

WHAT IS NCEPOD?

The National Confidential Enquiry into Perioperative Deaths (NCEPOD) is a registered charity whose aim is to review clinical practice and identify potentially remediable factors in the practice of anaesthesia, surgery and other invasive medical procedures. The aim is to look at the quality of the delivery of care and not specifically the causation of death. The commentary and recommendations made in the annual Reports are based on peer review of the data, questionnaires and other records submitted to us. NCEPOD is not a research study based on differences against a control population and does not produce any kind of comparison between clinicians or hospitals.

NCEPOD is an independent body to which a corporate commitment has been made by the Royal Colleges, Faculties and Associations related to its activity. Each of these bodies nominates members of the Steering Group.

Since 1 April 1999, NCEPOD has come under the aegis of the National Institute for Clinical Excellence (NICE), who provide the majority of the organisation's funding (previously provided by the Department of Health). Financial support is also provided by the Welsh Office, Health and Social Services Executive (Northern Ireland), States of Guernsey Board of Health, States of Jersey, Department of Health and Social Security (Isle of Man) and many of the independent hospitals who also submit data to the Enquiry. NCEPOD does not cover Scotland, who conduct their own enquiry, the Scottish Audit of Surgical Mortality (SASM). The total annual cost of NCEPOD is approximately £500,000 (1998/99).

NCEPOD collects basic details on all deaths occurring in hospital within 30 days of a surgical procedure. This data is submitted to the Enquiry by a designated Local Reporter within each hospital. A surgical procedure is defined by NCEPOD as "any procedure carried out by a surgeon or gynaecologist, with or without an anaesthetist, involving local, regional or general anaesthesia or sedation". The Enquiry does not review maternal deaths, which come under the remit of the Confidential Enquiry into Maternal Deaths (CEMD).

The data collection year runs from 1 April to 31 March and each year a sample of the total number of reported deaths is selected for detailed review.

Future Reports

The next two annual Reports, to be published in 2000 and 2001, will both review a random

10% sample of the total number of deaths reported. This will enable comparisons to be made with data studied in 1990 when a random 1 in 5 sample was reviewed, together with forming a basis for continued longitudinal comparisons over the coming years.

The data collected in 1999/2000 will also look specifically at those patients who had cancer at the time of their final operation.

Interventional radiology & cardiology

Data is currently being collected and analysed for these two special NCEPOD Reports.

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Dr G S Ingram (Anaesthesia)

Clinical Coordinators

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Dr K M Sherry (Anaesthesia)

Bodies nominating members of the Steering Group

- Association of Anaesthetists of Great Britain & Ireland
- Association of Surgeons of Great Britain & Ireland
- Faculty of Dental Surgery of the Royal College of Surgeons of England
- Faculty of Public Health Medicine of the Royal Colleges of Physicians of the UK
- Royal College of Anaesthetists
- Royal College of Obstetricians and Gynaecologists
- Royal College of Ophthalmologists
- Royal College of Pathologists
- Royal College of Physicians of London
- Royal College of Radiologists
- Royal College of Surgeons of England

Obtaining the full Report

- The 1999 Report is available for downloading from the NCEPOD website at www.ncepod.org.uk.
- A limited supply of copies are available free of charge to consultant anaesthetists and surgeons working in the NHS in the regions covered by the Enquiry (limited to one per person and subject to availability).
- Alternatively please send a sterling cheque for £15 (inc. P&P) payable to NCEPOD at the address below.

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EXECUTIVE SUMMARY

This Report concentrates on the extremes of age: those of less than 16 years and those aged 90 years and over. In detail there are obvious differences between the groups, yet many of the lessons to be drawn from this study span the age difference. This is also the first NCEPOD Report since the introduction of clinical governance following publication of 'The new NHS Modern Dependable' and 'A First Class Service' by the government, in which participation in the National Confidential Enquiries was seen as a mandatory requirement. It must be remembered, however, that the data collected, and participation in this Report, occurred before the introduction of clinical governance. NCEPOD would now urge every anaesthetist, surgeon and NHS Trust to ensure that data concerning all relevant deaths are returned as part of their commitment to clinical governance.

