Royal College of Anaesthetists

Chapter 12

Guidelines for the Provision of Anaesthesia Services (GPAS)

Guidelines for the Provision of Anaesthesia Services for ENT, Oral Maxillofacial and Dental surgery 2024

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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 conflict and then, if necessary, to remove 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. Guidelines on the general provision of anaesthetic services are detailed in the *GPAS Chapter 2: Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients*.

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 promote current best practice for service provision in head and neck anaesthesia. The guidance is intended for use by anaesthetists with responsibilities for service delivery and by healthcare managers.

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

A wide range of evidence has been rigorously reviewed during the production of this chapter, including recommendations from peer-reviewed publications and national guidance where available. However, both the authors and the CDG agreed that there is a paucity of level 1 evidence relating to service provision in head and neck anaesthesia. In some cases, it has been necessary to include recommendations of good practice based on the clinical experience of the CDG. We hope that this document will act as a stimulus for 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 head and neck surgery, including (but not restricted to) consultant anaesthetists, staff grade, associate specialist and specialty (SAS) anaesthetists, anaesthetists in training, operating department practitioners (ODPs)/anaesthetic assistants, and nurses.

Target population

All ages of patients undergoing head and neck surgery.

Healthcare setting

All settings within the hospital in which head and neck surgery are provided.

Clinical management

Key components needed to ensure provision of high-quality anaesthetic services for head and neck surgery.

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 paediatric patients, pregnant patients, patients with obesity, robotic procedures and dental care
- training and education
- research and audit
- organisation and administration
- patient information.

Exclusions

Provision of head and neck anaesthesia services by a specialty other than anaesthesia.

Clinical issues that will not be covered:

- clinical guidelines specifying how healthcare professionals should care for patients
- national level issues.

Introduction

Head and neck surgery includes a wide spectrum of surgical interventions, ranging from short daycase procedures to long and complex operations.[1] The requirements for providing anaesthesia services for routine head and neck surgery, such as tonsillectomy, will be different to those required to provide anaesthesia for major or complex surgery. There should be recognition that routine head and neck surgery may include patients with complex and difficult airways due to disease or previous treatment.

Anaesthesia for surgery of the head and neck includes the disciplines of ear, nose and throat (ENT), oral and maxillofacial, and dental surgery. A significant proportion of head and neck surgery is of a routine nature, and much of the service is ideally provided by a dedicated daycase facility.

In some instances, such as surgery on the base of the skull and craniofacial surgery, formal integration with a neurosurgical and plastic surgical service may be required. Owing to the broad scope of patients requiring anaesthesia for head and neck surgery, multidisciplinary team working is essential.

Conditions that require head and neck surgery affect patients of all ages, and a significant proportion are children. The treatment of neonates, young children with significant comorbidity, and children with complex surgical conditions should take place in units with specialist paediatric facilities, unless immediate emergency care is required prior to transfer to a specialist paediatric facility.[2] Minor procedures such as dental extractions, the removal of tonsils or adenoid tissue, and the insertion of grommets can be carried out on children in a general hospital setting.

The indications for head and neck surgery vary widely, from minor infective and inflammatory disorders to extensive malignant disease. In the latter case, surgical excision and reconstruction, often using free tissue transfer, requires complex perioperative anaesthetic management.

It is common for head and neck surgery to encroach upon the airway or to require changing the airway during surgery. It is therefore essential that there is close liaison and good teamwork between theatre teams – surgeons, anaesthetists, anaesthetic assistants, scrub staff and nurses providing post-operative care, in all cases where a shared airway is planned and undertaken.[1]

All dental work requiring general anaesthesia should be performed in a hospital setting. [3] Special care dentistry often requires additional resources to provide appropriate perioperative care.

Recommendations

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

Staffing requirements

1.1 A clinical lead (see Glossary) for head and neck anaesthesia should be appointed in each hospital providing anaesthetic services for head and neck surgery.[1,4]

1.2 One or more named senior anaesthetists with appropriate training and expertise, and with an interest in head and neck surgery, should be responsible for directly or indirectly overseeing all complex and/or major head and neck procedures.[5] All other regular sessions should have a named autonomously practising anaesthetist with appropriate skills assigned to them.[6]

1.3 A Royal College of Anaesthetists/Difficult Airway Society airway lead should be appointed in all hospitals providing anaesthetic services.[7]

1.4 Where scheduled procedures cannot be accommodated within normal list times, anaesthesia departments should make arrangements for anaesthetists to be relieved by a colleague.[8]

1.5 There should be an appropriately trained theatre team including an on-call consultant anaesthetist 24/7 to provide anaesthesia for emergency head and neck surgery in head and neck cancer centres and in hospitals with an emergency department (ED).[9]

1.6 Consideration should be given to identifying anaesthetists with advanced airway experience to support colleagues providing care to patients with complex airway emergencies.

