Contents

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Introduction

History

In 1994 the Royal College of Anaesthetists prepared a loose leaf document entitled “Guidance for Purchasers”. This document was widely circulated to anaesthetists with duties in management, to managers and to those charged with the task of purchasing any clinical work which required the involvement of anaesthetic services. The document was in response to many comments from those in our specialty, that although they were unable to take any direct part in the purchasing process, they were nevertheless heavily involved in providing the service which had been purchased for them by others. It was intended to provide comprehensive guidance to both the purchasers and the providers, when they were negotiating over services, to ensure that they were both fully aware of the implications of providing an anaesthetic service and of what was required to achieve the standards considered essential by anaesthetists. The document was generated by inviting specialists from within the many fields of anaesthetic specialist endeavour to produce guidance on their chosen areas of interest.

This document was widely appreciated by those who had access to it and copies within the College became extremely rare and carefully conserved by those who had them, being much used in correspondence and conversation with interested parties. Nevertheless, there were also areas of management which did not seem to be aware of its existence. This was more likely to be due to changes in the personnel involved in purchasing and providing at local level than due to a failure to circulate the document widely, as many copies were printed and distributed.

New Initiative

With the changes in the way that services are to be purchased and with experience gained from this first entry into providing general guidance, the College decided to revise the document, although renaming it “Guidelines for the Provision of Anaesthetic Services”.

Format

As there are a wide range of medical and surgical specialties which use anaesthetic services the requirements for each of the services are outlined. The general comments which apply to all anaesthetic specialties have been collated at the beginning under ‘Key points for the provision of anaesthetic services’, and we recommend that this is referred to when considering any individual section as it provides general guidance on anaesthetic services.

Each section is provided with further reading and helpful indications where additional information may be obtained. Royal College and Association of Anaesthetists of Great Britain and Ireland sources of reference are detailed as are sources from the specialist societies and some references to general literature.

We believe that the publication as a whole will provide the necessary information for those seeking to achieve a high standard of patient care without undue repetition of points obvious to anaesthetists.

Distribution

This publication has been widely circulated to Clinical Directors, Medical Directors, Chief Executives and to Regional Health Authorities, College Tutors and Regional Advisers.

The Website (http://www.rcoa.ac.uk)

The publication can also be accessed via our Website which will provide easy access to the necessary information. It will of course be possible in these circumstances to choose selectively from the relevant sections but please remember that attention must be given to the key points at the beginning of the document which are vital to our overall working practices.

Acknowledgements

The College is extremely grateful to the many individuals who have contributed so much of their time in preparing the original document and those who assisted in the revisions for this new document. A full list of their names is contained at the back of this document.

Dr W.R. MacRae
Past Senior Vice-President
July 1999

Statement of Intent

The attached guidance on the provision of anaesthetic services has been developed with reference to the circumstances which can generally be expected to prevail. It is the view of the Royal College of Anaesthetists that it must be the responsibility of the individual reader to take into account particular local circumstances when applying the recommendations of this document.

This document should be considered as guidance only. It is not intended to replace the clinical judgement of the individual anaesthetist; the freedom to determine the treatment of individual patients should not be constrained by a rigid application of the guidance contained within.

The guidance document has been prepared on the strength of the information available at the time of writing, and the user should therefore take into account any information, research or other material which may have been published subsequently.

Whilst the College has endeavoured to ensure that the document is as current as possible at the time it was prepared, it can take no responsibility for matters arising from circumstances which may have changed, or information or material which may have become available subsequently.

Date: July 1999

KEY POINTS FOR THE PROVISION OF Anaesthetic Services

There are many considerations which are common to all forms of anaesthesia. These are summarised in the following section and should be applied to all of the specialist areas where anaesthetics are administered.

1. Clinical Services

1.1 The following describe the main services provided by anaesthetic departments.

1.2 Provision of anaesthesia and analgesia for patients undergoing elective and emergency surgical and allied procedures. The service will include preoperative assessment and preparation of patients, and care during and after anaesthesia.

1.3 Provision of anaesthetic services for the obstetric service. These will include education of parents, providing analgesia during labour, administering anaesthesia where needed, provision of resuscitation skills and care for those mothers requiring intensive or high care facilities.

1.4 Provision of anaesthetic services for patients requiring intensive care or high-dependency care. This will normally include direction of the units and a commitment to ensure full-time cover.

1.5 Provision of a service incorporating the special needs of children.

1.6 Provision of anaesthesia for specialist surgery such as cardiothoracic, neurosurgical and paediatric procedures. Such specialist activities may require increased manpower due to the need for specialised preoperative assessment and postoperative care including intensive care services.

1.7 Provision of anaesthesia in day case units. This will include the selection of suitable patients using medical and social criteria, the choice of suitable facilities and techniques and the provision of postoperative care and support.

1.8 Provision of a service for the relief of acute and non acute pain.

1.9 Participation in the provision of emergency resuscitation services.

2. Consultant Supervision

2.1 All services provided in the National Health Service are under the supervision of a consultant. This applies to all anaesthetic services. Where trainee or non-consultant career grade anaesthetists are providing clinical services this principle must be applied.

3. Patient Care

3.1 The anaesthetist will normally visit the patient both pre and postoperatively. Unless in emergency or unusual circumstances this is a requirement of the specialty. Ideally this should be carried out by the anaesthetist who is to administer the anaesthetic. Where this cannot be undertaken the anaesthetist should detail in the case notes the reason for the omission.

3.2 Patients leaving the operating theatre will usually require some degree of postoperative care. Recovery facilities must therefore be situated close to the theatre complex and be staffed by trained personnel who are capable of managing airway care, pain relief and general patient support until the patient is well enough to return to the ward. Theatres cannot operate efficiently if there is a shortage of recovery facilities or staff as the anaesthetist will then have to remain with the patient until full recovery has been achieved which will delay the start of the next case on the list. Where hospitals are busy with emergency cases out of hours it is essential to provide 24 hour recovery facilities.

3.3 All hospitals are encouraged to provide appropriate acute and non acute pain services. Acute - mainly postoperative - pain services are initiated by anaesthetists. This will require the support of well trained theatre, recovery and ward staff to maintain continuity. Non acute pain is usually managed by consultant anaesthetists as part of a pain team which includes psychologists, physiotherapists and occupational therapists, as well as psychiatrists, surgeons and physicians. This service requires consultant input, accommodation and secretarial support. Anaesthetists may also play a major role in the management of cancer pain, especially in hospitals without organised palliative care services.

4. Staffing

4.1 The anaesthetic staff will be consultant led with a director and nominated consultants responsible for the individual components of the service.

4.2 Staffing levels will be adequate to ensure full cover for emergency services.

4.3 Trainee rotas will meet the requirement of the ‘New Deal’.

4.4 Few clinical services can continue without the need from time to time to appoint locum staff. The recent recommendations from the NHSE detail mechanisms which are considered satisfactory for the appointment of locums at consultant level and to cover gaps created by short absences of trainees. These should be adhered to.

4.5 The provision of skilled assistance for anaesthetists is an essential part of the provision of the anaesthetic service. Skilled assistance for anaesthetists from either nurses or ODA/ODPs who have undergone appropriate training is required in every situation where anaesthetics are administered.

5. Organisation and Administration

5.1 There will be a system to ensure the effective and economic use of anaesthetic resources in terms of:

- Personnel.
- Equipment.
- Consumables such as drugs and disposable devices.

5.2 The organisation of theatre services and allocations must match the needs of patients, surgeons, anaesthetists, nurses and paramedical staff. This will include 24 hour availability of an emergency theatre to obviate the need to use out-of-hours services for other than the true emergency patient. A properly staffed and equipped recovery room must also be available throughout the 24 hours.

5.3 It is essential that all equipment employed in theatre for the provision of anaesthesia, including monitoring equipment, is provided to the levels recommended by the Association of Anaesthetists of Great Britain and Ireland and that appropriate mechanisms are in place for maintenance and replacement. Health and Safety principles and COSHH regulations must be met.

5.4 Where general anaesthetics are being administered there must be in place facilities providing 24 hour access to a full range of laboratory and radiological services for both routine and urgent investigations.

5.5 There should be an annual report summarising the work of the service in terms of work load, educational attainments, audit activities and research and developments.

5.6 Those managing the service will co-operate with surgical and other services so as to optimise the treatment of patients and encourage the maximal use of facilities. Health and Safety principles must be met.

6. Teaching Arrangements for Trainee Anaesthetists

6.1 Training of anaesthetists is organised, under the overall guidance of the Royal College of Anaesthetists by the local consultant staff. Training will consist of both theoretical and practical aspects.

6.2 The practical training will be provided to a varying degree in-house but also be obtained from external experience. All trainees registered with the Royal College of Anaesthetists should be included in comprehensive regional training programmes which should include rotational experience in all specialties. It is important to appreciate that when teaching technical aspects of anaesthetic practice there is a need to ensure that sufficient time is available for this purpose. The result may be some limitation in the surgical throughput.

6.3 All departments of anaesthesia must organise and run programmes of educational activities. These will include meetings and seminars on such matters as mortality and morbidity within the service, critical incident reporting and consideration, audit of clinical and research topics, journal clubs, lectures on relevant topics, tutorials etc.

6.4 The 'Schools of Anaesthesia' to which all trainees are attached provide access to comprehensive programmes of lectures and tutorials directed towards the College examination system. These courses may be regionally based or may involve visits to the courses provided directly by the College.

6.5 All trainees now undergo a process of assessment and guidance to ensure that individual trainees are making good progress in their career and are continuing to attain well recognised milestones. These include attaining clinical goals and also crossing the necessary academic hurdles set by College examinations.

7. Other Teaching Arrangements

7.1 Instruction of house officers in the preoperative preparation of patients for surgery and in resuscitation techniques commonly falls on anaesthetic departments. Undergraduate medical students who are also required to receive training in the principles of anaesthesia and resuscitation, are increasingly being taught basic clinical skills, including fluid management and pain relief, by anaesthetists.

7.2 A wide range of training for non-medical hospital staff is undertaken by anaesthetists. These staff include theatre nurses, ward nurses, trainees, operating department assistants and paramedics.

7.3 It is essential that all hospital staff are given training in at least basic resuscitation skills so that the initiation of patient care is not unduly delayed waiting for the arrival of trained staff. This applies to all aspects of care within a hospital. Such training has to be repeated at predefined intervals. The appointment of Resuscitation Training Officers is an important development in this process.

8. Continuing Education and Professional Development (CEPD)

8.1 All permanent clinical staff are now increasingly being required to undertake and demonstrate evidence of continuing education and professional development. Evidence of having achieved a minimum number of CEPD points (at present 50 per year) is sought by the Royal College of Anaesthetists. This requires that consultants undertake educational activities including attendance at local, regional and national educational meetings. An essential component of this is the need to have available well funded study leave.

9. External Responsibilities

9.1 A number of consultant anaesthetists also undertake local, regional and national duties in the fields of education, research and administration. This may involve them in being away from the clinical duties on professional leave. Such prestigious activity for the employing trust needs to be recognised by appropriate staffing levels.

10. Research

10.1 The development of specialties and improvements in patient care can only continue if there is a planned programme of research. This requires there to be available time and resources for the progression of research ideas and projects. All areas of practice should have opportunities to further these aims.

11. Audit

11.1 Audit of all areas of anaesthetic practice is becoming commonplace and protected time is required for this work. It is necessary for all specialist and general services to consider how best this aim may be achieved, including critical incident reporting, risk management and outcome measures. Support for these initiatives should be sought from hospital audit resources.

11.2 Audit 'recipes' provided by the Royal College of Anaesthetists, may be useful for anaesthetic departments to plan their audit programmes.

11.3 As part of audit, patients' attitudes and comments about the anaesthetic service should be sought.

12. Data Collection

12.1 The work of an anaesthetic department and the efficient deployment of staff and expensive equipment depend upon the availability of good information. Hospital data collection systems are an essential tool in providing this information and must be in place and regularly updated to the highest standards of current technology.

12.2 All consultants will participate fully in the National Confidential Enquiry into Perioperative Deaths and the Confidential Enquiry into Maternal Deaths.

13. Hospital Support

13.1 Every department of anaesthesia requires an appropriate level of secretarial assistance to maintain its administrative and organisational base.

13.2 Each department will also require accommodation for teaching purposes, for educational activities and access to books and current medical literature. Increasingly there is need for access to word processing and internet facilities.

13.3 Oncall staff may be required to live in. If this is so, it is incumbent upon the employer to ensure that the staff have safe, secure and pleasant accommodation in which to live. It must provide space for study.

13.4 Staff when oncall are frequently unable to take meals at the accustomed times. There must therefore be arrangements made to ensure access to food at unsociable times.

Standards

The standards proposed by the Royal College of Anaesthetists, the Association of Anaesthetists of Great Britain and Ireland, the General Medical Council and the Department of Health should be used.

