



Guidance on the provision of Obstetric Anaesthesia Services

When considering the provision of anaesthesia, the Royal College of Anaesthetists recommends that the following areas should be addressed. The goal is to ensure a comprehensive, quality service dedicated to the care of patients and to the education and professional development of staff. The provision of adequate funding to provide the services described should be considered.

Summary

- Many of the following points are drawn from the joint Obstetric Anaesthetists' Association (OAA) and Association of Anaesthetists of Great Britain and Ireland (AAGBI) 'Guidelines for Obstetric Anaesthesia Services', May 2005.¹
- Each obstetric unit should have a nominated consultant in charge of obstetric anaesthesia services with programmed activities (PAs) allocated for this, in addition to those for clinical 'sessions'. As a basic minimum for any consultant led obstetric unit, there should be 10 consultant anaesthetic PAs per week, and where elective lists are run daily this would mean at least 15 PAs.
- There should be a named consultant anaesthetist with responsibility for Caesarean section lists.
- Each obstetric unit with an anaesthetic service should have a nominated consultant anaesthetist responsible for training in obstetric anaesthesia.
- A process should be in place for the formal assessment of trainees prior to allowing them to go 'on-call' for obstetric anaesthesia with distant supervision.
- Provision should be made for those who cover delivery suite on-call, but do not have regular sessions there, to spend time in the delivery suite in a supernumerary capacity with one of the regular obstetric anaesthetic consultants.
- Antenatal education: women should have access to information, in an appropriate language, about all types of analgesia and anaesthesia available, including information about related complications. Patient information leaflets are available at www.oaa-anaes.ac.uk.
- Parturients requiring anaesthesia have the right to the same standards of peri-operative care as other surgical patients. Skilled anaesthetic assistance and post-anaesthetic recovery care are of particular importance in obstetrics.
- Guidelines should be available to obstetricians and midwives on conditions requiring antenatal referral to the anaesthetist.
- There should be at least one fully equipped obstetric theatre within the delivery suite.
- Anaesthetists should help organise and participate in regular multidisciplinary 'fire drills' of emergency situations including haemorrhage and collapse.
- Access to Level 3 critical care must be available for all obstetric patients and preferably available on site. Portable monitoring with facility for invasive monitoring must be available to facilitate transfer of obstetric patients to the ICU.
- Anaesthetists should have some managerial responsibility and should be involved in planning decisions that affect the delivery of maternity services.

Introduction: The importance of obstetric anaesthesia services

- Anaesthetists are involved in the care of over 60% of pregnant women.²
- There have been changes in staffing, training and working time legislation affecting obstetric anaesthetic services.^{3,4}
- Obstetric anaesthetic consultants are involved increasingly in the assessment of patients, teaching, training, administration, research and audit.⁵
- There is a need for a dedicated obstetric anaesthesia service for all consultant-led obstetric units. The anaesthetic pre-assessment of high-risk women necessitates the early involvement of senior anaesthetists and transfer to intensive care facilities for high-risk cases.^{6,7} This is supported by the Clinical Negligence Scheme for Trusts (CNST).⁸
- The Caesarean section rate in the UK and age of parturients with medical conditions are both increasing.^{9,10}
- Anaesthetic delay can be a factor in some stillbirths and infant deaths.¹¹
- There have been concerns about the staffing of isolated obstetric units, the level of experience of anaesthetic staff on-call, and the reduction of exposure to emergency general anaesthesia in obstetrics.^{7,12}

