

## Chapter 13

# Guidelines for the Provision of Anaesthesia Services (GPAS)

## Guidelines for the Provision of Ophthalmic Anaesthesia Services 2019



NICE has accredited the process used by the Royal College of Anaesthetists to produce its Guidance on the Provision of Anaesthesia Services. Accreditation is valid for five years from 2016.

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### Declarations of Interest

All chapter development group (CDG) members, stakeholders and external peer reviewers were asked to declare any pecuniary or non-pecuniary conflict of interest, in line with the Guidelines for the Provision of Anaesthetic Services (GPAS) Conflict of Interests policy as described in the [GPAS Chapter Development Process Document](#).

Declarations were made as follows:

- two members were authors of one of the items of evidence.

The nature of the involvement in all declarations made above was determined as not being a risk to the transparency or impartiality of the chapter development. Where a member was conflicted in relation to a particular piece of evidence, they were asked to declare this, and then, if necessary, removed themselves from the discussion of that particular piece of evidence and any recommendation pertaining to it.

### Medico-legal implications of GPAS Guidelines

*GPAS Guidelines are not intended to be construed or to serve as a standard of clinical care. Standards of care are determined on the basis of all clinical data available for an individual case and are subject to change as scientific knowledge and technology advance and patterns of care evolve. Adherence to Guideline recommendations will not ensure successful outcome in every case, nor should they be construed as including all proper methods of care or excluding other acceptable methods of care aimed at the same results. The ultimate judgement must be made by the appropriate healthcare professional(s) responsible for clinical decisions regarding a particular clinical procedure or treatment plan. This judgement should only be arrived at following discussion of the options with the patient, covering the diagnostic and treatment choices available. It is advised, however, that significant departures from the national Guidelines or any local guidelines derived from them should be fully documented in the patient's case notes at the time the relevant decision is taken.*

### Promoting equality and addressing health inequalities

The Royal College of Anaesthetists (RCoA) is committed to promoting equality and addressing health inequalities. Throughout the development of these Guidelines we have:

- given due regard to the need to eliminate discrimination, harassment and victimisation, to advance equality of opportunity, and to foster good relations between people who share a relevant Protected Characteristic (as defined in the Equality Act 2010) and those who do not share it
- given regard to the need to reduce inequalities between patients in access to, and outcomes from healthcare services and to ensure services are provided in an integrated way where this might reduce health inequalities.

### GPAS Guidelines in context

The GPAS documents should be viewed as 'living documents'. The GPAS Guidelines development, implementation and review should be seen not as a linear process, but as a cycle of interdependent activities. These in turn are part of a range of activities to translate evidence into practice, set standards and promote clinical excellence in patient care.

Each of the GPAS chapters should be seen as independent but interlinked documents. Guidelines on the general provision of anaesthetic services are detailed in the following chapters of GPAS:

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- [chapter 2: guidance on the provision of anaesthesia services for preoperative assessment and preparation](#)
- [chapter 3: guidance on the provision of anaesthesia services for intraoperative care](#)
- [chapter 4: guidance on the provision of anaesthesia services for postoperative care.](#)

These guidelines apply to all patients who require anaesthesia or sedation, and are under the care of an anaesthetist. For urgent or immediate emergency interventions, this guidance may need to be modified as described in [chapter 5: guidance on the provision of emergency anaesthesia services](#).

The rest of the chapters of GPAS apply only to the population groups and settings outlined in the Scope section of these chapters. They outline guidance that is additional, different or particularly important to those population groups and settings included in the Scope. Unless otherwise stated within the chapter, the recommendations outlined in chapters 2–5 still apply.

Each chapter will undergo yearly review, and will be continuously updated in the light of new evidence.

Guidelines alone will not result in better treatment and care for patients. Local and national implementation is crucial for changes in practice necessary for improvements in treatment and patient care.

### Aims and objectives

The objective of this chapter is to promote current best practice for service provision in ophthalmic anaesthesia. The guidance is intended for use by anaesthetists with responsibilities for service delivery and healthcare managers.

This guideline does not comprehensively describe clinical best practice in ophthalmic anaesthesia, but is primarily concerned with the requirements for the provision of a safe, effective, well-led service, which may be delivered by many different acceptable models. The guidance on provision of ophthalmic anaesthesia applies to all settings where this is undertaken, regardless of funding. All age groups are included within the guidance unless otherwise stated, reflecting the broad nature of this service.

A wide range of evidence has been rigorously reviewed during the production of this chapter, including recommendations from peer reviewed publications and national guidance where available. However, both the authors and the CDG agreed that there is a paucity of Level 1 evidence relating to service provision in ophthalmic anaesthesia. In some cases it has been necessary to include recommendations of good practice based on the clinical experience of the CDG. We hope that this document will act as a stimulus to future research.

The recommendations in this chapter will support the RCoA's Anaesthesia Clinical Services Accreditation process.

### Scope

#### Research question

The key question covered by this guideline is:

- 'What are the key components, within the perioperative period of care, for the provision of anaesthesia services in ophthalmic surgery and/or interventions?'

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Areas of provision considered:

- levels of provision of service, including (but not restricted to) staffing, equipment, support services and facilities
- areas of special requirement, such as paediatric, resuscitation, obstetrics, care of the pregnant patient, frailty, vulnerable adults and children, dementia patients, satellite sites and eye casualties in the Emergency Department (ED)
- training and education
- research and audit
- organisation and administration
- patient information.

### Target population

All ages of patients undergoing elective or emergency anaesthesia for ophthalmic surgery or intervention.

Anaesthetic departments caring for patients in the above group.

### Healthcare setting

All settings within the hospital or other healthcare institution in which ophthalmic anaesthetic services are provided.

