GUIDELINES FOR THE CARE OF CHILDREN AND YOUNG PEOPLE UNDERGOING ANAESTHESIA AND SURGERY AT SANDWELL AND WEST BIRMINGHAM HOSPITALS NHS TRUST

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Group, Directorate and Specialty	Surgical Services, Anaesthetics and Critical Care
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Consultation process:
- Anaesthetic Consultant,
- Paediatric surgeons joint liaison group which includes Paediatricians

If review of existing guideline what has been changed:
- This document has been completely rewritten to incorporate the recent changes in delivery of Paediatric Surgical services across the Trust

What National Guidance has been incorporated:
- American Society of Anesthesiologists. Retrieved 2007-07-09 N Are We There Yet? A review of organisational an clinical aspects of children's surgery

- Royal College of Anaesthetists. Guidance on the provision of paediatric anaesthetic services'. Chapter 8. in Guidelines for the Provision of Anaesthetic Services. London: RCA ; April 2010.

- Children's Surgical Forum- ' Ensuring the Provision of General Paediatric Surgery in the District General Hospital' 2010

- Standards for children's surgery. Children's Surgical Forum of The Royal College of Surgeons of England 2013

- Guidelines for the Provision of Paediatric Anaesthetic Services: The Royal College of Anaesthetists Chapter 10 Jan 2020

Scope:

- Applies to all children undergoing an anaesthetic at SWBH NHS Trust both as an emergency or elective procedure

DOCUMENT CONTROL AND HISTORY

Version No	**Date Approved**	**Date of implementation**	**Next Review Date**	**Reason for change** *(e.g. full rewrite, amendment to reflect new legislation, updated flowchart, etc.)*
2	November 2013	December 2013	December 2016	Amendments only
2	February 2014	February 2014	February 2017	Renamed: Anaesthetic Guidelines for Elective and Emergency Surgery in Children
2	June 2015	June 2015	June 2018	Minor changes to sections 4.2 and 4.3
3	November 2020	November 2023	November 2023	Full rewrite as old version out of date and not comprehensive

AIM

To provide children and young people undergoing surgery at Sandwell and West Birmingham (SWBH) NHS Trust with the highest standard of care in the most appropriate setting by the most appropriate clinical staff in accordance with the guidelines set by Royal College of Anaesthesia and Association of Paediatric Anaesthetists in Great Britain and Ireland. The policy takes into account other national guidance in relation to paediatric surgery and details the expectation of practice within the Trust.

Particular importance should be paid to the following:

Paediatric patients are defined as patients aged 16 or under

- The minimum age for any surgery - emergency or elective - is 1 year (See exceptions for Ophthalmology).
- Children under 1 year of age should be referred for treatment to an appropriate tertiary referral paediatric centre (primarily Birmingham Children's Hospital: BCH).
- Children between the ages of 9 - 12months requiring specialist ophthalmic surgery can be operated in Birmingham Midland Eye centre at SWBH with prior agreement with the anaesthetic department.
- Elective surgery should not take place outside of routine hours 8000hours – 1730hours.
- Efforts must be made to undertake emergency surgery as soon as is safely possible. Emergency surgery should not be scheduled late at night or in the middle of the night if it can safely be delayed. Only life/ limb organ saving surgery should be carried out overnight.
- The grade of anaesthetic and surgical staff should always be appropriate to the physiological status and the age of the child.
    - Children under 3 years of age must be anaesthetised by an anaesthetist who regularly gives Paediatric anaesthetics:
    - Children over 3 years of age may be anaesthetised by all career grade anaesthetists.
- For children with complex needs or co-morbidities a multi-disciplinary discussion involving anaesthetic, surgical, paediatric and nursing teams must be had prior to proceeding with surgery. Transfer to tertiary paediatric surgical services must be considered as an option.
- All Anaesthetists must ensure that they have maintained adequate competencies and confidence to treat children.

OBJECTIVES

To ensure that all clinical staff are aware of the standards of care for children and young people requiring anaesthesia and surgery at Sandwell and West Birmingham NHS Trust. The Trust is committed to ensuring, patients' safety and clinical effectiveness at all times, and as such sets out within this document the process to be followed in order to carry out paediatric surgery and anaesthesia safely and effectively.