Levels of provision of service

1 Staffing requirements

The duty anaesthetist

- 1.1 The term 'duty anaesthetist' will henceforth be used to denote an anaesthetist who has been assessed as competent to undertake duties on the delivery suite under a specified degree of supervision (see section 4: Training and education). It follows that consultant support and on-call availability are essential 24 hours per day.
- 1.2 The duty anaesthetist should be immediately available for the obstetric unit 24 hours per day. The duty anaesthetist should not be primarily responsible for elective obstetric work.
- 1.3 In the busier units (i.e. one of the following: > 5,000 deliveries/year, epidural rate > 35%, Caesarean section rate > 25%, tertiary referral centres/centres with a high proportion of high risk cases), it may be necessary to have two duty anaesthetists available 24 hours per day, in addition to the supervising consultant.
- 1.4 In units that offer a 24-hour epidural service, the duty anaesthetist should be resident on site (i.e. not at a nearby hospital). Details of accommodation that should be offered are given in section 2.
- 1.5 If the duty anaesthetist has other responsibilities, these should be of a nature that would allow the activity to be delayed or interrupted should obstetric work arise, to allow provision of analgesia as well as anaesthesia to parturients.
- 1.6 Although the difficulties of smaller units are appreciated, it is strongly recommended that the duty anaesthetist for the delivery suite should not be solely responsible for the ICU or cardiac arrests as that anaesthetist could be urgently required in two places simultaneously. Equally, if the duty anaesthetist covers general theatres, there must be another anaesthetist to take over immediately should they be needed on the delivery suite. The lead clinician should audit and monitor the feasibility of such arrangements.
- 1.7 Where duty anaesthetists work on a shift pattern, adequate time for formal hand-over between shifts must be built into the timetable. Ideally, the timetable of different professional groups should be compatible: e.g. anaesthetic and obstetric shifts should start/finish at the same time to allow multidisciplinary hand-over.

Consultant responsibilities

- 1.8 Each obstetric unit should have a nominated consultant in charge of obstetric anaesthesia services with programmed activities (PAs) allocated for this, in addition to those for clinical 'sessions'. The nominated consultant should be responsible for the organisation and audit of the service, for maintaining and raising standards, through provision of evidence based guidelines, and for risk management.
- 1.9 Previous recommendations of a minimum of one fixed, consultant session per 500 deliveries are no longer adequate. As a basic minimum for any consultant-led obstetric unit, there should be 10 consultant anaesthetic PAs per week.¹
- 1.10 In units in which trainee anaesthetists work a full or partial shift system, consideration should be given to providing additional consultant PAs to allow training and supervision into the evening, on one or more occasions per week. The number of such additional hours should be increased where there is a high turnover of trainees (i.e. a three-month interval or more frequent).
- 1.11 Extra consultant PAs should be available to units which are busier than average (see above). Tertiary

referral units which are likely to have a higher than average proportion of sick mothers should also have extra consultant PAs.

- 1.12 There should be at least one consultant PA available per week for antenatal referrals whether or not a formal clinic is run.
- 1.13 When formal elective Caesarean section lists are necessary there should be a separate consultant available, particularly in busier units.
- 1.14 There should be a named consultant responsible for every elective Caesarean section operating list.
- 1.15 Anaesthesia for elective Caesarean sections should only be performed by trainees in isolated units when there is a consultant anaesthetist in the same building.
- 1.16 When there is no consultant anaesthetist available to cover the delivery suite, there should be a nominated consultant to cover who must be instantly able to leave a list to attend the delivery suite if necessary.
- 1.17 Each unit should display prominently the name of the consultant anaesthetist responsible for the delivery suite at that time. That consultant should not be more than half an hour away from the delivery suite at any time. The names of all consultants covering the delivery suite should be prominently displayed and contact numbers readily available.
- 1.18 There should be a named consultant anaesthetist and obstetrician responsible for all high dependency unit (HDU) patients 24 hours per day
- 1.19 It is part of the lead consultant obstetric anaesthetist's role to ensure there is an ongoing audit programme in place to audit complication rates.

Anaesthetic assistance

- 1.20 Parturients requiring anaesthesia have the right to the same standards of peri-operative care as all other surgical patients. Skilled anaesthetic assistance is of particular importance in obstetrics.
- 1.21 In the United Kingdom, anaesthetic assistance may be provided by an operating department practitioner or nurse (ODP/N) or a registered nurse. Whatever the background, the training for all anaesthetic assistants must comply fully with current national qualification standards.¹³ If such a person is not available for any reason, a registered nurse or midwife with current and effective registration, who has received equivalent anaesthesia training to a nationally or regionally

recognised standard, may be employed to perform such duties. Employment of anaesthetic assistants without national accreditation is unacceptable.¹³

- 1.22 The anaesthetic assistant should assist the anaesthetist on a regular basis, not only occasionally, to ensure maintenance of competence. Such a person thus employed should have no other duties in the operating department at that time (i.e. the midwife attending the mother and baby cannot also assist the anaesthetist).

