Royal College of Anaesthetists

Chapter 2

Guidelines for the Provision of Anaesthesia Services (GPAS)

Guidelines for the Provision of Anaesthesia Services for Perioperative Care of Elective and Urgent Care Patients 2021

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Chapter 2
Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2021

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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 interest policy as described in the GPAS chapter development process document.

The nature of the involvement in all declarations made was not determined as 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 guideline or any local guidelines derived from it 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 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 cited under 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 development, implementation and review of the GPAS guidelines 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.

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 GPAS chapter 5: Guidelines for the Provision of Emergency Anaesthesia.

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 describe current best practice for anaesthesia services for the perioperative care of elective and urgent care patients. Perioperative medicine describes the practice of patient centred multidisciplinary and integrated medical care of patients from contemplation of surgery or other interventional procedures until recovery.

This guideline does not comprehensively describe clinical best practice in perioperative care of elective and urgent care patients. It 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. This guideline does not cover provision of anaesthesia services provided by a specialty other than anaesthesia. 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 perioperative care of elective and urgent care patients. 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 (ACSA) process.

Scope

Target audience

All staff groups working within the perioperative pathway for anaesthesia services, including (but not restricted to) anaesthetists, operating department practitioners (ODPs), anaesthesia associates (AAs), nurses, allied health professionals and pharmacy staff.

Target population

Groups that will be covered:

- all ages of patients undergoing anaesthesia for elective and urgent procedures.

Groups that will not be covered:

- provision of anaesthesia services provided by a specialty other than anaesthesia. Where non-anaesthetists provide such services, they are advised to follow the guidance of their own College.

Healthcare setting

All settings in which anaesthesia services are provided for patients following an elective perioperative pathway.

Clinical management

Key components required to ensure provision of high quality anaesthetic services.

Areas of provision considered:

- levels of provision of service, including (but not restricted to) staffing, equipment, support services and facilities
- areas of special requirement including children, non-peripartum pregnant women and breastfeeding mothers, patients who are frail and older, patients who are obese, the critically ill, diabetes management and patients with additional needs
- training and education
- research and audit
- organisation and administration

- patient Information.

This guideline relates only to critically ill patients undergoing procedures in the operating theatre. General provision of critical care is outside the scope of this document. Further information, including definitions of levels of critical care can be found in the Faculty of Intensive Care Medicine and Intensive Care Society publication, Guidelines for the Provision of Intensive Care Services.

Exclusions

Issues that will not be covered:

- clinical guidelines specifying how healthcare professionals should care for patients
- issues that can only be implemented on a national-level
- critical care
- local policies for interaction between primary and secondary care with regards to the perioperative pathway of elective surgical patients.

Introduction

Perioperative care refers to the practice of patient-centred, multidisciplinary and integrated clinical care for patients from contemplation of surgery until full recovery. Good perioperative care should improve the patient experience, quality and satisfaction with care. It should improve the health of populations, including returning to home/work and quality of life, and should reduce the per capita cost of healthcare through improving value.

Organisation of perioperative care is essential in the delivery of high quality care to elective and urgent care patients. Preoperative assessment as part of this process enables patients to be fully informed, reducing stress and anxiety, leading to early recovery. It also creates an opportunity for preoperative optimisation of medical conditions prior to surgery whereby patients and carers are aware of planning admission and discharge, facilitating day surgery, early discharge and postoperative care at home. This minimises cancellations on the day due to clinical reasons. It is essential that there is sufficient time between the decision to perform surgery and the procedure itself and that this time is used to ensure the delivery of a good quality service.

Shared decision making should run throughout the patient journey; it is now viewed as an ethical imperative by the professional regulatory bodies, which expect clinicians to work in partnership with patients. Patients want to be more involved than they are currently in making decisions about their own health and healthcare, and there is compelling evidence that patients who are active participants in managing their health and healthcare have better outcomes than patients who are passive recipients of care. If the patient decides to proceed, they should be as fit as possible for surgery and anaesthesia.

Patient outcomes are improved by the optimisation of patients preoperatively and are largely dependent on the complexity of the procedure and the associated comorbidities of the patient. Nevertheless, the staffing, equipment, services and facilities available to patients before the day of procedure, on the day of procedure and early after surgery are fundamental to patient outcomes.

Ultimately, the goal of these guidelines is to ensure a comprehensive, quality service dedicated to the care and wellbeing of patients at all times, and to the education and professional development of staff.

Recommendations

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

These recommendations do not provide detailed information on how the perioperative pathway for elective and urgent surgery may need to be adjusted during the Coronavirus (COVID-19) pandemic as this is a fast-evolving situation and clinical and public advice may change. Detailed guidance on this has been provided by the National Institute for Health and Care Excellence and the Scottish Intercollegiate Guidelines Network.[1,2] Anaesthetists should use the joint guidance hub of the Royal College of Anaesthetists, Association of Anaesthetists, Faculty of Intensive Care Medicine and Intensive Care Society to find the latest information, guidance and resources supporting the understanding and management of COVID-19.[3] Where changes in practice persist beyond the pandemic, these changes will be incorporated into the recommendations as the evidence base emerges.

1 Service organisation and administration

1.1. Business planning by organisations and anaesthetic departments should ensure that the necessary resources, including adequate time, are targeted towards perioperative care. This should include administrative support.

1.2. If appropriate resources are not available, the level of clinical activity pertaining to those resources should be limited, to ensure safe provision of perioperative care.[4] The hospital policy for determining, communicating and documenting this process should have input from the anaesthetic department.

1.3. All anaesthetic records (paper and electronic) must contain the relevant portion of the recommended anaesthetic data set for every anaesthetic and must be kept as a permanent document in the patient's medical record.[5,6]

Organisation strategy and organisational culture

1.4. Hospitals should have a clear and explicit strategy for developing a strong safety culture, which includes the following characteristics: recognition of the inevitability of errors, commitment to discuss and learn from errors, proactive identification of latent threats, and the incorporation of non-punitive, fair and transparent systems for reporting and analysing adverse events.[7,8,9]

1.5. Hospitals should review their local standards to ensure that they are harmonised with the relevant national safety standards.[10,11,12] Organisational leaders are ultimately responsible for implementing local safety standards as necessary.[13]

1.6. The organisational culture should seek to empower health professionals to implement patients' preferences, informed by discussions around risk and benefit. The ownership and decision making in healthcare should be in the hands of professionals and patients.[14,15]

1.7. Information relevant to clinical staff concerning clinical outcomes, patient experience and productivity (such as theatre efficiency) should be readily available to staff.[15,16]

1.8. The organisation should ensure that patient safety concerns are addressed and that the recommendations or changes that result are fed back to procedural teams.[13,17]

1.9. Emergency and elective pathways should be separated (whenever practically feasible), to improve clinical care for patients.[18,19]

Leadership structure

1.10. There should be clarity of leadership and roles in the supervision of the day to day running of the anaesthetic department.

Day to day management of workload

1.11. Elective theatres should offer spare capacity (such as that resulting from cancellations) to the emergency theatres.[20] Elective cases may be cancelled, in accordance with agreed local procedures, to facilitate emergency work if required.

1.12. When members of the healthcare team are involved in a critical incident, the personal impact on individual team members can be significant.[7,21] Following a significant critical incident, the clinical director (see Glossary) or appropriate individual (head of service) should promptly review the immediate clinical commitments of the staff concerned. Relevant support for staff following a critical incident is outlined in GPAS chapter 1: Guidelines for the Provision of a Good Department.

Policies and pathways

1.13. Appropriate patient centred pathways should be in place linking through to primary care, clinical policies, checklists and standard operating procedures for operating theatres.

1.14. Generic policies covering the entire perioperative period should be held and easily accessible. These include but are not limited to:

- support for patients and staff of diverse religious beliefs and cultural backgrounds[22]
- infection control, including personal protective equipment[23]
- implementation of enhanced perioperative care[24]
- management of death in the perioperative period.[25,26]

1.15. The following policies covering the entire perioperative period should be held and easily accessible for the management of patients with additional clinical requirements including, but not limited to:

- patients with obesity[27,28]
- obstructive sleep apnoea
- allergies, including perioperative management of latex and chlorhexidine allergies
- management of complex cardiovascular disease including patients with cardiac pacemakers and implantable cardioversion defibrillators
- management of significant respiratory impairment including severe chronic obstructive pulmonary disease
- blood/component management for patients who refuse transfusion of blood or blood components[29,30]
- thromboprophylaxis including the management of patients receiving any anticoagulant therapy[31,32,33]
- diabetes management.[34,35]

1.16. The following policies covering the entire perioperative period should be held and easily accessible for the management of vulnerable patient groups, including but not limited to:

- management of the older patient[36]

- management of patients with learning disabilities, cognitive impairment and dementia[22]
- management of complex acute pain (e.g. preexisting opioid tolerance).[37]

1.17. Policies for the management of children in accordance with GPAS chapter 10: Guidelines for the Provision of Paediatric Anaesthesia Services should be held wherever children are anaesthetised or sedated.[38]

1.18. Access to paperless guidelines through a readily available hospital intranet repository is encouraged.

Clinical governance

1.19. Anaesthetic departments should have a coherent and well managed governance structure with a clinical lead with time identified for the role within their job plan.

1.20. All critical incidents should be reported according to local governance procedures.[39]

1.21. Hospitals must have systems in place to facilitate multidisciplinary morbidity and mortality meetings.[6]

1.22. Clinical governance is detailed in GPAS chapter 1: Guidelines for the Provision of a Good department.

Before the day of procedure

Before the day of procedure a high quality service will deliver patients whose care has been optimised, who are informed and well prepared for their planned procedure. Organisation of services before the day of procedure should involve multidisciplinary staff, supported by pathways and processes designed to minimise workload and maximise outcome, and ensure appropriate inter-departmental communication.

2 Staffing requirements before the day of procedure

2.1 All patients should be assessed prior to anaesthesia or anaesthesia led sedation. This could be conducted face to face in a clinic or virtually (any interaction that does not take place face to face).[40,41] The majority of preoperative assessment will be nurse led and delivered (in association with allied health professionals and pharmacy staff) using locally agreed and developed protocols.

2.2 An anaesthetic preoperative assessment service should involve consultant anaesthetists and staff grade, specialty and associate specialist (SAS) doctors.[40,41,42] Dedicated anaesthetic presence in the preoperative assessment and preparation clinic is required for:

- the review of results and concerns identified by preoperative staff
- consultations with patients identified using a triage process to allow optimal delivery of preoperative assessment resources
- consultation, including shared decision making, on the risks and benefits of anaesthesia and surgery in high risk patients, including arranging and interpretation of functional assessments of fitness. This should also include identifying modifiable risk factors and motivational interviewing (see Glossary), empowering patients to improve outcomes from proposed surgery.[43]

2.3 An appropriate level of staffing and suitable facilities should be available to deliver a good quality preoperative service. Non-anaesthetist health professionals, such as, specialist nurses,

pharmacy staff, allied health professionals and Anaesthesia Associates (AAs) add considerable value to the service.[41,44,45]

2.4 The time allocation for staffing of the preoperative service with nurses, AAs, operating department practitioners (ODPs), healthcare assistants and pharmacy staff should be based on local data that reflect surgical case mix, acuity of patients and high risk daycase workload.[46,47]

2.5 There should be a designated lead anaesthetist for this service with specific programmed activities for this role within their job plan. The lead anaesthetist is responsible for:

- the training and support of nursing, ODPs and other staff
- the maintenance of close two-way links with primary care clinicians facilitating agreed evidence based 'fitness for surgery' protocols between primary and secondary care. This arrangement also encourages general practitioners to develop a broader knowledge of remediable perioperative risk factors which can be optimised prior to surgery
- developing links with clinical commissioning groups
- the establishment of internal protocols for patients such as those with diabetes, obesity or those receiving anticoagulant therapy
- audit, research, teaching, protocol development and relevant information technology development.