ROLES AND RESPONSIBILITIES

Surgeon: Is responsible for ensuring that procedures on paediatric patients are carried out by an appropriately trained, experienced surgeon in the most appropriate environment at the best time for the benefit of the patient. (This may involve referral to a tertiary surgical unit). The consent process must be robustly performed by adequately informed surgical staff. Risks and potential complications must be discussed with the child's carers and also with the patient where the child has capacity. A named surgical consultant will have overall responsibility for the governance of paediatric surgery and must regularly attend the paediatric surgical users' group.

Anaesthetist: Is responsible for ensuring that procedures on paediatric patients are carried out by an appropriately trained, experienced anaesthetist in the most appropriate environment at the best time for the benefit of the patient. (This may involve referral to a tertiary surgical unit).

They are responsible for assessing the child's fitness for surgery and anaesthesia. The anaesthetist undertaking the procedure should personally undertake the immediate pre-op visit. Carers and children (where appropriate) should have the anaesthetic process explained and options and potential risks discussed and documented.

Named Sub-specialty lead for Paediatric anaesthesia is responsible for updating paediatric guidelines and ensuring the service provided conforms to the most up-to-date GPAS guidelines for paediatric anaesthesia service.

They must also represent the department at the paediatric surgical users' group and at the care of children and young people board. In addition, a named Sub-specialty lead for Paediatric education, training and simulation is responsible for organising and delivering in house teaching and training to career grade anaesthetist.

Operating Department Staff: Are responsible for ensuring the provision of appropriate paediatric equipment, anaesthetic drugs in appropriate dosages and appropriately experienced staff.

Paediatric Medical Staff: Have a shared responsibility for paediatric surgical patients on the ward, to provide paediatric advice and expertise when requested by surgical or anaesthetic teams. Paediatric surgical patients admitted overnight will be under the shared care of a named surgeon and named paediatrician (usually the on Call consultant Paediatrician).

Paediatric Nursing Staff: Are responsible for advocating for both the patient and their family, and ensuring the patient is fully prepared for surgery by admitting the patient and completing the necessary paperwork, administering prescribed pre-operative medications and escorting the patient to theatre. They are responsible for collecting the patient from recovery and providing nursing care until the patient is fully recovered and ready to be discharged home.

The Pre-assessment nursing team sees the child in the pre-assessment clinic. Children with complex needs or co-morbidities must be referred to the paediatric anaesthetic team by Emailing the Paediatric Anaesthetic email group: SWBH.TeamPaediatricsanaesth@nhs.net. The nursing staff can also discuss cases with anaesthetists who regularly provide anaesthetic cover for particular lists e.g. BMEC etc.

DEFINITIONS

Elective surgery: Planned surgery either inpatient or day case.

ASA: Classification system adopted by the American Society of Anesthesiologists for assessing preoperative physical status:

- ASA 1: A normal healthy patient
- ASA 2: A patient with mild systemic disease
- ASA 3: A patient with severe systemic disease
- ASA 4: A patient with severe systemic disease that is a constant threat to life
- ASA 5: A moribund patient who is not expected to survive without the operation
- ASA 6: Declared brain-dead patient whose organs are being retrieved for donor purposes
- The addition of an 'E' indicates emergency surgery

ELECTIVE SURGERY AND ANAESTHESIA

Paediatric lists undertaken at SWBH:

Since the COVID pandemic all Emergency and Elective work has been undertaken on Sandwell site. Except Paediatric eye surgery which will continue at BMEC.

Day case surgery:

Children requiring elective surgery at SWBH are fit and well, usually ASA1 and ASA2 and the majority of the surgery carried out is of minor or intermediate nature which conforms to day case criteria. Occasionally situations will arise when a child requires overnight admission e.g. unexpected complications, a prolonged procedure, pre-existing airway problems such as sleep apnoea or children with complicated social circumstances. Each case will be discussed between the surgeon, anaesthetist and senior nursing staff to formulate an appropriate management plan. If a child is admitted overnight a named Paediatric consultant will be informed and share the child's care with the consultant surgeon.

STANDARDS FOR ELECTIVE PAEDIATRIC ANAESTHESIA

All elective cases should meet the criteria below:

- Children should be ASA 1-2.
- ASA 3 children especially those needing specialist ophthalmic services must be discussed with the Paediatric Anaesthetist covering the list or with the Paediatric Anaesthetic forum via email to (swbh.TeamPaediatricsAnaesth@nhs.net). A decision to proceed with elective surgery should be made on a case by case basis
- ASA 4 and above children must be transferred to an appropriate tertiary referral paediatric centre (primarily BCH).