ROYAL COLLEGE OF ANAESTHETISTS PUBLICATIONS

- Clinical Audit and Quality of Practice in Anaesthesia (1994)
- Guidance for College Assessors. Update (1999)
- Guidance for the appointment of the Staff Grade, Associate Specialist and Hospital Practitioner Grade Anaesthetist (1998)
- Guidelines for Educational Approval (1998)
- Specialist training for Senior House Officers (1995)
- Specialist Registrars in Anaesthesia (1996)
- Guidelines for the Use of non-steroidal anti-inflammatory drugs in the perioperative period (1998)

- Implementation of proposals for Continuing Medical Education (1995).
- Continuing Education and Professional Development. Update (1999)
- Recommendation on the minimum content of the anaesthetic record (1996).
- Standards and Guidelines for General Anaesthesia for Dentistry (1999).
- Anaesthetic Audit Recipe Book. *(in production)*

THE ASSOCIATION OF ANAESTHETISTS OF GREAT BRITAIN AND IRELAND

- Anaesthesia and Anaesthetists - Information for Patients and their Relatives (2nd Edition 1998)
- Anaesthesia in Great Britain and Ireland: A Physician Only Service (1996)
- Anaesthetic Related Equipment (1994)
- Anaesthetists and Non Acute Pain Management (1993)
- Anaphylactic Reactions associated with Anaesthesia 2 (revised 1995)
- Checklist for Anaesthetic Apparatus 2 (1997)
- Controlled Drugs (1995)
- Day Case Surgery (1994)
- Department of Anaesthesia: Secretariat and Accommodation (1992)
- Guidance on Contracts and Workload for consultant anaesthetists (1997)
- Guidelines for Obstetric Anaesthesia Services (1998)
- HIV and Other Blood Borne Viruses (1992) (insert 1996)
- Immediate Postanaesthetic Recovery (1993)
- Non-consultant Career Grade Anaesthetists (1998)
- Provision of Pain Services (1997)
- Recommendations for the transfer of patients with acute head injuries to neurosurgical units (1996)
- Recommendations for Standards of Monitoring during Anaesthesia and Recovery (revised 1994)
- Risk Management (1998)
- Stress in Anaesthetists (1997)
- Surgery and General Anaesthesia in General Practice Premises (1995)
- The Anaesthesia Team (1998)
- The Role of the Anaesthetist in the Emergency Service (1991)

GENERAL MEDICAL COUNCIL

- Good Medical Practice (1998)
- Maintaining Good Medical Practice (1998)

DEPARTMENT OF HEALTH

- The Quality of Medical Care - Report of the Standing Medical Advisory Committee (1990)
- The Standing Committee on Postgraduate Medical & Dental Education - Continuing Professional Development for Doctors & Dentists (1994)
- NHS Executive. EL(97)48. A code of Practice in HCHS Locum Doctor Appointment and Employment 1997.

GUIDANCE ON

Preanaesthetic Care

When considering the provision of anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- The anaesthetist who is to give the anaesthetic will normally visit the patient before the operation.
- During the preoperative visit the anaesthetist will assess the general medical fitness of the patient, review any medication being taken, and assess any specific anaesthetic problems.
- Liaison with family doctors may assist in the early detection of significant problems.
- The anaesthetist will discuss possible plans of management with the patient and explain any choices made. Further investigations and therapy may be organised at this stage.
- The anaesthetist will develop a care plan which will include the choice of anaesthetic technique and the postoperative management.
- The anaesthetist will record the results of the preoperative consultation.
- Where research is being conducted, patients will be asked for informed consent and receive comprehensible, written explanations.

1. Introduction

1.1 These guidelines apply to the care of all patients who require anaesthesia. In unusual circumstances, e.g. extreme emergencies, these guidelines may need to be modified and the reasons for so doing must be documented in the patient's record.

1.2 Consultation by an anaesthetist is essential for the medical assessment of a patient prior to anaesthesia for surgery or any other procedure to ensure that the patient is in an optimal condition for the procedure. Fellows of the Royal College of Anaesthetists are trained to perform this assessment.

1.3 An anaesthetist shall be responsible for developing a plan for the anaesthetic and discussing the proposed plan with the patient or responsible adult.

2. General Principles

2.1 The anaesthetist who will actually give the anaesthetic should visit the patient preoperatively. The assessment should take place at an appropriate time before anaesthesia and surgery to allow for adequate consideration of any problems encountered. This may be difficult in the case of some acute emergencies.

2.2 Contact with the patient's General Practitioner may in some cases be valuable to establish the need for appropriate preoperative investigation or treatment, to guide admission time and to avoid postponement/cancellation.

2.3 Patients should be identified and their understanding of consent to the procedure confirmed. In the case of children and the intellectually impaired, this will be undertaken with the guardian/next of kin.

2.4 The development of an anaesthetic care plan is based on:

- A review of the patient's medical history. A questionnaire to be completed by the patient or carer giving details of past medical history, medication and previous anaesthetic problems is recommended.
- An interview with the patient to discuss the medical history, previous anaesthetic experiences, drug treatment and special problems.
- An examination of the patient to assess his/her medical status and features of the physical condition that might affect management. The anaesthetist should explain the forthcoming anaesthetic procedure, including the need for fasting and removal of prostheses, within the wishes and comprehension of the patient. Relevant written information may be made available to the patient prior to a given procedure.
- Obtaining and reviewing investigations and consultations necessary to the conduct of anaesthesia.
- Provision of additional treatment if necessary, e.g. physiotherapy, antibiotics.
- Prescribing medication as necessary to facilitate the conduct of anaesthesia.
- Discussion of postoperative pain strategy and requirement for monitoring, intravascular lines and other invasive measures.

2.5 The anaesthetist should invite and answer questions from the patient or the patient's relatives if appropriate.

2.6 Consent to participate in research projects should be obtained, where relevant, by those conducting the study (not by the anaesthetist) and must be obtained on a separate signed document.

2.7 The anaesthetist should document in the patient's case notes that all the above has been properly performed.

FURTHER READING

- American Society of Anesthesiologists. Basic standards for pre-anesthesia care (approved by House of Delegates, 14th October 1987), 1990 Directory p.620.
- Association of Anaesthetists of Great Britain and Ireland. Information and consent for the Anaesthesia. 1999 *(in production)*
- General Medical Council. Seeking patients' consent: the ethical considerations. 1998.

GUIDANCE ON

Intraoperative Care

When considering the provision of anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- The anaesthetist is responsible for ensuring that all the necessary equipment and drugs are present and checked before starting anaesthesia.
- The anaesthetist must confirm the identity of the patient and the consent to anaesthesia and surgery before inducing anaesthesia.
- Appropriately trained operating department personnel will aid the anaesthetist.
- The conduct of the anaesthetic and operation will be monitored at least by:
  - The continuous presence of an anaesthetist.
  - A continuous display of the ECG and the use of pulse oximetry.
  - When tracheal intubation is performed, a capnograph will be used.
  - Arterial pressure will be recorded at a minimum of 5 minute intervals.
  - Where the patient breathes an artificial gas mixture, the inspired oxygen concentration will be measured.
  - With artificial ventilation, a disconnect alarm will be used.
  - A written or printed record of the anaesthetic will be kept as a permanent document in the case notes.
- Additional monitoring where relevant must be available.

1. General Principles

1.1 The anaesthetist is responsible for checking all equipment and drugs prior to the arrival of the patient. Facilities for monitoring, ventilation and resuscitation must be available at all sites where the patient is under anaesthesia.

1.2 The patient's identity must be confirmed and monitoring applied before the procedure commences.

1.3 An anaesthetic assistant who is trained and competent must be present throughout the entire anaesthetic procedure.

1.4 Anaesthetic rooms should be as pleasant and stress free as possible with the dignity of the patient maintained at all times. Where patients are anaesthetised in the operating theatre, similar principles apply.

1.5 The operating environment must have full support services: radiology, chemical pathology, haematology, transfusion and histology.

1.6 Facilities for dealing with difficult intubation, including a fibreoptic bronchoscope, must be available.

1.7 Equipment and instructions for management of rare emergencies, such as malignant hyperthermia, anaphylaxis, or cardiac arrest must be readily available.

2. Monitoring

2.1 A qualified anaesthetist must be present throughout the conduct of all general and regional anaesthetics and procedures requiring monitored sedation. The patient's oxygenation, circulation, ventilation and temperature are evaluated throughout. The anaesthetist must ensure that an adequate record of the anaesthetic is kept.

2.2 Monitoring must be commenced before induction of anaesthesia and continued until the patient has recovered from the anaesthetic. Monitoring recommendations apply to all sites where anaesthesia is administered, including radiology departments, dental surgeries and during patient transfer under anaesthesia.

3. Basic Intraoperative Monitoring

3.1 Patient monitoring is required during brief anaesthetics or when using local anaesthetic or sedation techniques which may lead to loss of consciousness or to cardiovascular or respiratory complications. Additional monitoring may be required for long or complicated operations and for patients with co-existing medical disease.

3.2 Life support measures in emergency circumstances take precedence over application of monitoring but normally, basic intraoperative monitoring is intended to improve the quality of patient care.

3.3 Continuous monitoring of ventilation and circulation is essential. This will be performed by use of clinical observations, augmented, where appropriate, by the use of monitoring equipment. Clinical observations include the patient's colour, responses to the surgical stimulus, movements of the chest wall and reservoir bag, palpation of the pulse and auscultation of the breath and heart sounds. Continuous monitoring devices include the pulse plethysmograph, the pulse oximeter, the electrocardiograph, the capnograph and devices for measuring vascular pressures and body temperature.

3.4 If tracheal intubation is performed in the anaesthetic room then capnography must be used immediately the tracheal tube is inserted.

3.5 Monitoring of anaesthetic machine function must include an oxygen analyser (with alarms) and devices which enable leaks, disconnections, re-breathing or over pressure of the breathing system to be detected.

3.6 When intermittent non-invasive methods are used to measure arterial pressure and heart rate, the frequency of measurement must be appropriate to the clinical state of the patient.

3.7 A peripheral nerve stimulator should be available when neuromuscular blocking drugs are employed.

3.8 Appropriate monitoring must be used during transport of patients.

3.9 Anaesthetists must issue clear instructions concerning monitoring of postoperative care when handing over the patient to recovery ward staff. Appropriate monitoring facilities must be available in the recovery ward.

FURTHER READING

- Sykes MK, Essential Monitoring. *British Journal of Anaesthesia,* 1986; **50**: 901-912.
- Eichhorn JH, Cooper JB, Cullen DJ, Maier WR, Philip JH, Seeman RG. Standards for patient monitoring during anaesthesia at Harvard Medical School. *Journal of the American Medical Association* 1986; **256**: 1017-20.
- American Society of Anesthesiologists. Standards of basic intraoperative monitoring. (Approved by House of Delegates, October 21st, 1986) 1990. Directory; p.640-1.
- Association of Anaesthetists of Great Britain and Ireland. Recommendations for standards of monitoring during anaesthesia and recovery 1994.

GUIDANCE ON

Postanaesthetic Care

When considering the provision of anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Until patients regain full consciousness following anaesthesia and surgery they must be closely observed by appropriately trained staff on a one-to-one basis. During this period monitoring of the cardio-respiratory state is essential and adequate relief of pain should be provided.
- The majority of patients can be managed in a recovery room. Some patients may require transfer to a high dependency or intensive care unit. Before patients are discharged from the recovery room to their ward, satisfactory control of pain and nausea should have been achieved.
- The recovery room should be sited within the operating department and away from the admission area to the department.
- The recovery room should conform to Department of Health and Association of Anaesthetists guidelines in respect of design and levels of equipment.
- The unit should be open and staffed throughout the 24 hours if emergency surgery is undertaken.
- Staffing levels and rosters for the department need careful planning to ensure that this can always be achieved.
- Staff employed within the recovery room must have received appropriate training
- An adequate record of the patient's progress must be kept. Agreed policies must be in place to determine when patients can be safely discharged from the recovery room. The final responsibility is always with the anaesthetist who administered the anaesthetic.

1. Introduction

1.1 All patients who have had an operation, under either general or regional anaesthesia, are in a potentially unstable cardio-respiratory state.

1.2 The purpose of the postanaesthetic recovery area is to provide care for the patient until they can safely be discharged to a general ward or home in an awake and stable condition or transferred to a high dependency unit (HDU) or intensive care unit (ICU) if further close monitoring and care is necessary.

1.3 If adequate standards of care are not provided serious complications may occur.

2. Situation

2.1 It is essential that the recovery area is situated as close to the operating theatres as possible and if the hospital has several operating suites each one should have its own fully equipped recovery area. Transport of immediate postanaesthetic patients can be hazardous due to the potentially unstable state of their cardio-respiratory system.

2.2 The recovery area should be sited so that it is away from the flow of preoperative patients to the anaesthetic room. This is particularly important if children are operated upon in the theatre suite.

3. Staffing

3.1 Until patients can maintain their airway and have a stable cardiovascular system it is absolutely essential that they are nursed on an individual, one-to-one basis.

3.2 It is not possible to give guidance on the actual numbers of staff required for any particular recovery area. The numbers will depend on factors such as the case mix and number of patients on the operating lists and the number of operating lists per session. If the work load is spread unevenly throughout the week, this will have an effect on the deployment of staff and may encourage the use of more part time staff.

3.3 Specialised units involved in cardiothoracic surgery, neurosurgery and transplant surgery will have their own requirements.

4. Training

4.1 The training of all staff in the recovery area must be to the highest standards because of the potentially unstable condition of the patients and the outcome of failing to recognise and act upon the rapid changes that can occur. A theoretical knowledge of physiology and pharmacology and practical training in airway management and resuscitation is essential.

4.2 Post basic nursing courses in anaesthetic (ENB 182) and operating department (ENB 183) skills provide a satisfactory training. However, it is important to ensure that trainees on completing the courses undertake an appropriate period of practical supervised experience. The City and Guilds 752 certificate for Operating Department Assistants (ODA's) only provides limited training in recovery skills and this would need to be supplemented by further training. The National Vocational Qualification (NVQ) in Operating Department Practice at Level 3 does provide both knowledge and competence in recovery care.

4.3 Locally organised courses need to be very carefully assessed for both content and standard. Such courses must be approved by the local department of anaesthetics and the competence of the attendees must be assessed and documented.

4.4 All members of the recovery staff will need to undergo further in-service training in order to acquire skills not covered in basic training and this must be taken into account when staffing levels are calculated. It is also essential that continuing education of staff, including simulated emergency situations, takes place at regular intervals to maintain a knowledge of resuscitation and the location and use of other equipment.

