

## Section 12: Delivery of anaesthetic services

Edited by Dr Kathleen Ferguson

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## 12.1

## Department accommodation and adequacy of secretarial and administrative support

Dr J MacDonald

### Why do this audit?

To enable an anaesthetic service to function effectively and efficiently, it requires an operational base, the Department of Anaesthesia, staffed by an able secretariat, providing well co-ordinated administrative assistance. This operational base must consist of an appropriate level of accommodation and facilities, and be staffed by a well integrated team of medical professionals, allied medical staff, and secretarial and administrative staff. This hub should allow the provision of high quality support both to the health service and patient population, as well as to those who work within the Anaesthetic Department itself. Appropriate departmental accommodation and adequacy of secretarial and administrative support are fundamental to the provision of an excellent, innovative and safe anaesthetic and critical care service, and thus we should be proactive in assessing and reviewing local need as compared to availability.

### Best practice: research evidence or authoritative opinion

The Royal College of Anaesthetists 'Guidelines for the provision of anaesthetic services'<sup>1</sup> states:

- D 'Departments of anaesthesia require an appropriate level of secretarial and administrative assistance to release anaesthetists from clerical tasks, to maintain an organisational base and to contribute effectively to theatre efficiency. The level of support is dependent on the number of consultants and clinical and administrative activity undertaken, but local requirements for such support must be acknowledged and provided for by the employing organisations.'
- D 'Departments of anaesthesia must have adequate information technology support to enable immediate access to the electronic patient data, theatre lists and schedules and staffing rotas. In large and complex departments consideration should be given to electronic rota management so that human resources can be released for other important administrative or clinical tasks related to the day-to-day running of the department and patient care.'
- D 'Staff need accommodation for confidential interviews, teaching and educational activities, provision of books, current medical literature, and information technology including computing and internet access.'
- D 'When staff are required to be resident or working out-of-hours in the hospital, living and working conditions should meet at least the minimum nationally agreed standards. These include study and rest accommodation.'

The Association of Anaesthetists (AAGBI) previously defined best practice for departmental accommodation and secretariat. 'The 2003 (New) Contract and Job Planning for Consultants'<sup>2</sup> provides advice as regards accommodation and secretarial support and stipulates that resources required (to ensure delivery of objectives) must simultaneously be identified and provided, such as:

- D Staffing Support (Secretarial support/Technical and IT support/Managerial support/Audit support staff)
- D Accommodation (Office accommodation as recommended in NHS Estates Health Building Note 26, which suggests that normally one office should be provided for every WTE Consultant/the office should be located in a site which is accessible during the normal working day/presence of office space for supporting staff/Secretarial office(s)/Common room/Teaching space/Clinic space.)

### Suggested indicators

Departments of anaesthesia should conform to the recommendations of the AAGBI and RCoA.<sup>1,2,3</sup>

For accommodation, indicators may be invented under various headings – basic accommodation, location, planning and design, communications, provision of computers, and should include the following.

- D The existence of offices for consultants, trainees and secretariat.
- D One office per two consultants.
- D Office for secretariat.
- D Office for trainees.
- D Existence of a staff lounge.
- D Existence of a seminar room with audio-visual aids.
- D Existence of a computer room/audit office.
- D Adequate state of repair of all the above.

	<p>For adequacy of secretarial and administrative support:</p> <ul style="list-style-type: none"> <li>D An adequate number of secretaries as defined by AAGBI.</li> <li>D % secretaries who have the correct skills for the job (decided after consultation between the auditor, the department chairman and the department secretary; reflected in the job description for the post).</li> <li>D Existence of internal and external telephones.</li> <li>D Computer for word processing for each secretary, with an answer phone/equivalent, access to hospital intranet and nhs.net, photocopier and facsimile.</li> <li>D % anaesthetists in the department (including trainees) who are satisfied with the secretarial support available to them.</li> <li>D % of secretaries who feel that their workload is usually manageable.</li> <li>D % hours in the working day that the telephone is manned.</li> </ul>
<b>Proposed standard or target for best practice</b>	<ul style="list-style-type: none"> <li>D 100% departments of anaesthesia should conform to the above.</li> </ul>
<b>Suggested data to be collected</b>	See suggested indicators.
<b>Common reasons for failure to meet standard</b>	<p>Accommodation:</p> <ul style="list-style-type: none"> <li>D Failure to perceive need by consultant anaesthetists or managers.</li> <li>D Ignorance of references/failure to comply with AAGBI recommendations.</li> <li>D Apathy or lack of funds.</li> </ul> <p>Secretarial/Administrative Support:</p> <ul style="list-style-type: none"> <li>D Lack of administrative will to provide locum cover for secretarial absence.</li> <li>D Low pay with resultant recruitment difficulties.</li> <li>D Workload v time balance.</li> <li>D Difficult interpersonal relationships.</li> </ul>
<b>CPD and Curriculum mapping</b>	<p>CPD matrix codes: <b>I103, I105</b></p> <p>CCT in Anaesthetics: Professionalism in medical practice</p>
<b>References</b>	<ol style="list-style-type: none"> <li>1 Guidelines for the provision of anaesthetic services. Chapter 1: Keypoints on the provision of anaesthetic services. <i>RCOA</i>, London 2009 (<a href="http://www.rcoa.ac.uk/node/695">http://www.rcoa.ac.uk/node/695</a>).</li> <li>2 Guidance on the 2003 (New) Contract and Job Planning for Consultant Anaesthetists. <i>AAGBI</i>, London 2005 (being reviewed) (<a href="http://www.aagbi.org/sites/default/files/jobplanning05.pdf">http://www.aagbi.org/sites/default/files/jobplanning05.pdf</a>)</li> <li>3 Working Arrangements for Consultant Anaesthetists in the United Kingdom. <i>AAGBI</i>, London 2011 (<a href="http://www.aagbi.org/sites/default/files/working_arrangements_for_consultant_anaesthetists_2011_0.pdf">http://www.aagbi.org/sites/default/files/working_arrangements_for_consultant_anaesthetists_2011_0.pdf</a>).</li> </ol>
<b>Further reading</b>	<ol style="list-style-type: none"> <li>1 Department of Anaesthesia: Secretariat and accommodation. <i>AAGBI</i>, London 1992 (<a href="http://www.aagbi.org/publications/guidelines/archive/docs/depsec92.pdf">http://www.aagbi.org/publications/guidelines/archive/docs/depsec92.pdf</a>).</li> <li>2 Defining best practice for the work environment – Guidance for consultant doctors. <i>BMA</i>, London 2008 (<a href="http://www.bma.org.uk/images/Definingbestpractice_tcm41-166394.pdf">http://www.bma.org.uk/images/Definingbestpractice_tcm41-166394.pdf</a>).</li> <li>3 HSC 2000/036: Living and working conditions for hospital doctors in training. <i>DH</i>, London 2000 (<a href="http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Healthservicecirculars/DH_4003955">http://www.dh.gov.uk/en/Publicationsandstatistics/Lettersandcirculars/Healthservicecirculars/DH_4003955</a>).</li> <li>4 Department of Health. Secretarial and support services for hospital medical and dental staff. Report of a Departmental Working Party. <i>DHSS</i>, London 1987.</li> <li>5 NHS Scotland Service Level Agreement. Arrangements to Support the Delivery of Undergraduate and Postgraduate Medical Education and Training in Scotland. <i>NHS Scotland</i>, January 2011.</li> </ol>

## 12.2

## Hours of work (trainees and consultants)

Dr J MacDonald

**Why do this audit?**

Trainees' and consultants' hours of work are now regulated.<sup>1</sup> The new consultant contract limits the weekly hours of work to 48 hours maximum,<sup>2</sup> while a phased approach for trainees culminated in a reduction to a maximum of 48 hours per week in August 2009 (averaged over a 26-week reference period). The Joint Royal College of Anaesthetists and Royal College of Surgeons of England WTD 2009 Project (aimed to identify the solutions implemented by those trusts that reported compliance and to allow a selection of trusts that were not yet compliant to consider the practicality of the identified solutions for their own circumstances) demonstrated hospital compliance with WTD 2009 in both anaesthesia and surgery to be very poor.<sup>3</sup> The BMA survey of junior doctors' working arrangements 2010 further demonstrates the perception of a negative impact which the EWTD has had.<sup>4</sup>

However, it is well documented that overwork can lead to stress, psychological dysfunction and poor performance. As the number of consultants is increased and consultant and trainee contracted hours are reduced, an audit showing what hours are actually worked is important, as is the effect on the quality of training.

**Best practice: research evidence or authoritative opinion**

Trainees' working hours should not exceed those described in the New Deal.<sup>1</sup>

The job plan of individual consultants should ideally take into account actual hours worked (guidance has been given by the Association of Anaesthetists).<sup>5,6</sup> Advice on the avoidance of stress, psychological dysfunction and fatigue resulting from overwork has also been published by the AAGBI.<sup>7,8</sup>

However, the Joint WTD 2009 Project suggests 'the implementation of the WTD is in serious danger of having a deleterious effect on medical training, patient safety and service delivery.'<sup>3</sup> This is confirmed by the BMA survey of junior doctors' working arrangements in 2010 which demonstrates poor compliance with the EWTD coupled with a perceived negative impact on training. The Royal College of Anaesthetists 'Guidelines for the provision of anaesthetic services'<sup>9</sup> states that 'trainee rotas must be compliant with the 'New Deal' and current Working Time Directive (WTD) regulations without having a deleterious effect on medical training'.

