CHANGING THE WAY WE OPERATE

The 2001 Report of the National Confidential Enquiry into Perioperative Deaths

NATIONAL CEPOD

EXECUTIVE SUMMARY

This report provides a stark comparison of the changing medical scene over the past decade. It demonstrates that patients being subjected to emergency surgery are both older and sicker than they were ten years ago. In turn, this has a profound impact on the service provision necessary to deal with these clinical problems. Ten years ago the tone of NCEPOD reports was very critical of anaesthetists and surgeons but this has now changed and the focus is much more on the resourcing, provision and management of services. Sadly, many issues recur. Whilst clinicians have changed their practice in the light of the findings of this and other enquiries, provision within our health services has often lagged behind.

This report begins with a series of editorials covering the influence of variations in quality of care on the causation of death, the contribution of postmortem examinations to our understanding of perioperative deaths and the requirement for improved information systems. There follow several specific sections, which are focused on the following issues:

• The quality of our data and the difficulties faced by NCEPOD as a result of poor hospital information systems. Medical records and their content are one of the building blocks of our medical system and problems with the organisation and content of medical records have a considerable impact on clinical care and education. The report contains evidence that medical record keeping is falling below acceptable standards. Unfortunately, poor record keeping will inevitably lead to poor completion of NCEPOD questionnaires, which might call into question the validity of some of the data in the Enquiry.

• General information about anaesthesia and surgery (including discussion of the role of regional analgesia and the significance of aortic stenosis, which is often underestimated).

• The role and provision of critical care services. This report exposes the need for an enlarged nucleus of both doctors and nurses capable of dealing with the increased demand for management of the severely ill. There is a shortage of staff capable of caring for the increasingly aged and sick patients who present to surgeons and anaesthetists. Changing patterns of disease over the last ten years call into question the balance of bed distribution and the associated staffing when, so frequently, higher dependency facilities are needed for the survival of patients with life-threatening illnesses.

• Discussion of deaths occurring within the generality of surgery and following vascular surgery.

• The management of patients with malignant disease and the associated role of the pathologist. The system appears to be failing patients with malignancy. There is a lack of uniformity of provision of care and the volume of emergency admissions is outstripping the Calman-Hine recommendations due to the inadequacy of resources on the ground.

• Pathology focusing on the role and quality of postmortem examinations. This subject is considered in some depth as NCEPOD considers the postmortem examination to be of great value in assisting the clinician to arrive at an understanding of the cause of death, and the relatives to come to terms with their loss.

The report attempts to tease out the various factors that contribute to managing a successful outcome for the patient. We are all well aware of the clinical standards which should be achieved, but this report provides a salutary reminder that achieving those goals demands much greater awareness of the issues at hand and a willingness to change. Such change is required at both a system/organisational level and also at a clinical level in order to prevent errors of management.

PRINCIPAL RECOMMENDATIONS

- Surgeons and anaesthetists should partake in **multidisciplinary audit,** specialists meeting together to discuss improvements in care. These meetings should concentrate less on asking 'Who is to blame?' and more on changing systems of practice to safeguard patients wherever possible.

- All Trusts in the NHS should use **information systems** with a nationally agreed specification. This should apply to case notes, patient information systems etc. Such uniform systems would facilitate the retrieval of standardised information and ease the introduction of the Electronic Patient Record.

- There is a gap in the levels of medical and nursing expertise between ICU/HDU services and ward based care. In particular, there is a need to increase the skills of nurses and doctors on the wards in **central venous pressure (CVP) management and interpretation.** This deficiency should be addressed. There ought to be sufficient ward equipment with transducer pressure monitoring facilities to allow accurate and continuous CVP monitoring. More national and local training programmes are required to provide education in the appropriate skills required to apply these techniques in ward areas.

- The service provision for **cancer patients,** presenting either as an emergency or urgently, requires review. The current system is failing patients, despite the best efforts of clinical staff. Most patients with cancer who die within 30 days of an operation are admitted as an emergency or urgently and many are not referred either to a surgeon with a subspecialised oncology interest, a multidisciplinary team, medical oncologist or specialist cancer nurse when it is indicated. Clinical networks and local guidelines should be constructed in order to ensure that all patients with cancer receive an early and appropriate referral to specialists.

- **Clinicians, pathologists and coroners** should review their working relations and means of communication. The aim must be to improve the quality and timeliness of information provided, in order to inform the understanding of events surrounding a perioperative death.

- There needs to be an education programme to re-establish public confidence in pathology services and the **postmortem examination** as a vital tool with which to investigate a postoperative death.

SUMMARY OF KEY POINTS AND RECOMMENDATIONS

(See report for full details)

DATA QUALITY

- There is no uniform case note system.
- Hospitals were unable to retrieve notes.
- Clinicians did not send NCEPOD copies of clinical documents.
- Completed questionnaires contain inaccuracies.
- Failure to submit complete and accurate data threatens the future maintenance of confidentiality.

Recommendations

- There should be a uniform case note system in the NHS.
- Hospitals should review the procedures for the storage and retrieval of deceased patients' notes.
- A larger audit of data quality is needed.