Children

Even from the perspective of an enquiry based on the management of children who died within 30 days of surgery it is clear that anaesthetists and surgeons are doing most things well. There were no reported deaths after the common childhood operations of appendicectomy and tonsillectomy. Most deaths after anaesthesia and surgery in children are associated with congenital anomalies, necrotising enterocolitis (NEC), tumours or trauma (particularly of the central nervous system). These are all conditions with potentially serious implications for the outcome of surgery and the prospects for the child's satisfactory future development. Despite the problems presented by patients in such parlous medical states the overall delivery of care was good. In children's surgery it is quite evident that our previous message regarding the inappropriateness of occasional paediatric practice has been acted upon, with more specialisation and consequently far fewer surgeons and anaesthetists involved in the management of children. However, a significant number of respondents failed to see the inappropriateness of occasional practice in the emergency situation. The division of responsibilities between surgeons in specialist paediatric units and those in district general hospitals (together with the issue of patient transfer) has to be resolved. The Report also highlights the lamentable fact that audit of deaths in children was less than adequate and we would hope that the introduction of clinical governance will address this failing.

The Elderly

There are good reasons why the very elderly may die following surgery. The life expectancy of those aged 90 years and over in the UK in 1996 was 3.6 years for males and 4.5 years for

EXTREMES

of age

The 1999 Report of the National Confidential Enquiry into Perioperative Deaths

SUMMARY OF THE REPORT PUBLISHED ON 17TH NOVEMBER 1999



females and thus, for some, death will occur coincidentally with surgery. With advancing age there is a functional deterioration of all body systems and this increases the risk of postoperative complications. Very elderly patients have a high incidence of coexisting diseases that will further increase their operative risk. This sample enabled NCEPOD to review the decision-making and care provided to this group of vulnerable patients.

Life expectancy is increasing and society understandably demands and expects successful outcomes after surgical intervention for this elderly population. It is, therefore, pleasing to report that there was a high level of consultant input into decision-making in the care of these elderly patients. The greatest problem seen in this group concerned the management of fluid balance and the lack of multidisciplinary care despite a high level of coexisting medical conditions. This Report highlights the need for a full diagnosis, evaluation and rigorous preoperative high dependency approach to stabilising the physiological state of the patient before surgical intervention. This should help reduce postoperative complications. Issues surrounding emergency admissions throughout the week, and the availability both of emergency theatre time and of sufficiently senior clinicians, are factors behind the delays in treatment of some elderly patients that still need to be addressed. The lack of high dependency beds has been recognised but the problem of providing suitably trained nursing staff is an even greater resource issue. Unless this is addressed, it is difficult to envisage significant improvements in the care of this group of patients.

NCEPOD was concerned at the low postmortem rates in both these age groups. It is highly desirable that clinicians should be present at postmortems, yet this seems not to occur, presumably due to other commitments. This results in an even greater need for postmortem reports to be communicated to the clinicians involved, which does not occur sufficiently frequently.

Dissemination of our findings has always been a major concern, since all too frequently the clinical teams who should be the principal recipients fail to see them. We hope that the wide distribution of this Executive Summary will alert all interested parties to the availability of the full Report.

The Report is available for downloading from the NCEPOD web site at:

www.ncepod.org.uk

or can be ordered from the central office (see reverse for contact details).

DATA COLLECTION

The data analysed in the 1999 Report was collected between 1 April 1997 and 31 March 1998. A total of 19 643 deaths within 30 days of a surgical procedure were included in the general analysis (1996/97: 19 496 deaths). Two sample groups were reviewed in detail: those aged less than 16 years and those of 90 years and over.



children - SELECTED KEY POINTS

GENERAL ISSUES

Staffing • Specialist paediatric surgeons carried out 91% of children's surgery in this sample group. Consultants anaesthetised 84% of children in the sample and senior trainees anaesthetised a further 14%. Suitably experienced assistance was available to anaesthetists in all cases.

Admission and transfer • There should be increased provision for retrieval teams from the specialist hospital with the appropriate paediatric skills and experience.

Whenever possible acute paediatric surgical admissions should go directly to specialist paediatric beds.

Every opportunity should be taken for the transfer before birth of those identified as having potential problems that may require postnatal surgical intervention.