### Exclusions

- staff groups not working under a clinical director of anaesthesia (or equivalent)
- neonates
- clinical guidelines specifying how healthcare professionals should care for patients
- national level issues.

### Introduction

The discipline of ophthalmic surgery encompasses the following areas: intraocular surgery, extraocular surgery, oculoplastic surgery, nasolacrimal surgery and orbital surgery. Ophthalmic surgery is undertaken in a wide variety of different settings, including multispecialty general hospitals, isolated units and large, single specialty centres. All environments require appropriate staffing levels, skill mix and facilities. The ophthalmic anaesthetist has a key role in the organisation and management of the preoperative assessment of patients; the administration of local anaesthesia, sedation or general anaesthesia; the monitoring, prevention and management of adverse events; and efficient service delivery.

Anaesthesia for ophthalmic surgery is a sub-specialty of anaesthetic practice, providing care for a wide range of patients, from neonates to the very elderly.<sup>1</sup> In addition, the quality of anaesthetic provision can have a direct impact on surgical outcome. Close team working with surgical colleagues is therefore essential.

Ophthalmic surgery is often required for ocular manifestations of systemic disease, and patients exhibit a high incidence of comorbidity and uncommon medical conditions. Ophthalmic preoperative assessment clinics are essential in optimising and preparing these patients for surgery.

The majority of ophthalmic procedures are now performed as day cases, and the use of local anaesthesia is widespread. However, not all patients are suitable for this approach and general anaesthesia or local anaesthesia with sedation should be available as an option. All techniques

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have specific risks and benefits. Decisions regarding the type of anaesthesia should be made individually for each patient and each procedure.

### Recommendations

The grade of evidence and the overall strength of each recommendation are tabulated in Appendix 1.

#### 1 Staffing Requirements

- 1.1 Appropriate staffing levels and skill mix should be provided in all units, multispecialty general hospitals, isolated units and large single specialty centres, delivering ophthalmic anaesthesia. For most operating sessions, this should include surgeon, anaesthetist, two theatre trained scrub practitioners, one trained nurse or operating department practitioner to assist with local anaesthesia/patient monitoring, and one theatre support worker/runner.<sup>2,3</sup>
- 1.2 Dedicated, skilled assistance for the anaesthetist should be available in every situation where anaesthesia or sedation is employed.<sup>4,5</sup>
- 1.3 Each department or facility that provides ophthalmic anaesthesia services should have a clinical lead (see glossary) with nominated responsibility for ophthalmic anaesthesia.<sup>2</sup>
- 1.4 There should be an identified group of senior anaesthetists who manage and deliver a comprehensive ophthalmic anaesthesia service, including the use of orbital regional anaesthetic techniques.<sup>2</sup>
- 1.5 Many ophthalmic patients have significant comorbidities that may require optimisation and co-ordination prior to surgery. There should be a lead anaesthetist (with an appropriate number of programmed activities in their job plan and appropriate secretarial support) for preoperative assessment, who works closely with an appropriately trained preoperative assessment team.<sup>6,7</sup>
- 1.6 All ophthalmic surgery should be carried out in a facility that is appropriately staffed and equipped for resuscitation.<sup>2,8</sup>
- 1.7 Staff should be trained in basic life support and there should be immediate access to a medical team with advanced life support capabilities.<sup>8</sup>
- 1.8 In isolated units, where no anaesthetist or medical emergency team is immediately available, there should be at least one person with advanced life-support training or equivalent.<sup>2,9</sup> A clear and agreed pathway should be in place for isolated units to enable the patient to receive appropriate advanced medical care, including intensive care, in the event of it being required.<sup>2</sup>
- 1.9 If no anaesthetist is present in theatre, an appropriately trained anaesthetic nurse, ophthalmic theatre nurse or operating department practitioner (ODP) should be present to monitor the patient during establishment of local anaesthesia and throughout the operative procedure. This should be their sole responsibility.<sup>2</sup>
- 1.10 Wherever possible, anaesthesia in remote ophthalmic surgical sites should be delivered by appropriately experienced consultant anaesthetists. Where a trainee or non-consultant grade is required to provide anaesthetic services at a remote site, the recommendations of the Royal College of Anaesthetists should be followed.<sup>10</sup>
- 1.11 If inpatients are cared for in isolated/single specialty units, there should be medical cover and nursing care appropriate to the medical needs of the patients.<sup>11</sup>

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- 1.12 Where inter hospital or intra hospital transfer is necessary, patients should always be accompanied by appropriately trained staff.<sup>12</sup>
- 1.13 All members of clinical staff working within the recovery area should be certified immediate life support providers and mandatory training should be provided. <sup>13,14</sup>
- 1.14 For children, staff should hold an equivalent paediatric life-support qualification.<sup>13,14</sup>

### Physicians' Assistants (Anaesthesia)

The RCoA and Association of Anaesthetists have acknowledged that development of Physicians' Assistants (Anaesthesia) (PA(A)) enhanced roles is taking place, and stated that they would only consider supporting role enhancement, including the performance of regional blocks, when statutory regulation is in place. Therefore, responsibility where such role enhancement exists currently remains a local governance issue.<sup>15</sup>

- 1.15 It is the responsibility of those leading departments of anaesthesia, together with their constituent consultants, to ensure that PA(A)s work under the immediate supervision of a consultant anaesthetist at all times. <sup>15</sup>
- 1.16 Only individuals who appear on the voluntary register currently administered by the Royal College of Anaesthetists should be employed in the PA(A) role.<sup>15</sup>
- 1.17 Where a PA(A) is primarily responsible for the provision of anaesthesia, a named ophthalmic anaesthetic consultant should have overall responsibility for the care of the patient during anaesthesia.<sup>15</sup>
- 1.18 There should be a dedicated trained assistant, i.e. an ODP or equivalent, in every theatre in which anaesthesia care is being delivered by a PA(A).<sup>15</sup>
- 1.19 Clinical governance is the responsibility of individual institutions, and should follow the same principles that apply to medically qualified anaesthetists, ensuring:<sup>15</sup>
- training that is appropriately focused and resourced
  - supervision and support in keeping with practitioners' needs and practice responsibilities
  - practice centred audit and review processes.