**Suggested indicators**

- D % trainees who work within the limits described in the New Deal.
- D % trainees who express satisfaction with level of training within EWTD.
- D % consultant trainers who express satisfaction with quality of training within EWTD.
- D % consultants who fulfil their contractual hours.
- D % consultants allocated a minimum of 2.5 programmed activities for supporting professional activity (SPA) in their contract.
- D % consultants carrying out additional or external work who have agreed dedicated time for this in their contract.

**Proposed standard or target for best practice**

- D 100% of trainees should achieve the New Deal standard.
- D 100% consultants should fulfil their contractual hours.
- D 100% of consultant activity should be agreed in the job plan including time for SPA, additional and external duties.
- D Satisfactory training within the EWTD should occur 100% of the time.

**Suggested data to be collected**

- D See suggested indicators, including:
  - ◆ actual hours worked by trainees and consultants.
  - ◆ activities undertaken within the contracted time (direct clinical and supporting).

### Common reasons for failure to meet standard

- D Shortage of staff.
- D Lack of management engagement in process.
- D Failure to fill vacancies or recruit locums.
- D Illness, acute or chronic.
- D Over-running operating lists.
- D Excessive emergency workload.

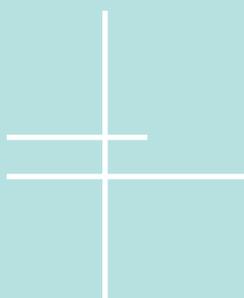
### CPD and Curriculum mapping

CPD matrix codes: **1103, 1105**

CCT in Anaesthetics: Professionalism in medical practice

### References

- 1 NHS Management Executive. Junior doctors, the new deal: Working arrangements for hospital doctors and dentists in training. *DH*, London 1991.
- 2 Department of Health. Terms and conditions – Consultants (England). *DH*, London 2003
- 3 WTD: Implications and practical suggestions to achieve compliance. Joint Royal College of Anaesthetists and Royal College of Surgeons of England WTD 2009 Project. *RCoA/RCS*, London 2009 (<http://www.rcoa.ac.uk/node/2288>).
- 4 [http://www.bma.org.uk/employmentandcontracts/working\\_arrangements/hours/index.jsp](http://www.bma.org.uk/employmentandcontracts/working_arrangements/hours/index.jsp)  
Including:
  - ◆ BMA survey of junior doctors' working arrangements 2010 (<http://www.bma.org.uk>)
  - ◆ A comparative analysis of the change in Junior Doctors' working arrangements from 2008 to 2010
  - ◆ Caplan RP. Stress, anxiety and depression in hospital consultants, general practitioners and senior health service managers. *Br Med J* 1994;**304**:1261–1263.
  - ◆ [http://www.healthcareworkforce.nhs.uk/working\\_time\\_directive/pilot\\_projects/new\\_deal\\_and\\_wtd\\_booklets.html](http://www.healthcareworkforce.nhs.uk/working_time_directive/pilot_projects/new_deal_and_wtd_booklets.html)
- 5 Guidance on the (new) 2003 contract and job planning for consultant anaesthetists. *AAGBI*, London 2005 (<http://www.aagbi.org/pdf/Job%20Planning.pdf>).
- 6 Working Arrangements for Consultant Anaesthetists in the United Kingdom. *AAGBI*, London 2011 ([http://www.aagbi.org/sites/default/files/working\\_arrangements\\_for\\_consultant\\_anaesthetists\\_2011\\_o.pdf](http://www.aagbi.org/sites/default/files/working_arrangements_for_consultant_anaesthetists_2011_o.pdf)).
- 7 Stress in anaesthetists. *AAGBI*, London 1997 (<http://www.aagbi.org/pdf/28doc.pdf>).
- 8 Association of Anaesthetists of Great Britain and Ireland. Fatigue and Anaesthetists. *AAGBI*, London 2004 (<http://www.aagbi.org/sites/default/files/fatigueo4.pdf>).
- 9 Guidelines for the provision of anaesthetic services. Chapter 1: Keypoints on the provision of anaesthetic services. *RCoA*, London 2009 (<http://www.rcoa.ac.uk/node/695>).



## 12.3

## Assistance for anaesthesia

Dr J MacDonald

**Why do this audit?**

The presence of dedicated, competent, skilled and exclusive assistance for the anaesthetist is mandatory for the delivery of safe anaesthesia and should be standard practice. It is essential that this support for the anaesthetist is delivered by trained and accredited assistants.

**Best practice: research evidence or authoritative opinion**

The Royal College of Anaesthetists,<sup>1</sup> Association of Anaesthetists,<sup>2</sup> NCEPOD<sup>3</sup> and Healthcare Improvement Scotland (HIS)<sup>4</sup> have defined 'standard practice' in relation to anaesthetic assistance.

The AAGBI 'Anaesthesia Team 2010'<sup>2</sup> recommends 'trained assistance for the anaesthetist must be provided wherever anaesthesia is provided', and furthermore 'The AAGBI recommends that a trained anaesthesia assistant should always be immediately available and present during anaesthesia. Only in extreme emergencies, as judged by the anaesthetist, should anaesthetic intervention proceed without a trained assistant, e.g. acute unforeseen airway/bleeding problems'.

Similarly, the Royal College of Anaesthetists 'Guidelines for the provision of anaesthetic services' states: 'The provision of qualified and competent assistance is essential in every situation where anaesthesia is administered' and 'The anaesthetic assistant must be immediately available and provide dedicated assistance to the anaesthetist throughout'.<sup>1</sup>

Healthcare Improvement Scotland (HIS, formerly NHS Quality Improvement Scotland) details that the provision of a suitably trained Anaesthetic Assistant (AA) is an essential safety standard.<sup>4</sup>

Assistance may be via Operating Department Practitioners (trained via an approved college/university programme that confers eligibility to apply for registration with the Health Professions Council) or nurses assisting anaesthetists. Nurses assisting anaesthetists should have been appropriately trained to a competent level. NHS Education for Scotland has designed a competency-based programme for anaesthesia assistants.<sup>5</sup> This programme is administered by individual hospitals. The AAGBI 'would like to see the development of nationally recognised competencies for nurses assisting the anaesthetist'.

**Suggested indicators**

% cases in which the skilled assistant was:

- D present at induction of anaesthesia
- D immediately available throughout the case
- D dedicated to the case, and not covering another case in the anaesthetic room or elsewhere
- D a suitably qualified and experienced anaesthetic nurse, operating department assistant or ODP (in specialised cases the anaesthetist should agree that the assistant is suitably experienced (e.g. cardiac surgery))
- D appropriately trained and accredited.

**Proposed standard or target for best practice**

- D 100% cases should have a skilled assistant as above.

**Suggested data to be collected**

See suggested indicators, including:

- D name, grade, qualification and experience of assistant
- D whether present at induction/available immediately throughout the case/covering other cases elsewhere.

**Common reasons for failure to meet standard**

- D Inadequate theatre staffing levels.
- D Lack of resource for training – accredited courses, funding.

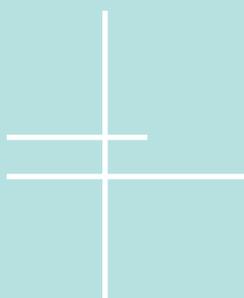
## CPD and Curriculum mapping

CPD matric codes: I103, I105

CCT in Anaesthetics: Professionalism in medical practice

## References

- 1 Guidelines for the provision of anaesthetic services. Chapter 1: Keypoints on the provision of anaesthetic services. *RCoA*, London 2009 (<http://www.rcoa.ac.uk/node/695>).
- 2 Association of Anaesthetists of Great Britain and Ireland. The Anaesthesia Team 3. *AAGBI*, London 2010 ([http://www.aagbi.org/sites/default/files/anaesthesia\\_team\\_2010\\_o.pdf](http://www.aagbi.org/sites/default/files/anaesthesia_team_2010_o.pdf)).
- 3 Campling, EA et al. The report of the National Confidential Enquiry into Perioperative Deaths. 1992/93. NCEPOD, London 1995 (<http://www.ncepod.org.uk/>).
- 4 NHS Quality Improvement Scotland, Anaesthesia Project Group. Anaesthesia – Care Before, During and After Anaesthesia. *NHS QIS*, Edinburgh July 2003 ([http://www.healthcareimprovementscotland.org/previous\\_resources/standards/anaesthesia\\_care\\_before\\_duri.aspx](http://www.healthcareimprovementscotland.org/previous_resources/standards/anaesthesia_care_before_duri.aspx)) and follow up reports 2010.
- 5 Core Competencies for the Anaesthetic Assistant. Scottish Medical and Scientific Committee 2006 (updated 2010) ([http://www.nes.scot.nhs.uk/media/4239/anaesthetic\\_core\\_competencies\\_2011.pdf](http://www.nes.scot.nhs.uk/media/4239/anaesthetic_core_competencies_2011.pdf)).



