, accessed 31st July 2023).

- The Royal College of Ophthalmologists. Ophthalmology Service Guidance, Theatre facilities and equipment, https://www.rcophth.ac.uk/wp-content/uploads/2021/01/Theatre-facilities-equipment-Copy.pdf (2018, accessed 23rd May 2023).
- Verma L and Chakravarti A. Prevention and management of postoperative endophthalmitis: A case-based approach. *J Indian journal of ophthalmology* 2017; 65: 1396.
- Shah V, Naveed H and Lin Pf. Intraoperative Antimicrobial Prophylaxis in Elective Cataract Surgery Patients with Penicillin Allergy, https://www.rcophth.ac.uk/wp-content/uploads/2022/07/Intraoperative-Antimicrobial-Prophylaxis-in-Elective-Cataract-Surgery-Patients.pdf (2022, accessed 28th July 2023).
- NHS National Services Scotland. National Infection Prevention and Control Manual.
 Best Practice: Appendix 7 Decontamination of reusable non-invasive care equipment https://www.nipcm.hps.scot.nhs.uk/media/1699/2018-07-nipcm-appendix-7.pdf
 (2018, accessed 31st July 2023).
- 22. NHS National Services Scotland. National Infection Prevention and Control Manual. Healthcare Infection Incidents, Outbreaks and Data Exceedance, https://www.nipcm.hps.scot.nhs.uk/chapter-3-healthcare-infection-incidents-outbreaks-and-data-exceedance/ (2022, accessed 31st July 2023).
- 23. Hilary Humphreys, Aggie Bak, Elisabeth Ridgway, et al. Rituals and behaviours in the operating theatre–joint guidelines of The Healthcare Infection Society and The European Society of Clinical Microbiology and Infectious Diseases. *The Journal of Hospital Infection* 2023. DOI: 10.1016/j.jhin.2023.06.009.

Appendix 1 – Facilities for high throughput cataract surgery. SBAR



Version history

Version	Date	Summary of changes		
V0.1	17/3/2023	Initial Draft, shared with stakeholders		
V0.2	21/3/2023	HBN-1001 supplement details updated		
V0.3	28/3/2023	SLWG approval		

Approvals

Version	Date Approved	Group/individual
V1.0	28/3/2023	SLWG approval

Contents

- 1. Situation
- 2. Background
- 3. Assessment
- 4. Recommendations

Appendix 1

References

Situation

In March 2023 ARHAI Infection Prevention and Control (IPC) Short Life Working Group (SLWG) was established to support the implementation of high volume, quality specialist care in for cataract surgery in NHS Scotland outlined in a Blueprint for Success.¹ One of the objectives of this SLWG is to advise on the suitability of facilities for undertaking high throughput cataract surgery.

Background

The Cataract Sub-Specialty Delivery Group was established on 18th August 2022 to provide the strategic direction and support ophthalmic theatre teams' across NHS Scotland to implement the Blueprint and thus increase efficiency and productivity across cataract only surgical sessions; the aim being to deliver a minimum of 8 procedures per core 4-hour session or a minimum of one procedure every 30 minutes with bespoke centres implementing higher volume surgical throughput, - 10+ per 4 hour session.¹

Key to successful implementation of the Blueprint across Hospital Eye Services in Scotland will be the assurance that that any changes to processes aimed at increasing the number of cataract procedures include the relevant IPC considerations and ensure application of safe practice from an IPC perspective.

An ARHAI IPC SLWG has been established to support and make recommendations for, the implementation of high throughput cataract surgery in Scotland. One component of this work is to make recommendations as to the suitability of facilities for undertaking this high throughput surgery.

A significant amount of background work has already been undertaken by ARHAI Scotland/HFS in relation to cataract surgery and in response to an enquiry from an NHS Board in relation to suitability of barn theatres² outlined below.