4.5 Training will also be required for categories of patients with special needs. These include children, the elderly, ethnic minorities and patients with learning disabilities.

4.6 All staff need regular in-service training and support for study leave is required.

4.7 Local policy should be defined for training in defibrillation, intravenous drug administration, epidural top up and establishment of patient controlled analgesia.

5. Management Arrangements

5.1 Because of the potential high risk nature of patients in the recovery room, appropriate management arrangements must be in place to ensure proper and effective use of recovery staff, good mechanisms for their recruitment, training and the provision of continuing education.

6. Recovery Facilities

6.1 In hospitals where emergency operations are undertaken the recovery room must be open and staffed by properly trained personnel for 24 hours a day.

6.2 An emergency call system must be in place and understood by all the relevant staff.

6.3 The anaesthetist must deliver the patient safely to trained recovery staff, supplying full information on the procedure, any underlying medical condition and subsequent requirements.

6.4 The size, design and facilities of the recovery area should meet Department of Health guidelines and the advice of the Association of Anaesthetists.

6.5 There should be an adequate number of recovery trolleys of an acceptable design.

6.6 Oxygen and suction should be present in every recovery bay and ideally delivered by pipelines.

6.7 It is essential that currently acceptable standards of patient monitoring are available in every recovery bay. This includes pulse oximetry, ECG and non-invasive blood pressure monitoring.

6.8 All drugs that may be needed in the recovery phase should be available. The range of drugs that may be required should be subject to regular review. Infusion pumps (e.g. for epidural drugs) and PCA pumps must be available.

6.9 Full resuscitation equipment including a defibrillator, must be readily available in every recovery area.

6.10 After agreed criteria for recovery are met, patients on transference to the ward must be accompanied by a trained nurse. Full information must be given to the ward nurse at handover.

7. Patient Care

7.1 Written criteria for the discharge of patents should be agreed and defined by the anaesthetic department.

7.2 The responsibility for the discharge of patients, in the absence of surgically related problems, lies with the anaesthetist who administered the anaesthetic.

7.3 Before patients are discharged either to their home or back to the ward satisfactory pain control should have been established and measures to prevent nausea and vomiting undertaken.

7.4 Standards and guidelines for patient care should be developed. These should be audited and revised regularly.

7.5 A record of the patient's progress while under the care of the recovery staff must be kept. This could have medico-legal importance at a later date.

7.6 Emergency boxes for use in cardiac arrest, anaphylaxis and malignant hyperthermia must be available and regularly maintained. There should be a wall display of algorithms for the treatment of these conditions

7.7 Critical incident reporting is essential to enable the highest standards of care to be maintained in this area. Measures to enable this must be in place. Regular auditing of critical incidents should take place.

8. Special Requirements

8.1 CHILDREN

If at all possible special provision should be made for the care of children by providing a separate area for them and the facility for parents to rejoin their children once they are recovered.

8.2 SPECIALISED RECOVERY AREA

Some patients may require ventilatory support or a longer than usual period of observation and treatment. A larger area should be provided for this group of patients and it should be equipped to enable full monitoring and treatment. Piped anaesthetic gases should be available in this area as well as the ability to scavenge them.

8.3 X-RAY

It is not uncommon for X-rays to be required in the recovery room and full facilities to enable this to take place safely must be available.

9. Patient Information

9.1 It is good practice to develop a patient centred approach to all anaesthetic services. Information to patients about their anaesthetic should include what to expect in the recovery room. Patients from ethnic minorities may need interpreters, special assistance and consideration.

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GUIDANCE ON

Paediatric Anaesthetic Services

When considering the provision of paediatric anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Anaesthesia for children requires specially trained staff and special facilities.
- Provision should be made for parents to be involved in the care of their children.
- The service will be led at all times by consultants who anaesthetise children regularly.
- Adequate assistance for the anaesthetist by staff with paediatric training and skills must be available.
- Paediatric anaesthetic equipment must be available where children are treated.

1. Introduction

1.1 Anaesthesia for children demands specifically trained staff and special facilities.

1.2 Neonates will require treatment in a specialist centre, as may children under the age of five years, where no specialised local facilities exist. Management of common surgical problems in children over the age of five years should be within the competence of consultant surgeons and anaesthetists in district general hospitals.

1.3 Where appropriate, provision should be made for parents to accompany their children at all times.

1.4 Day case surgery is increasing and appropriate arrangements must be made to treat children separately from adults.

1.5 Consent to treatment should, where possible, be obtained from both the child and the parent or guardian. (The Children Act applies).

2. Clinical Services

2.1. Provision of anaesthesia for children undergoing elective surgical and allied procedures. The service will include preoperative assessment and preparation of patients, and care during and after anaesthesia. Procedures for consent for anaesthesia will recognise the rights of children and their parents for full information.

2.2 Provision of high dependency and intensive care services appropriate to the type of surgery and arrangements for the stabilisation and transfer of children requiring more specialised intensive care.

2.3 Provision of a service for the relief of acute pain.

2.4 Provision of resuscitation services.

2.5 Parents will be encouraged to be involved in the care of their children.

3. Education and Staff Development

3.1 Provision and organisation for all consultant and other career grade anaesthetists to participate in continuing medical education and professional development.

3.2 Continuing education will be provided for nurses, operative department personnel and paramedical staff in matters relating to the management of anaesthesia, postoperative recovery and resuscitation of children of all ages.

4. Staffing

4.1 There will be a nominated consultant anaesthetist, suitably trained in paediatric anaesthesia, responsible for services for children. The service will be led at all times by consultants who anaesthetise children regularly, at least the equivalent of one full operating list per week. Children under five years of age will normally be anaesthetised by consultants or under the direct supervision of a consultant.

4.2 When a consultant with adequate training and continuing experience is not available, arrangements will be made for the transfer of children to another hospital with the necessary staff and facilities.

4.3 Adequate assistance, from nurses or operating department practitioners with paediatric training and skills will be available to the anaesthetist at all times.

4.4 Care of children before and after surgery will be carried out by nursing staff to the standard set in the document ‘Welfare of Children and Young People in Hospital’.

5. Organisation and Administration

5.1 Paediatric anaesthetic equipment and disposable items will be available in theatres and recovery areas where children could be treated.

5.2 Theatre design, appearance and working practices will reflect the emotional and physical needs of children. In particular, a system will be in place to allow the presence of parents at the induction of anaesthesia and immediately after recovery from anaesthesia. In addition, recovery areas for children will be separate from or screened from those for adults.

5.3 Parents' attitudes and comments about the anaesthetic service will be sought as part of clinical audit.

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FURTHER READING

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GUIDANCE ON

Critical Care Services

This document has been prepared in collaboration with the Intensive Care Society.

When considering the provision of critical care services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- There should be a separate designated facility (the Intensive Care Unit) for the care of the critically ill patient.
- Critical care may be necessary due to unexpected illness or as part of planned treatment e.g. certain types of major surgery.
- There must be a sufficient number of intensive care and high dependency beds available to serve the designated population.
- The Critical Care Unit must be properly staffed and equipped for the care of such patients.
- All staff providing Critical Care, medical, nursing and paramedical must be appropriately trained.
- Critical Care services should be subject to clinical audit using the Intensive Care National Audit and Research Centre Case Mix Program.
- Information on the provision of intensive care and high dependency care within a Trust (Augmented Care Period Dataset) must now be collected as part of the Contract Minimum Dataset.

1. Introduction

1.1 Intensive care is required to support major organ failure occurring as a complication of acute illness or as an expected component of a planned treatment regime. It should be considered in conjunction and in continuity with high dependency care. High dependency care provides a level of care intermediate between that on the general ward and the intensive care unit; it monitors and supports patients with, or likely to develop, acute single organ failure.

1.2 The Royal College of Anaesthetists and the Intensive Care Society recommend that the following main considerations be addressed in the provision of critical care services. Provision for critical care requirements consequent upon the provision of other services must be made when setting up purchasing contracts e.g. cardiac, head and neck, cancer, neurosurgical, major vascular and trauma surgery. New developments in medicine, surgery and interventional radiology often produce an unexpected demand for critical care services for which funding has not been identified.

1.3 These guidelines aim to ensure a comprehensive, consultant led, high quality service providing good patient care as well as continuing education and development of staff. Critical care will require continuing audit and research to ensure the best possible patient care and most efficient use of resources.

2. Clinical Services

2.1 Provision of critical care for patients in both elective and emergency situations in a properly designed, staffed and designated critical care facility. This will require the appropriate balance of intensive care and high dependency beds as determined by local requirements. All units should include at least one side room or ward so that effective infection control procedures may be employed.

2.2 Development of guidelines for patient referral and management in conjunction with all specialties referring patients for critical care.

2.3 Direct input into the provision of emergency resuscitation, trauma and major incident services.

2.4 Supervision of the transport of the critically ill as recommended in 'Guidelines for Transport of the Critically Ill Adult' published by the Intensive Care Society in 1997.

3. Education and Staff Development

3.1 Provision of training in critical care for medical staff undergoing basic or higher training in any of the major specialties (anaesthesia, medicine, paediatrics or surgery).

3.2 Provision of continuing education and professional development for all critical care staff including consultants and other permanent medical staff.

3.3 Participation in critical care training for nursing and paramedical staff. Fire training is especially important in the critical care unit because of the problems associated with the evacuation of patients receiving life support measures.

3.4 Participation in the evaluation of critical care. This should be by joining the national scheme based at the Intensive Care National Audit and Research Centre (ICNARC).

3.5 Participation in research and development in critical care.

4. Staffing

4.1 The critical care service will be led by an appropriately trained consultant as director, supported by trained consultants with clearly identified critical care sessions. During office hours the consultant on call will have no other responsibilities. The number of daytime sessions necessary to provide adequate consultant availability will be dependent upon local workload but may exceed 15 in large busy units. Significant additional sessional commitment is needed to provide for routine weekend working and other on-call availability in the majority of units whose workload is mainly unplanned.

4.2 The critical care unit will have a dedicated doctor present 24 hours a day. This will most commonly be a trainee. This resident will have no responsibilities other than those directly related to the provision of critical care (e.g. cardiac arrest or resuscitation team duties).

4.3 Resident medical cover will be sufficient to ensure that any nationally agreed working hours do not require the need for internal cover or 'permanent locum' posts.

4.4 The nursing staff establishment will be adequate for the anticipated case mix of patients to provide the required nursing care 24 hours a day taking into account holiday, study, maternity and sick leave. Normally this will provide one to one nursing for typical critical care patients. At least 25% of the nursing establishment must have been trained in Intensive Care Nursing (e.g. ENB100) with the aim of all nursing staff (other than trainees) to possess a qualification in critical care nursing. For high dependency care, the nurse to patient ratio could be reduced to 1 nurse for 2 patients but if the high dependency unit is large a larger establishment may be required. The working relationship between high dependency and intensive care provision must be taken into account when considering a combined or separate locations.

4.5 There will be adequate administrative, secretarial and technical support staff to ensure proper functioning of the service. All units need dedicated administrative support staff whose role may also include some aspects of data processing.

5. Organisation and Administration

5.1 A system is required to ensure the effective and economic use of the critical care service. This will cover personnel, capital equipment and consumables. The service provided must match the requirement of patients and specialties needing critical care.

5.2 The NHS Executive, as part of the contract minimum dataset (CMDS), currently require mandatory collection of a limited amount of data (Augmented Care Period (ACP) dataset) on patients receiving intensive or high dependency care within specified areas of a hospital. The limited ACP data does not provide enough data to perform comprehensive clinical audit for critical care units. It aims to provide an assessment of the requirement for intensive and high dependency care and where this is provided. This information will then assist in the contract and planning for intensive and high dependency care provision.

5.3 An annual report will be prepared summarising the activities of the service and covering the above mentioned headings. Strengths and weaknesses should be highlighted and addressed.

5.3 Close liaison and combined audit is required with other specialties to ensure the best possible management of both patients and critical care resources.

5.4 Prompt and regular communication is required with the patient's relatives, General Practitioner and referring specialty.

5.5 Critical care follow-up programs must be developed. Such programs will identify patient's problems and concerns during their convalescence.

6. Specific Requirements

6.1 All patients referred for critical care will be assessed by a suitably qualified consultant from the critical care service. For those patients who are admitted as part of their elective management for surgery, consultation will be required prior to the commencement of surgery to ensure the availability of an critical care bed. When emergency admission is required, the critical care consultant on-call will assess the patient prior to or within a short time of admission to the critical care unit. Only the critical care consultant may refuse a request for admission to the critical care unit. Management of the patient within the unit will occur in conjunction with the service(s) requesting admission for critical care. Discharge from the unit to the ward will be the responsibility of the critical care consultant and provision must be made to review the patient to ensure a safe transition to the ward or high dependency unit.

6.2 The critical care plan will be based on:

- Requirement for immediate resuscitation.
- Review of the current and past history.
- Investigations and intervention necessary to identify, monitor and correct the primary problem.

- Interventions necessary to support failing organs.
- Explanation to the patient (if possible) and relatives of the likely outcome and complications of disease and therapy.
- Twice daily consultant review of patient progress and regular communication with the referring team.

6.3 Consent to take part in research projects must be obtained from the patient where possible. When the patient is sufficiently obtunded that consent cannot be obtained, then assent may be sought from the family.