## 12.4

## Efficient use of planned operating lists

Dr P Bourke

**Why do this audit?**

Operating theatres are central to the modern NHS. They are both an expensive and at times scarce resource. Over the last decade and more, a considerable additional resource has been put into enhancing operating theatre efficiency. However, in many areas under- and over-running of theatre schedules continues to burden this resource. Accurate data regarding this misuse of resource is lacking. Routine accurate data collection will help inform planning and decision-making regarding allocation of theatre resource thereby avoiding waste.

**Best practice: research evidence or authoritative opinion**

To date, several agencies have highlighted underuse of planned operating lists. An Audit Commission report on operating theatres has clearly documented the requirement to keep up to date, accurate data relating to the use of planned operating lists through regular and ongoing use of audit.<sup>1</sup> Further to this, the Association of Anaesthetists has also produced guidance regarding the collection of audit data relevant to theatre efficiency.<sup>2</sup>

Central to improved theatre efficiency are a prompt start to the list and a finish close to the approximated end of the planned list. Although high utilisation rates can be generated by regularly over-running sessions this obviously impacts on succeeding lists and on staff morale

**Suggested indicators**

- D % operating lists which are cancelled too late to enable alternative use of the session. The timing will depend on local arrangements for making use of unfilled theatre time.
- D % lists starting > 10 min late.
- D % operating lists in which > 90% available time is used.
- D % operating lists which end > 15 min late.
- D % of lists finishing > 60 min late. This should exclude major unforeseen anaesthetic or surgical complications.

**Proposed standard or target for best practice**

- D < 5% of lists should be cancelled too late to allow alternative use of the session.
- D < 10% of lists should start > 10 min late.
- D > 90% lists should be running for > 90% of available time.
- D < 10% lists should end > 15 min late.
- D 0% of lists should finish > 60 min late, other than due to unforeseen major anaesthetic or surgical complications.

**Suggested data to be collected**

For each list:

- D Cancelled lists, timing of cancellation (including how long before the planned start time) and reason. If cancelled, was list offered out to other specialties, if so, with how much notice was it offered?
- D Surgeon, surgical firm, specialty, anaesthetist.
- D List start and finish times (planned and actual).
- D Reason(s) for late start and early or late finish.

**Common reasons for failure to meet standard**

- D 'Short notice' list cancellations.
- D Inadequate communication between departments on availability of personnel.
- D Late starts, inappropriate gaps and early finishes.
- D Staff or theatre unavailable: surgeon, anaesthetist, ODA or theatre staff delayed; intrusion of other specialty or emergency.
- D Porter/anaesthetist/surgeon/recovery delays.
- D Patient unavailable: ward unable to prepare patient on time; patient arriving late in hospital; lack of consent; patient unfit or incompletely worked up.
- D Bed problems: ward bed not available or uncertainty of critical care bed availability.
- D Over runs.
- D Unexpected surgical finding.

## CPD and Curriculum mapping

- ⓓ Miscalculation of time required for surgery.
- ⓓ List overbooked.

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CPD matrix codes: **1102, 3J00**

Advanced training domain 2, 3 & 5

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## References

- 1 Operating theatres, a bulletin for health bodies. *Audit Commission*, London 2003.
  - 2 Theatre efficiency. *AAGBI*, London 2003 (<http://www.aagbi.org/pdf/Theatre%20Efficiency.pdf>).
  - 3 Theatre Programme. Step guide to improving operating theatre performance. *Modernisation Agency*, June 2002 ([http://www.modern.nhs.uk/scripts/default.asp?site\\_id=28&id=6706](http://www.modern.nhs.uk/scripts/default.asp?site_id=28&id=6706)).
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## 12.5

## In-patient cancellations from theatre lists

Dr A H Jansen

**Why do this audit?**

Cancellation of in-patients from theatre lists is distressing to patients and staff. Theatres are an expensive resource that should be used maximally and efficiently. 'Admission on day of surgery' is set to become the norm, with obvious impact on anaesthetic assessment services, and possibly also in-patient cancellations.

**Best practice: research evidence or authoritative opinion**

The patient's charter stipulates that no patient should be cancelled on the day of operation unless there are medical emergencies or staff sickness precluding treatment.<sup>1</sup> The Association of Anaesthetists has provided guidelines on the effective use of theatres.<sup>2</sup> The Scottish government's Planned Care Improvement Programme has indicated that 'day case surgery should be considered the norm for the majority of elective procedures'.<sup>3</sup>

**Suggested indicators**

Proportion of elective cases cancelled on the day of surgery taking into consideration the various modes of patient admission:

- D day case without previous pre-assessment
- D day case with previous pre-assessment
- D admission before day of surgery with previous pre-assessment
- D admission before day of surgery without previous pre-assessment.

**Proposed standard or target for best practice**

The Department of Health standards on cancellation of operations makes it clear that every effort should be made to avoid cancellations therefore departments should be aiming for 0% in all three categories.<sup>4,5,6</sup>

- 1 Hospital – non-clinical reasons.
- 2 Hospital clinical reasons.
- 3 Patient.

**Suggested data to be collected**

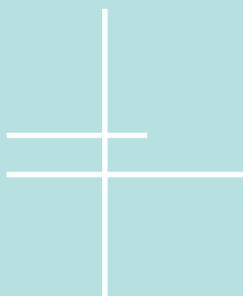
- D Specialty.
- D Surgeon.
- D Whole list cancellation vs individual cases.
- D Admission-on-day-of surgery vs admission-day-before-surgery.
- D Number of cases cancelled on day of proposed surgery vs total number of cases performed.
- D Reason for cancellation (see below).

**Common reasons for failure to meet standard**

- D Lack of general ward beds.
- D Lack of HDU/ICU beds.
- D Overbooked list.
- D Unexpectedly difficult surgical procedures.
- D Patient unfit for surgery.

**Related audits**

5.2 – Pre-admission assessment



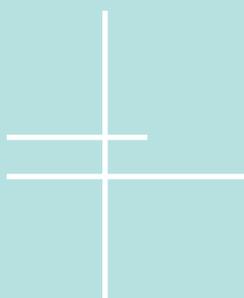
## CPD and Curriculum mapping

CPD matrix codes: 2A03, 1102, 1104, 1105

Advanced training domain 2,3 & 5

## References

- 1 The patient's charter. DH, London 1991.
- 2 Theatre efficiency. AAGBI, London 2003 (<http://www.aagbi.org/pdf/Theatre%20Efficiency.pdf>).
- 3 The Planned Care Improvement Programme. Scottish Executive. Edinburgh. 2006.
- 4 Step guide to improving operating theatre performance. NHS Modernisation Agency, London 2002 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4010286](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4010286)).
- 5 NHS Institute for Innovation and Improvement. Quality and Service Improvement Tools: Reducing Cancelled Operations ([http://www.institute.nhs.uk/quality\\_and\\_service\\_improvement\\_tools/quality\\_and\\_service\\_improvement\\_tools/cancelled\\_operations.html](http://www.institute.nhs.uk/quality_and_service_improvement_tools/quality_and_service_improvement_tools/cancelled_operations.html)).
- 6 Operating Theatres: review of national findings. Audit Commission, London 2003 (<http://www.audit-commission.gov.uk/SiteCollectionDocuments/AuditCommissionReports/NationalStudies/TheatresAHP.pdf>).



## 12.6

## Availability of emergency theatres (NCEPOD)

Dr P Bourke

**Why do this audit?**

The National Confidential Enquiry into Perioperative Deaths 1991/2 (NCEPOD)<sup>1</sup> identified the lack of an operating theatre dedicated to emergencies as an important resource shortage. Despite a period of investment in emergency theatre resource, inability to access this in a timely manner continued to be reported.<sup>2,3</sup> The Audit Commission in their national review of operating theatres outlined some of the barriers to efficient use of theatre resources.<sup>3</sup> With increasing pressures on resource allocation throughout the NHS this audit proves timely and necessary. Any contraction of availability of emergency theatres may lead to an increased risk of patient morbidity or mortality. This audit looks at the immediate availability of the emergency theatre for NCEPOD class I emergency surgery.

**Best practice: research evidence or authoritative opinion**

NCEPOD defines emergency surgery as 'immediately life saving where resuscitation continues simultaneously with surgery'. Examples are ruptured aortic aneurysm or major trauma. In this group any delay in surgery may jeopardise survival.

**Suggested indicators**

D % occasions as described below when the theatre manager could make a theatre available at 15 min notice for a NCEPOD class I emergency. There may be some emergencies where a 15 min delay is still too long, but this represents an adequate interval in many or most cases, making it a useful audit indicator.

**Proposed standard or target for best practice**

D A staffed and equipped theatre should be available at 15 min notice on 100% occasions.