2.6 Secretarial and administrative support should also be provided to the preassessment service.

2.7 The preassessment clinic should be predominantly led by suitably trained nurses or other extended role practitioners using agreed protocols and with support from an anaesthetist.

2.8 Local protocols should determine the grade, experience and competency based training of non-anaesthetist healthcare professionals undertaking preoperative assessments.[47] In addition, all members of the team including administrative, managerial and clinical staff who interact with the patient preoperatively should have skills in motivational interviewing and preoperative optimisation.[48,49]

2.9 There must be the ability to provide the patient with an appropriate chaperone, as per General Medical Council (GMC) guidance on intimate examinations and chaperones.[50] When examining a patient, anaesthetists must be sensitive to what the patient may consider as intimate. This could include any examination where it is necessary to touch or even be close to the patient.

2.10 Paediatric services will have different staffing requirements, see GPAS chapter 10: Guidelines for the Provision of Paediatric Services for detailed recommendations.

2.11 Patients who are older and / or frail patients will have different staffing requirements; see section 12 for detailed recommendations.

3 Equipment, services and facilities before the day of procedure

3.1 Facilities for computer based video platforms or telephone consultations should be available.

3.2 When patients arrive in a preoperative preparation clinic, there should be a staffed reception desk or automated registration system to ensure the patient's attendance is registered and that the patient is directed to the appropriate member of staff or waiting area.

3.3 The patients' waiting area should provide adequate seating for the number of patients attending a preoperative preparation clinic. This may be an appropriate place to display patient information leaflets and to play health promotional videos and other materials.

3.4 Consulting rooms need adequate furniture, such as a desk, chairs, examination couch and equipment such as computers, scales for measuring height and weight, blood pressure, pulse oximetry, peak flow meter and electrocardiography machines.

3.5 There should be equipment and facilities for near patient testing and laboratory blood tests and urine analysis.

3.6 There must be a secure environment to enable access to patients' notes including previous anaesthetic records and medical alerts.[6]

4 Service organisation and administration before the day of procedure

Risk assessment

4.1 Objective assessment of risk should be routine and the identification of increased risk should trigger advanced planning specific to that patient. Each hospital should have a consistent and where possible evidence based system in place to identify high risk surgical patients who require additional assessment.[51] This assessment should be based on:[52]

- age
- comorbidity
- medication history and allergy status[53]
- type of surgery including risk of severe postsurgical pain[54,55]
- dementia and cognitive dysfunction[56]
- frailty[57]
- nutritional status
- lifestyle factors (i.e. smoking behaviour, excess alcohol consumption, drug use, obesity)
- psychological factors and anxiety
- functional status
- chronic pain.

4.2 As a minimum, all ASA 3–5 patients and those undergoing high risk surgery should have their expected risk of morbidity and mortality estimated and documented prior to an intervention, with adjustments made in accordance with national guidelines in planning the urgency of care, seniority of staff involved and postoperative care.[16,52,58,59]

4.3 There are validated general risk prediction tools available that assess the risk of 30-day mortality (and morbidity) following surgery, as well as procedure specific risk prediction tools for elective aortic aneurysm surgery.[60] There is also a wide variety of other screening and risk assessment tools that are useful in estimating the specific or additional risks accrued through the factors listed in recommendation 4.1. The focus is upon improving quality of outcomes through improved perioperative planning based on individual hospital case mix.[61,62] Where possible, risk quantification tools should be used to facilitate shared decision making conversations and to enable informed anaesthetic consent consistent with GMC requirements.[63,64] Quality improvement outcomes should be assessed through national and local audit. Appropriate tools for risk prediction in perioperative care can be found at www.CPOC.org.uk.

Timing of preoperative assessment

4.4 Preoperative assessment should occur as early as possible in the patient's care pathway. Greater than two weeks preoperatively is recommended as good practice and preferably as close to the point of contemplation of surgery as possible to allow for the optimisation of chronic health conditions and health behaviours, so that all essential resources and obstacles can be anticipated prior to the day of procedure, including discharge arrangements.[40] If there are delays to surgery and a significant period of time has elapsed between preassessment and the date of surgery, a repeat preoperative assessment should be undertaken to ensure there are no changes to the patient's co-morbidities.

4.5 Where possible, it is preferable for one stop arrangements to be implemented so that patients can attend preoperative assessment during the same hospital visit as their surgical outpatient assessment. Ideally, the frequency of high risk clinics should allow for one stop patient visits when appropriate. The volume of information may mean that the wrong details are prioritised or recollected. Patients should be given information to reflect on with their family at home, ideally beforehand and always afterwards. The patient should be encouraged to identify questions and be given a route for these to be discussed.[65]

Policies

4.6 Each hospital should have agreed written preoperative policies or guidelines, following national guidelines where available, including but not limited to:

- preoperative tests and investigations[66,67]
- preoperative ordering for potential blood transfusion
- preoperative fasting schedules and the administration of preoperative carbohydrate drinks[40,41,68]
- default to day surgery for suitable procedures
- optimisation and continuation/ cessation of regular medication, including on the day of surgery, and including adjustments to monitored dosage systems[69,70]
- referral of patients from a nurse led clinic to anaesthetic staff for further review
- pregnancy testing prior to surgery
- breastfeeding guidelines

4.7 Each hospital should have agreed protocols, following national guidance where available, including, but not limited to:

- management of anaemia including parenteral iron therapy to reduce the risk of allogenic blood transfusion[71,72,73]
- antacid prophylaxis
- preoperative nutritional screening.

Liaison with internal and external colleagues

4.8 The secondary care preoperative service should liaise closely with primary care, other secondary care professionals and commissioners to promote a 'fitness for referral' process in line with best practice.

4.9 Agreed internal referral pathways to other specialties should be in place for the minority of cases in which this may be required to expedite further investigation and patient optimisation. This should be done in close collaboration between the preoperative

assessment lead and nominated representatives from appropriate specialties (e.g. cardiology, diabetes, renal, respiratory and geriatric medicine).

4.10 Where the risk of an adverse patient outcome associated with surgery is identified as being high, the preoperative assessment consultation should facilitate a shared patient discussion, which may result in a well-informed individual opting for non-surgical management. Under such circumstances the decision making process should be endorsed through close collaborative discussion with surgical colleagues – this is ideally conducted and documented within a preoperative multidisciplinary team (MDT) meeting.[74]

4.11 The output from consultations with patients at increased risk of mortality or morbidity must be documented in the patient's medical notes. In addition, mechanisms for clear communication of these consultations to patients, anaesthetists, surgeons, general practitioners and other healthcare workers should be in place.[6,52]

4.12 Consideration should be given to the use of formal prehabilitation pathways as well as services for nutritional assessment, smoking cessation, alcohol / drug addiction services and psychological support.[75,76,77]

Co-ordination and communication

4.13 Documentation and communication of information on preoperative preparation are essential. Electronic systems should be considered to enable the capture and sharing of information, support risk identification and allow data to be collected and available for audit and research purposes.[46,74,78]

4.14 Discharge planning should ideally start as soon as the patient opts for surgery so that all essential resources and obstacles to discharge can be identified and dealt with, including liaison with primary care and social care services as required. This will minimise late cancellation of procedures.[79]

4.15 A preoperative blood ordering schedule should be agreed with the local blood transfusion service for each procedure and appropriate system should be in place to facilitate timely provision of blood products.

4.16 Anticipated difficulty with anaesthesia should be brought to the attention of the anaesthetist as early as possible before surgery.[80] This includes planned admission to a critical care unit, the potential need for special skills such as fibre optic intubation, obesity, complex pain problems, a known history of anaesthetic complications or patients with learning disabilities who may require additional resources or theatre time. Local groups such as critical care MDTs or high risk MDTs could facilitate perioperative planning of patients where high risk is identified.[81]

4.17 Where inpatient care is necessary, an enhanced recovery pathway should be followed as this is now considered to provide optimum perioperative care.[80,82,83,84,85] The preoperative service should ensure that patients are clear about their own responsibilities and expected length of stay to support enhanced recovery pathways.[86,87]

4.18 Consideration should be given to a designated pharmacist being available to provide advice and input into anaesthetic and preoperative assessment. This level of input may range from *ad hoc* advice through to the identification of designated preoperative assessment pharmacists, preferably with prescribing rights, who can undertake medicines reconciliation, produce perioperative medication plans and provide specialist advice.

5 Patient information

All patients (and relatives where relevant) should be fully informed regarding the planned procedure and should be encouraged to be active participants in decisions concerning their care (shared decision making).[88,89]

5.1 All patients undergoing elective procedures should be provided, prior to admission with information on their intended treatment pathway (day surgery or enhanced recovery) that is easy to understand.[90] This should include information on the operation, anaesthesia, recovery and postoperative pain relief. Provision of this information should be documented in the patient's notes.[91] The written and verbal information given to patients before their admission to hospital should explain the purpose and nature of their recovery and the recovery department. The *Fitter Better Sooner* resources published by the Royal College of Anaesthetists and the *You and your anaesthetic* leaflet, published by the Royal College of Anaesthetists and the Association of Anaesthetists are examples.[91,92]

5.2 The information provided for patients should include information on what will happen to them in the anaesthetic room in the operating theatre and after discharge.[93]

5.3 Information should be provided in a range of formats, including written leaflets or electronic material.[94] Details of websites that provide reliable, impartial and evidence based information should be made available to patients when appropriate. Where possible this should include large print, Braille and audio formats. Information should conform to the 'accessible information' standard set by the Department of Health for those with disabilities.[95]

5.4 Consultation skills for shared decision making should be used to prepare patients for anaesthesia, surgery and analgesia. Patients should also be informed of the increasing number of decision aids available from NHS Direct to help them with their choices.[63,96,97] The use of shared decision making tools such as 'Benefits, Risks, Alternatives, Nothing' and 'Ask 3 questions' should be considered.[98,99]

5.5 Information should be provided sufficiently far in advance to allow the patient to consider and reflect on this information prior to anaesthesia and surgery.

5.6 Patients from non-English speaking groups may require interpreters. Wherever possible, this need should be identified in advance.[100] Hospitals should have arrangements in place to provide language support, including interpretation and translation services (including sign language and Braille).[95,101,102,103,104] Patients with learning and other difficulties may require special assistance and consideration.

