## GPAS guidelines in context

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

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

* [Chapter 1: Guidelines for the Provision of Anaesthesia Services: The Good department](https://www.rcoa.ac.uk/gpas/chapter-1/good-dept)
* [Chapter 2: Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients](https://rcoa.ac.uk/gpas/chapter-2).

These guidelines apply to all patients who require anaesthesia or sedation and are under the care of an anaesthetist. For urgent or immediate emergency interventions, this guidance may need to be modified as described in [Chapter 5: Guidelines for the Provision of Emergency Anaesthesia](https://rcoa.ac.uk/gpas/chapter-5).

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 1–5 still apply.

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

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

## Aims and objectives

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

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

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 anaesthesia service provision. 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 in regional anaesthesia, including (but not restricted to) anaesthetists, staff grade, associate specialist and specialty (SAS) anaesthetists, anaesthetists in training, operating department practitioners, anaesthesia associates (AAs), nurses, allied health professionals and pharmacy staff.

### Target population

Groups that will be covered:

* all ages of patients undergoing regional anaesthesia.

Groups that will not be covered:

* provision of regional 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 within the hospital in which regional anaesthesia services are provided.

### Clinical management

Key components needed to ensure provision of high-quality regional anaesthesia services.

Areas of provision considered:

* Service organisation and administration
* Staffing requirements
* Equipment, services and facilities
* Preoperative assessment, intraoperative monitoring and the postoperative period
* Training and education
* Areas of special requirement
* Research, audit and quality improvement
* Patient information
* Implementation support.

### 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

## Introduction

Regional anaesthesia (RA) is an important component of anaesthetic practice. It includes neuraxial and peripheral nerve block techniques which may be used for either perioperative anaesthesia or analgesia, as well as other non-surgical indications such as chronic pain and traumatic rib fractures. The practice of RA has changed significantly, particularly over the past three decades[[1]](#endnote-1). The introduction of ultrasound technology has stimulated both a renaissance in popularity and the development of many new blocks, most notably fascial plane blocks[[2]](#endnote-2),. More importantly, ultrasound has improved the safety and effectiveness of RA techniques (C, D) albeit finite risks still remain[[3]](#endnote-3),[[4]](#endnote-4). The availability of newer local anaesthetics with an improved safety profile and advances in managing local anaesthetic toxicity have enhanced the safety of RA further[[5]](#endnote-5),[[6]](#endnote-6).

RA is a recommended analgesic strategy for many surgical procedures, either alone or as a component of multimodal analgesia[[7]](#endnote-7). It generally provides superior analgesia compared to other pain medications in the immediate postoperative period, is opioid sparing and reduces opioid related side effects. Improved analgesia with less side effects can reduce the surgical stress response and facilitate improved mobilisation and as a result regional anaesthesia has a role in many enhanced recovery after surgery programmes and day surgery pathways[[8]](#endnote-8),[[9]](#endnote-9),[[10]](#endnote-10). Regional anaesthesia may also reduce morbidity8. Neuraxial anaesthesia alone, and to a lesser extent when combined with general anaesthesia is associated with decreased odds of pulmonary complications, and possibly also surgical site infection, blood transfusion, thromboembolic events and may be associated with reduced intensive care admissions and a shorter length of stay[[11]](#endnote-11). Peripheral nerve blocks may also have benefits beyond superior analgesia although these are less well studied compared to neuraxial anaesthesia and analgesia[[12]](#endnote-12),[[13]](#endnote-13).

As well as benefitting patients, regjonal anaesthesia may also have institutional benefits. It can reduce the length of stay and reduce readmission rates in ambulatory surgery. Perineural catheters provide prolonged postoperative pain relief and can enable earlier discharge of patients that otherwise would need to remain in hospital. ‘Block rooms can increase theatre productivity by reducing turnover time between cases, and potentially also reduce staffing costs if the block room services multiple theatres where patients undergoing surgery under regional anaesthesia are supervised by non anaesthetists[[14]](#endnote-14),[[15]](#endnote-15),[[16]](#endnote-16). Regional anaesthesia is also attractive from an environmental point of view although there is little evidence as yet that it is any less ‘green' than other forms of anaesthesia.