**Suggested data to be collected**

- D The audit should be discussed with the theatre manager or theatre bleep holder before it begins.
- D We suggest that over a 2-week period at a random time during each day, the theatre manager is approached with a 'dummy' request for a theatre. The delay that would have occurred in making a theatre available should be noted. If the time delay exceeds 15 min, what were the circumstances and when would a theatre be available?

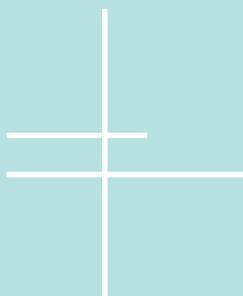
**Common reasons for failure to meet standard**

- D Emergency theatre already in use.
- D Long cases in all other theatres.
- D Emergency staff and/or equipment redeployed to fill gaps elsewhere.
- D No staffed emergency theatre due to staff shortage or lack of funding.
- D Appropriate staff skill mix not available for surgical specific surgical specialty.
- D Lack of availability of surgeon and, or anaesthetist.

**CPD and Curriculum mapping**

CPD matrix codes: 1102, 1105, 3100

Advanced training domain 2, 3, & 5

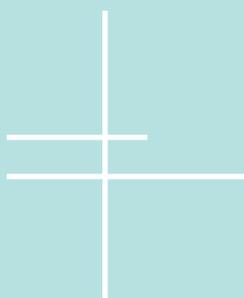


## References

1. Campling EA et al. The report of the National Confidential Enquiry into Perioperative Deaths 1991/2. *NCEPOD*, London 1993 (<http://www.ncepod.org.uk/>).
2. The report of the National Confidential Enquiry into Perioperative Deaths 1993/4. *NCEPOD*, London 1996 (<http://www.ncepod.org.uk/>).
3. Who Operates When II. The national confidential enquiry into perioperative deaths 2003 *NCEPOD*, London 2003 (<http://www.ncepod.org.uk/>).
4. Operating Theatres A review of national findings. *The Audit Commission* 2008 (<http://www.audit-commission.gov.uk/itc/acuteportfolio.shtml>).

### Further reading

- ◆ Calder FR, Jadhav V, Hale JE. The effect of a dedicated emergency theatre facility on emergency operating patterns. *The Surgeon: J Roy Coll Surg Edin* 1998;**43**:17–19.
- ◆ Changing the way we operate: Report of the National Confidential Enquiry into Perioperative Deaths 1999/2000. *NCEPOD*, London 2001 (<http://www.ncepod.org.uk/>).
- ◆ Anaesthesia under examination. The efficiency and effectiveness of anaesthesia and pain services in England and Wales. *Audit Commission*, December 1997



## 12.7

## Purchase of new and replacement equipment

Dr J Mackay, Dr D A Thomas

**Why do this audit?**

All equipment has a finite life.

New anaesthetic techniques can result in better patient outcomes (shorter hospital stay/earlier return to work). Recent monitoring modalities may result in earlier warning of changes in a patient's condition. Such techniques may require additional equipment.<sup>1,2</sup>

If equipment is not available, the anaesthetic technique may have to be modified, possibly resulting in a sub-optimal care.

**Best practice: research evidence or authoritative opinion**

The Association of Anaesthetists has published guidelines for the safe management of equipment.<sup>3</sup>

Health Improvement Scotland highlight the importance of keeping abreast of modern technology to deliver quality services.<sup>4</sup>

The National Audit Office recommends a 'properly planned approach to the acquisition of medical equipment'.<sup>5</sup>

**Suggested indicators**

- D Purchase dates and asset/working life of equipment.
- D Planned replacement programme for existing equipment.
- D % equipment budget allocated to new v replacement items.
- D % equipment bids (fully supported and endorsed by anaesthetic department) which are purchased.
- D Number of cases where the anaesthetic technique was modified because of the lack of equipment.

**Proposed standard or target for best practice**

- D All items replaced at the end of their (realistic) asset life.
- D 15% budget spent on new items.
- D 100% fully supported and endorsed bids should be successful.
- D No cases should have the anaesthetic technique modified for lack of equipment.

**Suggested data to be collected**

- D Purchase dates and asset/working life of equipment.
- D Planned replacement programme for existing equipment.
- D Number and value of supported bids made.
- D Number and value of purchases made.
- D Equipment budget available.
- D Number of anaesthetics modified through lack of equipment.

**Common reasons for failure to meet standard**

- D Lack of allocated resources.
- D Incomplete asset inventory.
- D Speculative asset life unrelated to working life.
- D Change in anaesthetic techniques (maybe due to new staff) prior to necessary resourcing and purchasing of equipment.
- D Equipment not available out of hours.

**Related audits**

12.9 – Training in the use of anaesthetic equipment

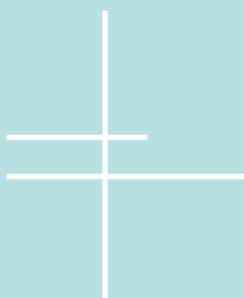
## CPD and Curriculum mapping

CPD matrix codes: **1102, 3J00**

Training curriculum competences: **CC\_D6\_01–04; MN\_AK\_01–18**

## References

- 1 Kenny GNC, White M. A portable computerised control system for propofol infusion. *Anaesthesia* 1990;**45**:692–693.
- 2 Calvert N et al. The effectiveness and cost effectiveness of ultrasound locating devices for central venous access. *NICE*, October 2002 (<http://www.nice.org.uk/page.aspx?o=38179>).
- 3 Association of Anaesthetists of Great Britain and Ireland. Safety Guideline: Safe Management of Anaesthetic Related Equipment. *AAGBI*, London 2009 ([http://www.aagbi.org/sites/default/files/safe\\_management\\_2009\\_o.pdf](http://www.aagbi.org/sites/default/files/safe_management_2009_o.pdf)).
- 4 Anaesthesia: care before, during and after anaesthesia – Standards ([http://www.healthcareimprovementscotland.org/previous\\_resources/standards/anaesthesia.aspx](http://www.healthcareimprovementscotland.org/previous_resources/standards/anaesthesia.aspx)).
- 5 The Management of Medical Equipment in NHS Acute Trusts in England. Report by the Comptroller and Auditor General. *National Audit Office* HC 475 Session 1998–99; 10 June 1999 (<http://www.nao.org.uk/idoc.ashx?docId=41ac60c7-d9e9-47c6-8b9a-5e83566d1369&version=-1>).



## 12.8

## Maintenance of anaesthetic equipment

Dr D A Thomas

**Why do this audit?**

Use of increasingly complex anaesthetic equipment is increasing in many anaesthetic sites.<sup>1</sup> Most anaesthetic equipment is subject to frequent repetitive use.

It is essential for safe anaesthesia that equipment is maintained in good working order.<sup>2</sup> Planned preventative maintenance (PPM) may save breakdowns.<sup>3</sup>

Some equipment comes with a service contract valid for a defined period of time. Much anaesthetic equipment can be serviced in-house.

**Best practice: research evidence or authoritative opinion**

The Association of Anaesthetists<sup>3</sup>, RCoA<sup>2</sup> and QIS<sup>4</sup> have published guidelines for the safe management of equipment.

Manufacturers publish a recommended schedule of servicing for new equipment.

Manufacturers provide training for in-house servicing. Departments of anaesthesia have a collective responsibility to ensure the maintenance of equipment.<sup>5</sup>

**Suggested indicators**

- D Existence of a named consultant (and deputy) responsible for equipment.
- D Inventory of all anaesthetic equipment with the date maintenance is due.
- D Existence of service contracts and dates of expiry.
- D % of equipment with a service contract served on time.
- D Record of named personnel qualified to service equipment in-house
- D % equipment serviced in-house and personnel servicing.
- D % equipment checked by clinical staff after maintenance.

**Proposed standard or target for best practice**

- D A named consultant (and deputy) should be in charge of equipment.
- D Inventory of equipment should be complete, including service contracts and dates of service.
- D 100% equipment serviced according to manufacturer's schedule.
- D 100% equipment labelled with the next service date.
- D Accurate list of staff trained to service specific equipment.
- D 100% of equipment serviced in-house by trained personnel.
- D 100% of equipment approved by clinical staff after maintenance.
- D 100% equipment removed from service due to failure should be recorded.

**Suggested data to be collected**

- D Presence of labelling with the date the next service is due.
- D Existence and completeness of service history.
- D Existence of service contracts.
- D Existence of in-house PPM programme.
- D Identification of engineer carrying out service.
- D Log of breakdowns and repairs.
- D Record of post-service approval by clinician.

**Common reasons for failure to meet standard**

- D Failure to maintain accurate records.
- D Absence of PPM programme for "minor" equipment
- D Failure to report minor malfunctions.
- D Failure to identify which in-house personnel are qualified to maintain specific equipment.
- D Movement of equipment between areas.