6.4 Documentation of all the above must be placed in the patient's case notes.

6.5 If critical care facilities are full, or a patient requires specialist treatment at a regional centre, or requires admission from a distant hospital, arrangements for transfer will be made by the critical care service. On occasions, a stable patient within the critical care unit will need to be moved to allow admission of a referred patient too unstable to transfer. The critical care consultant on duty will be responsible for these decisions and any necessary communication. Safe transfer requires the provision of a suitably trained and equipped team to deliver or transfer the patient following communication between the referring and receiving critical care consultants. The critical care service and its staff will be responsible for preparing the patients for transfer to an alternative facility. The development of regional transfer teams are the ideal.

6.6 Units expecting to comply with recommendations of the National Co-ordinating Group for Paediatric Intensive Care must have a designated area for resuscitation and stabilisation of the critically ill child.

7. Monitoring and Equipment

7.1 The requirement for appropriately trained nursing staff familiar with all the equipment in use cannot be over-stressed; trainers familiar with all aspects of the equipment is vital.

7.2 All equipment should conform to the relevant safety standards and must be regularly serviced. A programme for the replacement of capital equipment must be in place.

7.3 Minimal monitoring available for each intensive care bed space must consist of:

- Continuous ECG display with heart rate and respiratory rate monitoring.
- Continuous monitoring of oxygenation using pulse oximetry or equivalent.
- Continuous invasive and non-invasive arterial blood pressure monitoring.

- Continuous central venous and pulmonary arterial pressure monitoring.
- Continuous monitoring of ventilatory volumes.
- Continuous monitoring of inspired oxygen concentration.
- Continuous monitoring of central temperature.
- Cardiac output measurement.

7.4 The monitoring required for high dependency care would not normally include ventilatory volume or cardiac output measurement.

7.5 Each bed space must be equipped to allow evacuation of the patient in the event of fire. Minimal equipment would include portable oxygen cylinder with reducing valve and self inflating non re-breathing bag.

7.6 Support for circulatory, ventilatory and renal failure must be available. The requirement will be for sufficiently sophisticated ventilators to cope with severe acute lung disease in the category of patients treated e.g. paediatric.

7.7 Close proximity of blood gas analysis facilities is essential; other biochemical analyses are an advantage. Ideally these should be within the critical care facility and run jointly with the Chemical Pathology Department with a proper quality control system.

7.8 Critical care units will need to keep detailed records and this will normally require the presence of computerised data collection for audit, collection of the ACP data etc. This should ideally be linked to the patient master index and laboratory systems.

8. Facilities

8.1 The number of beds provided must be such that no elective patient must be cancelled more than once because of the lack of critical care beds and that immediate availability of beds for emergency admissions must be satisfied for greater than 95% of requests.

8.2 All bed spaces will require adequate services, with the minimum provision of piped oxygen, medical air, suction and power points as set down in the Standards for Intensive Care, published by the Intensive Care Society.

8.3 Adequate privacy must be provided for patients compatible with the need for safe observation.

8.4 Sufficient space for the storage of medications and disposable equipment should be available within the critical care unit.

8.5 A bedroom within or immediately adjacent to the critical care unit, with natural light and adequate facilities for study is required for the resident doctor.

8.6 Adequate facilities for the preparation of food for patients and staff and a separate rest room for staff breaks are essential.

8.7 Facilities for the accommodation of relatives within a reasonable distance of the critical care unit must be provided.

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GUIDANCE ON ANAESTHETIC PRACTICE IN

Respect of Resuscitation

When considering anaesthetic practice in respect of resuscitation, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Anaesthetists are extensively involved in performing resuscitation and training others in resuscitation techniques.
- This will include cardiopulmonary resuscitation, trauma patient resuscitation, paediatric resuscitation and as members of flying squad teams.
- An anaesthetist with an interest in resuscitation should be nominated within each anaesthetic department. They should be the member of the hospital resuscitation committee and advise on training and equipment.
- The cardiac arrest team must include an anaesthetist. An anaesthetist should also be available for resuscitation of seriously ill and severely injured patients. Both should be available on a 24 hour basis.
- Resuscitation equipment should be located on each ward.
- Training should follow the guidelines of the Resuscitation Council (UK).
- Resuscitation training should be under the supervision of a dedicated Resuscitation Training Officer (RTO). At least one full-time RTO is required per 300 acute beds.
- Adequate training equipment must be available in a dedicated resuscitation training room.
- Local guidelines developed by the hospital resuscitation committee should be issued for discontinuing or withholding resuscitation.

1. Introduction

1.1 Basic life support (BLS) refers to maintaining an airway, and providing expired air respiration and external chest compressions without the use of equipment, except for a simple airway device or protective shield. Advanced life support (ALS) is the restoration of spontaneous circulation and stabilisation of the cardiopulmonary system using advanced airway techniques, defibrillation, drugs, and fluids. Guidelines for BLS and ALS have, following international consultation, been updated by the Resuscitation Council (UK).

1.2 Many of the practical skills required during resuscitation attempts are the same skills necessary for the provision of safe general anaesthesia. Consequently, anaesthetists are extensively committed to performing resuscitation and training other staff, inside and

outside of hospital, in resuscitation techniques.

1.3 Severely injured patients, though not necessarily in cardiopulmonary arrest, require immediate effective resuscitation if hypovolaemic shock and hypoxaemia are to be reversed successfully.

2. Clinical Services

2.1 CARDIOPULMONARY RESUSCITATION

The typical resuscitation team includes an anaesthetist and a physician, both of SHO or Specialist Registrar grade. This team is responsible for the provision of cardiopulmonary resuscitation in all areas of the hospital. The role of the anaesthetist includes:

- Advanced airway management - e.g. tracheal intubation.
- Providing effective ventilation with 100% oxygen.
- Undertaking peripheral and/or central venous cannulation.
- If acting as team leader, (likely if the anaesthetist is the senior clinician present) making decisions on the use of appropriate drugs and defibrillation.
- In consultation with other team members, making the decision, if necessary, to abandon the resuscitation attempt.
- Transferring a surviving patient to the Intensive Care Unit (ICU) if appropriate.
- Post-resuscitation management on the ICU.

2.2 PAEDIATRIC RESUSCITATION

Paediatric resuscitation can be challenging with advanced airway manoeuvres and intravenous cannulation being particularly difficult. Along with paediatricians, anaesthetists are involved in paediatric resuscitation in the A&E Department, in the paediatric wards and in the ICU (specialist paediatric ICU or general ICU, depending on the facilities available).

2.3 PRE-HOSPITAL MEDICAL CARE

On rare occasions a medical team is sent from the hospital to deal with a severely injured patient or seriously ill obstetric patient in the “field”. An experienced anaesthetist would normally be part of this team.

3. Education and Training

3.1 Deficiencies in the training of hospital staff in resuscitation have been well documented, and led a working party from the Royal College of Physicians to recommend that hospitals set up resuscitation committees and appoint Resuscitation Training Officers (RTOs). At least one full time RTO is required per 300 acute beds. Some hospitals have yet to appoint a RTO, and in these hospitals anaesthetists will have a major responsibility for training both BLS and ALS techniques. Where a RTO is available, anaesthetists will still have a considerable training input, particularly for ALS.

3.2 A room of adequate size should be permanently available for the purpose of resuscitation training.

3.3 All BLS and much of the ALS training is carried out with the aid of manikins. Although airway training manikins and intravenous cannulation models are used extensively, anaesthetists will often teach intubation and cannulation skills to medical students, doctors, and paramedics during elective surgical lists.

3.4 The European Resuscitation Council has published a standard 3 hour program for BLS training. The following personnel require BLS training:
- All staff going on to ALS training (see below).
- Pre-clinical medical students.
- All nurses, qualified and unqualified.
- Physiotherapists and Occupational Therapists.
- Radiographers.
- Basic ambulance personnel.
- The public.

3.5 The following personnel require training, to a variable level, in ALS techniques:
- Resuscitation Training Officers.
- All doctors.
- Trained nurses (use of bag-valve-mask devices and defibrillation).
- Operating Department Assistants (ODAs).
- Anaesthetic nurses.
- Paramedics.
- Dentists.

3.6 Every patient area should have a member of staff trained and prepared to perform:
- Rapid defibrillation.
- Securing the airway with a laryngeal mask, combitube or tracheal tube.

4. Staffing

4.1 A consultant anaesthetist with an interest in resuscitation should be nominated by the anaesthetic department. This person would normally be a member of the hospital resuscitation committee and will advise on training and equipment.

4.2 The cardiac arrest team should always include an anaesthetist who is available throughout the 24 hours.

4.3 Anaesthetists may also be involved in Pre-hospital Trauma Life Support (PHTLS) training for paramedics and GPs.

5. Equipment

5.1 Adequate equipment must be provided not just for carrying out resuscitative procedures, but also for appropriate training for all the relevant staff (see above).

5.2 Training equipment should be located in the dedicated resuscitation training room and should include:

- Simple BLS manikins (paediatric and adult).
- Advanced manikins providing computer generated rhythms and defibrillation capabilities.
- Intubation trainers (paediatric and adult) with all equipment for advanced airway management.
- IV cannulation trainers (for peripheral and central venous routes).

5.3 Ideally, equipment for cardiopulmonary resuscitation should be standardised throughout the hospital. This equipment should include:

- Defibrillator, ideally with external pacing facility.
- Oxygen.
- Airway equipment: suction; oral airways; nasal airways; laryngeal masks and cuff inflation syringe (50ml); pocket mask; bag-valve-mask and oxygen reservoir; laryngoscopes; endotracheal tubes, cuff syringe (10ml) and ties.
- Intravenous cannulae - peripheral and central.
- Syringes, needles, etc.
- Drugs (pre-loaded): according to Resuscitation Council (UK) algorithm.

5.4 Nurses on high risk wards and departments should be trained to use semi-automatic defibrillators.

6. The Resuscitation Committee

6.1 The Resuscitation Committee should comprise a minimum of 5 members and should include a consultant anaesthetist and the RTO. In many hospitals an anaesthetist is the lead clinician in resuscitation and chairs the Resuscitation Committee. The junior medical staff and nursing staff should always be represented.

6.2 Guidelines of the Royal College of Physicians advise on the work of this committee.

7. Audit

7.1 Audit of resuscitation is vitally important if standards are to be maintained, outcome improved, and inappropriate attempts are to be kept to a minimum. The cardiac arrest team leader should ensure proper documentation after each resuscitative effort and this is best done on standardised forms. This information is essential for clinical, medico-legal and research purposes, and should be reviewed by the Resuscitation Committee.

8. Research

8.1 Extensive research is being undertaken to improve the effectiveness of BLS and to improve outcome following ALS. Since large numbers of patients are required, resuscitation studies tend to involve many hospitals. In the United Kingdom, anaesthetists are actively involved in resuscitation research.

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GUIDANCE ON

Trauma Anaesthesia

When considering the provision of anaesthetic services for trauma, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Trauma is an injury resulting from the application of external forces. This includes blunt trauma, penetrating trauma, burns and other thermal injuries.
- Every hospital should have a designated consultant anaesthetist to co-ordinate anaesthetic services for trauma.
- In hospitals designated to receive major trauma patients there should be a defined trauma team to respond immediately whenever a patient with major injuries is admitted.
- Hospitals designated to receive major trauma patients should have:
  - Access to core specialities at all times.
  - An intensive care unit.
  - Facilities for high dependency care.
- Any hospital designated to manage major trauma in children should have staff with paediatric training and experience. There should be an agreed set of guidelines for the treatment of children.
- There should be agreed guidelines for the referral and transfer of trauma patients.
- There should be guidelines for the initial management of trauma cases.
- The resuscitation room must be comprehensively equipped, as should all operating theatres that may be used for trauma cases.
- A Hospital Trauma Committee should exist in all hospitals designated to receive major trauma cases.
- Trainee anaesthetists should receive training in trauma anaesthesia, including consultant supervised emergency situations. All staff should receive appropriate training in trauma care.
- Anaesthetic audit of acute trauma care should be undertaken.

1. Introduction

1.1 Trauma victims are not in a position to make an informed choice about where they would like to be treated. It is therefore important to provide minimum safe standards throughout the country.

1.2 The standards should cover admission, assessment, stabilisation, investigation and transfer to the operating theatre, trauma ward, high dependency or intensive care unit or to another hospital if the required specialist services are unavailable at the primary hospital.

1.3 Trauma is injury resulting from the application of external forces. In the United Kingdom blunt trauma predominates, and most commonly results from road traffic accidents and falls. Trauma also includes burns and other thermal injuries.

1.4 Historically, trauma care in the United Kingdom has been considered to be a part of orthopaedic services. There is now substantial data to show that the outcome from trauma depends on the total care delivered by a wide range of specialties. In the Working Party report from the Royal College of Surgeons of England on the management of patients with major injuries, it was proposed to develop designated trauma centres. Each centre would serve as the hub of a trauma system in which the surrounding District General Hospitals also play an important role.

2. Clinical Services

2.1 THE TRAUMA TEAM

In all hospitals designated to receive major trauma patients, the anaesthetist is an essential member of the trauma team and should be involved in the following areas:

- Initial resuscitation and assessment of trauma patients, and in particular the provision of airway management, ventilatory support, and vascular access.
- The transfer and care of trauma patients from the receiving area to other locations in the same hospital, for diagnosis and treatment. Such transfers may be to the radiology suites, operating theatres and the intensive care unit.
- The transfer and care of patients to other hospitals for further management (secondary transfer).
- The intraoperative management of patients undergoing both immediate and delayed surgery, including the provision of anaesthesia.
- The coordination of overall care of the trauma patient in the recovery, intensive care and high dependency units.
- Acute and chronic pain control.
- The teaching and training of junior anaesthetists and other hospital professionals involved in trauma care.
- Audit and research.
- The response to a major incident.

2.2 TRAUMA TEAM LEADER

2.2.1 At all times any hospital designated to receive major trauma cases should

have a designated doctor, of at least registrar grade, to act as the Trauma Team Leader.