This guidance makes recommendations on leadership, governance arrangements, staffing, equipment, and training in providing services specific to regional anaesthesia. The provision of high-quality services throughout the perioperative journey of patients is covered. This includes information shared with patients, informed consent, and shared decision-making. The availability of the required number of anaesthetists trained in regional techniques in every hospital to develop RA services and provide the necessary clinical input has been emphasised. Policies and procedures to support high-quality clinical care have been recommended. Some specialities with significant RA workload and patient groups with specific considerations in regional anaesthesia have been addressed separately. The provision of a high standard of RA services throughout the perioperative journey of surgical patients and for analgesia in non-surgical patients will significantly enhance the standard of care provided in acute hospitals.

## Recommendations

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

**1 Service organisation and administration**

### Leadership structure

* 1. Every anaesthesia department should have a designated clinical lead (see [Glossary](#_Glossary)) for regional anaesthesia services. This lead role should be recognised in job plans and be allocated dedicated time. Regional anaesthesia leads should be involved in multidisciplinary service planning and governance related to regional anaesthesia2.
	2. Anaesthetists should actively engage in planning services with significant regional anaesthesia requirements. They should be actively involved in policy decisions, service improvements and equipment purchasing related to regional anaesthesia.
	3. Every anaesthesia department should aim to provide a high-quality regional anaesthesia service. This should be reflected in the published departmental plans and resources provided to support this aim.
	4. Every anaesthesia department should have enough anaesthetists with expertise in regional anaesthesia to provide a timely regional anaesthesia service. When this is not possible, a consultant anaesthetist with expertise in regional anaesthesia should be identified daily to support other anaesthetists with regional anaesthesia procedures.
	5. Where indicated patients should be offered the choice of regional anaesthesia either as the sole anaesthetic or in conjunction with general anaesthesia.

### Clinical governance

* 1. Clinical governance is covered in detail in [Chapter 1: Guidelines for the Provision of Anaesthesia Services: The Good Department](https://www.rcoa.ac.uk/gpas/chapter-1). The principles of governance described in the chapter apply to the provision of regional anaesthesia services.
	2. Every anaesthesia department should have systems to report, investigate, discuss and learn from adverse events occurring during regional anaesthesia[[17]](#endnote-17).
	3. Departments should consider having tools for the collection of data on outcomes and the safety of regional anaesthesia procedures. This data should be regularly discussed at governance meetings to improve the performance of the service.
	4. Hospitals should regularly review local standards and policies related to regional anaesthesia and ensure they are harmonised with national safety standards and guidelines[[18]](#endnote-18).

### Policies and pathways

* 1. General policies detailed in [Chapter 2: Guidelines for the Provision of Anaesthesia Services for Perioperative Care of Elective and Urgent Care Patients](https://rcoa.ac.uk/gpas/chapter-2) are relevant to the provision of regional anaesthesia services.
	2. A multidisciplinary team, including all relevant healthcare professionals as appropriate, should develop local policies pertinent to regional anaesthesia.
	3. Local policies should be in agreement with relevant published national guidelines.
	4. Local policy on consent should have a section dedicated to regional anaesthesia.
	5. National guidelines adopted locally should be easily accessible to all staff caring for patients undergoing regional anaesthesia. These include but are not limited to:
* Regional anaesthesia in patients with abnormalities of coagulation[[19]](#endnote-19)
* LocSSIPS (Local Safety Standards for Invasive Procedures) for regional block performed without surgery
* Standardised operating procedure for stop before you block – Prep, Stop, Block[[20]](#endnote-20)
* Performance of regional techniques by non-physician practitioners[[21]](#endnote-21),[[22]](#endnote-22)
* Intraoperative supervision of patients during peripheral regional anaesthesia16
* Postoperative monitoring of patients with regional anaesthesia[[23]](#endnote-23)
* Management of nerve injury associated with regional anaesthesia[[24]](#endnote-24),[[25]](#endnote-25)
* Management of compartment syndrome[[26]](#endnote-26),[[27]](#endnote-27)
* Management of local anaesthetic toxicity5
	1. Children, pregnant women, elderly, those with comorbidities (e.g.; renal failure, cardiac dysfunction or liver insufficiency) and critically ill patients are at higher risk of Local Anaesthetic Systemic Toxicity (LAST). Clear guidelines on the management of Local Anaesthetic systemic toxicity in this population including the administration of lipid emulsion therapy, should be immediately available6.
	2. In establishing local guidelines, departments may wish to consult the RA-UK [website](https://www.ra-uk.org/index.php/resources/guidelines-standards.html) for examples of good practice in relation to regional anaesthesia.