## 2 Equipment, services and facilities

- 2.1 In areas where ophthalmic surgery is performed, resuscitation equipment and drugs should be immediately available in case of cardiorespiratory arrest. These should include a standardised resuscitation trolley and defibrillator. The manufacturer's instructions must be followed regarding use, storage, servicing and expiry of equipment and drugs.<sup>8</sup>
- 2.2 Where paediatric ophthalmic surgery is performed, appropriate paediatric anaesthetic equipment and monitoring should be available. This should be checked regularly.<sup>16</sup>
- 2.3 Adult life support (ALS) protocols should be readily accessible,<sup>17</sup> and the ALS algorithms may be displayed. Paediatric life support protocols should be available and accessible where paediatric surgery is performed.
- 2.4 Monitoring devices should be available for the safe conduct of anaesthesia. The minimum monitoring requirements should be adhered to for local and general anaesthesia.<sup>2,18</sup>
- 2.5 All necessary anaesthetic equipment should be available. Devices and equipment should be suitable for the task for which they are used, and should conform to verified standards. Equipment should be maintained and serviced regularly.<sup>19</sup>

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- 2.6 Anaesthetists should be trained in the use of, and be familiar with, all equipment they use regularly. The anaesthetist has a primary responsibility to check such equipment before use.<sup>20</sup>
- 2.7 Where lasers are in use for ophthalmic surgery, the correct safeguards must be in place.<sup>21,22</sup>

### Services

- 2.8 Patients having ophthalmic surgery should undergo preoperative preparation, where there is the opportunity to assess medical fitness and impart information about the procedure.<sup>7</sup>
- 2.9 As part of preoperative preparation, the plan for the perioperative management of any existing medications, such as anticoagulant drugs and diabetic treatment, should be agreed, taking into account the relative risks of stopping any medication in the light of the patient's medical condition and the anaesthetic technique required. Advice should be sought from the multiprofessional team (e.g. medical colleagues, clinical pharmacists, specialist nurses) as required, in particular for complex patients.<sup>7</sup>
- 2.10 The majority of ophthalmic surgery is done as day case procedures under local anaesthesia.<sup>23</sup> Preoperative assessment should identify those patients who are not suitable for this approach and who might require general anaesthesia or intravenous sedation.<sup>2,24</sup>
- 2.11 Patients who require anaesthesia or intravenous sedation should undergo preoperative anaesthetic assessment.<sup>7</sup>

### Facilities

- 2.12 Where ophthalmic surgery is performed as a day case procedure, the facilities should conform to best practice guidance. Day surgery operating theatres should meet the same standards as inpatient operating theatres.<sup>25,26,27</sup> Room should be available for patients to be seen in private by the anaesthetist and surgeon on the day of surgery.<sup>2</sup> A supervised recovery area should be designated, with the provision of chairs that allow patients to recline being considered for recovery areas for patients recovering from local anaesthesia.
- 2.13 In units where ophthalmic surgery is performed, including locations that may be isolated from main theatre services, facilities provided should allow for the safe conduct of anaesthesia and sedation. This would include monitoring equipment, oxygen, availability of opioid and benzodiazepine antagonist drugs, a recovery area, and drugs and equipment to deal with emergencies such as cardiac arrest, anaphylaxis and local anaesthesia toxicity.<sup>28, 29, 30</sup>
- 2.14 All areas in which ophthalmic anaesthesia is performed should have a reliable supply of the medicines required to deliver safe anaesthesia and sedation. Storage arrangements should be such that there is prompt access to them if clinically required, maintains integrity of the medicines and compliance with safe and secure storage of medicines regulations is ensured.<sup>31</sup> In addition, anaesthetists and anaesthetic assistants should have access to pharmacy services, both for urgent supply of medicines when required, and for clinical advice on medicines management, medicines administration or prescribing issues.
- 2.15 Facilities should be available, or transfer arrangements should be in place, to allow for the overnight stay of patients who cannot be treated as day cases or who require unanticipated admission.
- 2.16 Optimal patient positioning is critical to the safe conduct of ophthalmic surgery and for patient comfort. Adjustable trolleys/operating tables which permit correct positioning should be available.

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- 2.17 Some patients, for example those with restricted mobility, may require specific equipment such as hoists to position them. Preoperative planning should ensure that such equipment is available, and allow for the extra time and staff needed to position these patients safely.

### 3 Areas of special requirement

#### Children

Recommendations for children's services are comprehensively described in [chapter 10](#).<sup>16</sup>

#### Pregnant patients

- 3.1 Where possible, ophthalmic surgery should be postponed until after delivery. When this is not possible, guidelines on anaesthetising pregnant patients should be followed, e.g. use of left lateral tilt after 16 weeks' gestation.<sup>32</sup> Local anaesthesia, with or without anxiolytic sedation, is usually preferable to general anaesthesia.