2.2.2 Trauma management is a multi-disciplinary field and the background specialty of the Trauma Team Leader is less important than his or her commitment to trauma care.

2.3 OTHER AREAS

2.3.1 Anaesthetists may also be involved in the following areas, according to local arrangements:

- Teaching and training of ambulance personnel.
- Attending an accident as a member of the Hospital Flying Squad.

2.4 TRAUMA SERVICES FOR CHILDREN

2.4.1 Any hospital designated to manage major trauma in children, should have medical staff with a higher medical training in paediatrics and a paediatric nurse available to receive injured children in the resuscitation room, in conjunction with the other members of the trauma team.

2.4.2 Every hospital designated to provide trauma care for children should have an agreed set of guidelines to address the problems specific to children. All personnel involved in managing paediatric trauma should receive extra training in the emotional and psychological aspect of the care of sick children.

3. Intensive Care and High Dependency Care

3.1 Any hospital designated to receive major trauma patients should have an intensive care unit and high dependency facilities, which meet the requirements laid down by the Intensive Care Society, the Royal College of Anaesthetists and the NHS Executive.

3.2 There should be a set of guidelines for which patients should receive intensive care as opposed to high dependency care. High dependency care should not be used merely as a result of inadequate intensive care provision.

4. Staffing

4.1 In each hospital, one consultant anaesthetist should be designated or appointed to co-ordinate anaesthetic services for trauma. This role will include:

- Implementation of the standards laid down in this document.
- Liaison with other specialties and with the lead clinician for intensive care.
- Advising on equipment and staffing.
- Sitting on the Hospital Trauma Committee and the Local Trauma System Committee.
- Reporting to the College Tutor on training in trauma anaesthesia and intensive.
- Providing an advisory role, in liaison with other specialities, for the contract between the hospital and the purchaser.
- Providing an advisory role in major incident planning.

4.2 Sessional time should be allocated to the lead consultant in trauma anaesthesia, to assist in the training of health care workers involved in the provision of the service and for the co-ordination of the service between the medical specialities.

4.3 Anaesthetic care of the major trauma patient should normally be administered by Advanced Trauma Life Support (ATLS) trained anaesthetists of Specialist Registrar grade or above. At least one trauma anaesthetist should be in the hospital at all times. Consultant cover should be rapidly available. In complex cases, at least two anaesthetists should be involved, including a consultant or experienced Specialist Registrar.

5. Organisation of Trauma Anaesthetic Services

5.1 Any hospital designated to receive major trauma patients should have the following core specialties available at all times: accident and emergency medicine, orthopaedics, general surgery, anaesthetics, intensive care and radiology.

5.2 At all times, a hospital designated to receive major trauma cases should maintain a defined trauma team to mount an immediate response whenever a patient with major injuries is admitted. Each medical member of the trauma team should be trained to ATLS or equivalent standard. Similarly, each nurse member should be trained to the Advanced Trauma Nursing Certificate (ATNC) or equivalent standard.

5.3 The trauma team structure may vary in different hospitals, but as a minimum should include the following members:-

- An anaesthetist experienced in trauma management.
- A surgeon experienced in trauma management.
- Another doctor, normally from the Accident & Emergency Department.
- At least two nurses, normally from the Accident & Emergency Department.

6. Transfer of Patients

6.1 After initial resuscitation, further specialist involvement may be required. This may involve

prompt inter-hospital transfer. No hospital should be designated to receive major trauma cases unless it is able to comply with the recommendations of the Neuroanaesthesia Society and Association of Anaesthetists on the transfer of patients with acute head injuries to neurosurgical units.

6.2 When a major trauma patient is transferred for other specialist care, the receiving hospital (normally a trauma centre) should have all of the core specialties on site. (see 5.1)

6.3 There should be an agreed set of guidelines for referral and transfer of trauma patients within the trauma system. The principles of patient transfer are the same irrespective of whether the patient is brought a short distance within the hospital or over large distances between hospitals. In both cases, similar stabilisation before transfer and monitoring during transfer are required.

6.4 In general, the referring hospital anaesthetist or lead consultant, should maintain responsibility until the patient arrives at the receiving hospital.

6.5 The transferring doctor must always be accompanied by at least one other person. This should be a nurse from a relevant area, an operating department practitioner, or a paramedic who has also undergone specific training in inter-hospital transfer and is not driving the vehicle. The transferring doctor must be fully briefed about the patient's injuries, initial management and current status while preparing for transfer. All the original notes and x-rays should be taken to the receiving hospital. The transferring doctor should formally hand over care to the receiving hospital in a similar way.

6.6 The transferring team must be adequately clothed and insured, as for attending accidents. The removal of the escorts from the hospital should not reduce the level of care to other patients.

6.7 The following equipment should be available during transfer and used continuously bedside to bedside:

- An adequate oxygen supply.
- Portable suction equipment.
- Airway equipment.
- A portable ventilator.
- Equipment for chest drainage and pericardiocentesis.
- Resuscitation drugs and a defibrillator.

- Resuscitation fluids and equipment for large-bore venous access.
- Portable monitoring of ECG, non-invasive and invasive pressure monitoring, and pulse oximetry.

6.8 In view of the logistical difficulties involved in inter-hospital transfer, hospitals should consider the use and development of regional and national inter-hospital transfer systems.

6.9 The standards recommended by the Intensive Care Society for the transport of the critically ill adult, and the Paediatric Intensive Care Society on transport of the critically ill child should be applied.

7. Hospital Trauma Committee

7.1 In a hospital designated to receive major trauma cases, there should be a Hospital Trauma Committee with consultant representatives from each specialty involved in trauma care. A group of hospitals, which constitute a trauma centre, should have a Trauma System Committee with representatives from each hospital in the system and from the emergency services. These Committees should be responsible for overseeing the following activities:

- Implementation of quality standards.
- Establishing guidelines for trauma care.
- Training and continuing education and professional development in trauma care.

8. Hospital Practice

8.1 There should be a policy for triaging patients with serious injuries into the resuscitation room rather than the other cubicles in the Accident and Emergency Department.

8.2 In the hospital, there should be a set of guidelines for the initial management of trauma cases.

8.3 In all cases of severe injury, there should be direct two-way communication between the ambulance person on the scene, or en-route to the hospital, and an experienced doctor from an appropriate specialty.

9. Facilities and Equipment

9.1 The receiving area in the resuscitation room should contain the following equipment, which should be kept in good working order:

- ECG.
- Pulse oximeter.

- Non-invasive blood pressure monitor.
- Invasive monitoring for arterial and venous pressure.
- Electrical or tympanic temperature monitor.
- Piped and portable oxygen.
- Suction.
- Airway equipment, including a self-inflating bag-valve-mask, laryngoscope mask, endotracheal tube and a cricothyroidotomy set.
- A portable mechanical ventilator.
- Rapid access to arterial blood gas monitoring.
- Equipment for chest drainage, pericardiocentesis and immediate thoracotomy.
- Resuscitation drugs and a defibrillator.
- Resuscitation fluids, equipment for large bore peripheral and central venous access and venous cut-down.
- A high-flow blood warmer.
- A rapidly available supply of blood.
- A warm air convective body heating system or an equivalent.
- Semi-rigid cervical collars.
- Lower limb traction splints.
- Graduated containers for monitoring urine output.

9.2 Every hospital designated to receive major trauma patients should have imaging facilities available 24 hours per day. All areas where imaging may be carried out must be equipped for care of the critically ill patient.

9.3 At all times, in hospitals designated to receive major trauma patients, there should be a designated, staffed emergency theatre in which emergency operations take priority over routine cases. In addition, there should be immediate access to a designated area in the Accident and Emergency Department where life-saving surgical interventions may be performed.

10. Education and Staff Development

10.1 All junior anaesthetists must receive specific practical and theoretical training in trauma anaesthesia.

10.2 All anaesthetists involved in administering trauma care should undergo specific training in Advanced Trauma Life Support.

11. Audit

11.1 There should be specific methods of minimal data collection from all areas of acute trauma care for anaesthetic audit.

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GUIDANCE ON

Day Case Anaesthesia

When considering the provision of day case anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Day surgery (excluding endoscopy) is concerned with patients admitted on the day of surgical treatment who would normally be expected to go home on the same day.
- Clear guidelines must exist for appropriate patient selection for day case surgery. These will include consideration of social factors.
- Day surgery units will have a consultant Medical Director who chairs a multi-disciplinary management team.
- Specific arrangements must be made for the treatment of children.
- Full support services must be available: radiology, pharmacy, investigative laboratories.
- Access to patient beds (ICU or general) is required for perioperative complications.
- All patients must be assessed during the recovery phase for the adequacy of analgesia and fitness for discharge.
- Discharge of a patient is a medical responsibility.
- Clear written discharge criteria must be established.
- Full written records must be maintained.
- Specific instructions and information must be available for patients, their relatives and community services.

1. Introduction

1.1 This document describes the service expected from a Department of Anaesthesia providing services for day surgery which is a rapidly developing field

1.2 Day surgery encompasses a spectrum of surgical work which can range from simple procedures in outpatients, to that which allows the patient to go home after a few hours or that which requires the patient to stay in for most of a day. Some patients will have ‘day surgery’ in one centre which would be performed as inpatient work in another. The basic considerations must reflect the skills of the medical team, the patients’ fitness, the technical ease of the procedure, the postoperative morbidity and the social circumstances of the patient in relation to the available community resources.

1.3 This document will consider cases which are admitted on the day of their surgical treatment and who will go home within 12 hours of their procedure being completed. Many will go home within one or two hours.

2. Quality Care

2.1 The requirement to discharge patients within a relatively short time of their surgery demands a meticulous and safe anaesthetic technique which produces good quality recovery with minimal postoperative morbidity. The provision of adequate analgesia and continuing care after discharge must be assured.

2.2 For this work, anaesthetic involvement must be by experienced personnel working on a regular basis. To deliver the required quality of care, anaesthetists must be involved in the whole process of day surgery both before and after the procedure in an operating theatre. Preoperative patient selection and preparation, perioperative care and follow up into the community are essential components of good day surgical practice.

3. Clinical Services

3.1 The average duration of a day case session is approximately equivalent to three and a half hours or a notional half day (NHD). The NHD includes total perioperative anaesthetic care. This session should be designated as a fixed session and, as such, included in the anaesthetist's job plan.

3.2 Clear protocols on the selection of suitable day case patients and the preoperative preparation and investigations required must be prepared.

3.3 There should be a nominated consultant anaesthetist, suitably trained in paediatric anaesthesia, responsible for services for children.

3.4 The anaesthetist must have an opportunity to talk to the patients before the procedure on the day of operation so that rapport can be established and any last minute questions addressed. The patient must not meet the anaesthetist for the first time in the anaesthetic room even though they are fit and have been well screened and prepared.

3.5 The anaesthetist should be available to deal with postoperative problems arising in the recovery and ward areas. Every patient must be seen by an anaesthetist involved in their care during their recovery phase.

3.6 The anaesthetist must prescribe adequate postoperative analgesia to take after discharge home and must give clear instructions on when to utilise these drugs. Protocols for effective analgesia must be written and audited.

3.7 Written notes and records of all visits and clinical procedures undertaken must be made, and copies of these should be made available for those caring for the patient in

the community later on.

4. Staffing

4.1 Each Day Surgery Unit (DSU), Centre or Ward should have a Medical Director who should be a consultant of some standing within the hospital. A consultant anaesthetist may be particularly suited to such a position. The Medical Director must have adequate sessional time set aside in the job plan for this work which will involve management and audit as well as teaching.

4.2 If there is no self-contained DSU with a Medical Director then a consultant member of the Anaesthetic Department should be designated and must take responsibility for all day surgical procedures occurring within the hospital site, and should work towards the development of a distinct DSU.

4.3 The Medical Director should chair a management group and liaise with all those involved in day care. This will include representatives from surgery, anaesthesia, nursing, management, finance, community care (both nursing and medical), audit, Professions Allied to Medicine (PAMS) and the patients themselves. All of these should have the opportunity to visit their local DSU so that new developments in anaesthesia and surgery can be appreciated.

4.4 There should be a senior nurse who, with the Medical Director, can provide the day to day management of the Unit.

4.5 Anaesthesia for day surgery should be a consultant based service. The majority of sessions should have allotted to them a regular consultant anaesthetist who is skilled in day surgery work.

4.6 Appropriate named consultant anaesthetists should be identified to provide advice on individual patients' suitability for day surgery.

4.7 The non-consultant career grades, such as clinical assistants and staff grade doctors may provide anaesthesia for day surgery. They require supervision by consultant anaesthetists.

5. Premises

5.1 The ideal facility is a purpose built self contained DSU with its own ward, recovery areas and dedicated operating theatre(s). This may be contained within a hospital or in its grounds, so that emergency facilities are available.

5.2 Failing this, patients should be admitted to a dedicated day surgery ward. The practice of admitting day cases to inpatient wards does not achieve good quality care.

5.3 The minimum operating facility required is a dedicated operating session in a properly equipped operating theatre. Mixed inpatient and day case lists while common do not achieve the same high quality of care as dedicated lists. In particular, mixed lists make preoperative assessment of the day cases difficult or impossible unless specific arrangements have been made.

5.4 Specific arrangements must be made for the treatment of children.

5.5 Many hospitals will be performing a variety of day work in specialised units such as dental and ophthalmic surgery, where the same standard of care should be achieved. It should be appreciated that it may not be appropriate to try and centralise all of these in one single day facility and that individual monospecialty units can exist in isolation.