## 2 Staffing requirements

1. 1. 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 regional anaesthesia care is being delivered[[28]](#endnote-28).
	2. Practitioners performing regional anaesthesia should have undergone adequate training. Such practice should be in the setting of an appropriate local training programme, with strict adherence to governance protocols and regular review of quality and safety15.
	3. Local policies should be in place to define the scope of intraoperative monitoring by non-anaesthetist health care workers. These policies should meet the criteria proposed by RA-UK16.
	4. Appropriately trained healthcare workers monitoring patients who have undergone regional anaesthesia should be specifically trained with their competencies clearly defined according to the Association of Anaesthetists’ requirements for PACU (recovery) nursing[[29]](#endnote-29). This individual should be able to recognise symptoms and signs of local anaesthetic toxicity25.
	5. A ‘block room’ utilising a parallel processing method is a cost-effective model for providing regional anaesthesia in a theatre environment. Staffing numbers may be determined locally depending on how many beds are in the block room but there should be sufficient numbers of trained staff to both assist the anaesthetist and monitor patients. Staffing in the block room should be adequate to safely manage all patients if anaesthetists are required to attend to a patient urgently in the operating theatre[[30]](#endnote-30).

## 3 Equipment, services and facilities

The environment in which regional anaesthesia is undertaken should be adequately equipped to facilitate the safe conduct of the procedure and management of any immediate complications. It is recognised that while most regional anaesthesia is carried out within the theatre or block room environment, there are clinical areas such as the Emergency Department, the Intensive Care Unit and Labour wards that may require local trust review of how best to ensure safe delivery in line with the following recommendations[[31]](#endnote-31).

### Equipment and monitoring

* 1. The following equipment is required as a minimum standard for the safe delivery of regional anaesthesia:
* Regional anaesthesia needles (spinal, epidural and peripheral nerve block) that have yellow colour coded NRFit connections.
* Syringes and pumps used for bolus or continuous use of local anaesthesia (LA) that are NRFit compatible, yellow colour coded with a visible yellow colour sticker attached close to the patient end[[32]](#endnote-32).
* Sufficient portable ultrasound machines with linear and curved probes, probe covers and nerve stimulators that are readily available to avoid any delay in waiting for machine availability.
* A safe supply of oxygen either using wall mounted oxygen outlets or provided by cylinders.
* Appropriate facemasks for oxygen delivery.
* All emergency equipment outlined in [Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2024](https://www.rcoa.ac.uk/gpas/chapter-2)28.
* Cardiac defibrillator
* When performing neuraxial anaesthesia, or where there is any possibility of a regional anaesthetic technique needing to be converted to general anaesthesia, all appropriate equipment for safe induction, maintenance and monitoring of general anaesthesia must be available as outlined in section 7 of [Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2024](https://www.rcoa.ac.uk/gpas/chapter-2)28.
	1. There should be facilities for hand washing and to ensure asepsis; sterile gowns and gloves, caps, masks and chlorhexidine sprays should also be available28.
	2. The standard of monitoring equipment while performing regional anaesthesia should comply with Association of Anaesthetists standards of monitoring[[33]](#endnote-33).
	3. Other appropriate monitoring equipment should be available when sedation or general anaesthesia is administered along with regional anaesthesia as outlined in [Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2024](https://www.rcoa.ac.uk/gpas/chapter-2).
	4. All regional anaesthesia equipment (nerve stimulators, ultrasound machine and infusion pumps) should have user manuals and be checked prior to use in accordance with the Association of Anaesthetists’ published guidelines along with regular maintenance and replacement programmes[[34]](#endnote-34). A planned maintenance and replacement programme should be in place.
	5. All anaesthetists and anaesthetic assistants as well as ODPs (Operating Department Practitioners) should receive systematic training in the use of new regional anaesthesia equipment. Provision and receipt of training should be clearly documented. Staff should not use regional anaesthesia equipment unless appropriately trained. There should be a suitable induction policy for new staff and when new equipment is introduced, with a record of training kept within the department[[35]](#endnote-35).

#### Support services

* 1. Pharmacy services should be available for advice and dispensing of take-home medication for patients scheduled for day-case regional anaesthesia.