#### Frail elderly patients

- 3.2 Much of the ophthalmic surgical population is elderly and frail, and guidelines on perioperative care of elderly patients should be followed.<sup>1</sup>
- 3.3 Services should be streamlined to make preassessment, surgery and postoperative care as simple and effective as possible. Travel and repeated hospital attendance may be especially difficult for these patients.<sup>1</sup>
- 3.4 Special care should be taken to assess social circumstances when discharging elderly patients into the care of an equally frail and elderly spouse. Home support from family or social services may be needed; for instance to ensure that postoperative eye drops are administered in an appropriate and timely fashion. This should be identified at preassessment and arranged in advance.<sup>1</sup>
- 3.5 Older patients should be assessed for risk of postoperative cognitive dysfunction and preoperative interventions undertaken to reduce the incidence, severity and duration. Hospitals should ensure guidelines are available for the prevention and management of postoperative delirium and circulated preoperatively to the relevant admitting teams.<sup>33</sup>
- 3.6 Postoperative cognitive dysfunction is a particular concern and can disrupt otherwise stable home circumstances. The risk should be reduced as far as possible by minimising interventions and using local anaesthesia alone when feasible.<sup>1</sup>

#### Patients with limited mobility

- 3.7 Patients with severely restricted mobility pose additional problems when attempting to position for surgery. Time should be spent preoperatively with these patients explaining the surgical needs, and considering and testing their ability to lie flat before a final decision to operate is taken.
- 3.8 Additional resources may be necessary at the time of surgery, and may include additional personnel, hoists, or extra time allocation on the operating list.

#### Patients requiring complex surgery

- 3.9 Complex ophthalmic surgical cases often require specialised anaesthetic input. This may include patients having repeated ophthalmic procedures, long and difficult cases, and those potentially requiring specialist intravenous drug therapy, such as IV steroids, acetazolamide or mannitol. An anaesthetist of appropriate experience should have sole responsibility for operating lists containing such complex cases.

### Patients with systemic illness

- 3.10 Patients requiring anaesthesia who are systemically unwell should be optimised as far as reasonably practicable beforehand.<sup>34</sup> It is extremely rare for ophthalmic surgery to be so urgent that remedial measures cannot be taken. Arrangements for appropriate perioperative medical care should be made, with specialist input from other services as required.
- 3.11 Protocols should be in place for the transfer of patients from isolated units who become ill unexpectedly. They should be moved safely and rapidly to a facility which provides an appropriate higher level of care.<sup>12</sup>

### Critically ill patients

Ophthalmic theatres tend to deal with high volume, low impact procedures. Local protocols should be in place to facilitate the ophthalmic care of the critically ill patient.

- 3.12 Where necessary, these patients should be anaesthetised in an emergency theatre suite, taking specialist personnel and equipment to the patient, rather than vice versa.
- 3.13 When the specialist equipment cannot be moved, all necessary emergency equipment should be immediately available and transfer arrangements to a high dependency or intensive care setting should be in place.

### Procedures performed under local anaesthesia only

Ophthalmologists performing local blocks should do this following the standards and safeguards required by their own college.

- 3.14 Owing to the risk of life threatening complications, sharp needle based blocks (e.g. peribulbar or retrobulbar block) should not be administered by non-medically qualified personnel.<sup>2</sup> Intravenous access should be established prior to performing sharp needle blocks and for any patient deemed to be high risk due to severe comorbidity.<sup>2</sup>
- 3.15 All modes of ophthalmic local anaesthesia may result in complications.<sup>23</sup> Practitioners should be fully aware of these risks and ensure that they know how to avoid and recognise complications, and also be able to safely and effectively manage problems when they do occur.

### Patients with significant anxiety

Patients undergoing ophthalmic surgery often present with levels of anxiety disproportionate to the surgical complexity and risks involved. Severe anxiety may have a detrimental effect on the safe outcome of surgery. For example, a patient moving during surgery may suffer a sight threatening complication. Most ophthalmic procedures can be safely performed using local anaesthesia only, but some patients may benefit from strategies to reduce anxiety such as hand holding, verbal reassurance, adjustment to drapes, and administration of anxiolytic or sedative agents.

- 3.16 Patients exhibit extremely wide variation in response to drugs used for sedation. Coupled with this uncertain pharmacodynamic response, patient access during ophthalmic surgery is often very limited and airway manipulation may be difficult should a state of deep sedation occur. In view of these safety concerns, administration of intravenous sedation during ophthalmic surgery should only be undertaken by an anaesthetist whose sole responsibility for the duration of the surgery is to that patient.<sup>2</sup>
- 3.17 Patients do not need to be starved when sedative drugs are used in low doses to produce simple anxiolysis.<sup>28</sup> Patients should be starved when deeper planes of sedation are anticipated or sedative infusions employed.<sup>28</sup>

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### 4 Training and education

- 4.1 If a hospital has the capacity to provide training in ophthalmic anaesthesia, anaesthetic trainees should be given the opportunity to gain exposure in this unit of training.<sup>35</sup>
- 4.2 Anaesthetic trainees should be trained in order to obtain the learning outcomes as stipulated in the RCoA curriculum for ophthalmic anaesthesia.<sup>36</sup>
- 4.3 Structured training in regional orbital blocks should be provided to all inexperienced practitioners who wish to learn any of these techniques. This should include an understanding of the relevant ophthalmic anatomy, physiology and pharmacology, and the prevention and management of complications.<sup>2</sup> Where possible, trainees should be encouraged to undertake 'wetlab' training or use simulators to improve practical skills.<sup>37,38</sup>
- 4.4 Intermediate level training as set out in the RCoA curriculum<sup>36</sup> should be an essential criterion and higher level training a desirable criterion in the person specification for a consultant appointment with ophthalmic anaesthetic sessions in the job plan.
- 4.5 All anaesthetists working in ophthalmic services should have access to continuing educational and professional development facilities for advancing their knowledge and practical skills associated with ophthalmic anaesthesia.<sup>39</sup>
- 4.6 All staff should have access to adequate time, funding and facilities to undertake and update training that is relevant to their clinical practice, including resuscitation training.<sup>40</sup>