SPECIFIC ISSUES

Neurosurgery • The organisation of paediatric neurosurgery is complex. There is, however, scope for more shared care.

Abdominal trauma • Medical staff treating trauma in children should be familiar with the Advanced Paediatric Life Support (APLS) guidelines.

Contrast-enhanced CT scanning is the radiological investigation of choice for major blunt abdominal trauma in children. Surgeons who manage such cases must have access to this investigation.

Necrotising enterocolitis • The management of this condition, which is associated with prematurity, requires close teamwork by experienced clinicians and discussion with the infant's parents.

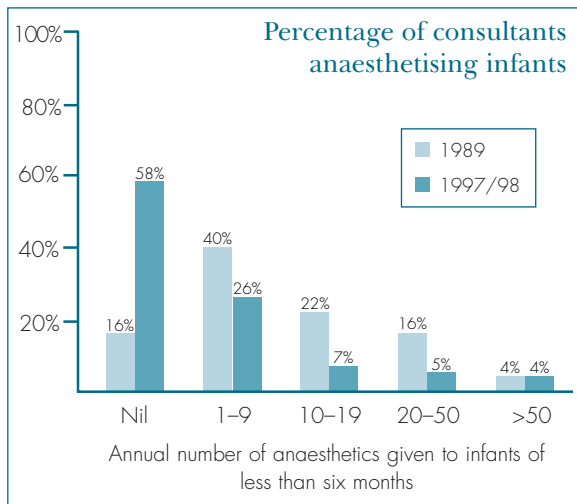
Postoperative pain relief • The importance of effective postoperative pain relief in children would appear to be widely recognised.

Good handling of deaths • The death of a child is a profoundly disturbing situation for all concerned and has an impact on clinical staff as well as on the family and close friends. The emotional consequences for clinical staff may not be acknowledged; help and support should be provided if requested.

WHO ANAESTHETISES AND WHO OPERATES ON CHILDREN?

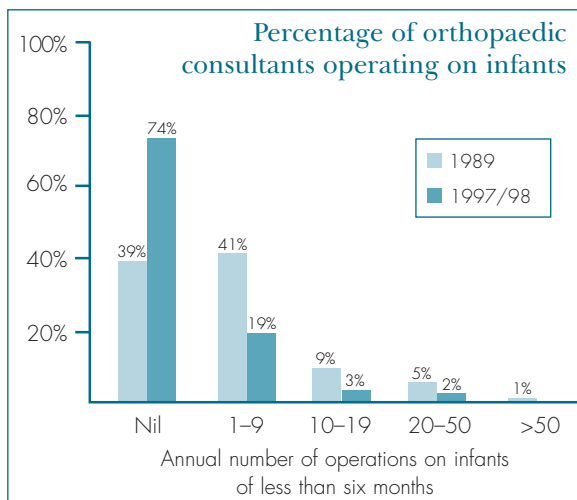
A short questionnaire was sent to all consultant anaesthetists and surgeons on the NCEPOD database requesting information on consultants' paediatric practice. This allowed comparison with similar data collected in 1989. A detailed analysis of the responses received is included in the Report.

Anaesthesia • The proportion of anaesthetists who do not anaesthetise infants of less than six months has increased from 16% to 58% when compared with data from ten years ago. However, a significant number of anaesthetic consultants giving anaesthesia to children still do a small number of cases each year.



Surgery • In some specialties, e.g. orthopaedic surgery, there has been a considerable shift in practice with more specialisation in children's surgery when compared with the situation ten years ago.

In other surgical specialties there has been little change over ten years in the number of consultants performing a small number of operations on infants.



Very occasional practice in emergency situations persists within surgery on children.

PATHOLOGY

There is a need for pathologists to improve the dissemination of information gained at a postmortem examination.

Postmortem examination rates for children have fallen; this is a national trend. A limited or directed postmortem examination, or possibly a magnetic resonance necropsy, may be the way to improve this situation.



GENERAL ISSUES

Operative hypotension • A large number of patients in this sample were hypotensive during surgery although the precise incidence was difficult to quantify. It may be indicative that hypotension was reported as a perioperative adverse event in 17% of cases. Hypovolaemia should be corrected before operation whenever possible and particular care is required when general anaesthesia combined with epidural analgesia is used during emergency abdominal surgery, especially when there may be sepsis.