Post-anaesthetic recovery staff

- 1.23 The training undergone by staff in recovery, whether these are midwives, nurses or ODP/Ns, must be to the level recommended for general recovery facilities.^{13,14} A midwife with no additional training is not adequately trained for recovery duties.
- 1.24 Where non-midwifery staff work in recovery as a team with midwives, it is important that basic midwifery care is given (e.g. checking the uterus and lochia).
- 1.25 When high dependency care is required, the midwife/nurse to patient ratio must be at least one midwife/nurse to two patients. Appropriately trained staff should be available 24 hours per day.

Other staff

- 1.26 A trained adult and neonatal resuscitation team should be available.
- 1.27 There must be adequate secretarial support for the antenatal anaesthetic assessment clinic and other duties of the consultant obstetric anaesthetist – teaching, research, audit, appraisal activities and other administrative work.
- 1.28 There should be a suitably trained senior member of nursing, midwifery or ODP staff with overall responsibility for the safe running of obstetric theatres, who ensures that current standards in all aspects of theatre work are met. He or she must have considerable experience of working in theatre and must undertake the role on a regular basis. This individual should ensure all staff who work in theatre are appropriately trained and undergo regular appraisal and continuing professional development (CPD).

2 Equipment, support services and facilities

For the efficient functioning of the obstetric anaesthetic service, the following equipment, support services and facilities are essential. The standards of equipment and monitoring must be of the same standard as that of a non-obstetric anaesthetic service.

Equipment

- 2.1 Blood gas analysis and the facility for rapid estimation of haemoglobin (e.g. HemoCue[®]) and blood sugar should be available on the delivery suite.
- 2.2 The delivery suite rooms must be equipped with monitoring equipment for the measurement of non-invasive blood pressure. There should also be readily available equipment for monitoring electrocardiogram (ECG), oxygen saturation, temperature and invasive haemodynamic monitoring if required.
- 2.3 All delivery suite rooms must have oxygen, suction equipment and access to resuscitation equipment.
- 2.4 Delivery suite rooms must have active scavenging of waste anaesthetic gas to comply with COSHH guidelines on anaesthetic gas pollution.¹⁵
- 2.5 A supply of O rhesus negative blood should be available in the delivery suite at all times for emergency use.
- 2.6 The standard of monitoring in the obstetric theatre must allow the conduct of safe anaesthesia for surgery as detailed by the AAGBI.¹⁶
- 2.7 A blood warmer allowing the rapid transfusion of blood and fluids, and warm air blower/blankets must be available.
- 2.8 A cell salvage machine should be available for massive blood loss and Jehovah's Witness parturients.¹⁷
- 2.9 A difficult intubation trolley with a variety of laryngoscopes, tracheal tubes, laryngeal masks and other aids for airway management must be available in theatre.
- 2.10 Patient controlled analgesia (PCA) equipment and infusion devices must be available for post-operative pain relief.
- 2.11 The maximum weight that the operating table can support must be known and alternative provision made for women who exceed this. It is recommended that the obstetric operating table should be able to safely support a minimum weight of 160 kilograms.
- 2.12 Ultrasound imaging equipment should be available for central vascular access and epidural cannulation of high-risk and morbidly obese women.^{18,19}

Support services

- 2.13 A system should be in place to ensure that women requiring antenatal referral to the anaesthetist are

seen and assessed by a senior anaesthetist within a suitable time frame, preferably in early pregnancy.