### 5 Organisation and administration

- 5.1 In single specialty centres, the anaesthetic department should adopt the generic standards described throughout GPAS. This should include a lead paediatric anaesthetist if children are treated.
- 5.2 All ophthalmic patients should receive the same standard of preoperative preparation, perioperative care and follow up, regardless of the type of treatment facility.<sup>6,25</sup>
- 5.3 Many procedures do not have to be performed out of hours.<sup>34</sup> Anaesthetists and surgeons together should devise departmental protocols for the handling of patients requiring urgent procedures, to allow prioritisation from both surgical and anaesthetic perspectives.
- 5.4 Patients assessed to be at high risk of serious perioperative complications, such as a cardiorespiratory event, should be carefully stratified for surgical and anaesthetic requirements, and may be unsuitable for surgery in isolated units without immediate access to anaesthetic/medical cover.
- 5.5 The majority of patients are treated as day cases. Consideration should be given to prescribing suitable analgesics to take home; it may prove useful to use protocols to optimise treatment pathways.<sup>41</sup>

### Guidelines and protocols

- 5.6 National safety standards for invasive procedures (NatSSIPs) should be adapted for local use as local safety standards for invasive procedures.<sup>40</sup> The WHO process, for example, could be adapted to incorporate intraocular lens selection to help prevent 'wrong lens' errors.<sup>42</sup>
- 5.7 There should be a robust procedure for checking the laterality of the eye to be operated on prior to local anaesthetic block or general anaesthesia. This should include the eye being marked with an indelible mark by the responsible surgical team prior to admission to the operating theatre. The RCoA/ NPSA 'Stop before you block' protocols should be adhered to.<sup>43</sup>

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### 6 Financial considerations

Part of the methodology used in this chapter in making recommendations is a consideration of the financial impact for each of the recommendations. Very few of the literature sources from which these recommendations have been drawn have included financial analysis.

The vast majority of the recommendations are not new recommendations, but they are a synthesis of already existing recommendations. The current compliance rates with many of the recommendations are unknown, and so it is not possible to calculate the financial impact of the recommendations in this chapter being widely accepted into future practice. It is impossible to make an overall assessment of the financial impact of these recommendations with the currently available information.

- 6.1 Hospitals should consider the following actions to optimise the efficient use of clinical staff and patients' time whilst maintaining quality of care:
- use of integrated pathways to co-ordinate the patient journey
  - use of screening to identify healthy ambulatory local anaesthesia patients for rapid turnover lists
  - separation of lists by subspecialty; ideally by procedure (for example, a full list of cataract procedures) to improve theatre efficiency
  - use of some dedicated service lists (no teaching) with experienced clinical staff.

### 7 Research, audit and quality improvement

- 7.1 Research in ophthalmic anaesthesia should be encouraged, and time set aside for this activity. Where appropriate, research projects should include patient and care-provider involvement.
- 7.2 Ophthalmic anaesthesia should be included in departmental audit programmes, which may include patient satisfaction, complications and adverse events.<sup>2,39</sup>
- 7.3 All serious complications of anaesthesia should be reported, undergo a 'root cause analysis' and be dealt with according to locally agreed governance structures.
- 7.4 Multidisciplinary quality improvement initiatives strengthen joint working and develop a cohesive working environment. Time should be set aside for regular joint governance meetings looking at both morbidity and quality issues.

### 8 Implementation support

The Anaesthesia Clinical Services Accreditation (ACSA) scheme, run by the RCoA, aims to provide support for departments of anaesthesia to implement the recommendations contained in the GPAS chapters. The scheme provides a set of standards, and requires departments of anaesthesia to benchmark themselves against these using a self-assessment form available on the RCoA website. Every standard in ACSA is based on recommendation(s) contained in GPAS. The ACSA standards are reviewed annually and republished approximately four months following GPAS review and republication, to ensure that they reflect current GPAS recommendations. ACSA standards include links to the relevant GPAS recommendations, for departments to refer to while working through their gap analyses.

Departments of anaesthesia are given the opportunity to engage with the ACSA process for an appropriate fee. Once engaged, departments are provided with a 'college guide', either a member of the ACSA committee or an experienced reviewer, to assist them with identifying actions required to meet the standards outlined in the document. Departments must demonstrate adherence to all 'priority one' standards listed in the document to receive accreditation from the

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RCoA. This is confirmed during a visit to the department by a group of four ACSA reviewers (two clinical reviewers, a lay reviewer and an administrator), who submit a report back to the ACSA committee.

The ACSA committee has committed to building a 'good practice library' (GPL), which will be used to collect and share documentation such as policies and checklists, as well as case studies of how departments that have overcome barriers to implementation of the standards, or have implemented the standards in innovative ways.

One of the outcomes of the ACSA process is to test the standards, and by extension the GPAS recommendations, to ensure that they are able to be implemented by departments of anaesthesia and consider any difficulties that may result from implementation. The ACSA committee has committed to measuring and reporting feedback of this type from departments engaging in the scheme back to the CDGs updating the guidance via the GPAS technical team.

### 9 Patient information

In order to give valid informed consent, patients need to understand the nature and purpose of the procedure. It is advisable that this includes discussion and documentation of potential adverse outcomes of regional anaesthetic blocks.<sup>44</sup> The demographic includes many patients lacking mental capacity, and capacity levels may fluctuate. Care should be taken to ensure that the patient understands the treatment pathway at all times. Appropriate support from other agencies, such as mental capacity advocates (MCAs) should be sought where necessary. More guidance, including on providing information to vulnerable patients, can be found in [chapter 2](#).