5.6 Some day surgery practice occurs in what can be termed 'isolated sites', e.g. accident and emergency departments, dental departments and ECT cases. These patients must receive the same standards of assessment and perioperative care as are outlined in this document.

6. Support Services

6.1 Haematology and biochemistry services should not need to be used on the day of operation if selection and preparation procedures are adequate. Requests for such tests must be based on clinical relevance. There is no place for routine screening of all patients. However selected investigations may be required for some patients.

6.2 The facility to perform a 12 lead electrocardiogram (ECG) should be available preoperatively for those patients in whom it is clinically relevant. The ability to perform an ECG in the DSU may be useful.

6.3 There must be access to inpatient beds for perioperative complications. If a patient requires overnight admission, an inpatient bed must be found. If day surgery is being performed in an isolated situation, the mechanisms of finding a suitable place for the patient and arranging transport must be defined.

6.4 The surgeon involved in the case must remain responsible for the patient and he/she or a deputy should be available to deal with any problems that arise.

7. Selection and Preoperative Assessment

7.1 Patients will come for day surgical procedures from a wide variety of referral routes. These

will include hospital outpatient departments, accident and emergency departments, peripheral clinics and direct from general practitioners (GPs).

7.2 Each centre should have written protocols for patient assessment which should be made available to all community and hospital staff.

7.3 Assessment falls into two main areas, social and medical. However, some of these factors are not always easy to assess from the hospital practitioner's viewpoint and much reliance has to be placed on health care professionals in the community to alert hospital staff to potential problems. There is particular scope for this assessment to be performed by nurse practitioners in hospital, 'outreach nurses' in the community, or GPs; all of whom complete approved documentation forms.

7.4 The important social factors include: the availability of a responsible adult, able and willing to care for the patient at home for at least the first 24 hours postoperatively; easy access to a telephone; and the patient's home situation should have satisfactory standards of heating, lighting, kitchen, bathroom and toilet facilities.

8. Patient Information

8.1 Each DSU must develop systems of delivering clear instructions on the date of surgery, what to do on the day of surgery including fasting, instruction about escort travel, overnight supervision, time of arrival, medication, and consent to the procedure. This information should be written down as well as given verbally. Some DSU's may utilise video or audio tapes for this purpose.

9. Postoperative Recovery

9.1 There are various stages of recovery after day surgery and these may take place in different physical locations or all in the same area.

9.2 Patients should move through the recovery facility depending on their conscious level and ability to control their airway. Transfer from the immediate recovery area should take place when the patient is awake, in control of their airway, oriented and without continuing haemorrhage.

9.3 The secondary recovery must provide essential close and continued supervision of all patients who should be visible to the nursing staff. Adequate nursing levels for the number of patients and their needs must be provided at all times in both of these areas.

10. Discharge Criteria

10.1 Each centre will establish written discharge criteria which each patient must achieve before leaving. Every patient must be seen by a surgeon and an anaesthetist who have been involved with their care in the operating theatre before discharge.

10.2 If the patient does not satisfy the agreed discharge criteria they must be referred to the anaesthetist or surgeon concerned (or their deputies) for assessment.

10.3 Peripheral nerve blocks and intravenous regional anaesthesia often provide excellent conditions for day case surgery. Patients may be discharged home with residual sensory or motor blockade. The duration of the blockade must be explained and the patient must receive written instructions as to their conduct until normal sensation returns.

10.4 Postoperative short term memory loss may prevent information being assimilated if only verbal instructions are given to the patient. If postoperative analgesia has been provided, clear, written instructions on how and when to take it and the maximum safe dose must be provided.

10.5 A 24 hour telephone number in the hospital must be given so that the patient knows whom to contact in case of postoperative complications. This should not be an answerphone.

10.6 The GP must have been notified of the patient's proposed treatment in advance. Where the GP may need to provide postoperative care within a short time of discharge, arrangements for this should have been made in advance of the patients admission. A discharge summary should be written for each patient by the surgeon concerned. The patient's GP should be informed as soon as possible, preferably by telephone consultation before the patient leaves the centre.

11. Postoperative Care After Discharge

11.1 The anaesthetist's responsibility for the patient does not end when the patient leaves the DSU. There must be a willingness to extend care into the community. Liaison with GPs and community services must take place and there must be good methods of communication. The only effective measure of success in day surgery is patient satisfaction on the second or third postoperative day at home. To achieve this demands a new form of partnership between hospital and community at all levels.

12. The Future

12.1 Day stay surgery will certainly increase in the future. Many aspects will change and

develop. Surgeons will increase the complexity and duration of their day stay operations as newer techniques involving “minimal access surgery” expand the procedures which can be attempted. Anaesthetists will continue to reduce postoperative morbidity by utilising new agents and techniques. Hotel facilities will be built close to day case units. Community and domiciliary nursing will develop further expertise in this field.

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GUIDANCE ON

Pain Management Services

When considering the provision of pain management services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Pain Management Services should be planned as an integrated programme although staffing and equipment resources for acute and non acute pain may differ.
- Recent reports have highlighted the need for appropriate funding for all pain management services
- Acute and non acute pain management in all hospitals requires:
  - Appropriate facilities, consultant sessional allocation and equipment.
  - Responsibility for the management of pain to be undertaken by appropriately trained consultants.
  - Liaison between pain management, palliative care services and other specialities to provide an inter-disciplinary approach in all areas.
  - Ongoing education in the understanding of pain, its presentation and management, for all grades and disciplines caring for patients.
  - The provision of inter-disciplinary programmes which will improve patient rehabilitation whilst reducing pain and use of other health care resources.
- Specific arrangements must be made for the treatment of children.
- The services of investigation departments must be readily available and information concerning their services easily available to both staff and patients.

1. Introduction

1.1 Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. There is evidence in epidemiological studies of widespread unrelieved pain in the community. Provision of specialist services should address this.

1.2 Pain management is primarily concerned with patient care and is of proven benefit.

1.3 Pain management services should provide hospital and community care to all disciplines. There should be close relationship with palliative care services.

1.4 A pain management service must ensure that relief of acute and non acute pain is available for all patients requiring it.

1.5 The service should be led by a consultant in pain management who has contractual sessions and has responsibility for co-ordinating the service. Other consultants should have a contractual commitment to the service to enable continuing cover.

2. Acute Pain Services

2.1 Acute pain occurs in the postoperative period. It may also be directly associated with disease or trauma. It can usually be effectively and safely relieved where appropriate skills and knowledge are available to do so. Specific services for the management of postoperative pain have been shown to be effective. Provision of such management helps prevent delayed recovery and continuing pain syndromes.

2.2 The relief of acute pain is an effective form of preventative medicine - reducing complications, improving recovery and preventing the further development of a chronic pain state. There is a noted quality element in such management.

2.3 Repeat surveys have shown an increase in the number of acute pain teams but this service remains deficient in a significant number of hospitals. The Audit Commission report notes that in many Trusts their quality strategies contain no mention of pain and written standards are rare.

2.4 All surgical hospitals must have a system whereby patient specific pain management can be purchased and provided. Such provision must include staff and equipment. The objectives of the system are to provide:

- Regular assessment and individualised treatment of pain.
- Information, education and reassurance to patients
- Increased awareness of the consequences of unrelieved pain in all health care personnel.
- Education for nursing and junior medical staff.
- Continuing audit of the service.

2.5 There should be named consultants with responsibility for provision for acute pain services and availability of resident staff.

2.6 There should be clinical nurse specialist(s) who advise on pain management, review the patient's symptom control regularly with ward staff and provide an educational role.

2.7 There should be physiotherapy and pharmacy input.

2.8 All patients require access to recovery areas staffed on a one to one basis and

appropriately equipped for immediate post-anaesthetic recovery where analgesia can be instituted. This should be available on a 24 hour basis on all sites where emergency surgery takes place High Dependency Care and/or Intensive Therapy Services Unit should be available for appropriate cases.

2.9 Specific arrangements must be made for the treatment of children.

2.10 Verbal and written information concerning pain and its management must be available for patients preoperatively. Patients must be able to make an informed choice of analgesic technique within available facilities and following medical and nursing advice and discussion.

2.11 Postoperatively patients must be regularly visited for evaluation of pain relief, detection and treatment of complications and for reassurance.

2.12 Simple, repeatable pain scoring must become a routine part of the care of all patients with acute pain. Ward nursing staff should understand and encourage the use of pain scoring.

3. Non Acute Pain Services

3.1 Non acute pain management should be based on inter-disciplinary co-operation to develop treatment plans. This requires the skills of specialist clinicians, clinical psychologists, physiotherapists, occupational therapists and specialist nurses, and the ready and rapid facility to consult with other specialist clinicians. Complementary medicine techniques where validated may also be offered.

3.2 Some therapies have been evaluated by systematic reviews which point to health gain and cost saving.

3.3 A minimum of ten consultant sessions per week should be provided for a population of 100,000, ideally these sessions being shared between two consultants for continuity of cover. A specialist clinical psychologist should have a whole time commitment, and medical staff should be available for immediate care for inpatients.

3.4 Appropriate outpatient facilities require consultation, examination and treatment rooms provided on a regular basis with full nursing and associated support. A dedicated area is preferable. Extra facilities for counselling, physical therapy and behavioural psychotherapy sessions must be available with rehabilitation overseen by the clinical psychologist, all working as an inter-disciplinary team. Inpatient or hostel accommodation is required for intensive programmes.

3.5 Specific arrangement must be made for the treatment of children.

3.6 Managerial, secretarial and support staff should be available to service inpatient and outpatient facilities.

3.8 Information packages facilitate patient and purchasers choice of available treatments. Referral guidelines and discharge policies should be in place.

3.8. Designated beds and defined theatre and X-Ray sessions per consultant are needed for treatment and special procedures. In an average district a minimum of 3 inpatient and 6 day care beds together with 1 theatre and 1 imaging session are required. This requirement may differ with special expertise in some centres. Access to HDU, ICU and associated recovery areas should also be available when indicated following invasive management.

3.9 Many clinics are not fully funded for the work they do; this should be addressed in appropriate contracting processes.

4. Education and Staff Development

4.1 Personnel involved in acute and non acute pain management should be trained adequately in the use of assessment tools, communication skills and the use of equipment, as well as being able to interpret complications and side effects.

4.2 Research should be carried out. This should, where possible, focus on randomised controlled trials.

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GUIDANCE ON

Obstetric Anaesthetic Services

When considering the provision of obstetric anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- A significant number of women require advice and care from anaesthetists before, during or after childbirth. The requirement is often urgent and may occur at any time.
- A named consultant should have responsibility for the organisation and management of the service. Additional consultants should have a sessional commitment to obstetric anaesthesia to ensure availability of appropriate expertise at all times.
- Obstetric anaesthesia is recognised to present difficulties making it unsuitable for trainee anaesthetists new to the specialty.
- Trainees should have completed one year of anaesthetic training and have been assessed as competent by a consultant anaesthetist with responsibility for obstetric anaesthetic services before undertaking obstetric anaesthesia care other than with direct experienced supervision.
- Mothers may require specialist consultation, assessment and advice. Anaesthetists are responsible for analgesia, anaesthesia, resuscitation and high dependency and intensive care.
- A proportion of mothers will require high dependency and/or intensive care before or after delivery of their baby. Premises, equipment, medical and specialist support staff are required. For some units transfer of very sick patients is necessary requiring appropriate arrangements.

1. Introduction

1.1 This document describes the service expected from an anaesthetic department providing services for Obstetric Units. These guidelines indicate an acceptable level of service offering safety for mothers but not necessarily all desirable features that patients may favour. These guidelines assume that mothers cared for in their own homes or in general practitioner units will be transferred with appropriate resuscitation and support to a Consultant Obstetric Unit if care by anaesthetists is required.

1.2 Units should clearly state the level of service offered allowing patients informed choice of the type of facility and level of service, that they wish for the birth of their baby. There are many practical reasons why the level of obstetric service will differ for domiciliary delivery,

small general practitioner units and larger consultant units. Some of the smaller non-specialist units will have no anaesthetic service.

2. Clinical Services

2.1 Consultant Obstetric Units are expected to provide a 24 hour service for the analgesic, anaesthetic and resuscitation requirements of women admitted from the community or other hospitals with conditions associated with childbirth.

2.2 A resident anaesthetist should be provided for all consultant units. Where a resident anaesthetist is not provided in smaller consultant units, a non-resident anaesthetist must be available to permit a maximum time interval of no more than thirty minutes between a decision to operate and provision of anaesthesia for an instrumental or operative procedure. Where an epidural analgesic service is provided an anaesthetist of adequate experience should be immediately available to the obstetric service throughout the 24 hours.

3. Anaesthetic Clinical Services

3.1 General and regional anaesthesia for emergency and planned obstetric procedures.

3.2 A comprehensive obstetric analgesic service. Smaller units not offering a comprehensive service must state the level of service provided.

3.3 Resuscitation of pregnant and post partum women, and of neonates if the neonatal paediatric service is unable to attend.

3.4 Multidisciplinary advice and care for patients requiring intensive care management as in major organ failure, clotting disorders and severe haemorrhage.

3.5 Pre and post procedure visiting of patients for assessment and explanation, early detection of complications and audit of quality and satisfaction.

3.6 Written notes and records of all visits and clinical procedures undertaken.

4. Staffing

4.1 Each Consultant Unit must have a consultant anaesthetist with responsibility for obstetric services. He or she will require sessional time for management, audit and teaching in addition to clinical work.

4.2 The number of consultant sessions shared with other anaesthetic colleagues should follow guidelines based on the annual number of deliveries and procedures carried out and the clinical, teaching and research commitment of the unit. The Association of Anaesthetists and the Obstetric Anaesthetists Association recommend a minimum of one consultant session per 500 deliveries. However, this must be regarded as a minimum provision. Sessional allocations should be greater in units with a high turnover of trainees or higher than average epidural or caesarean rates or a substantial number of high risk cases.