- Upper respiratory tract infections (URTIs) are common in Paediatric age group. The decision to postpone or proceed with surgery for children with URTI should be made on an individual basis by considering the presence of identified risk factors.

  Children with mild uncomplicated URTIs (clear rhinorrhea) undergoing surgery that does not involve instrumentation of the airway can be safely anesthetized without increased risk. But each case should be individually risk assessed: after considering the urgency of surgery, any comorbidities (asthma) and the age of the child. Care should be taken in the very young who are known to be at greater risk of airway complications. A full discussion of the risks and benefits should be carried out with the family and this should be documented. Discussion with a second anaesthetist should be made prior to cancelling a case and help should be sort from a colleague if you are proceeding and are concerned.

  Children with severe symptoms like purulent nasal discharge, productive cough and/or fever or with clinical signs suggesting lower respiratory tract involvement such as desaturation or wheeze should have elective surgery postponed for at least 4 weeks.

- Elective surgical cases should be grouped together on specifically nominated children's list to allow best use of theatre and ward resources. If this is not possible then they should (preferably) be placed at the start of a list.
- Ex-preterm infants should generally not be considered for day surgery unless they are medically fit and have reached a corrected age of 12 months. Risks should be discussed with parents or carers on an individual basis.
- Please refer to Appendix 2 for children who are unsuitable for undergoing adeno-tonsillectomy in at SWBH.
- Children will be admitted to D6 /Paediatric admission unit (PAU) at City or Wards Lyndon Ground or Lyndon 1 or Priory Ground at Sandwell on the morning of surgery.

Elective Paediatric Surgery and Age:

Children over 3 years:

- Anaesthesia for children over three is routinely performed providing they meet the criteria above (section 6.1).
- All anaesthetists with a CCT or equivalent will have undertaken higher-level paediatric anaesthesia training. As a minimum they should be competent to provide perioperative care for common elective and emergency procedures in children aged 3 years and older.

Children 1- <3 years:

- Children aged between 1 year and < 3 years should only be anaesthetised by a consultant anaesthetist with experience in Paediatric anaesthesia.
- Children under 3 years of age must be anaesthetised by an anaesthetist who has sufficient experience in anaesthetising younger children and who has kept up-to-date with their knowledge and skills in Paediatric anaesthesia and Paediatric resuscitation

Children <1 year:

- Very occasionally children under one (over 9 months of age) will require specialist ophthalmology surgery which is provided at BMEC. These children can be challenging and can be ASA 3 grade. Elective surgery for these children will require prior escalation and agreement with the anaesthetic department.
- A senior consultant anaesthetist who has experience in Paediatric anaesthesia and has a regular paediatric list must anaesthetise these cases. The consultant must be doubled up with either another anaesthetic consultant or an experienced specialty doctor.
- Other Children under 1 years of age should be discussed and transferred to an appropriate tertiary referral paediatric center (primarily BCH).

Elective Paediatric Anaesthesia and Trainees:

- Trainees should not anaesthetise children without direct or local supervision by a consultant unless they have the required training and experience. They must have the appropriate competencies signed off prior to anaesthetising such cases.
- Every effort must be made to have a consultant deliver the anaesthesia for elective paediatric operating lists, except in exceptional circumstances when there is senior trainee who has completed higher level paediatric training. A mentor must be allocated to the trainee on the rota system.

PRE-OPERATIVE ASSESSMENT

- The use of a children's pre-assessment clinic for elective procedures is important as it allows health screening and the identification of potential problem cases, through discussing the child's health history with their parent's, legal guardians or carers.
- All children are pre-assessed prior to their surgery. The pre-assessment is carried out by a team of experienced paediatric nurses.
- Pre-assessment clinics are conducted at the City site in the outpatient's department twice a week (Monday and Wednesday) and at the Sandwell site on Priory Ground on Monday afternoon.
- All elective cases identified by pre-assessment nursing staff as complex should be discussed with the Paediatric anaesthestist covering the list or with the Paediatric Anaesthetic forum via email to (swbh.TeamPaediatricsAnaesth@nhs.net). The complex cases which are deemed too difficult should be referred to BCH or other tertiary centre. The decision of the Paediatric Anaesthetic forum must be emailed back to the referring nurse with a copy to the original surgical team. It is the original surgical team's responsibility to refer the child to an appropriate tertiary centre.
- Urgent cases or emergencies may not have the chance to attend the pre-assessment clinic. Such cases will be assessed by the anaesthetist and the surgical team on the day of surgery.