- 9.1 Information about the different management options should be discussed and suitable literature provided to assist the informed choice of patients. The patient must have an opportunity to weigh up the available options.<sup>44,45</sup>
- 9.2 Translations or interpreters should be made available if required.
- 9.3 Information should be made available to patients, which gives details of the surgery and local and general anaesthesia for ophthalmic procedures, as well as advice on what to expect on the day of admission. The Royal College of Anaesthetists and the Royal College of Ophthalmologists have a range of booklets available on their websites to help to inform patients.<sup>46,47,48</sup>
- 9.4 Written instructions regarding the plan for the perioperative management of existing medications, including if and when to stop anticoagulants, should be given to the patient.
- 9.5 Written information for patients should be easy to read in order to optimise comprehension. It should be available in an appropriate language and format for those patients who are visually impaired.<sup>49,50</sup> It may be necessary to provide translations of patient information booklets into languages suitable for the local population.

### Areas for future development

Following the systematic review of the literature, the following areas for future research are suggested:

- the cost effectiveness of ophthalmic anaesthetists, as opposed to other professionals, giving anaesthesia for ophthalmic surgery
- risks to patients of non-anaesthetists giving anaesthesia for ophthalmic surgery
- clinical guidance, e.g. blood pressure thresholds and blood sugar thresholds for patients under local anaesthesia

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- management of postoperative pain following ophthalmic surgery
- training methodologies for ophthalmic anaesthesia, e.g. evaluation of 'wetlab' training for regional anaesthesia.

### Glossary

**Clinical lead** - SAS doctors undertaking lead roles should be autonomously practicing doctors who have competence, experience and communication skills in the specialist area equivalent to consultant colleagues. They should usually have experience in teaching and education relevant to the role and they should participate in Quality Improvement and CPD activities. Individuals should be fully supported by their Clinical Director and be provided with adequate time and resources to allow them to effectively undertake the lead role.

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### Appendix 1: Recommendations Grading

The grading system is outlined in the methodology section of this chapter. The grades for each of the recommendations in this chapter are detailed in the table below.

Recommendation Number	Level of Evidence	Strength of Recommendation
1.01	C	Strong
1.02	C	Strong
1.03	C	Strong
1.04	C	Strong
1.05	C	Strong
1.06	C	Strong
1.07	C	Strong
1.08	B	Strong
1.09	C	Strong
1.10	C	Strong
1.11	C	Strong
1.12	C	Strong
1.13	C	Strong
1.14	C	Strong
1.15	C	Strong
1.16	C	Strong
1.17	C	Strong
1.18	C	Strong
1.19	C	Strong
2.01	C	Strong
2.02	C	Strong
2.03	C	Strong
2.04	C	Strong
2.05	C	Strong
2.06	C	Strong
2.07	M	Mandatory
2.08	C	Strong
2.09	GPP	Strong
2.10	A	Strong
2.11	C	Strong
2.12	C	Strong
2.13	C	Strong
2.14	C	Strong

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2.15	GPP	Strong
2.16	GPP	Strong
2.17	GPP	Strong
3.01	C	Strong
3.02	C	Strong
3.03	C	Strong
3.04	C	Strong
3.05	C	Strong
3.06	C	Strong
3.07	GPP	Strong
3.08	GPP	Strong
3.09	GPP	Strong
3.10	B	Strong
3.11	C	Strong
3.12	GPP	Strong
3.13	GPP	Strong
3.14	C	Strong
3.15	B	Strong
3.16	C	Strong
3.17	C	Strong
4.01	C	Strong
4.02	C	Strong
4.03	C	Strong
4.04	C	Strong
4.05	C	Strong
4.06	C	Strong
5.01	GPP	Strong
5.02	C	Strong
5.03	C	Strong
5.04	GPP	Strong
5.05	B	Strong
5.06	C	Strong
5.07	C	Strong
6.01	GPP	Weak
7.01	GPP	Strong
7.02	C	Strong
7.03	GPP	Strong
7.04	GPP	Strong

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9.01	M	Mandatory
9.02	GPP	Strong
9.03	C	Strong
9.04	GPP	Strong
9.05	B	Strong

### About these guidelines

#### Methodology

The process by which this chapter has been developed has been documented within the [GPAS Chapter Development Process Document](#).

The evidence included in this chapter is based on a systematic search of the literature. Abstracts were independently screened by two investigators and reviewed against inclusion and exclusion criteria. Data were extracted by one investigator in accordance with predefined criteria. The review's objective was to determine the key components needed to ensure provision of high-quality ophthalmic anaesthesia services for patients who have undergone surgery and/or interventions which involve anaesthesia.

#### Search strategy

Searches were performed on Embase (1980 to 2015), Ovid MEDLINE (1946 to present), CINAHL and the Cochrane Library, for the literature search strategy, outcomes, databases, criteria for inclusion and exclusion of evidence (for the full Ophthalmic chapter search protocol please contact RCoA). A hand search of the literature was also conducted by the authors using the reference lists of relevant original articles and review articles.

The literature search was performed in November 2015, with a final update in August 2016.

The authors and researcher independently reviewed the abstracts and titles of the studies found in the initial search. After agreement on the primary selection of papers, full-text versions were accessed and reviewed against the following predefined inclusion and exclusion criteria. The full text papers were also reviewed by the CDG for suitability, the final list of publications used can be found in the references.

#### Inclusion criteria

The literature review considered studies that included the following patient population with all of the inclusion criteria listed below:

- all patients undergoing elective or emergency anaesthesia
- all staff groups working within ophthalmic anaesthesia, under the responsibility of an Anaesthetic Clinical Director, including (but not restricted to) consultant anaesthetists, staff grade, associate specialist and specialty (SAS) doctors, trainee anaesthetists, nurses, operating department practitioners.