## CPD and Curriculum mapping

CPD matrix codes: **1102; 3J00**

Training curriculum competences: **CC\_D6\_01–04; MN\_AK\_01–18**

## References

- 1 Beydon L, Bourbain JL, de Vauma D. A survey of operating and recovery room ventilators and monitoring equipment as well as their maintenance [French]. *Ann Fr Anesth* 1996;**15**(1):71–74.
- 2 Guidelines for the provision of anaesthetic services. Chapter 1: Keypoints on the provision of anaesthetic services. *RCoA*, London 2009 (<http://www.rcoa.ac.uk/node/695>).
- 3 AAGBI Safety Guideline: Safe Management of Anaesthetic Related Equipment. *AAGBI*, London 2009 ([http://www.aagbi.org/sites/default/files/safe\\_management\\_2009\\_0.pdf](http://www.aagbi.org/sites/default/files/safe_management_2009_0.pdf)).
- 4 NHS Quality Improvement Scotland, Anaesthesia Project Group. Anaesthesia – Care Before, During and After Anaesthesia. *NHS QIS*, Edinburgh July 2003 ([http://www.healthcareimprovementscotland.org/previous\\_resources/standards/anaesthesia\\_care\\_before\\_duri.aspx](http://www.healthcareimprovementscotland.org/previous_resources/standards/anaesthesia_care_before_duri.aspx)).
- 5 Guidelines for the Provision of Anaesthetic Services 2009 (<http://www.rcoa.ac.uk/GPAS>).



## 12.9

## Training in the use of anaesthetic equipment

Dr D A Thomas

**Why do this audit?**

Increasingly complex equipment is used in many anaesthetic sites.<sup>1</sup> User error is a cause in a substantial number of reported cases of serious injury.<sup>2</sup>

**Best practice: research evidence or authoritative opinion**

The Association of Anaesthetists recognise that hospitals must ensure all personnel are trained but that it is the anaesthetist's responsibility to understand the function and checking of equipment.<sup>3</sup>

QIS state that all anaesthetic staff should receive formal and documented instruction on the use of equipment and that Instruction manuals are easily accessible.<sup>4</sup>

Most manufacturers provide user guides for equipment. Many manufacturers provide training at the installation of new equipment. Some will train later 'new starts'.

**Suggested indicators**

- D % staff trained at introduction of new equipment.
- D % staff familiar with all/specific equipment.
- D Availability of user guides.

**Proposed standard or target for best practice**

- D A named consultant should be in charge of equipment.
- D 100% staff should be trained to use equipment they might use.
- D Availability of a trainer with time to teach new staff.
- D 100% equipment should have user guides available.
- D 100% anaesthetic machine should be checked daily before use.

**Suggested data to be collected**

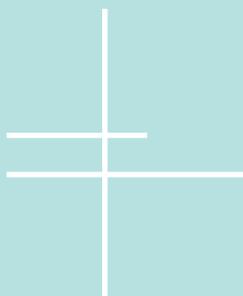
- D Availability of a trainer with time to teach new staff.
- D Availability of user guides (paper or electronic).
- D Personal and institutional records of training.
- D Logbook of daily pre-session check of anaesthetic machine

**Common reasons for failure to meet standard**

- D High turnover of trainee and locum anaesthetic staff.
- D Failure to keep accurate records of training.
- D Failure to recognise that common equipment may not be familiar to all.
- D Lack of storage location for paper user guides.

**Related audits**

12.7 – Purchase of new and replacement equipment.

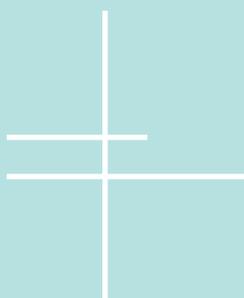


## CPD and Curriculum mapping

This audit cannot be mapped to the CPD matrix or the training curriculum. Please refer instead to the GMC publication *Good Medical Practice* ([http://www.gmc-uk.org/guidance/good\\_medical\\_practice.asp](http://www.gmc-uk.org/guidance/good_medical_practice.asp)).

## References

- 1 Beydon L, Bourbain JL, de Vauma D. A survey of operating and recovery room ventilators and monitoring equipment as well as their maintenance [French]. *Ann Fr Anesth* 1996;**15**(1):71–74.
- 2 The Management of Medical Equipment in NHS Acute Trusts in England. Report by the Comptroller and Auditor General. *National Audit Office HC 475* Session 1998–99; 10 June 1999 (<http://www.nao.org.uk/idoc.ashx?docid=41ac60c7-d9e9-47c6-8b9a-5e83566d1369&version=-1>).
- 3 Checking Anaesthetic Equipment 4. *AAGBI*, London 2004 (under revision) (<http://www.aagbi.org/sites/default/files/checkingo4.pdf>).
- 4 NHS Quality Improvement Scotland, Anaesthesia Project Group. Anaesthesia – Care Before, During and After Anaesthesia. *NHS QIS*, Edinburgh July 2003 ([http://www.healthcareimprovementscotland.org/previous\\_resources/standards/anaesthesia\\_care\\_before\\_duri.aspx](http://www.healthcareimprovementscotland.org/previous_resources/standards/anaesthesia_care_before_duri.aspx)).



## 12.10

## Efficiency of scavenging systems

Dr K Ferguson

**Why do this audit?**

The effects of environmental pollution by inhalational anaesthetics on theatre personnel remains of concern despite the increasing use of low flow anaesthesia and the airway adjuncts such as the LMA.<sup>1,2</sup> Workplace exposure limits (WEL) and advice on pollution control have been updated for nitrous oxide, halothane and enflurane in the new Health and Safety Executive regulations.<sup>3</sup> Limits are not published for sevoflurane or desflurane but self-imposed standards may be identified using manufacturer's recommended limits.

**Best practice: research evidence or authoritative opinion**

Control of substances hazardous to health (COSHH) was introduced in 1988. The Health and Safety Executive (HSE) have updated the guidance by amending the 2002 guidelines.<sup>3</sup> Further advice is available on the HSE website under the headline COSHH essentials. This website is a collaborative venture between the HSE, the TUC and CBI and provides online advice regarding chemicals in the work place.<sup>4</sup>

**Suggested indicators**

- D % of anaesthetic 'sites' within a hospital which have scavenging equipment that meets the WEL.
- D % of anaesthetic sites within a hospital which have been monitored within the last 6 months.
- D % anaesthetic sites, including recovery areas, which met the WEL for levels of inhalational anaesthetics.

**Proposed standard or target for best practice**

- D 100% anaesthetic sites should have equipment which meets the WEL.
- D 100% sites should have been monitored within the last 6 months.
- D 100% sites should meet the standards for levels of inhalational anaesthetics as defined by the WEL.

**Suggested data to be collected**

- D As above. Where pollution levels are high, the source should be found and corrected, and the site retested.
- D Number and duration of breaches of OES.

**Common reasons for failure to meet standard**

- D Scavenging not adequate, faulty or not used correctly.
- D Inadequate resources for regular testing.

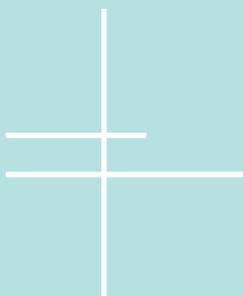
**CPD and Curriculum mapping**

CPD matrix codes: **IA03**

Training curriculum competence: **PC\_BK\_26, PC\_BK\_87**

## References

- 1 Gichrist CJ et al. Exposure to nitrous oxide in a paediatric dental unit. *Int J Paediatr Dent* 2007;**17**:116–122.
- 2 Raj N. Evaluation of personal, environmental and biological exposure of paediatric anaesthetists to nitrous oxide and sevoflurane. *Anaesthesia* 2003;**58**(7):630–636.
- 3 Health and Safety Executive 2005 Workplace Exposure Limits: Containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations 2002 (as amended) (<http://www.hse.gov.uk/pubns/priced/eh40.pdf>).
- 4 COSHH Essentials: <http://www.hse.gov.uk/coshh/essentials/index.htm>.



## 12.11

## Induction courses for new staff

Dr K Ferguson

**Why do this audit?**

All new staff, including permanent and locum staff appointments, should take part in a formal induction course.<sup>1,2,3,4,5</sup> The content and delivery of the induction programme may be organised and agreed between the relevant department, the employer and the postgraduate education team. Local service and training rules, responsibilities and protocols should be made clear, verbally and in writing. In order to conduct safe anaesthesia, the anaesthetist must be familiar with the equipment being used.<sup>6</sup> Failure to understand how to use the equipment is a recognised cause of anaesthetic incidents.<sup>7,8</sup>

**Best practice: research evidence or authoritative opinion**

The General Medical Council, the Association of Anaesthetists, NHS Employers, Healthcare Improvement Scotland and DHSSPSNI rate the importance of induction programmes highly.<sup>1,2,3,4,5</sup>

There is a wealth of resources to support medical staff induction available online. Some examples are listed in the reference section below.<sup>9,10,11,12</sup>

**Suggested indicators**

- D % new members of staff who have attended a formal induction course within 1 week of arrival.
- D % staff members who are aware of all the elements of an agreed induction programme within 1 month of arrival.
- D % staff members who have written evidence of induction.
- D % staff members who have undergone appropriate training before the introduction of new equipment to the department.