Assessment

Conventional theatres

In NHS Scotland, cataract surgery is typically undertaken in conventional theatres with a layout and ventilation specification as per SHTM 03-01³ and a minimum size of 40m² as per SPHN 52 Part 1.⁴

Presently there are two types of configuration in use for cataract surgery:

- A conventional theatre layout i.e., dedicated facilities for scrub
- A Jack and Jill arrangement with a shared scrub facility.

The Jack and Jill arrangement lends itself well to high throughput cataract surgery. In this arrangement a single surgeon will work between two adjacent theatres so that prep and clear up can be undertaken simultaneously. The surgeon will move between theatres, each with its own scrub and prep team, to an already prepared patient. Alternatively, two surgeons can work in parallel.

A recessed scrub area within a theatre is also an acceptable layout provided consideration is given to splash risk and it is located away from instrument trolleys.

To facilitate high throughput and minimise time wastage some centres employ the use of 'jump seats' These are seats directly outside the operating theatre where patients will wait for surgery.

As per Royal college of Ophthalmology recommendations the theatre layout should include an adjacent anaesthetic room or area for the administration of sub-Tenons blocks. In addition, there should be a clean prep room with enough space to lay up more than one trolley in advance (requires > 22 ACH/hr, 35Pa pressure).⁵

SurgiCubes

The SurgiCube is a modular system which requires construction within a suitable room and directs a flow of ultraclean air over the operating area.

The Royal College of Ophthalmologists supports the use of SurgiCubes within a standard clinical room free of draughts. They advise that there are different logistics to running lists within this system and encourage units to liaise with manufacturers and see the unit in action in other centres to assess applicability to their setting.⁵ Expert opinion, previous discussion on SurgiCubes concluded that these systems were more likely to be useful where less patient throughput is required e.g., rural or primary care centres. Other disadvantages to the utilisation of SurgiCubes included the cost of consumables and the setup which prohibited the use of a video screen-based viewing system.⁵

Barn theatres

Previous work on the suitability of barn theatres for undertaking ophthalmic surgery was undertaken by HPS in 2016.² A rapid review of the scientific literature review was undertaken and an SBAR produced to address the advantages/disadvantages of the use of barn operating theatre design and make recommendations in relation to concerns/suitability of shared facilities

and ventilation requirements to maintain patient clean zones including the potential complications from high flow ventilation systems on exposed surgical sites.

Recommendations

Evidence to support best practice facilities for IPC for high throughput cataract surgery has been assessed as outlined above. Final recommendations agreed in collaboration with the ARHAI SLWG conclude the following:

- 1. Conventional theatres are suitable for high throughput cataract surgery provided they meet the recommended layout and specification in SHTM 03-01 and are subject to annual verification.³
- 2. A Jack and Jill conventional theatre arrangement with a shared scrub facility if available is also suitable for high throughput cataract surgery
- 3. Expert opinion recommends to further support high throughput the use of 'jump seats' as is already in place in some settings is supported. Seats should be easily cleanable in line with the National Infection Prevention and Control Manual. Consideration should be given to placement of these seats within a theatre complex, with respect to patient dignity. ⁷
- 4. Barn theatres are not currently recommended in NHS Scotland for ophthalmic surgery. The high air flow rates may cause greater moisture evaporation of exposed tissue, which may be detrimental to the outcome of ophthalmic surgery.²
- 5. Further guidance specific to cataract surgery will be forthcoming in HBN 10-01

References

- NHS Scotland. Cataract, https://www.nhscfsd.co.uk/our-work/modernising-patient-pathways/specialty-delivery-groups/cataract/ (2022, accessed 23/05/2023 2023).
- Health Protection Scotland. SBAR: The use of 'barn' operating theatres for Ophthalmology in NHSScotland. 2016.
- 3. Health Facilities Scotland. Scottish Health Technical Memorandum 03-01 (Interim version 3.0). Specialised ventilation for healthcare premises Part A: The concept, design, specification, installation and acceptance testing of healthcare ventilation systems. 2022.
- NHS Scotland, Property and Environment Forum. <u>Scottish Health Planning Note</u>
 <u>62. (Accomodation for day care) Part 1 Day surgery unit.</u> 2002
- 5. The Royal College of Ophthalmologists. <u>Theatre facilities and equipment.</u> 2018.
- 6. Health Facilities Scotland. Internal correspondence. 2023.
- NHS National Services Scotland. Standard Infection Control Precautions (SICPs).
 National Infection Prevention Control Manual. 2022.