#### Exclusion criteria

The literature review used the following exclusion criteria:

- studies that investigated the provision of an ophthalmic anaesthesia service provided by a specialty other than anaesthesia were excluded
- publications that duplicated data that had been reported in an earlier publication were also excluded.

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### Data extraction and analysis

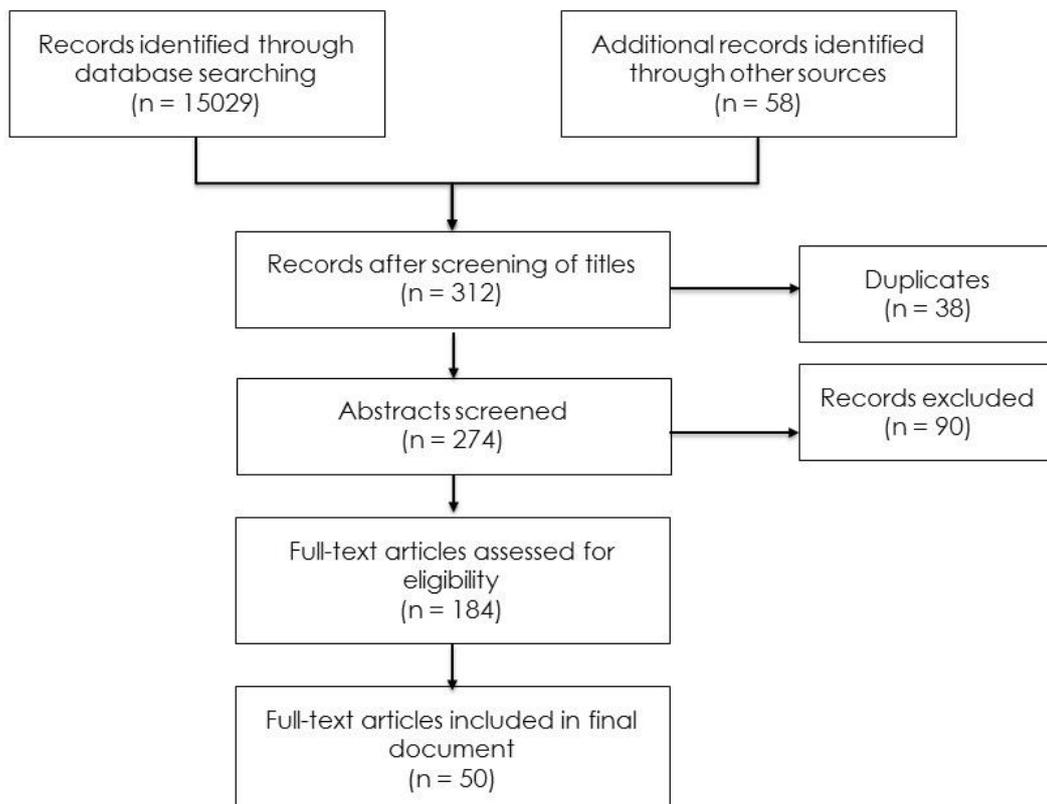
Data were extracted by the authors using a pro forma. The study characteristics data included:

- the journal and country of publication
- the number of patients recruited into the study
- the study design
- patient characteristics
- outcome data
- the logic of the argument
- author's conclusions
- reviewer's comments.

The patient characteristics data extracted were age, gender and type of surgery. The analysis considered studies that included any clinical outcome, including (but not restricted to) survival, length of stay – critical care or hospital, morbidity, adverse effects and complications.

The results of the literature review can be seen below:

### Preferred Reporting Systems for Systematic Review and Meta-analysis (PRISMA) flow chart



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The evidence that is included in this chapter has been graded according to grading system, adapted from NICE and outlined below.

Level	Type of evidence	Grade	Evidence
<b>Ia</b>	Evidence obtained from a single large/multicentre randomised controlled trial, a meta-analysis of randomised controlled trials or a systematic review with a low risk of bias	<b>A</b>	At least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing the specific recommendation (evidence level I) without extrapolation
<b>Ib</b>	Evidence obtained from meta-analyses, systematic reviews of RCTs or RCTs with a high risk of bias	<b>B</b>	Well-conducted clinical studies but no high-quality randomised clinical trials on the topic of recommendation (evidence levels Ib, II or III); or extrapolated from level Ia evidence
<b>IIa</b>	Evidence obtained from at least one well-designed controlled study without randomisation		
<b>IIb</b>	Evidence obtained from at least one well-designed quasi-experimental study		
<b>IIc</b>	Evidence obtained from case control or cohort studies with a high risk of confounding bias		
<b>III</b>	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case-studies		
<b>IV</b>	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities	<b>C</b>	Expert committee reports or opinions and/or clinical experiences of respected authorities (evidence level IV) or extrapolated from level I or II evidence. This grading indicates that directly applicable clinical studies of good quality are absent or not readily available
<b>UG</b>	Legislative or statutory requirements	<b>M</b>	This grading indicates that implementation of this recommendation is a statutory requirement, or is required by a regulatory body (e.g. CQC, GMC)
		<b>GPP</b>	Recommended good practice based on the clinical experience of the CDG

Adapted from Eccles M, Mason J (2001) How to develop cost-conscious guidelines. Health Technology Assessment 5:16 and Mann T (1996) Clinical Guidelines: Using Clinical Guidelines to Improve Patient Care Within the NHS. London: Department of Health.