- Children coming for repeat surgery within a short time span are not always assessed by a pre-assessment nurse face to face. In such cases a telephone assessment is conducted.
- Community dental patients are assessed by the community dental nursing team. High risk patients are discussed with the pre-assessment team at SWBH who escalate their concerns to the anaesthetic consultant for the list.
- Children with learning difficulties, challenging behaviour and special needs can be referred to the play specialists. With prior arrangement they can come and help on the day of surgery in both preoperative preparation. The anaesthetic plan should be discussed with parents/ guardian, the nursing staff and play therapists to avoid confusion. The anaesthetist should agree who is going to come to theatre to support the patient when there is a challenging case.

OVERNIGHT ADMISSION OF PAEDIATRIC PATIENTS

- Occasionally due to unplanned complications with anaesthesia or surgery children might need overnight admission. Such cases must be escalated to the day unit nursing team as soon as possible by the clinical team, to ensure that a suitable bed can be arrange. Beds are arranged on one of the paediatric wards at Sandwell. The only Paediatric beds on City site are in the newly opened Emergency Children's assessment Unit (ECAU) which is located next to the Emergency department. Elective Paediatric cases cannot be admitted to this unit but beds are available overnight in the case of a Paediatric Surgical Emergency requiring admission.
- Children undergoing adenotonsillectomy with a history and symptoms of OSA should be admitted overnight. They are managed and recovered normally and transferred to PAU at around 2000 hours. The decision to admit these children overnight postoperatively should be made by the Surgeon and the Anaesthetist. None of these children should be sent home on the day of surgery without the agreement of both the surgeon and the anaesthetist.

Emergency Surgery

Emergency cases should meet the criteria below:

Children may present out of hours requiring emergency surgery.

- Anaesthesia must only be carried out on ASA 1-2 patients unless the child has a life-threatening emergency requiring lifesaving surgery.
- Time critical surgery can be carried out in ASA 3 patients, but it is important to have a multidisciplinary discussion, including the paediatric consultant on call, prior to agreeing to proceed with surgery.

Emergency Paediatric Surgery and Age:

Children over the age of 3 years:

Children over the age of 3 years can be operated on in an emergency by general surgeons who do not routinely operate on children in line with their level of competence.

Children 1- <3 years:

- Children over 1 year and under 3 years presenting for minor emergency surgery should not be routinely transferred to a tertiary centre if the surgeon

is able to operate at SWBH and suitable equipment is available. Careful risk assessment and discussion must be had within the team prior to agreeing to transfer the child to a tertiary centre.

- When the surgery is time critical e.g. testicular torsion then the case should be operated on at the site where the child has presented. At city site this will be done by the urology team on-call. At Sandwell site if the General surgeon is able to undertake the surgery (in a time period appropriate for the child's condition) then they should proceed and seek help from the urology surgeon on call as appropriate

Children <1 year:

- Children under 1 year of age should not be operated at SWBH except in exceptional circumstances. Refer the child to Birmingham Children's Hospital (BCH) or an alternative specialist paediatric surgical unit.
- In extreme cases clinicians might be required to work outside their standard clinical roles to attempt a lifesaving procedure for an acutely seriously ill child where transfer would further endanger life. In such rare cases, it may not be possible to follow the procedures detailed in this policy. Clinicians must exercise their professional judgement, liaising with the multidisciplinary team and fully document the rationale, decision making process and procedure as soon as possible. Such cases should be discussed with an anaesthetic or intensive care consultant colleague. And if asked colleagues should come and assist. Such cases would invariably need the involvement of the on-call Paediatric consultant. And if necessary discussion with specialists from BCH.