1.7 Patients who have had a recent tracheostomy or airway surgery returning to a general ward, should be cared for by adequate levels of nursing staff who are skilled in the care of the surgical airway and be aware of the specific risks involved.[4,10, 11,12,24,]

1.8 Many patients with head and neck cancer have significant comorbidities that may require optimisation prior to surgery. There should be a lead anaesthetist for preoperative assessment who works closely with an appropriate preoperative assessment team.[13]

1.9 Where laser surgery to the head and neck is performed staff must be appropriately trained in its safe use.[14,15] A laser protection adviser (LPA) should be consulted or appointed according to devolved administration or local authority regulations, and a local safety officer and/or an operational laser protection supervisor (LPS) appointed according to local advice from the LPA.[16]

1.10 Nursing and theatre staff trained to manage patients with a tracheostomy should be available in recovery areas of hospitals. [11,12]

1.11 Recovery facilities should be staffed and have appropriate anaesthetic support until the patient meets the agreed discharge criteria.[17]

2 Equipment, services and facilities

Equipment

2.1 Many patients with intraoral malignancy, craniofacial disorders and traumatic facial injuries present with a predicted difficult intubation. There should be a full range of equipment relating to the management of the anticipated difficult airway available within the theatre suite.

2.2 The following equipment should also be available; videolaryngoscope, equipment for tracheal intubation, high-flow nasal oxygen therapy (HFNO), and equipment to perform emergency front of neck access.[18,19,20]

2.3 Devices suitable to administer total intravenous anaesthesia (TIVA) should be available where shared airway cases are undertaken and are essential when tubeless field techniques are employed ie jet ventilation and transnasal humidified rapid-insufflation ventilatory exchange (THRIVE).[21]

2.4 An adequate range of tracheostomy tubes, including adjustable flange tubes with inner tubes, should be stocked and should be standardised within the hospital.[11,12]

2.5 The use of lasers during head and neck surgery is common. Where LASERs are in use, the correct safeguards, in accordance with BS EN 60825, must be in place.[14] laser proof blinds or barriers should be used to cover theatre door windows and LASER warning systems must be provided. The appropriate wavelength specific protective eye goggles must be worn.[16,22]

2.6 When undertaking specialist techniques, such as high frequency jet ventilation in laryngotracheal surgery, the appropriate equipment and training to safely undertake this should be available.

2.7 Nasendoscopy equipment should be available at all times to aid the identification of the difficult airway and to enable advance planning for anticipated problems.[1,7]

2.8 When transferring patients requiring postoperative care in a critical care facility additional equipment should be available. This should include portable non-invasive and invasive monitoring, emergency transfer packs, portable ventilators, and end tidal-CO_2 monitoring.[7,23]

2.9 Any clinical area caring for patients with a tracheostomy should provide the recommended bedside equipment and the locally 'immediately available' emergency equipment, as indicated in the UK National Tracheostomy Safety Project Guide.[11,24]

2.10 The use of bedhead signage to indicate which patients are not suitable for facially applied bag-mask ventilation and/or oral intubation in the event of emergencies is advised.[24]

2.11 Throat packs are no longer recommended for routine insertion, but should their use be judged necessary a protocol governing their use and removal should exist.[25]

Support services

2.12 Patients awaiting complex head and neck surgery (for benign or malignant pathology), or with significant comorbidities, should be seen in the preassessment clinic by an experienced anaesthetist who ideally will be involved in their perioperative pathway. This should take

place at the earliest possible opportunity to maximise the time available for optimisation and shared decision making.[26]

2.13 Short- and long-term outcomes in patients with head and neck cancer patients can be improved by using the teachable moment to trigger positive lifestyle changes. [27] The preoperative assessment clinic should be used as an opportunity to:[28]

- assess and discuss perioperative risk and plan clinical care accordingly
- screen for and optimise comorbidities such as anaemia, diabetes and frailty
- support patients to make changes around smoking cessation, alcohol reduction, nutrition and exercise with access to the appropriate support services (e.g. dietetics, smoking cessation services)

2.14 Access to radiological imaging should be available preoperatively to aid in the identification and management of the difficult airway.