Postoperative fluid management • Fluid balance charts were reviewed and indicated that fluid imbalance can contribute to serious postoperative morbidity and mortality in the elderly, who may have renal impairment or other coexisting medical disorders.

Accurate monitoring, early recognition and appropriate treatment of fluid balance are essential. Fluid management should be accorded the same status as drug prescription.

Fluid chart documentation • The documentation on fluid charts was often poor. Doctors and nurses of all grades need to understand the clinical importance, and ensure the accurate recording, of fluid intake and output.

Multidisciplinary review of the problem and development of good local working practices is required.

Fluid charts are important documents that need to be retained and appropriately filed for future reference.

SPECIFIC ISSUES

Anaesthesia

Non-consultant career grades • There has been an expansion in the number of non-consultant career grade (NCCG) anaesthetists. Their requirements for personal development, continuing medical education and supervision need to be recognised.

Pain relief • The majority (81%) of patients were treated in a hospital with an acute pain service but a minority of patients had a pain assessment chart. The use of a pain assessment chart is recommended.

Non-steroidal anti-inflammatory drugs • These should be prescribed with particular caution in elderly patients in the postoperative period. They can contribute to postoperative renal failure in patients with renal impairment and those receiving ACE inhibitors, potassium-sparing diuretics or beta-adrenergic blockade.

Postoperative respiratory complications • These were more serious when patients were anaesthetised by less experienced anaesthetists. The dose of opioid or sedative drug needs to be titrated to effect. Elderly patients most at risk of complications are those with concomitant medical disorders, metabolic disorders or electrolyte disturbance.

Orthopaedic surgery

Shared care • Orthopaedic surgeons need to establish whether there is sufficient expertise available within their team to manage the complex medical problems of these patients, or whether local guidelines for shared care should be developed.

Pressure sores • These remain a problem in orthopaedic patients. Constant vigilance is required in this high risk group of patients.

Seniority • There is a wide variation in the experience and qualifications of non-consultant staff undertaking emergency orthopaedic surgery.

Urinary catheters • Studies need to be undertaken to establish the relative advantages and disadvantages of using urinary catheters in orthopaedic trauma patients.

Cement reactions • Whilst infrequent these are often lethal in the elderly. Guidelines should be available for the management of cement related complications.

Thromboembolic prophylaxis • Studies are still required to determine the place of thromboembolic prophylaxis in orthopaedic patients.

General surgery

Decision-making • The decision whether or not to operate on these elderly patients is

frequently difficult and should be made at consultant level. More careful investigation might prevent futile major surgery in patients with disseminated malignancy.

Risk of surgery • An accurate method of assessing the risk of surgery is required. P-POSSUM is suggested as a possibility.

Incidental hernia • A number of patients, in whom the initial diagnosis from their symptoms was a hernia, were found at operation to have obstruction or peritonitis from other causes.

Urology

Training • Sixty-six percent of patients were operated on by a consultant, but in only half of these cases were trainees present in theatre. Is this a missed training opportunity?

General anaesthesia • This was used for a number of simple procedures where local anaesthesia might have been preferable in these frail patients.

Check cystoscopy • Guidelines should take into account the risks due to the high incidence of comorbidity in the elderly.

Neurosurgery

CT/MRI scanning • In elderly patients with confusion, if the diagnosis is unclear, a CT or MRI scan of the head should be performed promptly, so that surgically remediable intracranial conditions can be identified.

Vascular surgery

Decision-making • The decision whether or not to operate on these elderly patients is frequently difficult and should be made at consultant level. It is questionable whether any patient of 90 years or over should have a ruptured aortic aneurysm repaired.

Embolectomy • It is important for an anaesthetist of suitable experience to be present during embolectomy under local anaesthetic, for appropriate sedation, monitoring and resuscitation. Embolectomy should be performed by surgeons who have sufficient vascular experience and expertise to be able to perform an arterial bypass operation if required.

PATHOLOGY

Systems need to be established to ensure that clinicians always receive copies of Coroner's or hospital postmortem reports.

The Royal College of Pathologists' guidelines may now need expansion and updating, with inclusion of guidance on OPCS formatting for cause of death and examination of the locomotor system.