Emergency Paediatric Anaesthesia and Trainees

- In the UK most career grade anaesthetists and anaesthetists with a CCT or equivalent will have undertaken higher-level paediatric anaesthesia training. As a minimum they should be competent to provide perioperative care for common elective and emergency procedures in children aged 3 years and older.
- Cover for emergency theatres is provided by both specialty anaesthetists and trainees. Their experience and training in Paediatric anaesthesia can vary widely and will need to be considered when emergencies are booked.
- When managing a paediatric emergency, it is important for the on-call anaesthetist to consider the nature of operation, condition of the child and the urgency of surgery in addition to the age of child and their experience. If there is any doubt the consultant anaesthetist on-call must be contacted.

Children 7-16 years:

- On-call anaesthetist or trainee can proceed with the case, but this depends on the nature of the operation, condition of the child and experience of the trainee. They must have the required training and experience and the appropriate competencies signed off prior to anaesthetising such cases on their own.
- It is advisable that trainees discuss all paediatric cases under 10 years of age with the consultant anaesthetist on-call.

Specialty doctor's on-call can proceed without discussing the case with consultant if they feel competent to manage the case.

Children 3- <7 years:

- Consultant anaesthetist presence for these cases is highly recommended. It is acceptable to provide local supervision rather than direct supervision if the anaesthetist doing the case is experienced.
- Trainees must inform the Consultant anaesthetist on call. Whether the trainee can proceed depends on nature of operation, condition of child and experience of trainee.
- Specialty doctor's on-call can proceed if they are competent but it is advisable to discuss the case with consultant anaesthetist on call prior to starting.

Children 1- <3 years:

- Minor emergency cases can be operated at SWBH, but this depends on the factors outlined in section 9.2.3. The consultant anaesthetist must be present for all cases.
- These cases should not be anaesthetised by unaccompanied trainees or a specialty doctors unless there are exceptional circumstances.
- Children under 3 years of age must be anaesthetised by an anaesthetist who has sufficient experience anaesthetising young children and who has kept themselves up-to-date. This may not be possible in an emergency as not all anaesthetists have the same expertise and confidence. In such cases help can be sought from intensive care consultant on call or the consultant anaesthetic on call at the other site (Sandwell/ City)
- The anaesthetic team contacted for an emergency should try to find a suitable anaesthetist who can safely manage the child at SWBH (there are four consultants on call at any given time). Careful risk assessment and discussion must be had within the team prior to agreeing to transfer a child who only needs a minor emergency procedure.

Care and transfer of children for emergency surgery:

The final decision on the need to transfer a child for surgery is the consultant surgeons. The consultant surgeon will be responsible for liaising with colleagues at BCH to arrange transfer. For further management refer to protocol for Care and Transfer of Critically Ill Children.

PAIN MANAGEMENT AFTER SURGERY

The Pain Management Ladder and guidance in the pain policy should be followed. If there is a problem, children can be reviewed by the Adult Acute Pain Team or the on call anaesthetic team who manage out of hours pain issues for inpatient adults and children.

CRITICALLY INJURED OR SERIOUSLY ILL CHILD

- Management of such cases will need close coordination between all the various teams.
- The consultant on call for ITU should be informed of all critically ill or seriously injured children in the hospital as soon as possible.

  For further management refer to protocol for Transfer and Care of Critically Ill and Injured Children (SWBH/Pt Care/052)

ANAESTHETIC COMPETENCIES, CPD, TRAINING AND APPRAISAL

- It is expected that the competence and confidence to treat children will be maintained, unless the anaesthetist is never required to anaesthetise children for elective or emergency surgery. This may be via direct care, continuing professional development (CPD) activities, refresher courses, or visits to other hospital Trusts. This should be verified at annual appraisals and revalidation.
- Anaesthetists who do not have regular children's lists but who do have both daytime and out-of-hours responsibility for providing care for children requiring emergency surgery should maintain appropriate clinical skills. Paediatric simulation for both resuscitation and critical incident training is carried within our Trust and externally. There should be evidence of appropriate and relevant paediatric CPD in the five-year revalidation cycle.
- Anaesthetists caring for children should be trained in paediatric resuscitation and receive annual updates. All trainees should have successfully completed recognised and accredited paediatric life support training. The national EPLS and APLS courses are purpose-made and run by instructors trained in educational theory. However high quality, locally organised, focused, role-specific training may be more relevant for the needs of anaesthetists. Repeat attendance at EPLS/APLS courses, for the purposes of recertification and revalidation, may not be optimal for certain professional groups.
- All anaesthetists must complete Paediatric CPD in their 5 years revalidation cycle. The CPD required will depend not only on the individuals' needs but also their role in the department.
- Colleagues having a lead role are expected to be up-to-date with APLS training or equivalent resuscitation training.
- Colleagues having routine Paediatric lists in their job plan and all intensivists must have an up-to-date APLS or equivalent such as EPLS or MEPA course and this must be supported by either self-directed learning or attending Paediatric update courses. Evidence of learning along with the reflection must be documented in the input form for appraisal.
- Colleagues who do not have regular Paediatric list must consider doing a course to maintain their skills in critical incident management in children. We run a one day confidence anaesthetising children course internally and there are externally run courses such as the MEPA course. Anaesthetists must ensure that they complete regular self-directed learning and or attend Paediatric update courses. Evidence of learning along with the reflection must be documented in the input form for appraisal.