5.7 The Mental Capacity Act, Adults with Incapacity (Scotland) Act or the Mental Capacity Act (Northern Ireland) must be complied with.[105,106,107] Staff should have regular training in the application of the Mental Capacity Act and have defined access to patient advocates. This is a rapidly changing area, and clinicians should have access to expert advice if required. All NHS trusts are now nationally mandated to have a named safe guarding lead for adults and this individual should be used as appropriate.[108]

5.8 Some patients, both adults and children, may need parents or other members of their family to be with them. This need is best determined at the preassessment clinic visit, so that sensitivities can be taken into account in the operative process.[38]

Consent

5.9 All practitioners must follow the practices outlined in the GMC *Decision making and consent* guidance. Documentation of the risks discussed or the dialogue leading to a decision is

required in accordance with paragraphs 50–55.[64] Equally, completion of a consent form is not a substitute for a meaningful dialogue tailored to the individual patient's needs.

5.10 Ideally, as part of shared decision making, consent for surgical and anaesthetic procedures should be obtained prior to the day of surgery (see recommendation 4.3), allowing sufficient time for the patient to reflect on their consent discussion.[64] The competent patient has a fundamental right, under common law, to give, or to withhold, consent to examination, investigation and treatment.[63,64,93]

5.11 Where a patient is seen prior to the day of surgery and shared decision making and discussion of anaesthetic conduct has taken place, the anaesthetist on the day of surgery has a responsibility to ensure the patient still understands and agrees with the perioperative plan.[63,64]

5.12 The patient must be made aware of alternative treatment options, or the option for no treatment at all. It is acceptable to recommend one of the alternatives but as the GMC states *'The doctor may recommend a particular option which they believe to be best for the patient, but may not put any pressure onto the patient to accept their advice'*.[64,109]

5.13 No other person can consent to treatment on behalf of any adult. If a health and welfare lasting power of attorney directive is in place, the attorney may be able to assent to treatment on behalf of the patient. There should be a local process and policy in place for patients who lack capacity that conforms to national guidance and the Mental Capacity Act, the Adults with Incapacity (Scotland) Act or the Mental Capacity Act (Northern Ireland).[93,105,106,107]

Day of procedure

6 Staffing requirements for the day of procedure

The outcomes for patients undergoing elective surgery are largely dependent on the complexity of the procedure and the associated optimisation of the patient's comorbidities of the patient. Nevertheless, appropriate staffing to match the skill mix to the case mix is crucial.

6.1 Perioperative time should be allocated for the work the anaesthetist undertakes on the day of procedure for both pre and postoperative care. The time required for pre and postoperative care will vary and should be accounted for in individual job plans.

6.2 Anaesthesia departments should have a nominated anaesthetist immediately available (see Glossary) and free from direct clinical responsibilities to provide cover in clinical emergencies, as well as providing advice and support to other anaesthetists.[40]

6.3 Anaesthesia departments should make arrangements to allow anaesthetists working solo during long surgical procedures or on overrunning lists to be relieved by a colleague or AA for meal and comfort breaks.[110,111,112]

Anaesthesia associates

6.4 The RCoA and Association of Anaesthetists currently do not support enhanced roles for AAs until the statutory regulation for AAs is in place. Where such role enhancement exists or is proposed, responsibility should be defined by local governance arrangements.[112]

6.5 AAs should always work within an anaesthesia team led by a consultant anaesthetist who has overall responsibility for the anaesthesia care provided for the patient and whose name should be recorded in the individual patient's medical notes.[112]

6.6 The supervising consultant anaesthetist should be easily contactable and should be available to attend within minutes of being requested by the AAs.[112]

6.7 The supervising consultant anaesthetist should not be responsible for more than two anaesthetised patients simultaneously, where one involves supervision of an AA. [112]

6.8 Clinical governance of AAs should follow the same principles as that applied to medically qualified staff. This should include training that is appropriately focused and resourced, supervision and support in keeping with practitioners' needs and practice responsibilities, and practice centred audit and review processes. AAs should always work within the remit and the educational curriculum of their training programme.

Anaesthetic assistant

6.9 There should be a dedicated trained assistant (i.e. an ODP, anaesthetic nurse or equivalent) who holds a valid registration with the appropriate regulatory body, immediately available in every location in which anaesthesia care is being delivered, whether this is by an anaesthetist or an AA.[40,112]

6.10 Staff assigned to the role of anaesthetic assistant should not have any other duties that would prevent them from providing dedicated assistance to the anaesthetist during anaesthesia.[40]

7 Equipment, services and facilities on the day of procedure

Equipment and monitoring

7.1 Facilities for maintaining anaesthesia, monitoring, ventilation of patients' lungs and resuscitation, including defibrillation, should be available at all sites where patients are anaesthetised.[113,114]

7.2 The following anaesthetic equipment is required for the safe delivery of anaesthesia, and should be immediately available at all sites where patients receive anaesthetic intervention:

- oxygen supply including an emergency back up supply
- self-inflating bag
- facemasks
- suction equipment
- airways (nasopharyngeal and oropharyngeal)
- laryngoscopes, including at least one type of video laryngoscope
- intubation aids (bougies, forceps, etc.)
- supraglottic airways
- appropriate range of tracheal tubes and connectors
- heat and moisture exchange filters
- trolley/bed/operating table that can be rapidly tilted head down
- method of delivering anaesthesia using volatile anaesthetic agents or infusions (including target controlled infusion algorithms).

7.3 Anaesthetic machines should never be able to supply a hypoxic gas mixture.[115]

7.4 The recommended standards of monitoring, by instrument or otherwise, should be met for every patient.[114] All monitors should be fitted with audible alarms, with preset but adjustable

limits.[114,116] The following equipment should be available at all sites where anaesthesia is administered:[114]

- oxygen analyser
- device to display airway pressure whenever positive pressure ventilation is used, with alarms that warn if the airway pressure is too high or too low
- vapour analyser whenever a volatile anaesthetic agent is in use
- capnograph
- pulse oximeter
- non-invasive blood pressure monitor
- electrocardiograph
- a means of measuring the patient's body temperature
- a nerve stimulator when neuromuscular blocking drugs are used.

7.5 All anaesthetic equipment should be checked prior to use in accordance with the Association of Anaesthetists' published guidelines.[117] Anaesthetic machine checks should be recorded in a log and on each patient's anaesthetic chart.

7.6 The following equipment is required for the safe delivery of anaesthesia and should be available at all sites where patients are anaesthetised in sufficient quantities for the case mix and workload:

- defibrillators and equipment for external cardiac pacing[118]
- positioning equipment (stirrups for lithotomy, arm boards, head rest for prone positions, bariatric supports etc.)[119]
- ultrasound imaging equipment for vascular access and regional anaesthesia
- equipment required for the administration of a volatile free anaesthetic, including infusion pumps, volatile-free anaesthetic machine and/or activated charcoal filters
- adequate numbers and types of infusion pumps and syringe drivers available for high risk medicines[120]
- at least one readily available portable storage unit with specialised equipment for the management of patients with a difficult airway in every theatre suite including video laryngoscopes and fibre-optic scopes[121,122,123]
- active patient warming devices[124,125]
- fluid warming devices, allowing the transfusion of body temperature blood products and intravenous fluids of body temperature[126,127]
- rapid infusion device for the management of major haemorrhage
- regional anaesthesia equipment, including ultrasound and regional anaesthesia nerve stimulators.

7.7 Some patients may require additional monitoring equipment. The following should be considered based on case mix and workload:[114]

- invasive cardiovascular pressure monitoring
- cardiac output monitors
- depth of anaesthesia monitoring.[128]

7.8 A named anaesthetist with time assigned in their job plan should oversee the provision and management of anaesthetic equipment.[129]

7.9 All anaesthetists, AAs and anaesthetic assistants should receive systematic training in the use of new equipment. This should be clearly documented.[129] Anaesthetists should not use equipment unless they have been trained to use it and are competent to do so. The NHS Clinical Negligence Scheme for trusts and Healthcare Improvement Scotland require that hospitals ensure all personnel are trained to use and to check relevant equipment. This may take place at induction for new staff or at the introduction of new equipment. A record of training should be kept. The use of routine checks and associated checklists is an important part of training in anaesthesia and is part of the RCoA's competency-based training.

7.10 User manuals should be available as required for anaesthetic equipment.[129]

7.11 There should be a planned maintenance and replacement programme for all anaesthetic equipment.[129,130]

Support services

7.12 As a minimum, services should be available for:

- blood transfusion
- radiological investigations
- haematology
- clinical pathology
- electrocardiography.

7.13 Near patient testing for blood sugar measurements should be readily available for theatres.

7.14 Near patient testing for haemoglobin, blood gases, lactate, ketones and coagulation measurements should be considered, particularly in areas where major blood loss is likely.[131] If near patient testing is not available, laboratory testing should be readily and promptly available.

7.15 Decision support systems for crisis scenarios should be available, for example the Association of Anaesthetists Quick Reference Handbook, advanced life support algorithm, difficult airway guidelines and major haemorrhage protocols.[132,133,134]

7.16 Real time alerts and recommendations (e.g. patient allergy or drug interactions) could be made available using electronic information systems.[135]

7.17 Policies and equipment must be in place to protect patients and staff from cross infection, including the safe disposal of sharps and healthcare waste.[136,137]

7.18 The separation of clinical and non clinical recyclable waste should be considered.[138]

Facilities

7.19 Up to 80% of patients having elective surgery (see Glossary)will be admitted through a day surgery unit. Provision of day surgery is detailed in GPAS chapter 6: Guidelines for the Provision of Day Surgery. All other patients should be admitted to a ward, admissions unit or similar facility with sufficient time before the operating list on which they are scheduled.

7.20 If used, the day of surgery admissions (DOSA) unit should ideally be located close to theatres to allow for efficient list management.

7.21 There should be a staffed reception desk or automated registration system to ensure the patient's attendance is registered as they arrive in the DOSA unit, as well as sufficient seating for the patients throughout their stay.

7.22 There should be sufficient consulting rooms or privacy on the DOSA unit for preoperative checks or assessment by nursing, anaesthetic and surgical staff, including a secure environment to enable access to patients' physical or electronic notes.

7.23 There should be equipment and facilities for basic day of surgery physiological monitoring checks, and near patient testing / laboratory blood tests as required for the patient case mix and surgery.

7.24 There should be sufficient space and changing rooms including toilets to allow for maintenance of patient dignity in the immediate period pre procedure. Suitable storage of personal effects including the patient's own medication (e.g. secure storage lockers) should be available during transition through the perioperative pathway. Consideration should be given to providing an opportunity for basic entertainment while waiting for example wi-fi and / or televisions. Furniture should be appropriate to the patient population (e.g. for patients with obesity and those who are frail or older) to allow for their comfort and dignity.

7.25 The operating theatre, and anaesthetic room where used, should conform to Department of Health building standards and be appropriately maintained.[111]

7.26 There should be provision of an emergency call system, including an audible alarm.[111] A visible indication of the location of the emergency should also be considered.