Appendix 2 – FAQs related to cataract surgery

Number	Question	Best Practice Statement	Reference or Consensus agreed expert opinion	Section of High Flow IPC Pathway/page
Q1	Is Blepharitis a contra indication for surgery?	No evidence identified that blepharitis is a contra indication for surgery. Seborrheic blepharitis identified by clinical assessment on the day of surgery should be assessed by the operating surgeon and is not always a reason to cancel the surgery	Expert opinion consensus agreed	Section 1.2/Page 5
Q2	Does the patient need to change into a theatre gown for cataract surgery?	No evidence was identified that patients need to change into theatre gowns and patients are likely to be more comfortable in their own clothing, provided this does not interfere with the procedure. ¹⁰	The Association for Perioperative Practice Infection Control. 2020. Section 5.1.361	Section 1.3/ Page 5
Q3	Is there a requirement for instillation of ophthalmic anaesthetic preoperative drops to be carried out within theatre?	There is no specification that this must be done in theatre or that an anaesthetic room is required for routine administration of these drops. The Royal College of Ophthalmologists (RCOphth) guidance states 'The layout of high flow theatres should include an anaesthetic room or adjacent area for the administration of sub-Tenon's blocks' but	The Royal College of Ophthalmologists. Ophthalmic Services Document. High Flow Cataract Surgery. 2022. 16.b ²	Section 2.2.3/ Page 9

Number	Question	Best Practice Statement	Reference or Consensus agreed expert opinion	Section of High Flow IPC Pathway/page
		it does not specify a location for anaesthetic eye drops. ⁷		
Q4	Can multiple sterile packs and trolleys be prepared and laid up in advance of surgery for subsequent cases?	There is insufficient evidence to support multiple trolley lay up in advance of surgery. Lay up can be performed in an adjoining dedicated clean (positive air pressure +10 Pa to theatre), preparation room in advance of surgery. Opening the sterile pack should be as close to the point and time of use, to minimise microbiological contamination. ³	Theatre-facilities- equipment-Copy.pdf (rcophth.ac.uk) Page 5 Prep Rooms ³	Section 2.2/ Page 8
Q5	What environmental cleaning is required in between cases?	Between cases: All touch surfaces, for example patient trolley/chair, reusable equipment, work surfaces as per NIPCM Appendix 7, End of list: Full clean of theatre as per national cleaning services specification	2018-07-nipcm- appendix-7.pdf (scot.nhs.uk) NHS Scotland National Cleaning Services Specification ⁴ The Association for Perioperative Practice Infection Control. 2020. ¹	Section 2.2.5 /Page 10

Number	Question	Best Practice Statement	Reference or Consensus agreed expert opinion	Section of High Flow IPC Pathway/page
Q6	What is the recommended eye/skin prep pre cataract surgery?	Povidone iodine 5% is the preferred product for instillation into the conjunctival sac prior to commencement and is the preferred product for skin cleansing although aqueous chlorhexidine may be used in rare circumstances of confirmed allergy to povidine iodine and any risks of its use considered. ⁵	Managing-an- outbreak-of- postoperative- endophthalmitis- Final-2022.pdf (rcophth.ac.uk) (Page 5 During the procedure) ⁵	Section 2.23/Pages 9-10
Q7	Is there a requirement for patient drape?	Draping should be performed as an aseptic technique to create a sterile barrier that isolates the operative site and covers the non-sterile area surrounding the operative site. ¹ Expert opinion suggest this should be applied to occlude the eye lashes.	The Association for Perioperative Practice Infection Control. 2020.1 Consensus agreed expert opinion	Section 2.23/Page 9
Q8	What level of hand hygiene is required for the surgical team?	Surgical scrub/rub should be performed in line with NIPCM, appendix 3,4.	National Infection Prevention and Control Manual Hand hygiene: Surgical hand antisepsis in the clinical setting.6 The Association for Perioperative Practice	Section 2.2./page 9