#### Facilities

* 1. There should be an adequate supply of all commonly used local anaesthetic (LA) agents in different concentrations and formulations in all clinical areas where regional anaesthesia is performed.
	2. There should be facilities for keeping all LA agents in a separate storage unit or cupboard from intravenous infusion solutions, to reduce the risk of accidental intravenous administration of such medication[[36]](#endnote-36),[[37]](#endnote-37),[[38]](#endnote-38).
	3. Storage units should be located and designed for timely access to LA agents when required, while also maintaining the integrity of the medicines and aiding organisations in compliance with safe and secure storage requirements.36,37,38.
	4. All local anaesthetic medications and additives prepared for infusions should be clearly labelled and delivered via yellow colour coded syringes (or bags) or tubing in accordance with local medicine management committee guidelines36,37,38.
	5. All drugs required for safe delivery of anaesthesia, including emergency drugs, should be available.
	6. Lipid emulsion therapy should be easily accessible near all clinical locations where local anaesthetics are being administered.
	7. There must be a system for ordering, storage, recording and auditing of controlled medicines (such as local anaesthetics with opioids for epidural infusions) in all areas where they are used, in accordance with legislation[[39]](#endnote-39),[[40]](#endnote-40).
	8. Robust systems should be in place to ensure reliable medicines management, stock review and supply, expiry checks, and access to appropriately trained pharmacy staff to manage any medicine shortages.
	9. All staff involved in the prescribing, dispensing, preparing, administering and monitoring of LA infusions must be appropriately trained with access to resources on safe preparation and administration of LA drugs and access to a pharmacy service for advice[[41]](#endnote-41).
	10. Electronic or paper copies of patient records should be available at all sites prior to the procedure. Patient data should be updated in a timely manner after performing the regional block[[42]](#endnote-42).

## 4 Preoperative assessment, patient information and consent

* 1. Patients undergoing regional anaesthesia should be offered a preoperative assessment service either face to face, via telephone or through computer-based virtual platforms prior to the day of their procedure[[43]](#endnote-43).
	2. There should be arrangements or standing orders in place for agreed preoperative laboratory investigations. Support from laboratories or clinical testing services for risk assessment and optimisation of patients, will maximise the utilisation of regional anaesthesia43.
	3. Multidisciplinary support for preoperative assessment staff from other physicians, medical specialists, anaesthetists, surgeons and pain management teams should be available.
	4. As part of preoperative preparation, the plan for the perioperative management of any existing medications, such as anticoagulant drugs and diabetic treatment, should be agreed, taking into account the relative risks of stopping any medication in the light of the patient’s medical condition and the anaesthetic technique required43.
	5. Policies pertaining to regional anaesthesia, alerts and recommendations could be made available using electronic information systems as well as poster displays in all clinical areas.
	6. Patients undergoing regional anaesthesia should undergo preoperative preparation, where there is the opportunity to assess medical fitness and impart information about the procedure. An individualised risk-benefit assessment and discussion should occur with every patient considering regional anaesthesia. Relevant guidance should be followed where appropriate based on the patient, the procedure and the specific regional technique e.g. Association of Anaesthetists guidance on compartment syndrome, coagulation etc
	7. Association of Anaesthetists Consensus guidelines on regional anaesthesia for patients at risk of lower limb compartment syndrome should be followed. Discussion of risk with the patient should occur where possible.
	8. In patients with abnormalities of coagulation it is essential to consider the risk-benefit balance associated with regional anaesthesia. Both the risk and potential consequence of bleeding should be considered. Recommendations relating to the drugs used to modify coagulation, abnormalities of coagulation and the relative risk of individual regional anaesthetic techniques should be followed[[44]](#endnote-44).

### Patient information and consent[[45]](#endnote-45)

Patient information and consent for regional anaesthesia should follow the detailed guidance outlined in [Chapter 2: Guidelines for the Provision of Anaesthesia Services for Perioperative Care of Elective and Urgent Care Patients](https://rcoa.ac.uk/gpas/chapter-2).