- 2.14 All women requiring Caesarean section should, except in extreme emergency, be visited and assessed by an anaesthetist before arrival in the operating theatre. In many units, mothers will be admitted on the day of surgery. The mothers must be seen pre-operatively by an anaesthetist.
- 2.15 There should be arrangements for prescription of pre-operative antacid prophylaxis and for laboratory investigations.
- 2.16 Ideally, all women who have received regional analgesia/anaesthesia or general anaesthesia for labour and delivery should be reviewed following delivery. Women must fulfil locally agreed discharge criteria before going home.
- 2.17 Haematology and biochemistry services must be available to provide rapid analysis of blood and other body fluids and to make blood and blood products for transfusion available without delay according to clinical need.
- 2.18 Pharmacy services are required for the provision of necessary routine and emergency drugs. The provision of sterile pre-mixed low dose local anaesthetic combined with opioid solutions for regional analgesia should be available as well as other sterile opioid solutions used for patient controlled analgesia.
- 2.19 Physiotherapy services should be available 24 hours a day 365 days a year for patients requiring high dependency care.
- 2.20 An acute pain service should be available for advice on post-operative pain relief in the maternity unit.
- 2.21 There must be rapid availability of radiological services.
- 2.22 Medical physics technicians are required to maintain, repair and calibrate anaesthetic machines, monitoring and infusion equipment.
- 2.23 Hotel services must provide suitable on-call facilities including housekeeping for resident and non-resident anaesthetic staff. Refreshments must be available throughout the 24-hour period.

Facilities

- 2.24 There should be at least one fully equipped obstetric theatre within the delivery suite. Where this is not possible a lift, which can be commandeered for the rapid transfer of women to theatre, must be available. The number of operating theatres required should depend on the number of deliveries

and operative risk profile of the women delivering in the unit.

- 2.25** An operating theatre with appropriately trained staff must be readily available for women requiring emergency Caesarean section.
- 2.26** There must be easy and safe access to the delivery suite from the main hospital at all times of the day.
- 2.27** Adequate recovery room facilities including the ability to monitor systemic blood pressure, ECG and oxygen saturation must be available within the delivery suite theatre complex.¹⁶
- 2.28** A fully equipped HDU should be available in units caring for high-risk obstetric patients. High dependency care should be available on or near the delivery suite with appropriately trained staff or, if this is unavailable, women should be transferred to a general HDU in the same hospital.
- 2.29** Access to the ICU must be available for all obstetric patients and preferably available on site. Portable monitoring with facility for invasive monitoring must be available to facilitate transfer of obstetric patients to the ICU.
- 2.30** For obstetric units on site but not part of the main hospital, adequate links or transport arrangements must be in place to allow the safe transfer of obstetric patients to the main theatres or ICU.
- 2.31** An anaesthetic office, in proximity to the delivery suite, should be available to the duty anaesthetic team. The room should hold a computer with intra-internet access for the audit of the anaesthetic service, and access to up-to-date information. A library of specialist reference books and/or journals and local multidisciplinary evidence-based guidelines must be available. The office space, facilities and furniture should comply with the standards recommended by the AAGBI guidelines.²⁰
- 2.32** There should be a separate anaesthetic consultant's office available to allow teaching, assessment and appraisal which should comply with AAGBI guidelines.²⁰
- 2.33** A communal rest room in the delivery suite should be provided to enable staff of all specialties to meet. A seminar room(s) must be available for training, teaching and multidisciplinary meetings.
- 2.34** All hospitals should ensure the availability of 'on-call' rooms for those doctors working night shifts, to allow them to take rest breaks.²¹
- 2.35** Standards of accommodation for doctors in training must be adhered to.²² Where a consultant is

required to be resident, the on-call accommodation provided should be commensurate with their status.²³

Guidelines and protocols

- 2.36** All obstetric departments should provide and regularly update the following protocols, which should be readily accessible.
- Conditions requiring antenatal referral to the anaesthetist.
 - Management of major haemorrhage.
 - Management of pre-eclampsia and eclampsia.
 - Management of failed/difficult intubation.
 - Management of high regional block.
 - Management of regional anaesthesia including:
 - ◆ regional block for analgesia
 - ◆ regional blocks for surgery
 - ◆ inadequate regional block.
 - Management of accidental dural puncture.
 - Management of postdural puncture headache.
 - Severe hypotension during regional block.
 - Admission and discharge criteria from/to HDU.
 - Management of regional techniques in patients on thromboprophylaxis.
 - Antacid prophylaxis and fasting policies for labour and delivery.
 - Oral intake during labour.
 - Management of post-operative pain.
 - Resuscitation of the pregnant patient.