7.27 The geographical arrangement of theatres, emergency departments, critical care units, coronary care, interventional radiology and imaging facilities should allow for the rapid transfer of critically ill patients.[111]

7.28 Anaesthetic sites must have scavenging systems that meet the Health and Safety Executive's occupational exposure standards for anaesthetic agents.[139]

7.29 Appropriate blood storage facilities should be in close proximity to the operating theatre and should be clearly identifiable.[111]

7.30 Transport and distribution of blood and blood components at all stages of the transfusion chain must be kept under conditions that maintain the integrity of the product.[140]

7.31 Facilities to allow access to online information, such as electronic patient records, local guidelines and clinical decision aids in the theatre suite should be considered.[141]

7.32 Appropriate facilities for rest breaks should be provided according to defined norms.[110,142,143,144]

7.33 Facilities for medication storage should be located and designed in such a way that allows timely access when required for patient care, while maintaining integrity of the medicines and aiding organisations to comply with safe and secure storage requirements.[145,146,147]

7.34 Access to theatres and associated clinical areas should be appropriately restricted.[111]

Medication

7.35 All staff involved in the prescribing, dispensing, preparing, administering and monitoring of medicines must be appropriately trained.[148,149]

7.36 All theatre staff involved in any aspects of the use of medicines should have access to up to date resources on safe preparation and administration of medicines, and access to a pharmacy service for advice. [117,128]

7.37 There must be a system for ordering, storage, recording and auditing of controlled medicines in all areas where they are used, in accordance with legislation.[149,150,151,152]

7.38 All drugs required for safe delivery of anaesthesia including emergency drugs, should be available. Some drugs such as dantrolene or intralipid may be held centrally rather than immediately to hand.

7.39 Robust systems should be in place to ensure reliable medicines management, including accurate medication history taking and documentation on admission, medication storage facilities, stock review and management, supply, expiry checks, and access to appropriately trained pharmacy staff to manage any medicine shortages.[148]

7.40 All local anaesthetic solutions should be stored in a separate storage unit from intravenous infusion solutions, to reduce the risk of accidental intravenous administration of such medication.[148,153]

7.41 All medication containing infusions and syringes should be clearly labelled and ideally colour coded in accordance with the anaesthesia recommended scheme.[154]

8 Organisation on the day of procedure

8.1 Following admission and prior to undergoing a procedure that requires general or regional anaesthesia, all patients should have a preoperative visit by an anaesthetist, ideally a person directly involved with the administration of the anaesthetic.[41] This should be done to confirm earlier findings or, in the case of emergency admission, initiate preoperative anaesthetic assessment and care.

8.2 Information from the patient's preoperative assessment should be readily available, ideally as part of an electronic patient record, so that information is easy to transfer between locations and to enable data collection for later analysis.[5,74]

8.3 If the patient has not been seen in a preoperative clinic, (e.g. those admitted for urgent surgery), they should undergo an equivalent assessment and preparation process with the findings documented before their final anaesthetic assessment. Most patients for expedited urgent surgery should have the same assessment and preparation as for elective surgery.

8.4 Up to date, clear and complete information about operating lists should be available to the admissions area, theatre and recovery area. Operating lists should be made available to the anaesthetist before the list starts.

8.5 The language in all communications relating to the scheduling and listing of procedures should be unambiguous. Operating lists should include details of the patient's operation, date of birth, hospital identification number, any alerts and the ward in which they are located. Laterality should always be written in full (i.e. 'left' or 'right').[155]

8.6 The whole operating team should agree to any change to a published operating list. This list should be rewritten or reprinted, including a date and time of the update and should be clearly identifiable as a changed list.[155] Following a change in the theatre list, a further team brief should take place and the admissions area and recovery units should be informed.

8.7 Written guidelines should outline the policy for the collection of patients from the ward or admissions unit, as well as the handover by ward staff to a designated member of the operating department staff.[156]

8.8 The theatre team should all engage in the use of the WHO surgical safety process, including the 'Five Steps to Safe Surgery' commencing with a team brief, and concluding the list with a team debrief.[4,155] The team debrief should highlight things done well and also identify areas requiring improvement.[157] Teams should consider including the declaration of emergency call procedures specific to the location as part of the team brief.[4,111 ,158]

8.9 The anaesthetist should be with the patient at all times while the patient is anaesthetised. In hospitals employing AAs, this responsibility may be delegated to an AA, supervised by a consultant anaesthetist in accordance with the scope of practice for AAs.[112,114]

8.10 In exceptional circumstances, an anaesthetist working singlehandedly may be called to briefly assist with or perform a lifesaving procedure nearby. This is a matter for individual judgement and a dedicated ODP or anaesthetic nurse should be present to monitor the patient in these exceptional circumstances.[114] This should be for as short a period as possible and the person left to monitor the patient should be aware of how to call for further help.

Policies

8.11 The following policies should be immediately and reliably available at sites where anaesthesia and sedation are provided:

- guidelines for the checking of anaesthetic machines[117]
- guidelines for the management of anaesthetic emergencies, including anaphylaxis,[53,159, 160] malignant hyperpyrexia and major haemorrhage
- periarrest and cardiac arrest algorithms[161]
- difficult airway management, including the 'can't ventilate, can't oxygenate' scenario.[123]

8.12 The following policies should be held and easily accessible for:

- WHO checklist, including time out[4]
- 'Stop Before You Block'[162]
- 'Do not attempt cardiopulmonary resuscitation'
- death in the operating theatre[21]
- major incident procedures
- infection control (including antibiotic prophylaxis, staff protection and post exposure prophylaxis)[136]
- prevention of hypothermia[124]
- major haemorrhage[163]
- blood and blood products administration[164,165,166]
- handover and continuity of clinical care[8]
- medicines management
- local anaesthetic toxicity
- perioperative care for breastfeeding mothers.

Early after the procedure

9 Staffing requirements for the period early after the procedure

Emergence from general anaesthesia is potentially hazardous, with patients requiring close observation until recovery is complete.[40] The responsibility of anaesthetists for the care of their patients extends into the postoperative period until their discharge from recovery or handover of care to another clinician. Appropriately staffed and equipped recovery facilities should be available during whatever hours of the day elective and emergency procedures are undertaken.[40]

9.1 Patient care should be transferred to staff who have been specially trained in recovery procedures and reached locally or nationally agreed prescribed competencies, such as the UK National Core Competencies for Post-Anaesthesia Care 2013.[40,167,168]

9.2 On occasions, patients may be handed over to the recovery practitioner with a supraglottic airway device in place. The person taking over direct clinical care of such a patient should be specifically trained in the management and safe removal of the airway device.[121]

9.3 If a patient is transferred to the recovery unit with a tracheal tube in situ, the anaesthetist remains responsible for the removal of the tube but may delegate its removal. Delegation should be to an appropriately trained member of staff who is prepared to accept this delegated responsibility.[167]

9.4 An anaesthetist should have overall responsibility for the transport of patients from theatre to the recovery unit.[169]

9.5 Anaesthetists or a delegated AA should formally handover the patient, and should remain in the recovery unit if their input is required. They should leave the patient in a stable condition.[121,170,171]

9.6 The patients anaesthetist should retain overall responsibility for the patient during the recovery period and should be readily available for consultation until the patient is able to maintain their own airway, has regained respiratory and cardiovascular stability and is able to communicate, unless this care has been handed over to another named anaesthetist. Where the patient's anaesthetist is not the named consultant for that patient (e.g. out of hours, when the consultant is non-resident or distantly supervising a trainee), the consultant should be immediately contactable for advice and guidance at all times, but the resident anaesthetist maintains immediate responsibility for postoperative care of the patient.

9.7 The care of an individual patient should be delivered on a one to one basis until the patient is able to maintain their own airway, has respiratory and cardiovascular stability and is able to communicate appropriately. All recovery units should be staffed to a level that allows this to be routine practice and the recovery staff should not have any other duties during this time.[169,172,173]

9.8 A minimum of two members of staff should be present (of whom at least one should be a registered practitioner) when there is a patient in the recovery unit who does not fulfil the criteria for discharge to the ward. If this level of staffing cannot be assured, an anaesthetist should stay with the patient until satisfied that the patient fulfils discharge criteria.[172]

9.9 There should be an anaesthetist or a professional with suitably qualified airway skills who is available for patients in the recovery unit within two minutes.[172,174]

9.10 Adequate provision through job planning and service demand should be made for an anaesthetist led acute pain service.[175,176]

9.11 Adequate provision within job plans should be made for a member of the anaesthetic team to visit the following groups of patients within 24 hours following their operation:

- those graded as American Society of Anesthesiologists (ASA) physical status 3, 4 or 5
- those receiving epidural analgesia on a general ward
- those discharged from the recovery unit with cardiovascular invasive monitoring in situ
- those for whom a request is made by other medical, nursing or other clinical colleagues
- those for whom there is any other appropriate need.

10 Equipment, services and facilities for the period early after the procedure

10.1 All patients who have received an anaesthetic affecting central nervous system function and/or a loss of protective reflexes should remain where anesthetised until recovered or be transported safely (with care and monitoring as indicated below) to a specifically designated recovery location for post-anaesthesia recovery.[169]

10.2 Operating theatre complexes require a dedicated recovery unit. This unit should be located in the operating theatre department and should be separate from the department's admission area. It should have a separate access for transfer of patients to the ward.[172,177]

10.3 The size, design and facilities of the recovery unit must meet the Department of Health and Social Care guidelines.[177]

10.4 The bed spaces should allow unobstructed access for trolleys, x-ray equipment, resuscitation trolleys and clinical staff. The facility should be open plan, allowing each recovery bay to be observed but with the provision of curtains for patient privacy.[172]

10.5 Oxygen and suction should be present in every recovery bay and ideally delivered by pipeline.[172]

10.6 An emergency audible and visible call system should be in place, checked regularly to maintain functionality and understood by all staff.[178]

10.7 Drugs, fluid and equipment required for resuscitation and the management of postoperative complications should be available within three minutes and regularly maintained.[172,174]

10.8 There must be a system for ordering, storage, recording and auditing of controlled medicines in all postoperative areas in which they are used, in accordance with statutory legislation.[148,150]

10.9 An individualised post-anaesthesia care plan should be documented for each patient.[179]

10.10 Careful records, including instructions, patient observations and drug administration, should be maintained (increasingly in an electronic form) and staff should be able to interpret the information and initiate appropriate action where necessary.

10.11 Patient information should be continuously recorded and updated (in electronic or written format). Anaesthetic Information Management Systems, a specialised form of electronic health record, should be considered as electronic patient charts in the perioperative and recovery period as they provide a more accurate and complete reflection of the patient's perioperative physiological parameters.[180]

10.12 Capnography, pulse oximetry and non-invasive blood pressure monitoring should be available until the patient is fully recovered from general anaesthesia. An

electrocardiograph, nerve stimulator, thermometer and glucometer should also be readily available.[121,169,179,181]

10.13 Monitoring equipment should be used in accordance with the Association of Anaesthetists minimum standards of monitoring.[114,121,172,182]

10.14 A brief interruption of monitoring during transfer of the patient from theatre is only acceptable if the recovery area is immediately adjacent to the operating theatre. Otherwise, monitoring should be continued during transfer to the same degree as any other intra or inter-hospital transfer.[114,183]

10.15 Supplementary oxygen should be available for the transport of patients after general anaesthesia.[121]

10.16 Airway adjuncts should be available in the post-anaesthesia care unit (PACU) to minimise the incidence of upper airway obstruction that may lead to post obstructive pulmonary oedema and severe hypoxaemia.[121]

10.17 If a patient has known visual or hearing impairment or wears dentures, then their corrective lenses/hearing aid/dentures should be readily accessible and available postoperatively.[184]

11 Service organisation and administration early after the procedure

11.1 There should be a named lead consultant for the PACU (see Glossary).[172]

11.2 Processes for the communication and implementation of patient safety alerts should be in place.

Protocols

11.3 All institutions should have protocols and the necessary facilities for managing postoperative care and should review and update these regularly.[179]

11.4 The following protocols should be held and easily accessible for:

- management of postoperative nausea and vomiting
- pain relief for patients with chronic pain[185]
- hypothermia[186]
- blood transfusion
- fluid therapy
- acute coronary syndrome
- respiratory diseases
- hypotension
- hypertension
- monitoring following central and peripheral neuraxial blockade[187]
- escalation to higher levels of postoperative care (e.g. to a critical care unit) should the patient develop perioperative complications.