* 1. Consent may be obtained by the practitioner performing the regional anaesthetic technique, but may also be discussed in advance (eg in the preoperative assessment clinic) by a person not performing the nerve block. The person obtaining consent for a regional anaesthetic procedure should be able to communicate the practicalities of the nerve block, the intended benefits, the risks involved and any alternatives available.
	2. Shared decision making based on patients’ preferences and informed discussions around risks and benefits are vital in regional anaesthesia practice. Information leaflets (or other forms of information such as online videos) describing benefits, risks and alternatives to regional anaesthesia may be provided at the time of preoperative assessment.
	3. In the elective setting, the option for regional anaesthesia should ideally be discussed with the patient prior to the day of surgery. A ‘patient information leaflet’ may help inform this discussion and, where used, should be written in language easy to understand by the patient, with an appropriate translation available if required.
	4. If regional anaesthesia is not considered as an option prior to the day of surgery, consent may be obtained on the day of surgery, providing adequate time is given in the pre-operative consultation for the patient to understand the information provided, consider alternative options and to ask any questions they may have.
	5. Consent should only be obtained in the anaesthetic room under exceptional circumstances, for example in the case of emergency surgery.
	6. The consent process should include a discussion of the process of the regional anaesthesia technique including whether this will occur while the patient is awake, sedated or under general anaesthesia. All common risks and side effects of the intended block should be outlined together with serious risks.
	7. Patients should be told what to expect following a particular nerve block, including advice on how to protect a limb to prevent damage while it remains insensate and the risk of falls or pressure sores related to a motor block of the lower limb.
	8. All discussions about the intended regional anaesthetic technique should be documented in the patient’s notes. A separate formal, written consent is not required when the nerve block is used to facilitate a surgical procedure, but should be obtained when regional anaesthesia is the sole therapeutic procedure eg. ESP block for rib fractures. In this circumstance, the laterality of the block must also be clearly marked as part of the consent process.

### Patient choice

* 1. Where regional anaesthesia is an option, this should be offered to and discussed with the patient along with the alternatives.
	2. Hospitals should consider providing specific regional anaesthesia lists for awake procedures, staffed by an anaesthetist with a special interest in regional anaesthesia. However, alternative lists for patients unable or unwilling to undergo awake surgery should be available.
	3. Where regional anaesthesia is chosen, and where appropriate, patients should be offered the option of sedation to supplement a regional anaesthetic technique. The relative benefits of undergoing an awake procedure vs sedation vs general anaesthesia (with or without regional anaesthesia) should be considered.

## 5 Intraoperative monitoring

### Co-ordination and communication

* 1. RA-UK/SALG national ‘Prep, Stop, Block’ guidance should be followed for all regional anaesthetic procedures involving laterality. Wrong sided block is defined as a never event by NHS England[[46]](#endnote-46).

### Availability of expertise

* 1. RA-UK recommend that, under certain strict criteria, as defined in RA-UK supervision guidelines, intraoperative patient monitoring may be delegated to a suitably trained health care worker who has been specifically trained in patient monitoring according to Association of Anaesthetists guidelines. This recommendation pertains to awake surgery under peripheral regional anaesthesia but excludes patients undergoing shoulder surgery in the deck chair position.
	2. When utilising the block room model, where work occurs in parallel, the anaesthetist should be immediately available for the first 15 minutes after siting the block and then immediately contactable and able to attend within 2 minutes for the duration of the procedure16.

**6** The postoperative period

* 1. Following day surgery procedures performed under general or regional anaesthesia, a responsible adult should escort the patient home and should provide support for the first 24 hours after surgery. A carer at home may not be essential if there has been good recovery following a brief or non-invasive procedure (under short duration local anaesthetic) and where any postoperative haemorrhage is likely to be obvious and controllable with simple pressure.
	2. Transport home following day surgery should be by private car or taxi; public transport is not normally acceptable following general or regional anaesthesia.
	3. Patients who are discharged from hospital prior to resolution of a nerve block should be provided with written information about the expected duration of the block, who to contact should they experience any issues related to the nerve block and clear instructions regarding appropriate analgesia around the time of block resolution.
	4. Departments should have clear, written guidance relating to peripheral nerve block follow up and initial management of unexpected/persistent neurological dysfunction. A nationally agreed joint RA-UK/British Orthopaedic Association guideline is available[[47]](#endnote-47).