2.15 Where major head and neck surgery is performed, there may be a regular requirement for elective level 2 and level 3 critical care facilities. These facilities should be available in the same hospital for those trusts or boards providing complex reconstructive procedures.[5]

2.16 When the postoperative destination is a level 2 critical care unit, patients should remain in the postoperative care unit until they meet discharge criteria, including having regained a sufficient level of consciousness.

2.17 When fibreoptic scopes are used in head and neck surgery, the general principles for scope decontamination, as outlined by the Department of Health (or equivalent in the devolved nations), must be followed.[29]

Facilities

2.18 Facilities should be available, or transfer arrangements should be in place to allow for the overnight admission of patients who cannot be treated as day cases and for those patients who require unanticipated admission to hospital.

2.19 Wherever possible, patients who have undergone airway-related surgery should be cared for in the early postoperative period on a dedicated head and neck surgery ward with adequate levels of medical and nursing staff who are familiar with the recognition and management of airway related problems.[4,10]

2.20 Patients presenting with impending airway obstruction may need emergency airway intervention and surgery. The ability to provide this service dictates that an appropriately staffed and equipped theatre be available 24/7.

2.21 The location of the head and neck ward should ideally facilitate a rapid return to theatre should the need arise, since postoperative airway complications can occur following even minor surgical procedures. Consideration should be given to the proximity between head and neck wards, theatre, and critical care facilities when planning head and neck services.

3 Areas of special requirement

Children

Head and neck surgery is performed on a significant number of children. General recommendations for the provision of anaesthetic services for children and young people are described in chapter 10.[2]

3.1 The treatment of neonates, young children with significant comorbidity and children with complex surgical conditions should be provided in specialist paediatric facilities, unless immediate emergency care is required prior to transfer to a specialist paediatric unit.

3.2 In an emergency situation involving a child requiring anaesthesia for an airway or head and neck procedure, the most experienced available anaesthetist and surgeon would be expected to provide life-saving care when transfer to a specialist facility is not feasible.

3.3 Simple procedures such as dental extractions, tonsillectomy and adenoidectomy, and the insertion of grommets are examples of surgery suitable to be performed in a general hospital setting.[30]

Pregnant patients

Recommendations for the provision of anaesthesia for non-obstetric surgery in pregnant patients can be found in chapter 5.[9]

3.4 Where possible surgery should be postponed until after delivery. If this is not possible, for example in cases of head and neck cancer, a multidisciplinary team approach is highly recommended, typically involving anaesthetists, surgeons, oncologists, obstetricians, midwives and paediatricians and, in cases of thyroid malignancy, endocrinologists.

Obstructive sleep apnoea

There is an inherent risk of increased morbidity and mortality related to anaesthesia and obstructive sleep apnoea (OSA). This risk may be increased in head and neck surgery. When providing head and neck anaesthesia services for adult patients with known (OSA)/or a STOP-Bang score $\geq$ 3 (intermediate to high risk for OSA) the following recommendations may need to be considered.[31,32]

3.5 Sleep studies and a trial of continuous positive airway pressure are recommended or should be considered, where possible, prior to elective surgery so that appropriate services and planning can be allocated to them.[33]

3.6 Postoperative airway issues can occur even following minor surgical procedures, and these should be anticipated and planned for.[34,35] There may be a need to consider elective postoperative care in an appropriate critical care unit or a specialist postoperative ward.[17,36]

Obesity

3.7 When providing head and neck anaesthesia services for patients with morbid obesity (BMI $\geq$ 40 kg/m^2), a number of special requirements will need to be considered as set out in GPAS chapter 3 (12.43–12.53)[17]

3.8 Obesity hypoventilation syndrome (Pickwickian syndrome) is associated with a higher risk of perioperative complications than OSA, and this should be given due consideration in patients with obesity with or without a STOP-Bang score $\geq$ 3.[37]

Transoral robotic surgery

Transoral robotic surgery (TORS) is currently performed for oropharyngeal cancer and OSA. These procedures may range from minor resection (e.g. tongue mucosectomy) to complex resection or salvage surgery following primary chemoradiotherapy.

3.9 All personnel involved with TORS should be appropriately trained, including knowledge of how to perform an emergency dedock procedure (see Glossary). An emergency dedock should be regularly rehearsed by the whole theare team, and discussed as part of the briefing prior to TORS being performed.[38]

3.10 Consideration should be given to anaesthetic equipment specific for TORS, for example extra-length anaesthetic circuit, patient eye protection, tracheal-tube fixation, laser safety and dental protection.