Handover

11.5 Patients should be transferred to the ward, the postoperative care environment or the critical care unit accompanied by two members of staff, at least one of whom should be suitably trained to locally agreed standards.[188] The anaesthetic record, recovery and prescription charts together with the postoperative plan, should accompany the patient and be clearly communicated to the receiving ward nurse.

11.6 Handover, including on moving to the postoperative care environment or to the ICU, should always be to a member of staff who is competent to care for the patient at that time, and this should be clearly documented.[189]

11.7 All handovers should be structured to ensure continuity of care.[8,190]

11.8 Staff should complete urgent tasks before information transfer, limiting conversations while performing these tasks (adopting a 'sterile cockpit' approach see Glossary).[191,192]

11.9 If responsibility for care is transferred from one anaesthetist to another, a 'handover protocol' should be followed, during which all relevant information concerning the patient's medical history, medical condition, anaesthetic status, and plan should be communicated.[169]

11.10 Standardisation of the handover process can improve patient care by ensuring information completeness, accuracy and efficiency (the use of checklists should be considered). Staff should comply with the local standardised handover processes.[179,193]

Discharge

11.11 There should be an established policy to ensure clear communication of continuing requirements at discharge (e.g. analgesia) to include communication with primary care. This should include written information about common concerns (restarting medication, driving, etc.) and how to contact the hospital when required post discharge. Surgical teams will ordinarily be responsible for most of this process.

12 Areas of special requirement

Children

Most paediatric anaesthesia is for minor surgery in otherwise fit and healthy children. A large proportion of this work is performed in non-specialist hospitals. There are however, a minority of paediatric patients who have significant comorbidities with perioperative care predominantly delivered at tertiary paediatric centres. Anaesthesia may also be required for non-surgical procedures such as radiological investigations. In an emergency situation, anaesthetists will often be part of the multidisciplinary team responsible for the initial resuscitation and stabilisation of the critically ill or injured child prior to transfer to a specialist centre.

Detailed recommendations for children's services are comprehensively described in GPAS chapter 10: Guidelines for the Provision of Paediatric Services.[38]

12.1 The particular needs of children should be considered at all stages of perioperative care. Children should receive an appropriate preassessment from staff with appropriate paediatric experience.[194]

12.2 The child should be helped to understand events that are happening or will happen, with the use of age-specific and developmentally appropriate explanation and materials.[195,196] There are specific issues around consent for children that need to be understood, including the particular requirements for children who are not under the care of their parents.[197]

12.3 A parent or legal guardian should ideally be with the child up to the point of moving into the operating theatre.[198]

12.4 Consideration should be given to appropriate strategies for recognising and managing anxiety of children particularly at induction e.g. play specialists, counselling, psychological support and anaesthetic training around managing preoperative anxiety.

12.5 Anaesthesia for children should be undertaken or supervised by anaesthetists who have undergone appropriate training. In the UK, all anaesthetists with a Certificate of Completion of Training (CCT) or equivalent will have completed higher paediatric anaesthetic training or equivalent.[199] There will be anaesthetists who have acquired more advanced competencies, thus allowing provision of a more extensive anaesthetic service, and those competencies should be maintained. Unless there is no requirement to anaesthetise children, it is expected that competence and confidence to anaesthetise children will need to be sustained through locally organised clinical experience, continuing professional development and/or refresher courses, and should be considered within annual appraisal and revalidation.

12.6 Each hospital should have a written definition of age thresholds and the types of procedure for elective and emergency work, including imaging, which can be provided locally. Children undergoing complex surgical procedures or with significant comorbidity should be discussed with the carers and referred to a tertiary centre if the local infrastructure cannot meet their needs.[200,201]

12.7 Children should be separated from and not managed directly alongside adults throughout the patient pathway, including in waiting rooms, preassessment clinic rooms and theatre areas, including anaesthetic and recovery areas, as far as possible.[202] These areas should be child friendly and should be staffed by suitably trained and qualified practitioners within recovery.[188]

12.8 Children undergoing surgery should be grouped into paediatric lists, or together at the start of mixed lists.[200,201]

12.9 Preoperative fasting should be minimised as much as possible, especially for infants and younger children.[203]

12.10 All clinical staff working with children should have up to date certification in safeguarding level 2.[204]

12.11 There should be a policy in place for pregnancy testing for young female patients under the age of 16 years. This policy should adhere to Royal College of Paediatrics and Child Health guidance.[205]

12.12 Information on the risks and the common adverse effects of anaesthesia in children, and the long term effects of anaesthesia, should be discussed and offered in writing to children, parents and guardians.[196,206]

12.13 Where designated separate areas for children are not available, discrete segregated areas in the pre and postoperative pathways should be available. They should be made as child friendly as possible.[111]

12.14 Children should never be left unattended in the recovery area.[207]

12.15 Children have an increased incidence of postoperative delirium. Recovery staff should have an increased awareness and there should be local protocols for the management of this condition.[196]

12.16 Children with learning disabilities should ideally be recovered in an area with lower levels of noise and lighting and a familiar presence, such as a parent or their carer.[196]

12.17 The presence of learning disability practitioners in recovery when a patient with learning disability is being recovered should be considered.[196]

12.18 All staff working in paediatric recovery should be trained and competent in protocols, and should be familiar with the relevant procedures and personnel if there are safeguarding or child protection concerns that arise while the child is in theatre.[204]

12.19 There should be a minimum of one member of the recovery staff, or an anaesthetist with advanced training in paediatric life support on duty. All members of recovery staff should have up-to-date paediatric competencies including resuscitation.[188]

12.20 Paediatric equipment to cover all ages should be available in recovery, including a full range of sizes of facemasks, breathing systems, airway adjuncts and tracheal tubes. Essential monitoring equipment includes a full range of paediatric non-invasive blood pressure cuffs and small pulse oximeter probes. Capnography should also be available.[188]

12.21 Parents and children should be appropriately educated and equipped with information to address common issues they may face postoperatively, in recovery and on discharge. This information should include leaflets for common procedures highlighting risks and these should be developed locally with support from area networks.[208]

12.22 Guidelines and commonly used algorithms for paediatric emergencies should be readily available and regularly rehearsed.[188]

12.23 Guidelines for fluid management specific to children, and equipment for accurate fluid delivery, should be available.[209]

12.24 Pain assessment tools used should differ, depending on the age and ability of the child. Self-reporting tools should be used where possible, with behavioural or composite tools for those unable to self-report.[210,211]

12.25 Protocols for the use of epidural infusions, morphine infusions, patient controlled analgesia infusions and nerve catheter local anaesthesia infusions should be available and specific for children.[210,211]

Non-peripartum pregnant women and breastfeeding mothers

Anaesthetic services for the peripartum period are covered in GPAS chapter 9: Guidelines for the Provision of Anaesthesia Services for an Obstetric Population.[212]

12.26 A policy should be in place for the management of non-peripartum pregnant women. This should detail the involvement of the multidisciplinary obstetric team, including midwives, neonatologists and obstetricians, depending on gestational stage.[213]

12.27 A policy should be in place for the perioperative care of breastfeeding mothers. This should include guidance to staff on the requirements to facilitate breastfeeding, anaesthesia protocols for breastfeeding mothers, outline supportive measures and provide clear instructions for the patient pre and post anaesthesia or sedation.[214]

Frail and older patients

With the change in population demographics, a larger number of elderly patients will require operative procedures. Older patients have a decreased physiological reserve, cognitive decline, a higher incidence of multi-morbidity (defined as two or more comorbidities), polypharmacy, and

frailty, all of which adds to the complexity of decision making and medical management.[215] Poor cognition, hearing and eyesight may make communication difficult. Older patients are at a higher risk of mortality and morbidity after elective and emergency surgery.[216,217,218,219] Poor physiological reserve is not limited to the elderly, so frailty pathways and policies should also take into account younger patients with frailty.

12.28 Multidisciplinary care improves outcomes. Protocol driven integrated pathways guide care effectively, but should be individualised to suit each patient, with emphasis on management of postoperative pain and avoidance of postoperative delirium.[220,221,222]

12.29 Preoperative assessment, optimisation and shared decision making in patients with multiple comorbidities, frailty or cognitive impairment require a cross specialty approach involving anaesthetists, surgeons, geriatricians, pharmacists and allied health professionals. Liaison with a clinical pharmacist in the perioperative period will enable optimisation of medicines and improved management of the patients' non-surgical comorbidities during this time. The development of such teams requires time and resources. These should be recognised and provided.[52,220,223,224,225]

12.30 Care of the frail and older surgical patient starts at the contemplation of surgery and continues through the hospital stay and beyond. Models of care for frail and older patients should include multidisciplinary management between surgical teams, physicians with expertise in the assessment and management of frailty/delirium and allied health professionals providing consistent hands-on medical care, direction of rehabilitation goal setting and discharge planning until discharge at which point signposting to community services will occur.[226]

12.31 Models of care could include comprehensive geriatric assessment which may have potential to improve outcomes.[227]

12.32 Patients with frailty are at increased risk of adverse postoperative outcome. Older patients undergoing intermediate and high-risk surgery should be assessed for frailty using an established tool or scoring system.[228,229]

12.33 Pathways of care providing proactive preoperative interventions for frailty, involving therapy services, social services, discharge teams and geriatricians or physicians with expertise in the assessment and management of frailty/ delirium should be developed.[220,230,231]

12.34 Older patients should have access to a consultant experienced in the management of the older surgical patient to support shared decision making, patient optimisation and perioperative care. Opportunities for joint geriatric and surgical clinical governance should be considered as this model of care is superior to that delivered without this expert support.[218,231,232]

12.35 The risk of postoperative functional decline and complex discharge related issues should be considered. Procedures should be in place to identify complex patients at pre-assessment and complex discharge planning should begin then. This will require a multi-disciplinary team approach. Guidelines should be developed for the prevention, recognition and management of common postoperative geriatric complications and/or syndromes, including delirium, falls, functional decline and pressure area care.

12.36 Mechanisms for the early recognition of patients requiring specialist postoperative input from geriatrician led services and/or critical care should be developed. These should include patients at risk of or presenting with delirium, multiple medical complications, functional decline or those requiring complex discharge planning.