## 7 Training and education

* 1. All anaesthetists should be aware of the potential benefits and risks of regional anaesthesia and be able to discuss these options with patients where appropriate as part of an individual patient anaesthetic management plan.
	2. All anaesthetists completing the 2021 RCoA curriculum should be able to deliver a range of safe and effective central or peripheral regional anaesthetic techniques to cover the upper and lower limb, chest and abdominal wall independently[[48]](#endnote-48).
	3. Structured training in regional anaesthesia should be provided to all anaesthetists in training as well as any other anaesthetists who wish to learn any of these techniques. This should include an understanding of the relevant anatomy, physiology, pharmacology, ultrasound physics, non-technical skills and the prevention and management of complications. Part task trainers may be used to improve practical skills[[49]](#endnote-49).
	4. All anaesthetists should have access to adequate time, funding and facilities to undertake training in, and update or advance their regional anaesthesia knowledge and skills relevant to their clinical practice2,18.
	5. Trainees should be appropriately clinically supervised at all times[[50]](#endnote-50).
	6. There should be a nominated anaesthetist responsible for training in regional anaesthesia, with adequate programmed activities allocated for these responsibilities.
	7. Anaesthetists with a specific interest in regional anaesthesia should deliver regular appropriate theatre sessions to ensure the maintenance of their skills and experience.
	8. All anaesthetists and the wider theatre team should be aware of the serious complications of regional anaesthesia including wrong sided block and local anaesthetic systemic toxicity. Anaesthetists should help organise and participate in regular multidisciplinary training aimed at reducing risk, recognition and management.
	9. Staff in the recovery area and in the wards who monitor and care for patients after surgery with epidural infusions, spinal anaesthesia, intrathecal opioids and single shot or continuous nerve blocks should have received up to date training in caring for such patients[[51]](#endnote-51).
	10. Staff expected to provide medication to top up epidurals and continuous nerve infusions should be trained in the administration of such medications.

## 8 Areas of special requirement

### Paediatric patients

* 1. Anaesthetists and other health professionals who care for children having regional anaesthesia techniques, should have received appropriate training and should ensure that at annual appraisals, competence is deemed adequate,48,[[52]](#endnote-52).
	2. Equipment suitable for each age group should be available and checked.
	3. Regional anaesthesia should be considered in the pre-operative preparation of patients. Families and patients should be provided with information about the benefits, risks, and side effects of RA techniques in a way that they understand. This includes verbal and written instructions on how to manage pain when the block wears off and what to do and who to contact in the event of a problem or concern when patient is discharged[[53]](#endnote-53),[[54]](#endnote-54).
	4. Hospitals should have pathways in place for major surgery that include the use of regional techniques.
	5. Ultrasound equipment should be available, as its use to guide central (e.g. caudal) and peripheral blocks is encouraged to increase efficacy and safety. This is particularly relevant in younger children, infants and neonates where the effect size is inversely proportional to the patient size5.
	6. Processes should be recognised that the PREP STOP BLOCK moment will likely occur with the patient under general anaesthesia and therefore the ability to confirm with the patient at this point will be lost; ensuring this SOP is performed correctly will help to reduce the risk of wrong sided block.
	7. Guidelines relating to the appropriate maximum doses of local anaesthetic should be considered. It should be recognised that infants and neonates are at increased risk of LAST and therefore dose recommendations should be strictly adhered to27.
	8. Staff managing LA infusions (peripheral nerve infusions or epidural infusions) should be appropriately trained in the recognition and management of LAST. The risk of LAST associated with infusions is increased in younger patients and therefore the duration of LA infusions should be considered to reduce this risk.
	9. LA boluses e.g. epidural top ups, should be performed by appropriately trained individual.

Further detailed recommendations for anaesthetic care in paediatric population can be found in [Chapter 10: Guidelines for the Provision of Paediatric Anaesthesia Services 2023](https://www.rcoa.ac.uk/gpas/chapter-10)

### Pregnant and breastfeeding

* 1. All anaesthetists involved in the care of pregnant and breastfeeding women should be competent to deliver high quality and safe anaesthetic care in this population[[55]](#endnote-55).
	2. Guidelines on anaesthetising pregnant patients should be followed[[56]](#endnote-56). Local or regional technique are preferable where feasible in pregnant and breastfeeding women54,55.
	3. In pregnant women having non obstetric surgery and regional anaesthesia, the decision to monitor fetal heart rate during surgery is specific to the patient and often based on institutional guidelines. Informed consent should include consideration of fetal wellbeing, the possibility of caesarean delivery and any risks for mother and child.
	4. Guidelines for the management of pregnant women receiving anticoagulation, and for the recognition and management of complications of regional analgesia/anaesthesia should be available, including access to appropriate imaging facilities if neurological injury occurs.