**Proposed standard or target for best practice**

- D All of the above indicators should be true for 100% staff.

**Suggested data to be collected**

A list of the minimum elements of an induction programme for trainees, consultants, non-consultant career grade staff, and for locum staff should be made. This should be done in consultation with the Training Programme Director; College Tutor; Clinical Director and Human Resources staff. Examples of comprehensive induction programmes exist and are readily available (see references). Suggestions include:

- D geographical layout, e.g. location of day theatres, emergency medicine, coronary care unit (especially for those carrying the cardiac arrest bleep), high dependency units, etc
- D personnel, e.g. department members, administrative and managerial staff
- D organisational aspects, e.g. source of operating lists, the rota, holiday and study leave requests
- D clinical protocols, e.g. obstetric analgesia protocol, criteria and process for HDU and ICU admissions, acute pain service protocols, etc
- D use of support services, e.g. out-of-hours blood tests, how to obtain blood products, physiotherapy and pharmacy enquiries
- D house keeping, e.g. parking, catering, where the coffee is kept, changing-room lockers, where to obtain theatre shoes, etc
- D educational goals and development plan and written agreement.

Over a 6–12 month period all new staff should be interviewed 2 weeks after their arrival and their knowledge assessed.

**Common reasons for failure to meet standard**

- D Lack of commitment to programme.
- D Incomplete programme provided.
- D No time/insufficient time provided for induction.

**Related audits**

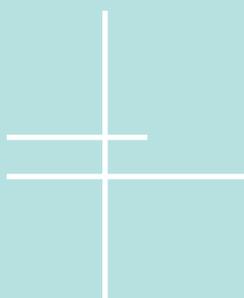
I2.9 – Training in the use of anaesthetic equipment

**CPD and Curriculum mapping**

This audit cannot be mapped to the CPD matrix or the training curriculum. Please refer instead to the GMC publication *Good Medical Practice* ([http://www.gmc-uk.org/guidance/good\\_medical\\_practice.asp](http://www.gmc-uk.org/guidance/good_medical_practice.asp)).

**References**

- 1 The Trainee Doctor. GMC, London 2011 ([http://www.gmc-uk.org/Trainee\\_Doctor.pdf\\_39274940.pdf](http://www.gmc-uk.org/Trainee_Doctor.pdf_39274940.pdf)).
- 2 Consultant trainee relationships – a guide for consultants. AAGBI, London 2001 ([http://www.aagbi.org/pdf/consultant\\_trainee.pdf](http://www.aagbi.org/pdf/consultant_trainee.pdf)).
- 3 NHS Quality Improvement Scotland, Anaesthesia Project Group. Anaesthesia – Care Before, During and After Anaesthesia. *NHS QIS*, Edinburgh July 2003 ([http://www.healthcareimprovementscotland.org/previous\\_resources/standards/anaesthesia\\_care\\_before\\_duri.aspx](http://www.healthcareimprovementscotland.org/previous_resources/standards/anaesthesia_care_before_duri.aspx)).
- 4 The State of Medical Education and practice. GMC, London 2011 ([http://www.gmc-uk.org/State\\_of\\_medicine\\_Final\\_web.pdf\\_44213427.pdf](http://www.gmc-uk.org/State_of_medicine_Final_web.pdf_44213427.pdf)).
- 5 Report on induction processes for medical staff in the HPSS. *DHSSPSNI* 2005 ([http://www.dhsspsni.gov.uk/induction\\_report\\_final.doc](http://www.dhsspsni.gov.uk/induction_report_final.doc)).
- 6 AAGBI Safety Guidelines: Safe Management of Anaesthetic Related Equipment ([http://www.aagbi.org/sites/default/files/safe\\_management\\_2009\\_0.pdf](http://www.aagbi.org/sites/default/files/safe_management_2009_0.pdf)).
- 7 Cooper JB, Newbower RS, Kitz RJ. An analysis of major errors and equipment failure in anesthesia management: considerations for prevention and detection. *Anesthesiology* 1984;**60**:34–42.
- 8 Cassidy CJ, Smith A, Arnot-Smith J. Critical incident reports concerning anaesthetic equipment: analysis of the UK National Reporting and Learning System (NRLS) data from 2006–2008. *Anaesthesia* 2011;**66**:879–888.
- 9 NHS Connecting for Health: (<http://www.connectingforhealth.nhs.uk/systemsandservices/icd/informspec/careerplan/phi/personal/learningweb/personal/induction>).
- 10 Welcome to the medical team. *NHS Employers*, 2011 ([http://www.nhsemployers.org/SiteCollectionDocuments/Welcometomedteam\\_2010\\_web\\_MH\\_190710.pdf](http://www.nhsemployers.org/SiteCollectionDocuments/Welcometomedteam_2010_web_MH_190710.pdf)).
- 11 Report on induction processes for medical staff in the HPSS ([http://www.dhsspsni.gov.uk/induction\\_report\\_final.doc](http://www.dhsspsni.gov.uk/induction_report_final.doc)).
- 12 State of readiness checklist. *NHS Employers*, 2011 ([http://www.nhsemployers.org/PlanningYourWorkforce/MedicalWorkforce/Medical\\_Education\\_and\\_training/Specialty-and-GP-training/Pages/Stateofreadinesschecklist2011.aspx](http://www.nhsemployers.org/PlanningYourWorkforce/MedicalWorkforce/Medical_Education_and_training/Specialty-and-GP-training/Pages/Stateofreadinesschecklist2011.aspx)).



## 12.12

## Knowledge of major incident policy

Dr J Gudgeon, Dr J Clarke, Dr P Keeling

**Why do this audit?**

All staff in an acute hospital responding to major incidents should be aware of the Major Incident Policy which is derived from DH guidance documents.<sup>1,2,3,4</sup> Local policies may vary between hospitals. In order to function in the event of a major incident all hospital staff must be familiar with the local policy. Regular training is essential. This audit can be useful both departmentally and hospital wide.

**Best practice: research evidence or authoritative opinion**

Acute hospitals nominated to respond to a major incident must:

- D have a major incident plan that complies with DH recommendations
- D ensure that the policy is regularly reviewed in line with DH updates
- D ensure that all staff are trained and equipped for their roles in a major incident.

**Suggested indicators**

- D % of staff who know where the written major incident policy is kept.
- D % of staff who know how to obtain it out of hours.
- D % of staff (to include consultants, trainees and administrative staff) who know their immediate role in the event of a major incident alert or a major incident.
- D % of staff in post for less than a year who received information about the policy at their hospital induction.
- D % of staff in post for more than a year who have received training or information updating them on the policy during the preceding year.

**Proposed standard or target for best practice**

- D All indicators should be true in 100% of staff.

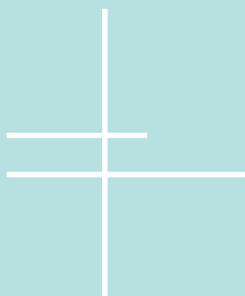
**Suggested data to be collected**

All members of the department and/or a selection of staff throughout the hospital should be asked the following:

- D Where is the major incident document kept in your department?
- D How do you obtain it out of hours?
- D What is your first action if a major incident alert is declared?
- D What is your first action if a major incident is declared?
- D If you have joined the hospital within the last year did you receive a copy of the policy (or the relevant section of it) at your induction?
- D If you have joined the hospital more than a year ago – have you received any training or refresher information about the policy in the last year?

**Common reasons for failure to meet standard**

- D Failure of the hospital or department to include major incident training at induction.
- D Failure to provide hospital or departmental updates.
- D Absence of staff at times of updates.



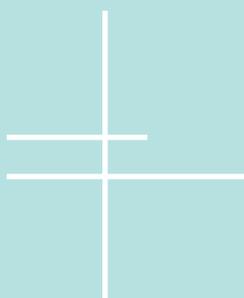
## CPD and Curriculum mapping

CPD matrix codes: 1I02, 2A02, 3A10

The CCT in Anaesthesia Training Programme – Intermediate and Higher Training, Trauma Management and Stabilisation, and Higher Training, Domain 2 – Team Working, Domain 3 – Leadership, Domain 5 – Management.

## References

- 1 NHS emergency planning guidance 2005. *DH*, London 2005 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4121072](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4121072)).
- 2 NHS emergency planning guidance: planning for the development and deployment of Medical Emergency Response Incident Teams in the provision of advanced medical care at the scene of an incident. *DH*, London 2010 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_114464](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_114464)).
- 3 NHS Emergency Planning Guidance 2005: underpinning materials - critical care contingency planning in the event of an emergency where the numbers of patients substantially exceeds normal critical care capacity. *DH*, London 2007 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_081282](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081282)).
- 4 Strategic command arrangements for the NHS during a major incident. *DH*, London 2007 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_081507](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081507)).