12.37 There is a high prevalence of recognised and unrecognised cognitive impairment amongst older surgical patients. This has implications for shared decision making, the consent process and perioperative management. Older patients should have preoperative cognitive assessment using established screening or diagnostic tools.[233]

12.38 Multicomponent interventions which reduce the incidence of delirium in elderly patients undergoing surgery should be considered. These include early mobilisation, avoidance of dehydration and avoidance of delirium triggering medications.[184,234,235]

12.39 Provisions should be made for the assessment and management of pain in older people, and more specifically in those with dementia.[236,237]

12.40 All staff managing patients in the postoperative period must be familiar with the arrangements determining mental capacity in the part of the UK in which they are working and pathways of care for patients with dementia.[105,238,239,240]

12.41 Each department of anaesthesia should have a lead anaesthetist for patients with cognitive impairment with sufficient time identified for the role in their job plan.[233]

12.42 There should be established liaison with social services for patients who need such support to prevent delay in discharge.

Obese patients

Obesity is an increasingly significant health issue in the UK. In 2017, 64% of the adult population were overweight or obese, with 29% of the population being classed as obese and 4% morbidly obese (20% of year six children were classed as obese).[241]

12.43 Every hospital should nominate an anaesthetic lead for patients with obesity undergoing surgery with time identified for this role in their job plan.[242]

12.44 Medical records should include the patient's weight and body mass index (BMI).[242]

12.45 Ideally, patients with morbid obesity should undergo preassessment by a senior anaesthetist.[242]

12.46 Advanced warning of elective patients with morbid obesity should be given to the appropriate ward/ theatre environment by the preoperative assessment team. Additional specialised equipment is necessary and should be available for every patient with morbid obesity at all stages of the perioperative pathway.[242]

12.47 Patients undergoing bariatric surgery should be considered for level 2 or 3 critical care postoperatively.[27]

12.48 Patient dignity should be maintained preoperatively by ensuring appropriate theatre clothing is available in the day case suite or admissions area.

12.49 The safe movement and positioning of patients with obesity may require additional staff and specialised equipment.[243,244] An operating table, hoists, beds, positioning aids (including for induction of anaesthesia) and transfer equipment appropriate for the care of patients with obesity should be available in appropriate quantities for the caseload, and staff should be trained in its use.[242,245] Additional members of staff should be available where necessary, and manual handling should be minimised where possible.

12.50 Operating lists should include the patients' weight and BMI to highlight additional or alternative equipment requirements. Equipment and manual handling issues should be highlighted at the team brief element of the WHO *Surgical safety checklist*.[4,242]

12.51 In view of the increased technical and clinical risks posed by patient with morbid obesity, senior anaesthetic and surgical staff should manage these patients.[246]

12.52 In the postoperative period, the safety of patients with obesity may be improved by the use of supplemental oxygen, non-invasive ventilation (continuous positive airway pressure), monitoring of sedation, and ideally continuous pulse oximetry.[247]

12.53 Patients with obstructive sleep apnoea have a higher incidence of postoperative complications including hypoxia, renal failure, unplanned critical care stay, and delayed discharge. Therefore, consideration should be given to monitoring such patients in a critical care environment postoperatively.[248]

Critically ill patients

This guideline relates only to critically ill patients undergoing procedures in the operating theatre. General provision of critical care is outside the scope of this document. Further information, including definitions of levels of intensive care can be found in the Faculty of Intensive Care Medicine and Intensive Care Society publication, 'Guidelines for the Provision of Intensive Care Services.

Some patients may require a higher level of care postoperatively. The Faculty of Intensive Care Medicine and the Intensive Care Society have produced guidelines for the planning and delivery of UK Intensive Care Services.[249] Although critical care is largely outside the scope of GPAS, the following recommendations are highly relevant to immediate postoperative patient management.

12.54 Critically ill patients should only be held in the recovery area because of a lack of availability of appropriate facilities elsewhere if recovery staff are appropriately trained, and the recovery unit is appropriately equipped to enable monitoring and treatment to the standard of a level 3 intensive care unit (ICU). In some circumstances, such as a viral pandemic or a major incident involving mass casualties, this may not be possible because of a huge surge in demand. This situation should be seen as exceptional rather than the accepted norm. Non-critical transfer to another hospital should be considered where necessary. It cannot be assumed that it is safe to use the recovery facility as an extension of ICU, and local policies and procedures should govern this issue.[250]

12.55 Where postoperative care is delivered outside of a main ICU (e.g. a level 2 high dependency unit (HDU) or specifically developed PACU), nurse-led, protocol driven care of frequently occurring problems for high risk surgical patients (such as pain, fluid imbalance, nutrition and mild cardiorespiratory compromise) can ensure good patient outcomes.[251] Protocols and policies should be agreed between nursing staff, critical care, surgeons and anaesthetists.

12.56 Where the postoperative destination is not a main ICU (e.g. a level 2 HDU or specifically developed PACU), the patient should remain in PACU until they are stable and are no longer likely to require immediate support from an anaesthetist. This is of particular importance when transferring patients from recovery to level 2 critical care units that are not staffed by doctors skilled in airway management.

12.57 All hospitals should have a clear policy describing the safe triage of surgical patients considered to require postoperative critical care, with guidance on which patients should be admitted immediately to ICU, and which can wait in a standard recovery area for a short period while an ICU bed becomes available. Staff in critical care and recovery units should develop procedures to ensure safe and effective patient care during this transition. While the patient remains in the recovery unit, their care should be the primary responsibility of the staff and doctors working in that location.

12.58 Hospitals should have written policies on the management of surgery that is sufficiently urgent that it proceeds when postoperative critical care is desirable but not available; this situation should be considered exceptional.

Diabetes management

Diabetes affects 10–15% of the surgical population, and patients with diabetes undergoing surgery have greater complication rates, mortality rates and length of hospital stay. Modern management of the surgical patient with diabetes focuses on:[34,252,253,254]

- thorough preoperative assessment and optimisation of the patient's diabetes by a multiprofessional team in line with national guidance[253]
- deciding whether diabetes can be managed by simple manipulation of pre-existing treatment during a short starvation period (maximum of one missed meal) rather than use of a variable rate intravenous insulin infusion
- optimising the patient to be able to be treated as a day case wherever procedure allows
- safe use of a variable rate insulin infusion when this is the only option.[34,251,252,253]

12.59 Preoperative assessment, optimisation, manipulation of patients' normal drugs and shared decision making in patients with diabetes requires a cross-specialty approach based on national guidance involving anaesthetists, surgeons, diabetes physicians, diabetes inpatient specialist nurses and pharmacists. The development of such teams requires time and resources. This should be recognised and provided.[253,254]

12.60 Patients with diabetes are at increased risk of adverse postoperative outcomes. Pathways of care providing proactive preoperative interventions to promote day of surgery admission and day surgery should be developed.[253]

12.61 Patients with diabetes are at increased risk of concurrent morbidity. These conditions should be identified and optimised where and when possible.[253]

12.62 Patients with diabetes are at increased risk of drug errors and medication interactions. Pathways should ensure medication reconciliation is performed, as this is vital to these at risk patients. [253] Insulin errors including overdoses occurring due to abbreviations or use of incorrect devices are classed as a never event by NHS Improvements.[255,256]

12.63 Consideration should be given to scheduling patients with diabetes at the start of the operating list, to minimise disruption to the patient's glycaemic control.

12.64 Hospitals should provide the services and resources required for the management of the surgical patient with diabetes, including explicit managerial and clinical policies.[24,253,254]

12.65 Hospitals should consider appointing a lead anaesthetist for diabetes with appropriate time for the role identified in their job plan.[254]

12.66 Hospitals should have clinical guidelines, including:[34]

- involving patients in the management of their own diabetes
- ensuring that surgical patients with diabetes have an individualised explicit plan for the management their diabetes during periods of starvation and surgical stress; this may require the involvement of senior anaesthetic staff and the availability of equipment to continue or institute variable rate intravenous insulin infusions
- ensuring the prevention, and prompt recognition and treatment of hypo and hyperglycaemia, and hospital acquired diabetic ketoacidosis

- surgical patient with diabetes have an increased risk of pressure ulcers and policies should be in place to prevent them.

Patients with additional needs

12.67 In patients with learning disabilities or special needs, there should be close co-operation with other specialists. A learning disability liaison nurse could be available to support patients and carers while attending the hospital either for outpatients, day surgery or as inpatients. If patients lack capacity and are unaccompanied, then the involvement of an independent mental capacity advocate (IMCA) should be sought.[257]

12.68 Departments should have a policy on how to care for patients with additional needs including those covered under the Equality Act, and consider appointing an assigned lead anaesthetist with time in their job plan for the role.[258,259] The policy should incorporate preassessment, deprivation of liberty assessment, consent, pathways to minimise anxiety and considerations for analgesia and discharge planning.

12.69 Some patients who are unable to leave their homes and have difficulty in accessing primary or secondary care may benefit from a home visit for their preoperative assessment and preparation. The same may apply to prisoners detained in HM Prison Service.

12.70 Translators or interpreters should be available for patients who do not speak or understand English and those who use sign language. Written information also needs to be available in different languages.

13 Training and education

The RCoA has established essential knowledge, skills, attitudes and workplace objectives needed in the training to attain a CCT in anaesthesia. This is outlined in the RCoA CCT Curriculum, which was updated in 2020.[260]

13.1 Training of anaesthetists includes attaining the competency to perform medical assessment of patients prior to anaesthesia and surgery or other procedures.[260]

13.2 The preoperative assessment service should enable multidisciplinary training for medical students, nurses, specialist doctors in training, allied health professionals, pharmacists and pharmacy technicians. Educational materials are available to facilitate this training.[86] Schools of anaesthesia should give consideration to establishing specific modules in preoperative assessment and perioperative medicine for senior trainees.

13.3 Preoperative and perioperative educational resources should be made available to general practitioners and primary care staff who are instrumental in 'first contact' patient consultations prior to secondary care referral. This facilitates robust cross-boundary working relationships and agreed 'fitness for referral' protocols, while minimising delays in the patient journey.

13.4 Departments should support the anaesthetic workforce with adequate provision made for continuing professional development (CPD).