- Colleagues who do not have regular Paediatric list should consider shadowing other colleagues in Paediatric lists during their SPA time. This will depend on the needs of individual consultants and no specific number can be set by the department.
- It is mandatory that Paediatric competencies, confidence and Paediatric activity performed in the year is covered on a yearly basis during individuals' appraisal. All appraisers in the anaesthetic department must ensure that this is covered and must document this in the output form.
- All anaesthetists must undertake at least Level 2 training in safeguarding/child protection and must maintain this level of competence by annual updates in accordance with the trusts mandatory training policy.
- The paediatric leads in the department should take the lead in safe guarding/child protection and undertake training and maintain core Level 3 competencies. The lead anaesthetist for safeguarding/child protection should advise on and coordinate training within their department but will not have responsibility for deciding on the management of individual clinical cases.

AUDIT

- All surgeons and anaesthetists undertaking regular elective surgery must participate in relevant CPD activities and audit their practice annually against key outcomes including:
    - Mortality
    - Unexpected readmissions
    - Complication rates
    - Unexpected referrals to BCH
- Any audits should be presented and outcomes/ changes approved at a directorate level.

PRE-OPERATIVE STARVATION FOR PAEDIATRIC SURGERY

Please refer to the preoperative fasting guideline policy.

- All the prescribed and regular medications (unless stated otherwise by the medical team) must be given to patients even when nil by mouth. Medications should/can be taken on the day of procedure with water. Drugs to be omitted must be crossed off by the doctors or the anaesthetists and advice from pre-assessment team or anaesthetist must be followed.
- Prior to procedures intravenous maintenance fluid should only be considered in-patients who are unable to take anything orally or if oral fluids are contraindicated due to medical or surgical condition. IV fluids should not be considered as replacement for oral intake.

Elective surgery in children - '0 - 2 - 4 - 6' Rule:

- A welcome drink of water should be offered to all children. Water (any amount) is allowed until the child is called in for the surgery. Exceptions in-

clude specific written instruction by surgeon or anaesthetist (e.g. bowel procedures). For those children will not drink water dilute squash can be given instead.

- Breast milk is permitted up to **4 hours** before the start of the operating list.
- Solid food can be taken up to **6 hours** before the start of the operating list.
- Patients should not have their operation cancelled or delayed if they have chewed gum, sucked on a boiled sweet or smoked prior to surgery.

Emergency Surgery:

- Water (any amount) is allowed until the child is called in for the surgery. Exceptions include specific written instruction by surgeon or anaesthetist (e.g. bowel procedures).
- No solids or other liquids to be given unless there is an instruction from the Anaesthetist. If the exact time of surgery is not known, consider intravenous fluid infusion or contact Anaesthetist for advice.

REFERENCES

1. American Society of Anesthesiologists. Retrieved 2007-07-09

2. Royal College of Anaesthetists. Guidance on the provision of paediatric anaesthetic services'. Chapter 8. in *Guidelines for the Provision of Anaesthetic Services*. London: RCA ; April 2010.

3. Children's Surgical Forum- ' Ensuring the Provision of General Paediatric Surgery in the District General Hospital' 2010

4. Standards for children's surgery. Children's Surgical Forum of The Royal College of Surgeons of England 2013

5. Guidelines for the Provision of Paediatric Anaesthetic Services: The Royal College of Anaesthetists Chapter 10 Jan 2020