3 Areas of special requirement

Regional analgesia

- 3.1** Most consultant obstetric units should be able to provide regional analgesia on request at all times. Smaller units may be unable to supply dedicated cover at all times; women booking at such units should be made aware that epidural analgesia may not always be available.
- 3.2** The anaesthetist is responsible for ongoing regional analgesia in labour and must be able to assess the mother as required.
- 3.3** Midwifery care of a parturient receiving epidural analgesia in labour should comply with local guidelines. The midwife must be trained to an agreed standard in regional analgesia and be aware of potential complications and their management. The midwife must be able to assess and document sensory block height. If the level of midwifery staffing is considered inadequate, epidural block should not be instituted.

- 3.4 Units should have guidelines for management of epidural blocks and there should be appropriate levels of medical and midwifery staff for delivery of the service. Units should be able to provide low dose regional analgesia.²⁴
- 3.5 Regional analgesia should not be used in labour unless an obstetric team is immediately available in the same hospital to treat emergencies.
- 3.6 There should be a locally agreed regional analgesia record and a protocol for the prescription and administration of epidural drugs.
- 3.7 The time from the anaesthetist being informed about an epidural until they are able to attend the mother should not normally exceed 30 minutes, and must be within one hour. This should be an auditable standard.

Emergency Caesarean sections

- 3.8 There should be a clear line of communication between the duty anaesthetist, theatre staff and ODP/N once a decision is made to undertake an emergency Caesarean section. The anaesthetist should be informed about the category of urgency of Caesarean section.²⁵
- 3.9 There should be clear guidelines available for whom to call if two emergencies occur simultaneously. Anaesthetists in other parts of the hospital may need to be summoned if the second anaesthetist is attending from home.

Complaints

- 3.10 If complaints are made about aspects of care a consultant anaesthetist should review and assess the mother's complaint, discussing her concerns and examining her where appropriate. This should be documented. Referral for further investigations may be required. Complaints should be handled according to local policies.

4 Training and education

- 4.1 Each obstetric unit with an anaesthetic service should have a nominated consultant responsible for training in obstetric anaesthesia. This consultant may or may not be the lead clinician for obstetric anaesthesia. Adequate PAs should be allocated for these responsibilities.
- 4.2 An appropriate training programme, as defined by the RCoA, should be in place for anaesthetic trainees according to their grade.^{26–28}
- 4.3 A process should be in place for the formal assessment of trainees prior to allowing them to

go on-call for obstetric anaesthesia with distant supervision.¹ This assessment applies to:

- ST1s and ST2s new to obstetric anaesthesia
- more experienced trainees who are working in the UK for the first time
- newly appointed STs who have not successfully completed a formal assessment.

- 4.4 There should be induction programmes for all new members of staff including locums. Locums should be assessed prior to undertaking unsupervised work.
- 4.5 Any doctor providing anaesthetic cover on the delivery suite must ensure that their own knowledge and skills are kept up to date. This should include regular multidisciplinary meetings and attendance at appropriate CPD activities.
- 4.6 Any non-trainee anaesthetist who undertakes anaesthetic duties in the labour ward must have been assessed as competent to perform these duties in accordance with OAA and RCoA guidelines.^{1,26–28} Such a doctor must work regularly in the labour ward but must also regularly undertake non-obstetric anaesthetic work to ensure maintenance of a broad range of anaesthetic skills.
- 4.7 Provision should be made for those who cover the delivery suite on-call, but do not have regular sessions there, to spend time in the delivery suite in a supernumerary capacity with one of the regular obstetric anaesthetic consultants. The frequency of these sessions will vary for each individual.
- 4.8 Assistance for the anaesthetist should be trained to the standards recommended by the AAGBI.¹³
- 4.9 The recovery staff within a maternity unit should be trained to the same standard as that for all recovery nurses, whether they are ODPs or midwives.¹³ Recovery skills should be regularly updated with time spent in a general recovery unit.
- 4.10 All staff working on the delivery suite should have regular resuscitation training, including the specific problems of pregnant patients.
- 4.11 Midwives expected to care for patients with epidurals *in situ* should be trained to local guidelines before they top up epidurals or look after such patients.
- 4.12 Anaesthetists should contribute to the education and update of midwives, ODAs, ODPs, anaesthetic nurses, physicians' assistants (anaesthesia) and obstetricians, covering the scope and limitations of obstetric anaesthesia services.