Number	Question	Best Practice Statement	Reference or Consensus agreed expert opinion	Section of High Flow IPC Pathway/page
			Infection Control. 2023. 1Section 5.4.2 pages 31-32 ¹	
10	Do patients need to wear an eye shield post cataract surgery?	No evidence was identified to support the patients wearing an eye shield post cataract surgery, other than those showing residual effects of anaesthesia at the time of discharge.	National Institute for Health and Care Excellence. Cataracts in adults: management. 2017. Section 1.8.107	Section 3.1/ page 10
			The Royal College of Ophthalmologists. Ophthalmic Services Document. High Flow Cataract Surgery. 2022. Section 1 Discharge 18 ²	
11	Are there any IPC risks associated with the use of "jump seats"?	No evidence was identified to suggest that the use of "jump seats" outside theatre present any IPC risk as long as they are managed in line with the Safe Management of the Care Environment in line with the NIPCM ⁶	National Infection Prevention and Control Manual Section 1.6 Safe Management of the Care Environment	Appendix 1 Facilities SBAR Assessment /Page 17

Number	Question	Best Practice Statement	Reference or Consensus agreed expert opinion	Section of High Flow IPC Pathway/page
12.	Are there any IPC constraints in relation to available sundries and or equipment within the environment that could impact on cataract surgery?	Evidence to support best practice is outlined within the Safe Management of the Care Environment and patient equipment within the NIPCM and should be assessed locally for any individual patient requirements ⁶	National Infection Prevention and Control Manual <u>Sections 1.5</u> and <u>1.6</u> Safe Management of the Care Equipment/ Environment	Background/Page 5
13.	Is there a requirement for patients to be put at the end of the theatre list following assessment of patient risk?	There is little evidence for the effectiveness of this practice, focus should be given to ensure that the operating room is suitably cleaned and decontaminated before the next patient arrives if a suspected or confirmed patient with transmissible infection/colonisation with a multi-drug resistant bacteria was present.	Rituals and behaviours in the operating theatre – joint guidelines of The Healthcare Infection Society and The European Society of Clinical Microbiology and Infectious Diseases. Section 8.4, Recommendation 4.18	Section 1.1 Pre- assessment/Page 6

References

- 1. The Association for Perioperative Practice. Infection Control. 2020.
- 2. The Royal College of Ophthalmologists. Ophthalmic Services Document. High Flow Cataract Surgery. 2022.
- 3. The Royal College of Ophthalmologists. Theatre facilities and equipment. 2018.
- 4. Health Facilities Scotland. The NHSScotland National Cleaning Services Specification. 2016.
- 5. The Royal College of Ophthamologists. Managing an outbreak of postoperative endophthalmitis. London2022.

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- 6. NHS National Services Scotland. Hand Hygeine: Surgical Hand Antisepsis in the clinical setting. National Infection Prevention Control Manual. 2022.
- 7. National Institute for Health and Care Excellence. Cataracts in adults: management. 2017.
- 8. Humphreys H, Bak A, Ridgway E, et al. Rituals and behaviours in the operating theatre–joint guidelines of The Healthcare Infection Society and The European Society of Clinical Microbiology and Infectious Diseases. 2023.

Appendix 3 – Short Life Working Group Stakeholders

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Heather Wallace, Senior Nurse Infection Control, Antimicrobial Resistance and Healthcare Associated Infection Scotland, NHSScotland Assure.

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