Dentistry

3.11 General anaesthesia for dental procedures should be administered only by anaesthetists in a hospital setting as defined by the Department of Health report reviewing general anaesthesia and conscious sedation in primary dental care.[3]

3.12 Guidelines, for example those published by the Association of Paediatric Anaesthetists of Great Britain and Ireland, should be followed for the management of children referred for dental extractions under general anaesthesia.[39] Further information on anaesthesia for community dentistry is available in chapter 7.

3.13 Anaesthetists providing sedation for dental procedures should follow the guidance on safe sedation published by the Academy of Medical Royal Colleges and Intercollegiate Advisory Committee on Sedation for Dentistry.[40,41]

Special care dentistry

Special care dentistry (SCD) is a specialist field of dentistry that provides oral care services for vulnerable adults with physical, medical, developmental, or cognitive conditions which limit their ability to receive routine dental care.[42] General anaesthesia for dental procedures forms an important aspect of SCD, and a close working relationship is needed between the dental team, the anaesthetist and the other multidisciplinary teams involved. Patients in this vulnerable group require appropriate access, communication and perioperative care appropriate to their individual needs.[43]

3.14 Informed consent may not be possible for adults who lack the mental capacity to make decisions for themselves; such patients should not be asked to sign a consent form if they do not have the legal capacity to do so. Standard operating procedures must be compliant with the Mental Capacity Act 2005.[44] A high level of integrity should be maintained, and good documentation is essential.

3.15 A 'best interests' meeting will be needed where a person over 16 years of age lacks mental capacity to make significant decisions for themselves and needs others to make those decisions on their behalf.[44]

3.16 Establishing a successful special care dentistry anaesthetic service in hospitals requires suitably trained staff with an understanding of specific perioperative challenges in this group and with experience in the management of shared airways.[42]

4 Training and education

4.1 Patients requiring head and neck procedures should be managed by anaesthetists who have had an appropriate level of training in this field and who have acquired the relevant knowledge and skills needed to care for these patients.[45,46]

4.2 In order to maintain the necessary repertoire of skills, consultant anaesthetists and SAS doctors providing a head and neck service should have a regular commitment to the specialty, and adequate time should be made available for them to participate in a range of relevant continuing medical education activities, including simulation, human factors and team training.[7,47,48]

4.3 Where possible, equipment such as monitors, video recorders and airway simulators should be made available to facilitate anaesthetic education. Time to educate all anaesthetists in elective, emergency and advanced airway management techniques should be encouraged.

4.4 The provision of formal and systematic training should be considered and head and neck surgery provides an excellent opportunity for training anaesthetists in the use of advanced methods for airway management and the shared airway, including videolaryngoscopy, flexible bronchoscopic, and jet and apnoeic oxygenation techniques.

4.5 All hospitals providing care to tracheostomy patients should have trained staff (medical and nursing) available to care for these patients. Training should be regularly updated.[11,49]

4.6 Departments providing head and neck LASER surgery must have staff trained in the safe use of LASERS and these staff should be available for all LASER cases.[14,15] Training should be regularly updated, and opportunities made available for education in safe LASER use in the theatre complex. Staff involved in LASER surgery should be trained in how to reduce the risk of, and manage, a LASER fire if one should occur.[50]

5 Organisation and administration

5.1 All theatre staff should participate in the World Health Organization checklist process (or an appropriate locally agreed process), with reference made to specific airway strategies for anticipated airway problems and to ensure that all necessary equipment is available.[10]

5.2 Airway management should be guided by local protocols,[10] including formal adoption of national guidelines such as Difficult Airway Society awake tracheal intubation, extubation, paediatric and obstetric guidelines. These protocols should be reviewed and amended when an increased risk of infectivity during aerosol generating procedures is identified to ensure the safety of patients as well as their healthcare providers.[18,51,52,53,54]

5.3 A multidisciplinary team may be required, which this may include plastic, vascular or neurosurgical surgeons for complex head and neck surgery. Anaesthetists may be required to attend multidisciplinary team meetings preoperatively. Attendance should be included in their job plan if it forms a regular commitment.

5.4 Access to an emergency operating theatre staffed with appropriate personnel should be available for all cases requiring urgent surgical management, for example obstructed airway or bleeding tonsil.

5.5 A clear referral pathway should exist for the eventuality of patients requiring transfer to a regional centre.

5.6 There should be at least one three-session operating day per week as required, dedicated to complex head and neck surgery,[5] with provision made for adequate rest breaks.