- 4.13 Anaesthetists should help organise and participate in regular multidisciplinary 'fire drills' of emergency situations including haemorrhage and collapse
- 4.14 Midwives should be trained in HDU care, particularly in a tertiary referral unit with high-risk cases.
- 4.15 Maintenance of standards of post-operative care requires continuous update, and staff should work in a theatre recovery unit on a regular basis.
- 4.16 All staff must be given regular access to CPD opportunities.

5 Research and audit

- 5.1 There should be an ongoing audit programme in place to audit anaesthetic complication rates (e.g. accidental dural puncture) and problems.
- 5.2 Delays in elective cases should be audited.
- 5.3 Ongoing audit of patient satisfaction with the obstetric anaesthetic service should be undertaken.

6 Organisation and administration

- 6.1 It is important that obstetric anaesthetists develop good working relationships and lines of communication with all other professionals including those whose care may be needed for difficult cases. This includes midwives and obstetricians, as well as professionals from other disciplines such as intensive care, neurology, cardiology, haematology, and other physicians and surgeons.
- 6.2 An obstetric anaesthetist should take part in regular multidisciplinary 'labour ward forum' meetings.²⁹
- 6.3 A clear line of communication from the duty anaesthetist to the on-call consultant should be assured at all times.
- 6.4 The theatre manager should be responsible for maintaining communication with staff groups, and ensuring competent staffing and suitable equipping of all theatres.³⁰
- 6.5 Larger units and those with high Caesarean section rates should have elective Caesarean section lists with dedicated obstetric, anaesthetic and theatre staff, to minimise disruption due to emergency work.
- 6.6 Anaesthetists must have some managerial responsibility and should be involved in planning decisions that affect the delivery of maternity services. Anaesthesia should be represented on the Maternity Services Liaison Committee,

Labour Suite Working Party, Labour Ward Forum, Obstetric Risk Management Committee, Obstetric Directorate and any other bodies involved in the planning and delivery of such services.^{1,29}

7 Patient information

- 7.1 Parturients and purchasers of services should be informed of the level of availability of anaesthesia and regional analgesia in each unit. The Epidural Information Card should be used to provide information to women requesting an epidural before the arrival of the anaesthetist as part of the consenting process.³¹
- 7.2 Antenatal education: when feasible, women should have access to information, in an appropriate language, about all types of analgesia and anaesthesia available, including information about related complications.
- 7.3 This should be a detailed unbiased explanation about pain relief and operations under regional and general anaesthesia. Women planned for Caesarean section should receive written information about anaesthesia for the procedure when they are booked for the procedure.
- 7.4 It should be documented that women have received information. It is still necessary to give the patient an explanation at the time of the proposed procedure.
- 7.5 There is no difference between the principle of obtaining consent for obstetric anaesthesia and any other medical treatment.³²
- 7.6 The patient is entitled to receive an explanation of the proposed procedure in appropriate language. Interpreters should be made available to women who do not speak English; when feasible these should not be family members. The explanation should include the nature and purpose of the proposed procedure, as well as any material risks attached to it. The patient should have the opportunity to ask any questions.
- 7.7 All explanations given to the patient should be clearly documented.
- 7.8 The setting up of a patient advocate system should be encouraged.

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