Further detailed recommendations for anaesthetic care in obstetric and non-obstetric surgery for pregnant women can be found on [Chapter 9: Guidelines for the Provision of Anaesthesia Services (GPAS) Guidelines for the Provision of Anaesthesia Services for an Obstetric Population 2024](https://www.rcoa.ac.uk/gpas/chapter-9) and [Chapter 5: Guidelines for the Provision of Emergency Anaesthesia Services 2024](https://www.rcoa.ac.uk/gpas/chapter-5)

### Frail and older patients

* 1. Guidelines on perioperative care of elderly patients should be available[[57]](#endnote-57).
	2. Multidisciplinary communication about the nature of surgical intervention is necessary to provide adequate anaesthesia care and analgesia plan in this high-risk population and should be available.
	3. Older patients should be assessed for risk of postoperative cognitive dysfunction and preoperative interventions undertaken to reduce the incidence, severity and duration. Whilst the use of regional anaesthesia alone without sedation might be considered, there is a lack of strong quality evidence suggesting that this reduces the overall risk57.
	4. In patients deemed to be lacking in capacity, proxy information should be sought to determine what treatment, if any, is in the patient’s best interests and this should be clearly documented57.

### Patients living with obesity

* 1. Experienced anaesthetists should manage patients living with obesity. Regional anaesthesia in this group of patients can be challenging and should be undertaken/supervised by experienced anaesthetists[[58]](#endnote-58).
	2. Additional specialised equipment might be necessary to perform regional anaesthesia techniques on these patients. Equipment such as extra-long spinal or epidural needles should be available.
	3. Ultrasound equipment should be available, as its use to guide central and peripheral techniques is encouraged to increase success rates.

### Critically ill patients

* 1. Critically ill patients are complex and hold unique particularities that makes them more susceptible to side effects and complications of regional anaesthesia techniques. Experienced regional anaesthetists should perform/supervise regional anaesthesia techniques in these patients.
	2. Regional anaesthesia complications in sedated patient are less easily recognisable, and a high index of suspicion is required, which should be recognised in local policies and procedures.
	3. In the patient receiving epidural analgesia or other continuous LA infusions the site of injection should be checked at least once a day. Patients should be monitored for early signs of complications.

**Trauma & Orthopaedics**

Benefits of RA in Trauma and Orthopaedic include good pain control, improved theatre efficiency, early recovery, reduction in PACU stay and bypassing the first stage recovery in some cases. Institutions are encouraged to incorporate RA and Enhanced Recovery After Surgery (ERAS) into daily practice.

* 1. Early multidisciplinary assessment including surgeons, pain services, critical care and physiotherapy should determine the optimal analgesia management for chest wall injuries including provision for early epidural or nerve blocks in patients with multiple rib fractures[[59]](#endnote-59).
	2. Establishing pathways which lead to early identification and timely management of injured nerves is key to optimal patient outcome. There should be a clear and accessible pathway for suspected peripheral nerve injuries including a single point of contact to guide further management59.
	3. Patients at risk of acute compartment syndrome should be identified on admission to hospital or at the time of surgery, and the condition should be managed within agreed multidisciplinary protocols. Single-shot or continuous peripheral nerve blocks using lower concentrations of local anaesthetic drugs without adjuncts have not been associated with delays in diagnosis provided post injury or postoperative surveillance is appropriate and effective[[60]](#endnote-60).

Further detailed recommendations for anaesthetic care in trauma and Orthopaedic surgery can be found on [Chapter 16: Guidelines for the Provision of Anaesthesia Services for Trauma and Orthopaedic Surgery 2024](https://www.rcoa.ac.uk/chapter-16)

**Emergency Department patients**

* 1. Patients receiving any regional anaesthesia/analgesia care in a non-theatre location should be cared for by an adequately trained health professional with appropriate supervision[[61]](#endnote-61).
	2. Guidelines for recognising and managing complications including local anaesthetic toxicity, and intralipid, should be immediately available and located in all areas where large amounts of LA is administered[[62]](#endnote-62).
	3. After performing a nerve block in the emergency department, patients should be closely monitored during and after (for a minimum of 1 hour) the procedure; for both signs of local anaesthetic toxicity and sedation effects of other analgesia that may have been administered[[63]](#endnote-63).
	4. Hospitals providing care for hip fracture patients should have a formal pathway which includes prompt provision of analgesia with regional block such as Fascia Iliaca Block (FIB or FICB) in Emergency Departments. FICB should be undertaken only by clinicians who have completed a competency assessment in this skill[[64]](#endnote-64).
	5. Regional anaesthesia procedure should be clearly documented and easily accessible in the patient’s notes.

 **Ophthalmic patients**

* 1. Anaesthesia for ophthalmic surgery is a specialised area of anaesthesia. Practitioners should be competent in performing ophthalmic blocks and be able to recognise and manage of any complications.
	2. Sharp needle based blocks (e.g. peribulbar) should only be administered by medically qualified personnel. Intravenous access should be established prior to performing sharp needle blocks.
	3. Patients who require regional anaesthesia should undergo preoperative preparation.
	4. Units where ophthalmic surgery is performed should be provided guidelines, drugs and equipment to deal with complications and emergencies such as cardiac arrest, anaphylaxis and local anaesthesia toxicity.