## 12.13

## Critical incident reporting

Dr K Ferguson

**Why do this audit?**

A critical incident is 'any unintended event which reduced or could have reduced the margin of safety for the patient'. It is anticipated that learning and improvement in patient safety and quality of care can be achieved by reporting and reviewing critical incidents and near misses.<sup>2</sup> Equipment failure and human error; or commonly both, may cause a critical incident.<sup>3</sup> However, there is substantial under-reporting of both incidents leading to harm and near misses. At present the NRLS receives incident reports (England and Wales). Through a data sharing agreement the Safe Anaesthesia Liaison Group (SALG) provide analysis summaries of these and more rapid responses on serious events.

**Best practice: research evidence or authoritative opinion**

The application of critical incident monitoring to anaesthesia resulted in the Australian Incident Monitoring Study (AIMS).<sup>5</sup> Further similar studies have been reported in Holland<sup>1</sup> and Hong Kong.<sup>6</sup> The Royal College of Anaesthetists (RCoA) piloted a Critical Incident Study. The number of incidents is high, about 1 in 15 cases.<sup>7</sup> Under-reporting is gross and widespread. The use of a mandatory system for reporting adverse events, mishaps and errors was recommended by the Department of Health in An organisation with a memory<sup>8</sup> and Building a safer NHS for patients.<sup>9</sup> WHO, as part of their patient safety initiative, have produced draft guidelines on effective reporting systems.<sup>10</sup>

**Proposed standard or target for best practice**

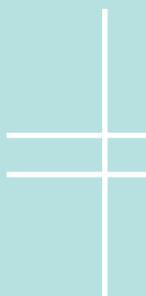
- D Existence and use of a system within the department for reporting, analysing and acting on critical incidents.
- D % critical incident reports that include a minimum data set.
- D % of anaesthetic procedures from which a critical incident report is generated.
- D % of reported critical incidents that are discussed at a review meeting.
- D % of reported critical incidents that had suitable corrective and timely action taken, in the opinion of the auditor:
- D Evidence that the departmental system is tied into the hospital's mandatory reporting systems in an explicit and agreed manner.

**Suggested indicators**

- D The standard of best practice should be that each anaesthetic department uses a critical incident monitoring system.
- D 100% critical incident reports should include a minimum data set. Anaesthesia eform is recommended NRLS Anaesthesia Report Form (<https://www.eforms.npsa.nhs.uk/asbreport>).
- D % of anaesthetic procedures from which a critical incident report is generated is expected to be about 6.7% (1 in 15).<sup>7</sup>
- D 100% reported critical incidents should be discussed at a review meeting.
- D 100% reported critical incidents should have had suitable and timely local corrective action taken.<sup>11</sup>
- D 100% of incidents should have documentation to support evidence of their onward transmission to hospital and national (NPSA) reporting systems.

**Suggested data to be collected**

- D The content and follow up of all critical incident reports made during the audit period should be recorded.
- D Alternatively it may be possible to identify further critical incidents by a short intensive audit of every operating list. Anaesthetists would be required to confirm the absence of a critical incident, under headings to include disconnections, wrong drug, wrong dose, wrong route, equipment or monitoring failure, adverse physiological event, etc. This might have the dual effect of increasing awareness of critical incident reporting and revealing a critical incident rate closer to the real rate.



### Common reasons for failure to meet standard

- D Lack of readily available forms and/or forgetfulness.
- D Failure to understand what constitutes a critical incident.
- D Failure to realise that a critical incident occurred due to late presentation of the effects of the incident or lack of patient follow up.
- D Failure to know or believe true occurrence of incidents.
- D Fear of criticism, disciplinary action or litigation.<sup>12,13</sup>
- D Morbidity and mortality reviews – the content and outcomes from meetings held
- D Hours of work.
- D Levels of supervision – reviewed within ARCP process.

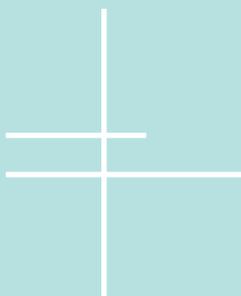
### CPD and Curriculum mapping

CPD matrix codes: **II01, II05**

Training curriculum competences: **PO\_BK, PO\_BS, CI\_BK, CI\_IK, CI\_IS**

### References

- 1 Chopra V et al. Reported significant observations during anaesthesia: a prospective analysis over an eighteen month period. *Br J Anaesth* 1992;**68**:13–17.
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- 4 National Patient Safety Agency. Seven steps to patient safety: A guide for NHS staff. *NPSA*, London 2003 (<http://www.nrls.npsa.nhs.uk/resources/collections/seven-steps-to-patient-safety/>).
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- 12 Jayasuriya, JP, Anandaciva S. Compliance with an incident report scheme in anaesthesia. *Anaesthesia* 1995;**50**(10):846–849.
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## 12.14

## Follow up arrangements for patients with suspected drug reactions

Dr A Bayliss

### Why do this audit?

This audit focuses on three types of adverse reaction. These are:

- D anaphylaxis
- D suxamethonium apnoea
- D malignant hyperpyrexia.

When suspected, these reactions require follow up. The results of investigations must be made known to the patient, and the family may need to be investigated also. There is no simple mechanism for such follow up, and this audit will determine whether follow-up is occurring correctly in all cases.

Similar follow up arrangements may be required to further evaluate and plan future management of difficult and failed intubations.<sup>1</sup>

### Best practice: research evidence or authoritative opinion

Protocols for correct follow up of anaphylaxis and malignant hyperpyrexia are available.<sup>2,3,4</sup>

For suxamethonium apnoea all first degree relatives should be screened according to local laboratory protocols and as described in standard text books.<sup>5,6</sup> Further testing may be required at a regional or supra-regional reference laboratory.

### Suggested indicators

- D % original anaesthetists aware of the outcome of follow up. Responsibility lies with this person unless it is clearly passed on.
- D % patients fully investigated and informed of the results.
- D % families fully followed up.
- D % cases where the GP is aware of the outcome for his records.
- D % cases where yellow card has been sent (if appropriate).
- D % cases where correct action was taken at the time of the incident so that follow up is possible.
- D (for anaphylaxis only – correct blood taken, etc).

### Proposed standard or target for best practice

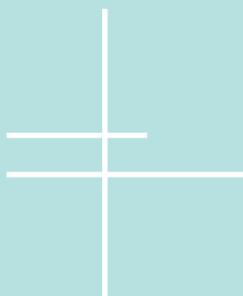
- D All above indicators should be true for 100% cases of serious adverse drug reaction.
- D All patients with difficult airways should be informed and followed up.

### Suggested data to be collected

The difficulty with this audit will be identifying all the cases. The critical incident record book, theatre incident book, local immunology and biochemistry lab records may be useful sources. The audit information may be obtained from the patient's notes. It may be necessary to contact the GP to find out about family follow up.

### Common reasons for failure to meet standard

- D No organised setting for such follow up, e.g. a regular clinic session.
- D Long time in obtaining data from outside sources.
- D Non-compliance by patient or family.



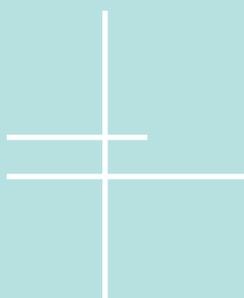
## CPD and Curriculum mapping

CPD matrix codes: I101, I105, I101

Training curriculum competences: BK, CI\_BS, CI\_IK, CI\_IS

## References

- 1 Difficult Airway Society. Guidelines for difficult airway follow-up. *DAS*, London 2004 (<http://www.das.uk.com>).
- 2 Suspected anaphylactic reactions associated with anaesthesia 4. *AAGBI*, London 2009 ([http://www.aagbi.org/sites/default/files/anaphylaxis\\_2009\\_0.pdf](http://www.aagbi.org/sites/default/files/anaphylaxis_2009_0.pdf)).
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## 12.15

## Disposal of controlled drugs

Dr K Ferguson

**Why do this audit?**

There are well defined legal requirements covering the storage, use and disposal of controlled drugs.<sup>1,2,3,4,5</sup> Anaesthetists have access to a wide variety of drugs during the course of an anaesthetic. Disposal of controlled drugs is important because of the potential for abuse. This audit aims to assess whether anaesthetists and their assistants are aware of recommended practice. With the introduction of accountable officers and a formal process to oversee the safe destruction and disposal of controlled drugs it may be possible to audit the practice itself. When these drugs are used outside a conventional operating theatre setting, the same standards should apply regarding their disposal.

**Best practice: research evidence or authoritative opinion**

All controlled drugs given and wasted should be accounted for.<sup>4,5</sup> The Association of Anaesthetists<sup>6</sup> recommends that:

- D syringes containing residual unused controlled drugs should be emptied before being discarded
- D drug solutions should not be flushed down the drain, but should be emptied onto absorbent material before disposal.

**Suggested indicators**

- D % anaesthetists and their anaesthetic assistants (ODA, ODP, anaesthetic nurses) who are aware of the two above recommendations for disposal of controlled drugs.
- D % anaesthetists who state that they practise these recommendations in their daily work.
- D % anaesthetic assistants questioned who are aware of these recommendations for disposal of controlled drugs.
- D % anaesthetic assistants who state that they practise these recommendations in their daily work.
- D % availability of register available to record dispensing of controlled drugs.
- D % of complete records of drug administered and drug disposed of.