6 Financial considerations

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

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

6.1 Airway management equipment, for example videolaryngoscopes, high frequency jet ventilators, transnasal high-flow humidified oxygen delivery devices and portable ultrasound machines should be included in annual budget planning and procurement processes.[18]

7 Research, audit and quality improvement

7.1 In addition to routine audit and the reporting of critical incidents, any morbidity relating to airway management should be presented at departmental clinical governance meetings and documented for audit purposes.

7.2 Head and neck anaesthetists should actively engage and contribute to regional and national head and neck outcome databases and audit.[5,55]

Patient information

Recommendations on the provision of patient information and consent are comprehensively described in chapter 2.

8.1 As part of a difficult airway follow follow-up, patients should be informed in writing about any significant airway problem encountered, and should be advised to bring it to the attention of anaesthetists during any future preoperative assessment.

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: 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:

- national reporting systems
- the Difficult Airway Society alert card[56]
- use of virtual preoperative assessment clinics for assessment of long-distance patients in tertiary centres
- provision of a robust preoperative pathway with a view to optimising patients' physiology prior to undertaking major head and neck surgery, and an enhanced recovery pathway to reduce complications and length of stay.

Glossary

Head and neck surgery – for the purpose of this document the term head and neck surgery will include ear, nose and throat, oral and maxillofacial, and dental surgery, unless otherwise stated.

Clinical airway lead – This role may be undertaken by any senior clinician, SAS or consultant grade who has competence, experience and communication skills in the specialist area. They should usually have experience in teaching and education relevant to the role, and they should participate in quality improvement and CPD (continuous 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.

Dedock – to remove the robot from the patient quickly.

STOP-Bang – Snoring, Tiredness, Observed apnoea, high blood Pressure (STOP); BMI, Age, Neck circumference, and Gender (Bang).

Abbreviations

ACSA	Anaesthesia Clinical Services Accreditation
BMI	body mass index
CDG	chapter development group
GPAS	Guidelines for the Provision of Anaesthetic Services
LPA	laser protection adviser
LSO	local safety officer
OSA	Obstructive sleep apnoea
RCoA	Royal College of Anaesthetists
TORS	transoral robotic surgery

Reference

1 National Institute for Health and Care Excellence. *Improving Outcomes in Head and Neck Cancers*. NICE Cancer service guideline CSG6. London, 2004 (bit.ly/UrSTSh)

2 Royal College of Anaesthetists. *Guidelines for the Provision of Anaesthesia Services (GPAS) Chapter 10 Guidance on the Provision of Paediatric Anaesthesia Services*. London, 2023 (https://rcoa.ac.uk/gpas/chapter-10)

3 Department of Health. *A Conscious Decision: A review of the use of general anaesthesia and conscious sedation in primary dental care*. London, 2000 (bit.ly/2Sfk9Fm)

4 Paleri V, Roland N. Introduction to the United Kingdom National Multidisciplinary Guidelines for Head and Neck Cancer. *The Journal of Laryngology and Otology* 2016; 130(S2): S3–4

5 British Association of Head & Neck Oncologists. *BAHNO Standards 2009*. 2020 (bit.ly/3MI0zvD)

6 Royal College of Anaesthetists. *Supervision of SAS and other non-consultant anaesthetists in NHS hospitals*. 2019 ((www.rcoa.ac.uk/training-careers/working-anaesthesia/sas-specialty-doctors)

7 Cook T, Woodall N, Frerk C. Major complications of airway management in the UK: results of the Fourth National Audit Project of the Royal College of Anaesthetists and the Difficult Airway Society (Part 1*). Br J Anaesth* 2011 106: 617-31

8 Association of Anaesthetists. *Fatigue and Anaesthetists*. 2014 (https://anaesthetists.org/Fatigue)

9 Royal College of Anaesthetists. *Guidelines for the Provision of Anaesthesia Services (GPAS) Chapter 5 Guidelines for the Provision of Emergency Anaesthesia*. London, 2023. (www.rcoa.ac.uk/gpas/chapter-5)

10 Charters P, Ahmed I, Patel A, Russell S. Anaesthesia for head and neck surgery: UK national multidisciplinary guidelines. *J Laryngol Otol* 2016; 130 (Suppl 2): S23–7

11 McGrath BA, Wallace S, Lynch J et al. Improving tracheostomy care in the United Kingdom: results of a guided quality improvement program in 20 diverse sites. *Br J Anaesth* 2020; 125: e119–29

12 National Confidential Enquiry into Patient Outcome and Death. Tracheostomy care: on the right trach? 2014 (bit.ly/2Js9Kyo)

13 Royal College of Anaesthetists. *Guidelines for the Provision of Anaesthesia Services (GPAS) Chapter 2 Guidelines for the Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients*. London, 2023.