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### Strengths and limitations of body of evidence

The limitations of the evidence are:

- the 'unmeasurables' (attitudes, behaviour, motivation, leadership, teamwork)
- poor or limited outcome measures
- decrease in outcome over time and geography when 'good papers' are used in Quality Improvement programmes
- few RCTs; evidence was mainly based on opinion (e.g. editorials)
- papers often examine a single intervention within a complex system or bundle
- papers are often examining small numbers and/or patients from a single centre
- poor use of outcome measures, frequently concentrating on easily measured short-term outcomes which are not patient centred
- generally a paucity of long-term follow up
- culture of significant under-reporting of complications/adverse events.

### Methods used to arrive at recommendations

Recommendations were initially drafted based on the evidence by the authors for the chapter. These were discussed with the CDG, and comments were received both on the content and the practicality of the recommendations. The level of evidence that was the basis for each recommendation was graded according to a grading system, and the recommendation was then graded taking into account the strength of the evidence and the clinical importance using a recommendations criteria form (see [GPAS Chapter Process Document](#)). Recommendations were worded using the following system of categorisation:

Strength	Type of evidence	Wording
<b>Mandatory</b>	The evidence supporting the recommendation includes at least one with an 'M' grading	Wording should reflect the mandatory nature of the recommendation, i.e. 'must'
<b>Strong</b>	Confidence that for the vast majority of people, the action is more likely to benefit the patient than cause harm	Wording should be clearly directive 'should' or 'should not'
<b>Weak</b>	The action is more likely to benefit the patient than cause harm for most patients, but may include caveats on the quality or size of evidence base or patient preferences	Wording should include 'should be considered'
<b>Aspirational</b>	While there is some evidence that implementation of the recommendation could improve patient care, either the evidence or the improvement is not proven or substantial	Wording should include 'could'
<b>Equipose</b>	There is no current evidence on this recommendation's effect on patient care	Wording should include 'there is no evidence of this recommendation's effect on patient care'

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### Consultation

The chapter has undergone several rounds of consultation. The multidisciplinary CDG formed the first part of the consultation process. The authors and GPAS Editorial Board identified key stakeholder groups. Where stakeholders are represented by an association or other medical college, they were asked to nominate delegates to join the CDG. The Chapter Process Document explains the recruitment process for those CDG members who were not directly nominated. The CDG members were involved in drafting the recommendations, and were provided with an opportunity to comment on all subsequent drafts of the chapter.

The chapter underwent peer review. Peer reviewers were identified by the GPAS Editorial Board or Professional Standards Committee. Nominees were either anaesthetists of consultant grade or were nominated by a key stakeholder group. Nominees had not had any involvement in the development of GPAS to date and were asked to comment upon a late draft of the chapter.

Following peer review, the chapter was reviewed by the College's Professional Standards Committee and the College's Lay Committee. Comments from all groups were considered and incorporated into a consultation draft.

The consultation draft of this chapter was circulated for public consultation from 22 December 2016 to 22 January 2017. As well as being made available on the College's website and promoted via Twitter, the draft was also circulated to all key stakeholder groups identified by the authors and the College. A list of organisations contacted by the College is available from the GPAS team at the College: [GPAS@rcoa.ac.uk](mailto:GPAS@rcoa.ac.uk).

### The editorial independence of GPAS

The development of GPAS is solely funded by the Royal College of Anaesthetists. However, only the GPAS technical team and the GPAS researcher are paid directly by the College for their work on GPAS, the GPAS Editors' employing organisation receives two programmed activities (PA) backfill funding. All funding decisions by the College are made by the CEO, in collaboration with the senior management team and College Council.

The authors of the chapters are all fellows of the Royal College of Anaesthetists. Members of College Council cannot act as chair of any CDG, as this individual has the deciding vote under the consensus method of decision making used in the chapters. Where College Council members have been involved in chapter development, this has been declared and recorded.

All persons involved in the development of GPAS are required to declare any pecuniary or non-pecuniary conflict of interest, in line with the GPAS conflict of interest policy as described in the [GPAS Chapter Development Process Document](#). Any conflicts of interest are managed on a case-by-case basis to maintain the transparency and impartiality of the GPAS document. The conflicts, and the way they were managed, are outlined at the beginning of the chapter.

### The role of the GPAS Editorial Board and CQRB

The overall development of the entire GPAS document is overseen by the CQRB of the Royal College of Anaesthetists, which includes representatives from all grades of anaesthetist, clinical directors and lay representation.

Responsibility for managing the scope of the document and providing clinical oversight to the project technical team is delegated by the CQRB to the GPAS Editorial Board, which includes individuals responsible for the various internal stakeholders (see above for membership). On the inclusion/exclusion of specific recommendations within each chapter, the Editorial Board can only provide advice to the authors. In the event of disagreement between the authors, the majority rules consensus method is used, with the GPAS Editor holding the deciding vote.

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Both of these groups, along with the College's Lay Committee review each chapter and provide comment prior to public consultation and are responsible for signoff before final publication. In the event of disagreement, consensus is reached using the majority rules consensus method, with the chair of CQRB holding the deciding vote.

### Updating these guidelines

This chapter will be updated for republication in January 2020.

Guidelines will be updated on an annual basis. The researcher will conduct the literature search again using the same search strategy to uncover any new evidence, and members of the public will be able to submit new evidence to the GPAS project team. Where new evidence is uncovered, the lead author will decide whether the recommendations that were originally made are still valid in the light of this new evidence.

If new evidence contradicts or strengthens existing recommendations, the authors decide whether or not to involve the remainder of the CDG in revising the recommendations accordingly.

If new evidence agrees with existing recommendations, then a reference may be added but no further action is required.

If there is no new evidence then no action is required.

This chapter is due to be fully reviewed for publication in January 2022.

Every five years, guidance will be submitted to a full review involving reconvening the CDG (or appointment of a new, appropriately qualified CDG), and the process described in the Methodology section of this chapter begins again.



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