**Proposed standard or target for best practice**

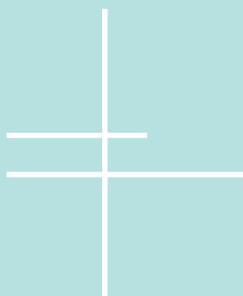
- D 100% anaesthetists should be aware of the recommendations.
- D 100% of anaesthetists questioned should state that they practise these recommendations.
- D 100% anaesthetic assistants questioned should be aware of the recommendations.
- D 100% of anaesthetic assistants questioned should state that they practise these recommendations.
- D 100% register available wherever controlled drugs are prescribed and used in anaesthetic practice.
- D 100% complete records in the register.

**Suggested data to be collected**

All anaesthetists and their assistants should be questioned about their practice. Nurses from wards where opiate infusions are used should also be questioned. Practice should include documenting volume or amount of drug wasted, and emptying the residual unused controlled drug onto absorbent material before discarding.

**Common reasons for failure to meet standard**

- D Lack of awareness of guidelines and regulations.
- D Lack of belief in necessity to comply with guidelines.



## CPD and Curriculum mapping

This audit cannot be mapped to the CPD matrix or the training curriculum. Please refer instead to the GMC publication *Good Medical Practice* ([http://www.gmc-uk.org/guidance/good\\_medical\\_practice.asp](http://www.gmc-uk.org/guidance/good_medical_practice.asp)).

## References

- 1 Medicines Act, 1968 (<http://www.legislation.gov.uk/ukpga/1968/67/contents>).
- 2 The Misuse of Drugs Act, 1971 (<http://www.legislation.gov.uk/ukpga/1971/38/contents>).
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## 12.16

## Infection control in anaesthesia

Dr J Leedham, Dr R Kitson

**Why do this audit?**

Healthcare associated infections (HCAs) are increasing in-patient mortality and their duration of hospital stay. This is costing NHS Trusts an estimated, additional £4,000–£10,000 per patient.<sup>1</sup>

Many patients we anaesthetise have their normal immune defences compromised in some way. In addition we perform many invasive procedures where complicating neuroaxial and systemic infections can be devastating.

Many professional bodies (AAGBI, EPIC, ANZCA, ASRAPM, ASA)<sup>2,3,4,5,6</sup> have published similar guidance in this area based upon our current understanding of infection transmission. Increasing awareness and debate about this evidence base will highlight which elements of clinical practice are essential in the prevention and control of HCAI and which are less substantiated by available evidence.

We have a duty to improve the safety of patient care and as such we must take steps to minimise the risks of infection to them, our colleagues and ourselves. Established good practices will help to protect us if infective cases go unrecognised.

**Best practice: research evidence or authoritative opinion**

The complex relationship between contamination, colonisation and infection remains to be fully explained. Most experts therefore recommend that exhaustive efforts should be directed at minimising all sources of infection wherever possible.

Prevention is certainly prudent in an era of increasing bacterial resistance and redundant anti-microbial agents. Many recommendations from the guidelines are simple and can be successfully implemented through due diligence. However, these measures need to become embedded into everyday practice and consistently applied by everyone.

**Suggested indicators**

- D Identified department lead on infection control.
- D Use of aseptic technique and full barrier precautions for invasive procedures (spinals, epidurals, central venous catheters).
- D Use of aseptic technique for single shot peripheral nerve blocks and arterial line insertions.
- D Hand hygiene before each new patient or equipment contact.
- D Safe handling and disposal of sharps.
- D Non-use of same syringe, infusion tubing or needle for different patients.
- D Existence of a functional and appropriate local inoculation injury procedure.
- D Contaminated equipment, e.g. Guedel oropharyngeal airway placed in a designated receptacle.
- D New bacterial/viral filter positioned between the breathing circuit and each new patient.
- D Cases with potential to disperse microbes harmful to other patients should be scheduled last on the list wherever possible.
- D Compliance with endocarditis and surgical antibiotic prophylaxis guidelines.
- D Identification of the immune-compromised patient at pre-assessment.
- D Nationally recommended decontamination policies are followed for all reusable anaesthetic equipment.

**Proposed standard or target for best practice**

- D 100% compliance with published guidelines or local policies.

**Suggested data to be collected**

- D Direct observation of working practices by colleagues, operating department practitioners or theatre nurses during elective lists.

### Common reasons for failure to meet standard

- D Time pressures, convenience of cutting corners and cost implications of increased disposable equipment use.
- D Individual 'anaesthetic rituals' may have been practised repeatedly for many years and these habits are consequently very hard to change. These perpetuate and reinforce local cultures of practice.
- D Lack of awareness of new updated standards, policies and guidelines.

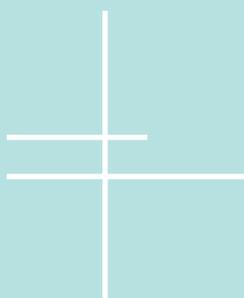
### CPD and Curriculum mapping

CPD matrix codes: **IE01**

Training curriculum codes: **IF\_BK\_01-05, IF\_BS\_01-07**

### References

- 1 Clean, safe care: reducing infections and saving lives. *DH*, London January 2008 ([http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_081650](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_081650)).
- 2 Infection Control in Anaesthesia 2. *AAGBI*, London September 2008 ([http://www.aagbi.org/sites/default/files/infection\\_control\\_o8.pdf](http://www.aagbi.org/sites/default/files/infection_control_o8.pdf)).
- 3 Pratt, RJ et al. epic2: National Evidenced-based guidelines for preventing healthcare-associated infections in NHS hospitals in England. *J Hosp Infection* 2007;**65**:S1-S64.
- 4 Australian New Zealand College of Anaesthetists. Guidelines on infection control in anaesthesia. *ANZCA*, Review PS28, February 2005.
- 5 Hebl JR. The importance and implications of aseptic technique in regional anaesthesia. *Reg Anaesth Pain Med* 2006;**31**:311-323.
- 6 American Society of Anesthesiologists. Recommendations for Infection Control for the practice of Anesthesiology (second edition). *ASA*, Park Ridge USA 1999.



## 12.17

## Availability and use of International Colour Coding System (ICCS) syringe labels

Dr N Bhuskute, Dr D Earl

### Why do this audit?

Correct ICCS syringe labelling is important in anaesthetic practice to assist in avoiding errors in drug preparation and administration. Syringe swaps (up to 70%)<sup>1,2</sup> and misidentification of labels (up to 46%),<sup>1,2</sup> have both been shown to be significant factors in anaesthetic drug errors.<sup>3</sup>

A majority of anaesthetists consider labelling as the most important single factor in identifying a drug syringe.<sup>2</sup>

### Best practice: research evidence or authoritative opinion

To minimise drug administration errors in all operating theatre and critical care environments, the Councils of the Royal College of Anaesthetists, the Association of Anaesthetists of Great Britain and Ireland, the College of Emergency Medicine and Intensive Care Society have recommended adoption of the International Colour Coding System (ICCS) for syringe labelling.<sup>4,5</sup>

### Suggested indicators

- D Existence of a locally agreed list of recommended critical care/anaesthetic drugs.
- D Evidence of availability of all ICCS syringe labels for the recommended list in each relevant clinical area.
- D % of other methods or non ICCS labels used for syringe labelling.
- D % of availability and use of the appropriate labels.
- D Evidence of critical incident reporting of labelling-related issues.

### Proposed standard or target for best practice

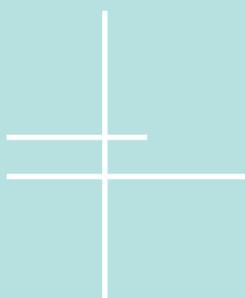
- D 100% availability of recommended drug list.
- D 100% availability of ICCS labels.
- D 100% use of ICCS labels.
- D 0% use of alternative methods of labelling.
- D 100% critical incident reporting of errors in drug administration and preparation.

### Suggested data to be collected

- D Locally recommended drug list.
- D Check availability of ICCS syringe labels for all drugs in all operating theatre and critical care areas.
- D Drug errors reported as critical incident.

### Common reasons for failure to meet standard

- D Unavailability of recommended drug list and ICCS labels.
- D Alternative methods of labelling and drug identification.
- D Lack of critical incident reporting of drug errors.
- D Checks of all above not regarded as important.



## CPD and Curriculum mapping

Training curriculum codes: CD\_8\_01–07

## References

- 1 Orser B, Chen R, Yee D. Medication errors in anaesthetic practice. A survey of 687 practitioners. *Can J Anaesth* 2001;**48**:139–146.
- 2 Critical incident involving syringe labels. *Anaesthesia* 2007;**62**(1):95–96.
- 3 Khan FA, Hoda MQ. Drug related critical incidents. *Anaesthesia* 2005;**60**(1):48–52.
- 4 Syringe labelling in critical care areas. *RCoA Bulletin* 2003;**19**:953.
- 5 Syringe labelling in critical care areas: June 2004 update. *RCoA Bulletin* 2004;**27**:1370.