13.5 Trusts should commit themselves to provide the time and resources to educate those who provide intraoperative care for patients.[155]

13.6 Theatre teams should undergo regular, multidisciplinary training that promotes teamwork, with a focus on human factors, effective communication and openness.[155]

13.7 All staff should have access to adequate time, funding and facilities to undertake and update training that is relevant to their clinical practice, including annual mandatory training such as basic life support.[155]

13.8 All members of the anaesthetic team should receive non-clinical training and education, which should be reflected in job plans and job planning. This might include a locally arranged list of topics (e.g. fire safety, consent, infection control, blood product administration, mental capacity, safeguarding children and vulnerable adults, communication skills). Some of this training will be mandatory under the legislation for health and safety at work.[68,261]

13.9 All trainees must be appropriately clinically supervised at all times.[6]

13.10 All patients undergoing anaesthesia should be under the overall care of a consultant anaesthetist whose name is recorded as part of the anaesthetic record. A staff grade, specialty and associate specialist (SAS) anaesthetist could be the named anaesthetist with overall responsibility, if local governance arrangements have agreed in advance that, based on the training and experience of the individual doctor and the range and scope of their clinical practice, the SAS anaesthetist can take responsibility for patients themselves in those circumstances, without consultant supervision.[262]

13.11 Departments of anaesthesia should ensure that a named supervisory consultant is available to all non-consultant anaesthetists (except those SAS anaesthetists that local governance arrangements have agreed in advance are able to work in those circumstances without consultant supervision) based on the training and experience of the individual doctor and the range and scope of their clinical practice.[262] Where an anaesthetist is supervised by a consultant, they should be aware of their supervisor's identity, location and how to contact them.[263]

13.12 There should be induction programmes for all new members of staff, including locums. Induction for a locum doctor should include familiarisation with the layout of the hospital and the location of emergency equipment and drugs, access to guidelines and protocols, information on how to summon support/assistance, and assurance that the locum is capable of using the equipment in that hospital. All inductions should be documented.

13.13 All recovery staff should receive appropriate training recognised for post-anaesthesia care.[167] Training should be tailored to meet the needs of the individual staff member and the recovery area.[172]

13.14 CPD and the training of other staff should be facilitated by activities such as the establishment of lead practitioners and accounted for within job plans.

13.15 Members of clinical staff working within the recovery area should be certified to a standard equivalent to immediate life support providers, and training should be provided.

13.16 At all times, an anaesthetist or at least one other advanced life support provider should be immediately available.

13.17 For children, a staff member with an advanced paediatric life support qualification or an anaesthetist with paediatric competencies should be immediately available.[167]

13.18 Core competencies should be updated according to local and national guidelines.

13.19 Wherever possible, training should be provided in a multidisciplinary format.[179]

14 Financial considerations

Part of the methodology used for making recommendations in the chapter 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; rather they are a synthesis of already existing recommendations. The current compliance rates with many of the recommendations are unknown, 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.

The current tariffs for some of the complex major surgical procedures, particularly those done in tertiary referral centres, do not reflect the true cost incurred. Under the circumstances, the use of theatre time and theatre efficiency will come under the spotlight to balance the expenses incurred versus the revenue generated.

The use of electronic health records, with their precise documentation of start times, finish times and the ability to differentiate the time taken to set the patient up for surgery compared with the actual duration of the surgical procedure means that intraoperative anaesthetic practice will come under close scrutiny. As the implementation of electronic health records diffuses across the health service it is vital that anaesthetists engage with the design and standardise documentation to ensure that the data collected are valid and can be meaningfully used to generate information contributing to theatre use and efficiency, and in the future to national data sets.

14.1 Business planning by hospitals and anaesthetic departments should ensure that the necessary time and resources are directly targeted towards preoperative preparation.[68]

14.2 A well designed preoperative service should minimise patient delays through the journey to surgery, while allowing appropriate time for initiation of interventions likely to improve patient outcome. By optimising planning of patient care, with the right staff and resources available, cancellations can be reduced and the efficiency of operating lists improved.

15 Research, audit and quality improvement

15.1 Anaesthetists should participate in departmental audit and quality improvement projects, using specific, measurable, attainable, relevant and time-bound (SMART) methodology (see Glossary) and consideration of full audit cycles (e.g. plan, do, study, act). This participation should adhere to the standards and principles outlined in the College's *Raising the Standards: RCoA Quality Improvement Compendium*.[5]

15.2 There should be a multidisciplinary and cross specialty programme for auditing intraoperative care.

15.3 A system for reporting and regular audit of critical incidents and near misses is an essential part of a well led safety structure, and there should be multiprofessional involvement in this. The methodology must be explicit and identify underlying relevant factors to inform learning and development of safe systems. All staff must recognise the duty of candour and foster a culture for reporting incidents and concerns.[6,155,264]

15.4 Systematic audit should include the pattern of work in operating theatres.[5,265]

15.5 Anaesthetists should be involved in audit and quality improvement cycles, preferably using a 'rapid cycle' quality improvement approach. This approach benchmarks standards of care and may be an effective change driver. It is also an excellent way of providing evidence of

good practice as defined by the GMC, and mapping the contribution that individuals make to any service within their hospitals.[266]

15.6 Regular revision at locally agreed timeframes and audit of standards of care, guidelines and protocols and critical incident reporting are essential in the continuing development and improvement of post-anaesthetic patient care.[172]

15.7 Use of patient reported outcome measures (PROMs) to assess physiological and other recovery domains after surgery could be considered.[267,268]

15.8 Nurturing a safety culture, learning from mistakes, preventing harm and working as part of a team are all part of the discipline of safety. To this end, shared learning and quality improvement that contribute towards improvements in safety, such as critical incident reporting with thematic analysis, and communication through morbidity and mortality meetings, could be undertaken.

16 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 asks 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 after GPAS review and republication to ensure that they reflect current GPAS recommendations. ACSA standards include links to the relevant GPAS recommendations so that departments can refer to them while working through their gap analyses.

Departments of anaesthesia can subscribe to the ACSA process on payment of an appropriate fee. Once subscribed, they are provided with a 'College guide' (a member of the RCoA working group that oversees the process), or an experienced reviewer to assist them with identifying actions required to meet the standards. Departments must demonstrate adherence to all 'priority one' standards listed in the standards document to receive accreditation from the 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', which will be used to collect and share documentation such as policies and checklists, as well as case studies of how departments 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 doing so to test the GPAS recommendations) to ensure that they can be implemented by departments of anaesthesia and to 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.

Areas for future developments

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

- proactive care of older people and high-risk surgery clinics either separate or combined
- shared decision making clinics
- effective and efficient use of virtual consultations in preoperative assessment post COVID-19.

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Glossary

Clinical director – the overall medical manager of the anaesthetic department.

Elective surgery – intervention planned or booked in advance of routine admission to hospital. Timing to suit patient, hospital and staff.[230]

Expedited surgery – patient requiring early treatment where the condition is not an immediate threat to life, limb or organ survival. Normally within days of decision to operate.[230]

Immediate emergency surgery – immediate life, limb or organ-saving intervention; resuscitation simultaneous with intervention. Normally within minutes of decision to operate; (A) Lifesaving (B) Other (e.g. limb or organ saving).

Immediately available – unless otherwise defined, 'immediately available' means within five minutes.

Lead anaesthetists – members of the department who have taken on additional responsibilities in a specialist area of practice. 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. SAS doctors undertaking lead roles should be autonomously practising doctors who have competence, experience and communication skills in the specialist area equivalent to consultant colleagues.

Motivational interviewing - uses a guiding style to engage clients, clarify their strengths and aspirations, evoke their own motivations for change and promote autonomy in decision making.

Recovery unit – may also be referred to as post-anaesthetic recovery unit, theatre recovery, recovery or recovery unit. It is an area, normally attached to theatres, designed to provide care for patients recovering from general anaesthesia, regional anaesthesia, or local anaesthesia. In this document the term post anaesthesia care unit (PACU) is only used to refer to a unit that can offer level 1+ or enhanced care as defined by the Faculty of Intensive Care Medicine.

Responsibility – refers to being accountable and ensuring completion of the specified action rather than physically completing the action yourself.

SMART objectives – SMART is an acronym, giving criteria to guide in the setting of objectives standing for specific, measurable, attainable, relevant and time-bound.

Sterile cockpit – distraction-free period during which only essential and urgent tasks are performed.

Urgent surgery – intervention for acute onset or clinical deterioration of potentially life threatening conditions, for those conditions that may threaten the survival of a limb or organ, for fixation of many fractures and for relief of pain or other distressing symptoms. Normally within hours of decision to operate.[230]

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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
1.1	GPP	Strong
1.2	C	Strong
1.3	M	Mandatory
1.4	C	Strong
1.5	C	Strong
1.6	C	Strong
1.7	C	Strong
1.8	C	Strong
1.9	C	Strong
1.10	GPP	Strong
1.11	C	Strong
1.12	C	Strong
1.13	GPP	Strong
1.14	C	Strong
1.15	C	Strong
1.16	C	Strong
1.17	C	Strong
1.18	GPP	Moderate
1.19	GPP	Strong
1.20	C	Strong
1.21	M	Mandatory
1.22	GPP	Strong
2.1	C	Strong
2.2	C	Strong
2.3	C	Moderate
2.4	C	Moderate
2.5	GPP	Strong
2.6	GPP	Strong
2.7	GPP	Strong
2.8	C	Strong
2.9	M	Mandatory
2.10	GPP	Strong
2.11	GPP	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
3.1	GPP	Strong
3.2	GPP	Strong
3.3	GPP	Strong
3.4	GPP	Strong
3.5	GPP	Strong
3.6	M	Mandatory
4.1	C	Strong
4.2	C	Strong
4.3	C	Strong
4.4	C	Strong
4.5	C	Strong
4.6	C	Strong
4.7	C	Strong
4.8	GPP	Moderate
4.9	GPP	Moderate
4.10	B	Strong
4.11	C	Strong
4.12	C	Strong
4.13	B	Strong
4.14	B	Strong
4.15	GPP	Strong
4.16	C	Strong
4.17	C	Strong
4.18	GPP	Aspirational
5.1	C	Strong
5.2	C	Strong
5.3	C	Strong
5.4	C	Strong
5.5	GPP	Moderate
5.6	C	Strong
5.7	M	Mandatory
5.8	C	Strong
5.9	M	Mandatory
5.10	C	Moderate
5.11	C	Strong
5.12	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
5.13	M	Mandatory
6.1	GPP	Strong
6.2	C	Strong
6.3	C	Moderate
6.4	C	Moderate
6.5	C	Strong
6.6	C	Strong
6.7	C	Strong
6.8	GPP	Strong
6.9	C	Strong
6.10	C	Strong
7.1	C	Strong
7.2	GPP	Strong
7.3	C	Strong
7.4	C	Strong
7.5	C	Strong
7.6	C	Strong
7.7	C	Moderate
7.8	C	Moderate
7.9	C	Strong
7.10	C	Strong
7.11	C	Strong
7.12	GPP	Strong
7.13	GPP	Strong
7.14	B	Moderate
7.15	C	Strong
7.16	C	Moderate
7.17	M	Mandatory
7.18	C	Moderate
7.19	GPP	Strong
7.20	GPP	Moderate
7.21	GPP	Moderate
7.22	GPP	Strong
7.23	GPP	Strong
7.24	GPP	Moderate
7.25	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
7.26	C	Strong
7.27	C	Moderate
7.28	M	Mandatory
7.29	C	Strong
7.30	M	Mandatory
7.31	B	Moderate
7.32	C	Strong
7.33	C	Strong
7.34	C	Strong
7.35	M	Mandatory
7.36	C	Strong
7.37	M	Mandatory
7.38	GPP	Strong
7.39	C	Strong
7.40	C	Strong
7.41	C	Strong
8.1	C	Strong
8.2	C	Strong
8.3	GPP	Strong
8.4	GPP	Strong
8.5	C	Strong
8.6	C	Strong
8.7	B	Moderate
8.8	C	Strong
8.9	C	Strong
8.10	C	Moderate
8.11	C	Strong
8.12	C	Strong
9.1	C	Strong
9.2	C	Strong
9.3	C	Strong
9.4	C	Strong
9.5	C	Strong
9.6	GPP	Strong
9.7	C	Strong
9.8	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
9.9	C	Strong
9.10	C	Strong
9.11	GPP	Strong
10.1	C	Strong
10.2	C	Strong
10.3	C	Strong
10.4	C	Strong
10.5	C	Strong
10.6	C	Strong
10.7	C	Strong
10.8	M	Mandatory
10.9	C	Moderate
10.10	GPP	Strong
10.11	C	Strong
10.12	C	Strong
10.13	C	Strong
10.14	C	Strong
10.15	C	Strong
10.16	C	Strong
10.17	C	Strong
11.1	C	Moderate
11.2	GPP	Moderate
11.3	C	Strong
11.4	C	Strong
11.5	C	Strong
11.6	C	Strong
11.7	C	Moderate
11.8	C	Moderate
11.9	C	Moderate
11.10	C	Moderate
11.11	GPP	Moderate
12.1	C	Strong
12.2	C	Strong
12.3	B	Strong
12.4	GPP	Strong
12.5	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
12.6	C	Strong
12.7	C	Strong
12.8	C	Moderate
12.9	C	Strong
12.10	C	Strong
12.11	C	Strong
12.12	C	Strong
12.13	C	Strong
12.14	C	Strong
12.15	C	Strong
12.16	C	Moderate
12.17	C	Moderate
12.18	C	Strong
12.19	C	Strong
12.20	C	Strong
12.21	C	Strong
12.22	C	Strong
12.23	C	Strong
12.24	C	Strong
12.25	C	Strong
12.26	C	Strong
12.27	C	Moderate
12.28	C	Moderate
12.29	C	Moderate
12.30	B	Strong
12.31	C	Aspirational
12.32	C	Strong
12.33	C	Strong
12.34	C	Strong
12.35	GPP	Strong
12.36	GPP	Strong
12.37	C	Strong
12.38	C	Strong
12.39	C	Strong
12.40	M	Mandatory
12.41	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
12.42	GPP	Moderate
12.43	C	Strong
12.44	C	Strong
12.45	C	Moderate
12.46	C	Strong
12.47	C	Strong
12.48	GPP	Strong
12.49	C	Strong
12.50	C	Strong
12.51	C	Strong
12.52	C	Moderate
12.53	B	Moderate
12.54	C	Strong
12.55	C	Strong
12.56	GPP	Moderate
12.57	GPP	Strong
12.58	GPP	Strong
12.59	C	Strong
12.60	C	Strong
12.61	C	Strong
12.62	C	Strong
12.63	GPP	Moderate
12.64	C	Strong
12.65	C	Strong
12.66	C	Strong
12.67	M	Strong
12.68	C	Strong
12.69	GPP	Moderate
12.70	GPP	Strong
13.1	C	Strong
13.2	C	Strong
13.3	GPP	Strong
13.4	GPP	Strong
13.5	C	Strong
13.6	C	Strong
13.7	C	Strong