4.3 There must be immediate availability of an anaesthetist with more than one year of anaesthetic experience whose competence has been assessed by a consultant obstetric anaesthetist. He or she must have access to prompt advice and support from a consultant anaesthetist. Trainees must not receive their first experience of epidural and sub-arachnoid blocks in the obstetric situation.

4.4 Trained dedicated assistance for the anaesthetist must be available at all times.

5. Support Services

5.1 Haematology (including coagulation studies) and biochemistry services must be available to provide rapid analysis of blood and other body fluids and to make available blood and blood products for transfusion without delay and in sufficient quantities. A supply of uncrossmatched O Rh. negative blood or screened and group-confirmed blood must always be available in the delivery suite for emergency use. Rapid efficient communication channels must exist to avoid delay in the event of massive haemorrhage.

5.2 Large units and those specialising in the care of the high risk mother should have intensive care units (ICU) on the same site and provision for high dependency care within the obstetric unit. There must be access to an ICU for all obstetric patients. If these are not in the same building, a standing arrangement must be in existence for the transport with life support equipment; paramedical and medical personnel must be available for transfer of women to such units.

5.3 There must be provision for rapid availability of consultation with other specialists experienced in non-obstetric aspects of pregnancy such as cardiac disease and diabetes.

5.4 There must be rapid availability of imaging services.

6. Premises

6.1 There must be a dedicated anaesthetic office on or close to the labour ward with adequate accommodation for consultant and trainee anaesthetists and their support staff.

6.2 A dedicated operating theatre must be available at all times for obstetric anaesthesia. Where the size of the unit or the nature of the work require it, a second theatre should be available for concomitant emergencies and control of infection contingencies (e.g. HIV and hepatitis). Theatres should ideally be in close proximity to the Delivery Suite.

6.3 An appropriately equipped post anaesthetic Recovery Unit of adequate size and staffing for the work of the unit must be available within or close to the labour ward.

6.4 If ICU facilities are not on site, high dependency facilities must be available in the obstetric hospital.

6.5 Emergency resuscitation equipment and a cardiac arrest procedure must exist for obstetric patients and be known to all staff.

7. High Dependency Care

7.1 All maternity units must be able to provide high dependency care for patients. This may include facilities for invasive monitoring, transfusion of blood and blood products and short term ventilation prior to transfer to an Intensive Care Unit (ICU).

8. Intensive Care

8.1 All maternity units must have access to an appropriately staffed ICU for transfer of patients, either pre- or post-delivery as required. It is anticipated that whilst in the ICU, patients will continue to receive obstetric care from the obstetric team involved.

8.2 In smaller and isolated maternity units the requirements for ICU may necessitate transfer of the patient to another hospital. Such maternity units should have definitive arrangements with a specific ICU to facilitate rapid transfer of patients when necessary.

9. Training and Education

9.1 A consultant anaesthetist should be nominated in charge of training in obstetric anaesthesia and analgesia. Regular teaching in both theoretical and practical skills should be given by consultant anaesthetists.

9.2 Guidelines for the management of obstetric and anaesthetic complications such as failed intubation, major haemorrhage, inhalation of gastric contents, anaphylaxis and post spinal dural puncture headache must be established and rehearsed.

9.3 There must be clear written guidelines for the emergency resuscitation of pregnant women, oral intake during labour and management of such conditions as pre-eclampsia and diabetes.

10. Training in Relation to Service Provision

10.1 A pregnant mother or purchaser of services would wish to know the grades of trainees and their level of supervision. The Maternity Services Report states that individual units must make explicit their arrangements for Senior Medical staff availability. Teaching units must define the structure of their service according to training requirements.

11. Patient Information

11.1 Women must have the opportunity to make informed choices about pregnancy, delivery, analgesia and anaesthetic interventions. Mothers need to be given adequate and timely information. Access to an anaesthetist in the antenatal and postnatal period is the right of every woman. Appropriate audio-visual and printed material must be available during the antenatal period.

11.2 Whenever an anaesthetic or analgesic intervention is to be undertaken, the woman must be given appropriate relevant information in terms that she can understand. Provision must be made for ethnic groups whose first language is not English. Any questions must be answered and consent obtained for any intervention.

12. Maternal Satisfaction

12.1 Every maternity unit should be able to assess consumer satisfaction. Good data collection is essential. An overall satisfaction assessment of anaesthesia and analgesia would be expected to include:

- Availability, relevance and clarity of antenatal information provided to enable choice.
- Satisfaction with analgesia and anaesthetic services provided.

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FURTHER READING

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GUIDANCE ON THE PROVISION OF Neuroanaesthesia Services

When considering the provision of neuroanaesthesia services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Neuroanaesthesia should only take place in Neuroscience centres.
- Staffing levels in the operating theatre should be sufficient to allow anaesthetists to work in teams during long operations.
- Interventional neuroradiology requires full neuroanaesthesia cover by consultants.
- Neurointensive care is a joint responsibility between neuroanaesthesia and neurosurgery; there should be specific sessions for neuroanaesthetists in intensive care.
- The provision of beds for neurointensive care must be adequate, the ventilation of patients in other areas should only occur in exceptional circumstances.
- Operating theatres, Intensive Care Units (ICU) and neuroradiology facilities including scanners should all be in close proximity.
- The care of head injured patients is an integral part of neuroanaesthesia. Specialist units accepting these patients need to make specific arrangements including protocols, staff training and rapid availability of facilities. Optimal management will improve outcome and save resources in the long term.

1. Introduction

1.1 Anaesthesia for neurosurgery - neuroanaesthesia - is based on recognised Neuroscience Centres which allow the grouping together of the interrelated specialties required to support major neurosurgery. These centres, whether they be in Specialist, Teaching or District General Hospitals, provide neuroradiology, neurosurgery and supportive care including specialist intensive care, necessary for the management of patients with severe neurological disease.

1.2 The continuation of this centralisation of neuroscience practice is essential to ensure the best clinical care for patients. The pace of development and the scope of procedures being undertaken in both neurosurgery and interventional neuroradiology continues to increase the specialist nature of neuroanaesthesia.

2. Clinical Service

2.1 The clinical service should provide:

- Anaesthesia for neurosurgery - brain and spinal surgery.
- Anaesthesia for neuroradiology - diagnostic and interventional therapeutic procedures.
- Neurointensive therapy for pre- and post-operative neurosurgical patients requiring intensive or high dependency care, head injuries (preferably excluding patients with multiple trauma), and patients with neurological diseases requiring respiratory support.

2.2 A neuroanaesthesia service requires adequate consultant sessional provision and the immediate availability of a resident anaesthetist for 24 hours a day, to assist with the resuscitation of acute cases including head injuries. Senior assistance should be available within 30 minutes.

2.3 Whilst the organisation of cover for neuroanaesthesia may require a specific group of consultant neuroanaesthetists, arrangements for other aspects of their duties such as training and audit, make it preferable that they should remain part of a general anaesthetic department.

3. Staffing

3.1 Sessional allocation must ensure consultant cover of all major neurosurgical operating sessions and all interventional neuroradiology sessions. Adequate cover is also needed for diagnostic radiology sessions including CT and MRI scans for which general anaesthesia is being given to patients prior to major neurosurgery.

3.2 Consultants working in neuroanaesthesia should have sufficient regular sessions within this field to ensure that their specific skills and experience are maintained.

3.3 It must be recognised that the allocation of a single anaesthetist to an operating list with long neurosurgical cases is insufficient. NCEPOD has recommended that certain operations including craniotomy, should be serviced by a team of anaesthetists.

3.4 Children requiring neurosurgery need specific arrangements. Whilst specialist paediatric neurosurgical units exist, the majority of cases are treated in general neuroscience centres. In providing for neuroanaesthesia particularly in those under five, appropriate planning is necessary. This might include shared responsibility with paediatric anaesthetists.

4. Intensive and High Dependency Care

4.1 The management of patients within ICU and High Dependency Unit (HDU) environments will be closely shared with the neurosurgical team, but sufficient consultant sessions should be provided to ensure the continuing management of patients within these units by named consultants with a specific interest in intensive care for neurosurgical and neurological patients. This is particularly important when these ICU beds are provided within a general ICU.

4.2 The demand for ICU beds in neuroscience centres will be high. The Society of British Neurosurgeons has proposed the provision of 4 designated neurointensive care beds per million population served.

4.3 For many patients an HDU offering a provision for intensive monitoring and a nurse/patient ratio of 1:2, will be sufficient.

4.4 Patients on mechanical ventilation will often require to be transported to and from CT and MRI scanners. Theatres, ICU and scanners should therefore be in the closest possible proximity. Adequate provision should be made for monitoring patients during such transport. Staffing levels must be sufficient to enable an appropriately qualified and experienced doctor to accompany such patients.

5. Education and Staff Development

5.1 In general, the specialist nature of neuroanaesthesia dictates that trainees will only receive a limited exposure based on a clinical attachment during early training, with formal rotations forming part of later training programmes - the latter as options.

6. Organisation and Administration

6.1 Much of neurosurgery involves acute work with a high degree of urgency. The provision of associated services must recognise this need, inappropriate delay cannot be allowed to occur due to the lack of key personnel or facilities. Laboratory services, radiology and availability of operating theatre time must all be organised to cope with these demands.

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4. Royal College of Anaesthetists. Guidance on the provision of Paediatric Anaesthesia. 1999.
5. Association of Anaesthetists of Great Britain and Ireland and the Neuroanaesthesia Society. Recommendations for the transfer of patients with acute head injuries to neurosurgical units. 1996.

GUIDANCE ON

Thoracic Anaesthesia Services

When considering the provision of thoracic anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Thoracic surgical units frequently exist or as part of a cardiothoracic service although their needs may vary to some extent from those of pure cardiac units.
- Thoracic surgical units often act as tertiary referral centres.
- A significant number of patients presenting for thoracic surgery will be in the older age groups.
- Ready access to laboratory services is essential.
- On-site pulmonary function laboratory facilities are considered mandatory.
- Postoperatively patients must be managed in dedicated thoracic units.
- Pain relief and clinical protocols must be clearly defined.

1. Introduction

1.1 Thoracic surgical units should exist as part of a cardiothoracic service within a larger hospital.

1.2 Thoracic surgery in adults includes surgery to the lungs (including lung transplantation), pleura, thymus, oesophagus and other thoracic structures as well as the chest wall. Often patients presenting for thoracic surgery are smokers in older age groups. They may be ill, malnourished, and have pre-existing chronic obstructive pulmonary disease. Paediatric thoracic surgery frequently includes surgery to the great vessels.

1.4 The complexity of the cases may necessitate additional sessional commitment for preoperative visiting and assessment.

1.5 The quality of perioperative services markedly affects the outcome in this group of patients.

2. Clinical Service

2.1 Anaesthesia and analgesia for all types of diagnostic, therapeutic, elective and emergency thoracic surgery must be provided.

2.2 Anaesthesia for lung transplantation, which may require the use of cardio-pulmonary bypass, may become routine in major thoracic units.

2.3 An appropriately staffed postanaesthetic recovery unit of adequate size must be available.

3. Staffing

3.1 The consultant anaesthetists involved will be responsible for the provision of service, teaching, production of protocols, management, research and audit. Adequate sessional time will be required for these activities.

3.2 24 hour consultant availability is required particularly if lung transplantation is performed.

3.3 It is essential that wherever thoracic anaesthesia and surgery is performed, there should be a resident anaesthetist and thoracic surgeon.

3.4 Children undergoing thoracic surgery have special requirements. This might include shared responsibility with paediatric anaesthetists.

4. Support Service

4.1 A dedicated thoracic or cardiothoracic ward is desirable.

4.2 Haematology and biochemistry services must be readily available.

4.3 Emergency blood cross matching and transfusion facilities are essential.

4.4 Radiological CT and MRI services must be available. The demand for echo-cardiography services is likely to increase considerably in the future.

4.5 Physiotherapy services are required during the preoperative preparation and postoperative care.

4.6 Access to a respiratory function laboratory is required.

4.7 Access to an Intensive Care Unit (ICU) located nearby is required.

4.8 The provision of a High Dependency Unit (HDU) facility is essential. Nursing staff should be trained in thoracic nursing care and services should be established as part of the general thoracic ward.

4.9 Physicians and surgeons experienced in specialist non-thoracic areas, such as cardiac

and endocrine disease, should be available for consultation.

5. Equipment

5.1 Equipment for a variety of methods of ventilation is required to provide all ventilatory modes.

5.2 Comprehensive monitoring facilities are required. For complex cases, facilities for pulmonary artery catheterisation and cardiac output measurement are required. For patients undergoing lung transplantation, additional facilities will be needed.

5.3 On rare occasions when unexpected difficulties arise, access to a cardio-pulmonary bypass facility is essential.

6. Anaesthetic Clinical Service

6.1 Two anaesthetists may be required for more complex procedures.

6.2 The provision of a pain service is necessary.

7. Safety

7.1 After major thoracic surgery, it is of paramount importance that patients are transferred to a properly equipped and staffed area. In the United Kingdom most patients will return to a High Dependency Unit. However, in some instances, e.g. elderly patients who have had oesophageal surgery, may need to be moved to the Intensive Care Unit for elective ventilation. Occasionally, patients who have had lung surgery also require such treatment.

8. Clinical Protocols

8.1 Clinical protocols can be developed from national guidelines and reviewed on a regular basis.

9. Future Training

9.1 The number of centres which perform thoracic surgery is decreasing. It is therefore essential that the training opportunities for anaesthetists, nursing staff, physiotherapists and other staff are used to the maximum. Most research in thoracic anaesthesia will be done at these units. Teaching and research activities must therefore be given high priority in these units.