14 *Health and Safety at Work etc Act 1974*. 1974. (www.legislation.gov.uk/ukpga/1974/37/contents)

15 *The Management of Health and Safety at Work Regulations*. 1999

16 Medicines and Healthcare products Regulatory Agency. *Lasers, intense light source systems and LEDs: guidance for safe use in medical, surgical, dental and aesthetic practices*. 2015 (bit.ly/2JuvQV7)

17 Royal College of Anaesthetists. *Provision of Anaesthesia Services for the Perioperative Care of Elective and Urgent Care Patients 2023*

18 Frerk C, Mitchell VS, McNarry AF *et al.* Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults. *Br J Anaesth* 2015; 115: 827-48

19 Patel A, Nouraei SA. Transnasal humidified rapid-insufflation ventilatory exchange (THRIVE): a physiological method of increasing apnoea time in patients with difficult airways. *Anaesthesia* 2015; 70: 323-29

20 Gustafsson IM, Lodenius Å, Tunelli J, Ullman J, Jonsson Fagerlund M. Apnoeic oxygenation in adults under general anaesthesia using transnasal humidified rapid insufflation ventilatory exchange (THRIVE): a physiological study. *Br J Anaesth* 2017; 118: 610-7

21 B E Maguire, K L Pearson. Anaesthesia for laryngo-tracheal surgery, including tubeless field techniques BJA Education 2017; 17 (7): 242-248.

22 The control of artificial optical radiation at work regulations 2010. (bit.ly/2DDqv9D)

23 Association of Anaesthetists of Great Britain and Ireland. Recommendations for standards of monitoring during anaesthesia and recovery 2021 https://anaesthetists.org/Home/Resources-publications/Guidelines/Recommendations-for-standards-of-monitoring-during-anaesthesia-and-recovery-2021

24 UK National Tracheostomy Safety Project, 2017 www.tracheostomy.org.uk

25 Athanassoglou V, Patel A, McGuire B *et al.* Systematic review of benefits or harms of routine anaesthetist-inserted throat packs in adults: practice recommendations for inserting and counting throat packs: An evidence-based consensus statement by the Difficult Airway Society (DAS), the British Association of Oral and Maxillofacial Surgery (BAOMS) and the British Association of Otorhinolaryngology, Head and Neck Surgery (ENT-UK). *Anaesthesia.* 2018; 73: 612-8

26 British Association of Head & Neck Oncologists. *BAHNO Standards 2020*. 2020

27 Robson A, Sturman J, Williamson P, Conboy P, Penney S, Wood H. Pretreatment clinical assessment in head and neck cancer: United Kingdom National Multidisciplinary Guidelines. *J Laryngol Otol* 2016; 130 (S2); S13–S22

28 Centre for Perioperative Care. Preoperative Assessment and Optimisation for Adult Surgery, including consideration of COVID-19 and its implications. CPOC, London 2021

29 *Management and decontamination of flexible endoscopes*. Health Technical Memorandum. 2016

30 The Royal College of Surgeons of Edinburgh. Statement of intent. *Working together to improve the local delivery of the General Surgery of Childhood* 2018

31 British Snoring & Sleep Apnoea Association. *STOPBang questionnaire*. www.britishsnoring.co.uk/stop_bang_questionnaire.php

32 Goldberg JM, Johnson MP, Safian MJ. Preoperative assessment of obstructive sleep apnea in the ambulatory anesthesia patient: a survey of oral and maxillofacial surgery providers. *Journal of Oral & Maxillofacial Surgery* 2019; 77: 1135-42

33 Chung F, Yegneswaran B, Herrera F, Shenderey A, Shapiro CM. Patients with difficult intubation may need referral to sleep clinics. *Anesthesia and Analgesia* 2008; 107: 915–20

34 Subramani Y, Nagappa M, Wong J, Patra J, Chung F. Death or near-death in patients with obstructive sleep apnea: a compendium of case reports of critical complications. *BJA* 2017; 119: 885-99

35 Ravesloot M, De Raaff C, Van De Beek M *et al*. Perioperative care of patients with obstructive sleep apnea undergoing upper airway surgery: a review and consensus. *JAMA Otolayngology - Head & Neck Surgery 2019*; 145: 751-60

36 Venn PJH. Obstructive sleep apnoea and anaesthesia. *Anaesthesia and Intensive Care medicine* 2014; 15: 229-34

37 Kaw R, Bhateja P, Paz Y Mar H *et al.* Post-operative complications in patients with unrecognised obesity hypoventilation syndrome undergoing elective non-cardiac surgery. *Chest* 2016; 146: 84-91

38 The Royal College of Surgeons edinburgh. *Development of new robitic surgical services*. A guide to good practice, 2022.