Recommendation Number	Level of Evidence	Strength of Recommendation
13.8	C	Strong
13.9	M	Mandatory
13.10	C	Strong
13.11	C	Strong
13.12	GPP	Strong
13.13	C	Strong
13.14	GPP	Moderate
13.15	GPP	Strong
13.16	GPP	Strong
13.17	C	Strong
13.18	GPP	Strong
13.19	C	Strong
14.1	C	Strong
14.2	GPP	Strong
15.1	C	Strong
15.2	GPP	Strong
15.3	M	Mandatory
15.4	C	Strong
15.5	C	Strong
15.6	C	Strong
15.7	B	Moderate
15.8	GPP	Strong

Chapter 2
Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2021

About these guidelines

Methodology

The process by which this chapter has been developed has been documented within the GPAS Chapter Development Process Document, which is available on request.

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 objective was to determine the key components needed to ensure provision of high-quality perioperative 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 Cochrane Library, for the literature search strategy, outcomes, databases, criteria for inclusion and exclusion of evidence (for the full perioperative care chapter search protocol please contact the 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 March 2019.

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 perioperative care, under the responsibility of an anaesthetic clinical director, including (but not restricted to) consultant anaesthetists, SAS anaesthetists, trainee anaesthetists, nurses, operating department practitioners, surgeons, pharmacists, general practitioners, radiologists and radiographers.

Exclusion criteria

The literature review used the following exclusion criteria:

- provision of perioperative care of elective and urgent care patients service provided by a speciality other than anaesthesia.

Data extraction and analysis

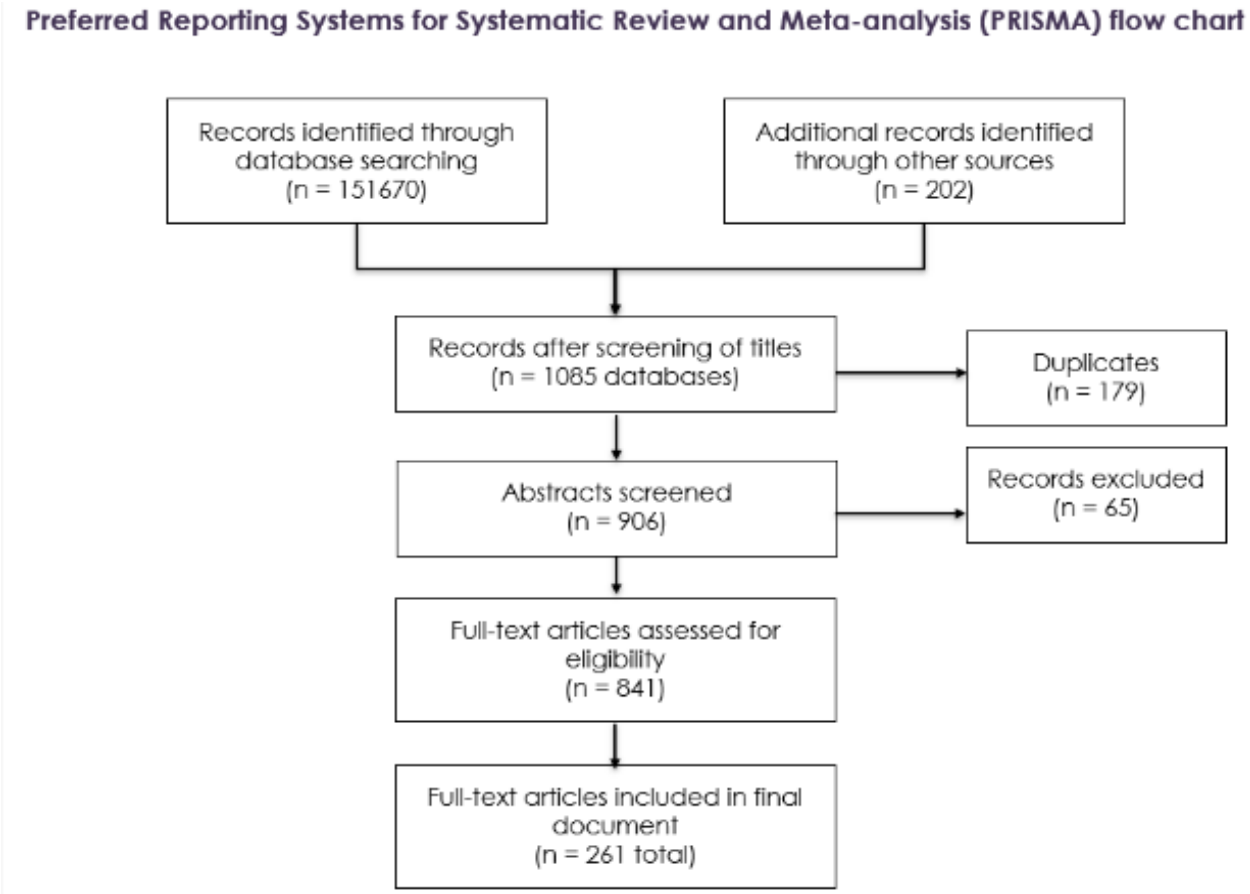
Data were extracted by the authors using a proforma. The study characteristics data included:

- 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 considers 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:



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

Level	Type of evidence	Grade	Evidence
Ia	Evidence obtained from a single large/multicentre randomised controlled trial, a meta-analysis of randomised controlled trials or a	**A**	At least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing

	systematic review with a low risk of bias		the specific recommendation (evidence level I) without extrapolation
Ib	Evidence obtained from meta-analyses, systematic reviews of RCTs or RCTs with a high risk of bias	**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
IIa	Evidence obtained from at least one well-designed controlled study without randomisation		
IIb	Evidence obtained from at least one well-designed quasi-experimental study		
IIc	Evidence obtained from case control or cohort studies with a high risk of confounding bias		
III	Evidence obtained from well-designed non-experimental descriptive studies, such as comparative studies, correlation studies and case studies		
IV	Evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities	**C**	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.
UG	Legislative or statutory requirements	**M**	This grading indicates that implementation of this recommendation is a statutory requirement, or is required by a regulatory body (e.g. CQC, GMC)
		GPP	Recommended good practice based on the clinical experience of the CDG.
Adapted from Eccles M, Mason J. How to develop cost-conscious guidelines. *Health Technology Assessment* 2001;5(16) and Mann T. Clinical guidelines: using clinical guidelines to improve patient care within the NHS. *Department of Health*, London 1996.			

Strengths and limitations of body of evidence

Most of the published evidence on perioperative care anaesthesia services is descriptive. There are publications describing aspects of this process based on expert opinion.

The limitations of the evidence are:

- the 'unmeasurables' (attitudes, behaviour, motivation, leadership, teamwork)

- few randomised controlled trials (RCTs); studies frequently use mixed populations of emergency and elective patients, or all emergency patients grouped together despite different underlying diagnoses
- papers often examine a single intervention within 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
- there is no standard definition used of 'high risk'
- use of different risk-scoring systems
- decrease in outcome over time and geography when 'good papers' are used in quality improvement programmes
- application of international studies in systems with either more or less resources than the UK into NHS practice
- older studies may no longer be applicable within the NHS
- very few studies included any analysis of financial implications
- evidence was mainly based on literature graded III and IV.

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.

Recommendations were worded using the following system of categorisation:

Strength	Type of evidence	Wording
Mandatory	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'
Strong	Confidence that for the vast majority of people, the action will do more good than harm (or more harm than good)	Wording should be clearly directive 'should' or 'should not'
Weak	The action will do more good than 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'
Aspirational	While there is some evidence that implementation of the recommendation could improve patient care, either the evidence or	Wording should include 'could'

	the improvement is not proven or substantial	
Equipoise	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'

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 GPAS Chapter Development Process Document (available on request) 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 (PSC). 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 PSC 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 TBC to TBC. As well as being made available on the College's website and promoted via Twitter and the President's newsletter to members, 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.

The editorial independence of GPAS

The development of GPAS is wholly 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 2 programmed activities (PA) backfill funding. All funding decisions by the College are made by the chief executive officer, 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 (available on request). 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 and from clinical directors, and which also has 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.

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 2022.

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 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 2026.

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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