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7. Royal College of Anaesthetists. Guidance on Paediatric Anaesthetic Services. 1999.

GUIDANCE ON

Cardiac Anaesthesia Services

When considering the provision of anaesthetic services for cardiac surgery, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Cardiac anaesthetic services are provided for patients undergoing heart surgery and investigations.
- Cardiac surgery is mainly carried out in specialist units within teaching hospitals or specialist hospitals dedicated to cardiothoracic work.
- Cardiac surgery must take place in dedicated cardiothoracic operating rooms.
- Each cardiac unit must have a consultant anaesthetist with dedicated responsibility for cardiac anaesthetic services.
- Any junior staff attached to the unit should be of suitable seniority to benefit from higher training in this area.
- There must be appropriate support facilities provided.
- Extensive patient monitoring is required.
- There should be Intensive Care facilities in every unit that undertakes adult and paediatric surgery.
- Patient receiving cardiac surgery must receive full information regarding their stay in hospital and their cardiac rehabilitation.
- All units should participate in local and where possible national audit.

1. Introduction

1.1 Cardiothoracic anaesthetic services are provided for patients undergoing heart and chest investigations and surgery. Cardiac surgery may involve adult, paediatric and neonatal patients and includes all forms of open and closed heart surgery, whether elective or emergency, and heart or heart/lung transplantation.

1.2 Many factors are influential in determining the viability of a cardiac surgical unit. However, the most important of these is clinical activity, based mainly on the yearly caseload of open heart operations.

1.3 Audit of the work of cardiac units is essential.

2. Staffing

2.1 Each unit should have a consultant anaesthetist with designated responsibility for cardiac anaesthetic services.

2.2 The Cardiac Specialty Review Group recommended that in a regional cardiac centre there should be a one to one ratio in whole time equivalents between cardiac anaesthetists and cardiac surgeons. This ratio may vary with local circumstances, particularly in a busy paediatric or transplant unit.

2.3 Studies such as these undertaken by Merry et al, strongly support the view that clinical excellence in cardiac anaesthesia has an important influence on outcome.

2.4 Cardiac anaesthesia provides an important area of training for junior anaesthetic staff. It offers training in the perioperative care of patients with severe heart and lung disease, essential for all anaesthetists whatever their future area of practice.

2.5 Junior staff must be of suitable seniority to be able to benefit from this area of higher training.

2.6 Perfusion services must be provided by suitably trained and accredited perfusion technicians. The Cardiac Specialty Review Group identified the staffing levels needed for each unit.

2.7 Perfusion services must be included in a medical directorate or equivalent, under the managerial control of a consultant who may be a consultant anaesthetist.

3. Support Services

3.1 There must be appropriate pathology services. In particular, haematology, blood transfusion and biochemistry should be available with rapid access. Wherever possible, there should be satellite laboratory facilities in or near the operating room for the measurement of blood gases, electrolytes, haemoglobin and measurement of anticoagulation.

3.2 Cardiac anaesthesia requires extensive patient monitoring. Medical physics or other suitably qualified technicians are required to maintain, repair and calibrate anaesthetic machines, patient ventilators, patient monitors, infusion equipment, the heart lung machines, cooling/warming devices and other machinery that may be essential such as intra-aortic counter-pulsation balloon pump equipment. Some specialised equipment may need to be maintained by contractual arrangement with an external supplier.

3.4 There must be access to radiology facilities.

4. Clinical Environment and Anaesthetic Services

4.1 Cardiac surgery must take place in dedicated cardiothoracic operating rooms. It is unlikely that an operating room will be kept available at all times for emergencies. Nonetheless, it is preferable that all cardiac surgery be carried out in a dedicated environment whenever possible.

4.2 Cardiac anaesthesia and surgery is carried out under conditions of intensive physiologic patient monitoring. Routinely used monitoring during cardiac surgery will include the following:

- In the induction/anaesthetic room: ECG; pulse oximetry; invasive and non-invasive blood pressure monitoring.
- During surgery: ECG; pulse oximetry; invasive monitoring of arterial and central venous pressure; measurement of body core temperature.
- During the transfer of the patient at the end of surgery to postoperative care unit: direct patient monitoring (ECG and/or invasive BP and/or pulse oximetry).
- In addition, any patient connected to a mechanical ventilator should be connected to an appropriate disconnection alarm and FI02 monitor.

4.3 There should be an appropriately sized and equipped postanaesthetic recovery unit for those patients who do not require high dependency or intensive care.

5. Postoperative Care *(including intensive care and high dependency care)*

5.1 The nature of cardiac surgery is such that all patients recovering from cardiac surgery will be cared for in a unit which corresponds to the standards of intensive or high dependency care.

5.2 Recently, many units have taken to caring for some cardiac surgical patients in the immediate postoperative period in facilities other than in designated intensive care units. These may be called high dependency, cardiac recovery, cardiac fast-track or by another similar name. They have in common the aim of selecting patients and minimising or abolishing the period of mechanical ventilation in the postoperative period. The patient monitoring requirements of such a facility are not less than the basic monitoring requirements of patients cared for in the intensive care unit.

5.4 Paediatric patients who have undergone cardiac surgery must be cared for in a unit designed and equipped to care for paediatric patients, and staffed by paediatric trained nurses. Such a unit should meet the standards laid down for paediatric intensive care, including the availability of senior and trainee medical staff.

6. Patient Information

6.1 Booklets providing information for patients about their stay in hospital should be available for all patients. This will include the patient information booklets published by the British Heart Foundation on cardiac disease, prevention, treatment and lifestyle modification. Information about cardiac rehabilitation generally, and information regarding the availability of such courses locally, should also be available.

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GUIDANCE ON

Ear, Nose and Throat Anaesthesia Services

When considering the provision of ear, nose and throat anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- The conditions for which Ear, Nose and Throat surgery is undertaken are often recurrent and debilitating, requiring repeated admissions for treatment.
- Surgery is undertaken on patients of all ages from neonates to the elderly. Ear Nose and Throat units must have a paediatric facility with trained paediatric nurses.
- Operations vary in complexity from the very simple to the very complex.
- Upper airway problems are commonplace.
- Rapid access to an experienced and efficient emergency service is required.
- Access to beds for intensive or high dependency care must be available when required.

1. Introduction

1.1 Ear, Nose and Throat surgical procedures are undertaken in patients of all ages. They have conditions which have either an infective, an allergic or a malignant aetiology.

1.2 As the operative procedures frequently encroach upon the upper airway there is a need for good teamwork between the surgeon and the anaesthetist.

1.3 Many of the conditions for which surgery is required are recurrent and repeat anaesthetics are commonplace.

1.4 Ear and nose procedures may require careful control of bleeding.

1.5 Procedures on the throat require careful airway management.

1.6 Many centres are now undertaking major head and neck procedures for cancerous conditions which may require management of difficult airways, and intensive postoperative care.

2. Clinical Services

2.1 PAEDIATRIC SERVICE

2.1.1 In children, anaesthetic services are required, amongst other conditions, for:

- Removal of tonsils.
- Removal of adenoid tissue.
- Management of Eustachian tube malfunction.
- Emergency management of croup or epiglotitis.
- Management of rare congenital cranio-facial problems.
- Removal of foreign bodies.
- Laryngeal surgery.
- Ear surgery.

2.1.2 The commonest operative procedures in children are for tonsil and adenoid enlargement and for “glue ear”. Although tonsil dissection in children is decreasing, adenoid removal and myringotomies are common. As these operative procedures are undertaken in many hospitals throughout the country, dissemination of clinical skills to anaesthetists in training is essential.

2.1.3 These conditions predominantly occur in children between the ages of 2 and 10 years and require dedicated paediatric anaesthetic services with paediatric trained ward and theatre nurses.

2.1.4 Emergencies, such as postoperative bleeding from tonsillar fossae or adenoid beds, or upper airway problems from, for example, croup or epiglotitis require rapid access to an experienced and efficient emergency service.

2.1.6 Overnight accommodation for parents is essential.

2.2 ADULT PATIENTS

2.2.1 In adult patients, anaesthetic services are required for:

- Adult tonsillectomy.
- Problems arising from nasal obstruction - e.g. nasal polyps; septal deviation; allergic mucosae; epistaxis (particularly in the elderly); trauma.
- Laryngeal pathology from simple polyps; early cancerous growths; late cancerous conditions; trauma.
- Infections of pharyngeal tissues.
- Difficulties with swallowing.
- Acute or chronic ear problems which may require operative surgery for eradication of disease or re-constructive surgery for hearing loss.
- Extensive head and neck surgery for eradication of cancerous conditions.

2.2.2 Many adult patients suffer from respiratory and cardiac complications resulting from prolonged allergic conditions. These patients may require complex

assessment prior to anaesthesia.

2.2.3 Operations are often relatively short in duration but great in number. This places considerable demands on the anaesthetic staff.

2.2.4 Operations on the middle ear frequently require the use of hypotensive techniques and very expensive surgical equipment. They are best undertaken in highly specialist units where the greatest expertise can be concentrated.

2.3 A small number of adults and infants require investigative procedures and treatment for laryngeal problems. These may necessitate the use of laser technology.

2.4 Surgery for cancer arising from the larynx and other regions of the head and neck is a major procedure which requires very extensive surgery. There must be easy access to a high dependency facility and for some of the more complex cases, to an intensive care unit.

2.5 At all ages anaesthetic management of laryngeal webs, tracheal stenosis and laser surgery make major demands on the service. All of these can cause airway obstruction requiring highly skilled experienced anaesthetic intervention. The use of modern techniques of airway management such as fibreoptic intubation techniques must be available and taught. Due to the large patient turnover, there must also be access to adequate numbers of well staffed postoperative recovery beds.

2.6 Major head and neck surgery undertaken essentially for the removal of tumours of the head and neck with subsequent plastic re-constructive procedures is very demanding. Patients require access in the postoperative period to high dependency, intensive care and pain relief services. Good access to pathology services and blood transfusion facilities are mandatory.

2.7 Surgery of the ear varies from the management of acute and chronic infective processes to extensive re-constructive surgery designed to improve hearing. The most recent innovation is the use of cochlear implants to establish hearing in patients previously totally deaf. This type of microsurgery requires for its success a high level of anaesthetic skills

2.8 Preoperative assessment must be carefully planned as many of the patients require surgery for conditions which produce preoperative morbidity - particularly upper and lower airway disease. They can also be suffering from the effect of long-standing cardio-respiratory disease which requires very careful and detailed anaesthetic assessment.

3. Day Case Surgery

3.1 This facility requires very careful preparation and because of the high incidence of chest and upper airway infections also requires a high standard of postoperative care. Sudden and brisk postoperative bleeding can be very frightening for patients. There must be good lines of communication for patients with general practitioners, the hospital and emergency services.

4. Pain Management

4.1 The majority of ENT surgical procedures do not produce severe postoperative pain and most patients can be managed adequately with simple analgesics or opioids combined with non-steroidal anti-inflammatory drugs.

REFERENCES

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FURTHER READING

- Morrison JD, Mirakhur RK, Craig HJL. Anaesthesia for Ear, Nose and Throat Surgery. London: Churchill Livingstone, 1985.
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GUIDANCE ON

Ophthalmic Anaesthesia Services

When considering the provision of ophthalmic anaesthetic services, 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 development of staff.

The provision of adequate funding to provide the services described should be considered.

SUMMARY

- Ophthalmic anaesthesia involves providing a range of services through neonates to the elderly.
- Patients may present with a wide variety of concurrent medical conditions.
- A nominated member of the consultant anaesthetic staff must be responsible for ophthalmic services.
- Many procedures are now undertaken under local or regional anaesthesia but there remains a need for both sedation and general anaesthesia.
- Careful monitoring of patients undergoing both general and local anaesthetic techniques is an essential part of the anaesthetic service.
- Although the majority of the service may be provided on a day case basis there is also a need for some inpatient beds.
- Special provision must be made for the treatment of children.

1. Introduction

1.1 This document describes the services expected from a department of anaesthesia for ophthalmic surgery.

1.2 The range of services may involve providing anaesthesia for neonates through to the elderly.

1.3 The service will have to provide for patients with rare medical conditions with ocular manifestations, and on a day case or an inpatient basis.

1.4 Local or general anaesthesia may be provided.

1.5 Ophthalmic surgery may be performed within a general hospital environment or in isolated units with suitable facilities and staffing and standards.

2. Clinical Services

2.1 Provision of anaesthesia for patients undergoing elective and emergency ophthalmic operations and allied procedures.

2.2 The service will include preoperative assessment and preparation of the patient and care during and after anaesthesia. This will include patients receiving general or local anaesthesia.

2.3 Patients receiving either local or general anaesthetic techniques will require to be closely monitored during the operative procedure being performed.

3. Day Case Surgery

3.1 This will include the selection of suitable patients using medical and social criteria.

3.2 Suitable facilities will be required together with appropriate techniques of local and general anaesthesia.

3.3 There must be provision for good postoperative care and nursing support.

4. Paediatric Patients

4.1 Anaesthesia in children will preferably be on a day case basis.

4.2 For those under 5 years of age this will provided by, or directly supervised by, a consultant anaesthetist.

4.3 Perioperative care for children and their parents will be given in an appropriately staffed area.

5. Staffing

5.1 There will be a nominated consultant anaesthetist responsible for ophthalmic services.

REFERENCES

1. College of Ophthalmologists. Day Case Surgery. 1993.
2. Report of the Joint Working Party on Anaesthesia in Ophthalmic Surgery. Royal College of Anaesthetists and College of Ophthalmologists. 1993.

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