39 Association of Paediatric Anaesthetists of Great Britain and Ireland. *Guidelines for the management of children referred for dental extractions under general anaesthesia*. 2011 (bit.ly/2TgVKg4)

40 Academy of Medical Royal Colleges. *Safe sedation practice for healthcare procedures: standards and guidance*. 2021 https://www.aomrc.org.uk/wp-content/uploads/2021/02/Safe_sedation_practice_for_healthcare_procedures_update_0521.pdf

41 Royal College of Anaesthetists and Royal College of Surgeons. Standards for conscious sedation in dentistry in the provision of dental care: report of the Intercollegiate Advisory Committee for Sedation in Dentistry. 2020 https://www.rcseng.ac.uk/dental-faculties/fds/publications-guidelines/standards-for-conscious-sedation-in-the-provision-of-dental-care-and-accreditation/

42 British Society for Disability and Oral Health. *The provision of oral health care under general anaesthesia in special care dentistry*. 2022 https://www.bsdh.org/index.php/ga-guideline-2022

43 General Medical Council. *Decision making and consent* 2020 https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/decision-making-and-consent

44 *Mental Capacity Act 2005 Code of Practice*. 2007.

45 Royal College of Anaesthetists. *2021 Anaesthetics Curriculum* https://rcoa.ac.uk/training-careers/training-hub/2021-anaesthetics-curriculum

46 Royal College of Anaesthetists. *Matrix of topics for Continuing Professional Development for Anaesthetists*. 2015 (bit.ly/2JLXDje)

47 Strauss RA, Noordhoek R. Management of the difficult airway. *Atlas Oral* Maxillofac Surg Clin *North* Am 2010; 18: 11-28

48 Miller C, Spong A, Ferguson C. Implementation of a cross-discipline, insitu simulation programme improved team preparedness for airway emergencies. *Trends in Anaesthesia & Critical Care* 2020; 30: e183-4

49 McGrath BA, Bates L, Atkinson D, Moore J. Multidisciplinary guidelines for the management of tracheostomy and laryngectomy airway emergencies. *Anaesthesia* 2012; 67: 1025-41

50 Sheinbein DS, Loeb RG. Laser surgery and fire hazards in ear, nose and throat surgeries. *Anaesthesiology Clinics* 2010; 28: 485-96

51 Black AE, Flynn PE, Smith HL, Thomas ML, Wilkinson KA; Association of Pediatric Anaesthetists of Great Britain and Ireland. Development of a guideline for the management of the unanticipated difficult airway in pediatric practice. *Paediatr Anaesth*. 2015; 25: 346-62

52 Mushambi MC, Kinsella SM, Popat M. Obstetric Anaesthetists' Association and Difficult Airway Society guidelines for the management of difficult and failed tracheal intubation in obstetrics. *Anaesthesia*, 2015; 70: 1286-306

53 Cook TM, El-Boghdadly K, McGuire et al. Consensus guidelines for managing the airway in patients with COVID-19: Guidelines from the Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists. *Anaesthesia*. 2020 75:785-799. (https://bit.ly/3qTW6ZO)

54 Maniakas A, Jozaghi Y, Zafereo ME, et al. Head and neck surgical oncology in the time of a pandemic_subsite-specific triage guidelines during the COVID-19 pandemic. *Head & Neck 2020;* 42 1194-1201

55 Duggan LV, Lockhart SL, Cook TM, O'Sullivan EP, Dare T, Baker PA. The airway app: exploring the role of smartphone technology to capture emergency front-of-neck airway experiences internationally. *Anaesthesia.* 2018; 73: 703-10

56 Difficult Airway Society. DAS Airway Alert Card: patient information. https://das.uk.com/aac/patient_information

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	C	Strong
1.2	GPP	Strong
1.3	GPP	Strong
1.4	C	Strong
1.5	GPP	Strong
1.6	GPP	Strong
1.7	C	Strong
1.8	GPP	Strong
1.9	GPP	Strong
1.10	C	Strong
1.11	C	Strong
2.1	GPP	Strong
2.2	GPP	Strong
2.3	C	Strong
2.4	GPP	Strong
2.5	GPP	Strong
2.6	GPP	Strong