Further detailed recommendations for anaesthetic care in ophthalmic surgery can be found on [Chapter 13: Guidelines for the Provision of Ophthalmic Anaesthesia Services 2024](https://www.rcoa.ac.uk/gpas/chapter-13)

**Day Surgery**

* 1. Medical, surgical and social suitability for day surgery should be assessed as part of pre-operative assessment. This should ideally be within a day-case specific pre-operative assessment service54.
	2. All components of safe regional anaesthesia service delivery should be adhered to within day surgery environments to the same standards as within an inpatient facility.
	3. Departments should have ‘Awake surgery’ pathways, which can increase efficiency of list turnover and may reduce resources required. A ‘block room’ service delivery model where locally appropriate could facilitate this process.
	4. Policies should acknowledge that patients who undergo surgery under regional anaesthesia without GA may be suitable to bypass the Acute/Stage 1 recovery area after surgery and proceed directly to secondary recovery prior to discharge home[[65]](#endnote-65).
	5. Locally agreed same-day discharge pathways should consider incorporating local anaesthesia infusion devices and catheters where follow up systems and protocols allow this to be done safely. There should be appropriate staff and patient education in their use and in the detection and management of complications.
	6. Where spinal anaesthesia is used in day-surgery, nursing staff should be trained in the safe mobilization of patients after spinal anaesthesia (2) prior to nurse led discharge. Information on post-dural puncture headache and what to do if this occurs should be included in the patients discharge instructions.
	7. Post-operative patient education and written information should be provided prior to discharge as described in the ‘postoperative period’ section of this document, regarding care of the insensate limb, expected sensation and motor recovery trajectory, pre-emptive analgesia plan, and how and when to seek help.
	8. Staff undertaking day surgery patient follow up or answering patient helpline calls should be aware of local departmental guidance related to peripheral nerve block follow up and initial management of unexpected/persistent neurological dysfunction.

Further detailed recommendations for anaesthetic care in ophthalmic surgery can be found on [Chapter 6: Guidelines for the Provision of Anaesthesia Services for Day surgery 2024.](https://www.rcoa.ac.uk/node/18556)

## 9 Implementation support

The Anaesthesia Clinical Services Accreditation (ACSA) scheme, run by the RCoA, provides a set of standards based on the recommendations contained in the GPAS chapters. As part of the scheme, departments of anaesthesia self-assess against the standards and undertake quality improvement projects to close the gap. Support is provided by the RCoA in the form of the good practice library, which shares documents and ideas from other departments on how to meet the standards. Further advice can be obtained from the ACSA team and department’s assigned College guide.

The ACSA standards are regularly reviewed on at least a three yearly basis to ensure that they reflect current GPAS recommendations and good practice. This feedback process works both ways and the ACSA scheme regularly provides CDGs with comments on the GPAS recommendations, based on departments’ experience of implementing the recommendations.

Further information about the ACSA scheme can be found here: <https://www.rcoa.ac.uk/safety-standards-quality/anaesthesia-clinical-services-accreditation>

## Areas for future development

Following the systematic review of the evidence, the following areas of research are suggested:

**TBC**

## Abbreviations

|  |  |
| --- | --- |
| ACSA | Anaesthesia Clinical Services Accreditation |
| CDG | Chapter Development Group |
| CQC | Care Quality Commission |
| GMC | General Medical Council |
| GPAS | Guidelines for the Provision of Anaesthetic Services |
| GPICS | Guidelines for the Provision of Intensive Care Services |
| HDU | High dependency unit |
| ICU | Intensive care unit |
| NHS | National Health Service |
| NICE | National Institute for Health and Care Excellence |
| RCoA | Royal College of Anaesthetists |
| SAS | Staff grade, associate specialist and specialty doctor |

## Glossary

**Autonomously practising anaesthetist** –a consultant or a staff grade, associate specialist or specialty (SAS) doctor who can function autonomously to a level of defined competencies, as agreed within local clinical governance frameworks.

**Clinical lead** –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. They should usually have experience in teaching and education relevant to the role and they should participate in quality Improvement and continuing professional development 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

**Immediately** – Unless otherwise defined, ‘immediately’ means within five minutes.

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