Recommendation number	Level of evidence	Strength of recommendation
2.7	B	Strong
2.8	B	Strong
2.9	GPP	Strong
2.10	GPP	Strong
2.11	GPP	Strong
2.12	C	Strong
2.13	C	Strong
2.14	C	Strong
2.15	C	Strong
2.16	C	Strong
2.17	C	Strong
2.18	GPP	Strong
2.19	C	Strong
2.20	GPP	Strong
2.21	GPP	Strong
3.1	B	Strong
3.2	B	Moderate
3.3	GPP	Strong
3.4	GPP	Strong
3.5	C	Strong
3.6	C	Strong
3.7	C	Strong
3.8	C	Strong
3.9	GPP	Strong
3.10	GPP	Strong
3.11	C	Strong
3.12	C	Strong
3.13	C	Strong
3.14	B	Mandatory
3.15	C	Strong
3.16	C	Strong
4.1	C	Moderate
4.2	C	Moderate
4.3	C	Moderate
4.4	C	Moderate
4.5	C	Moderate
4.6	C	Strong
5.1	C	Aspirational
5.2	C	Strong
5.3	GPP	Strong
5.4	GPP	Strong
5.5	GPP	Strong

Recommendation number	Level of evidence	Strength of recommendation
5.6	C	Strong
6.1	C	Strong
7.1	GPP	Strong
7.2	GPP	Strong
8.1	GPP	Strong

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 current best practice for the delivery of inpatient pain management by anaesthesia services.

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 October 2022.

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

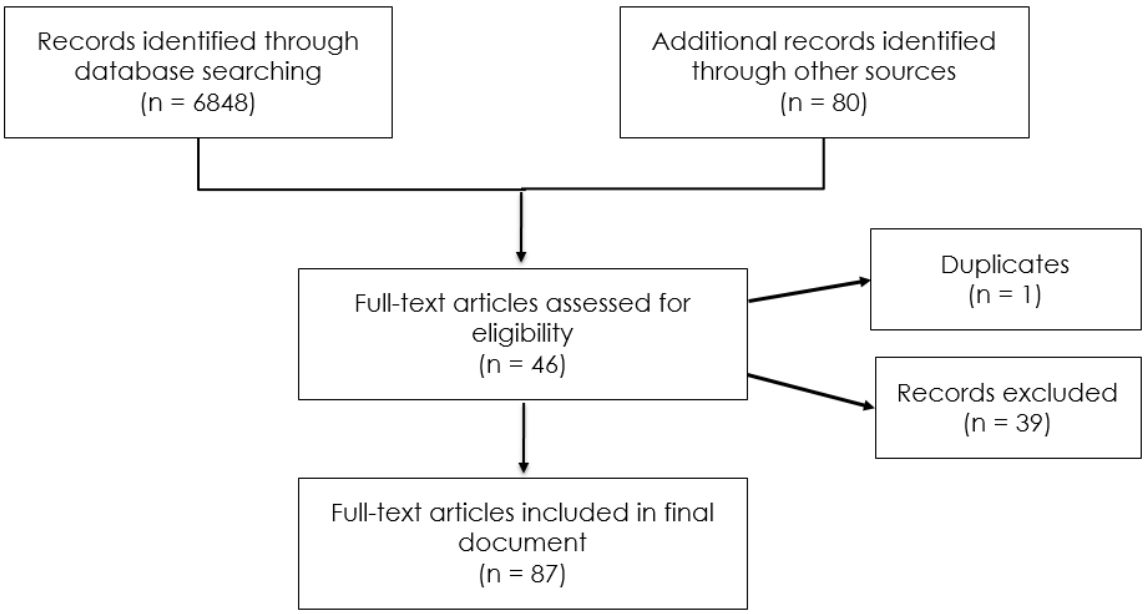
Data were extracted by the authors using a proforma. The study characteristics data included:

- 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:

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



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	**A**	At least one randomised controlled trial as part of a body of literature of overall good quality and consistency addressing

	randomised controlled trials or a 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	Wording should include 'could'

	patient care, either the evidence or 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 Editor 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 Guideline development and review 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 Editor or Clinical Quality and Research Board (CQRB). 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 CQRB and PatientsVoices@RCoA 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 15 November 2023 to 13 December 2023. 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 1 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 PatientsVoices@RCoA 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 Standards Committee, which includes individuals responsible for the various internal stakeholders (see above for membership). On the inclusion/exclusion of specific recommendations within each chapter, the Standards Committee 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 PatientsVoices@RCoA 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 2025.

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 2029.

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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