GENERAL DATA

- The return rates for both surgeons and anaesthetists continue to improve.
- Trusts are involving clinical governance departments to assist clinicians in their participation of NCEPOD.
- All deaths are not reported and questionnaires on deaths remain unanswered.
- There is still no simple way of collecting details of deaths that occur in the community.
- It was not always possible to identify the anaesthetist involved.
- A small minority of clinicians continue to question the relevance of the final procedure performed before death.

Recommendations

- There should be a standard way of collecting data on deaths occurring within 30 days of surgery but happening outside hospital.
- Trusts should ensure that all deaths (falling within the NCEPOD protocol) should be reported in a timely manner. Local Reporters should be given the necessary resources to ensure that this is possible.
- Trusts should review the discrepancies between HES data and NCEPOD data.
- The names of anaesthetic personnel should be clearly recorded in the patient's case notes.
- Medical Directors should ensure that all questionnaires are returned.

GENERAL INFORMATION ABOUT ANAESTHESIA & SURGERY

- A consultant reviewed 83% of surgical questionnaires and 64% of anaesthetic questionnaires.
- 1% of patients who died were admitted for an elective day case operation. This small number suggests that overall there is appropriate patient selection and assessment for elective day case operations.
- A consultant or associate specialist surgeon was consulted before operation in 93% of cases. However, senior anaesthetic involvement was less (77%).
- Some hospitals deny HDU facilities to selected patient groups.
- 60% of the patients had identifiable ischaemic heart disease.
- 6% of patients had their operations delayed for non-medical reasons.
- Where a pre-registration house officer obtained consent for the operation, 72% of the patients were ASA 3 or poorer.
- CVP monitoring was used in 44% of the patients. A further 13% might have benefited from invasive monitoring.
- 16% of this sample had an indication for ICU or HDU care but did not receive it.
- The value of postmortem examinations for education and audit is poorly recognised.
- Anaesthetic departments did not review 70% of deaths.
- That gynaecologists did not discuss 79% of their deaths is particularly poor.

Recommendations

- Immediately after surgery all patients not returning to a special care area (eg. an ICU or HDU) need to be nursed by those who are trained and practised

in postoperative recovery care. If there are separate arrangements for staffing the operating theatres out-of-hours, these must include the provision of specialised recovery staff.

• All hospitals where major acute surgery is undertaken should have a critical care facility that is appropriate for level 2 patients. Patients should be made aware when this facility is not available.

• It is the responsibility of each anaesthetic department to ensure that the anaesthetists running emergency lists are of sufficient experience, and to provide appropriate consultant supervision.

• Delays due to the availability of emergency operating time or critical care facilities require close monitoring locally.

• Where there is a definite risk of death and patients are in a poor condition, junior doctors in training should not obtain consent for surgery.

• Medical Directors should review the responsibilities of those consultant and NCCG surgeons who do not hold a higher surgical diploma.

• There needs to be a much higher level of involvement of anaesthetic consultants in the care of those patients who are in a poor physical state and at risk of death.

• Hospitals should identify, quantify and improve inadequacies in their critical care facilities.

• Medical Directors should ensure that morbidity/ mortality meetings are held in all specialities.

GA WITH REGIONAL ANALGESIA

• A regional anaesthetic technique can provide good analgesia, both during and after surgery. NCEPOD supports both techniques.

• Regional analgesia combined with general anaesthesia may precipitate hypotension, especially in those who are septic or dehydrated.

Recommendations

• Anaesthetists should be cautious about the dose of local anaesthetic used for a regional technique in those patients who are predisposed to hypotension.

• Operative hypotension demands an appropriate and timely response.

AORTIC STENOSIS

•An asymptomatic cardiac murmur may indicate significant cardiac disease.

• Patients with a large aortic valve gradient or small aortic valve area, particularly in association with a reduced ejection fraction, have an indication for invasive monitoring, ICU/HDU care and excellent postoperative pain control.

Recommendations

• Whenever possible the anaesthetist of a patient with aortic stenosis should obtain a preoperative echocardiogram of the aortic valve.

• The availability of the echocardiography service for patients preoperatively, should be accorded an appropriate priority in the funding and development plans of hospitals.

PERIOPERATIVE CARE

•Preoperative resuscitation of some patients was inadequate and/or poorly coordinated.

• Timing of operations was often inappropriate to the patient's physical state.

• Resuscitation plans were not always adhered to.

• Doctors in training can be slow to seek advice.

• CVP lines were poorly managed on the wards.

Recommendations

• Preoperative resuscitation of patients and the success of its coordination should form part of multidisciplinary case review.

• Guidelines to determine which patients should be referred to a critical care team should be developed locally and subsequently validated.

• It is the consultant's responsibility to ensure that there are open lines of communication between them and the doctors that are under their supervision, and that those doctors are acting appropriately.

• There should be more training programmes to increase the skills of nurses and doctors on the wards in CVP management and interpretation.

SURGERY IN GENERAL

• Formal shared care is increasing for elderly patients managed in orthopaedic and urological surgery.

• The majority of deaths occurred after emergency surgery.

• Radiologists increasingly have the ability to intervene in patient management using guided drainage of fluid collections. This may either provide definitive treatment or gain sufficient time to stabilise patients before surgery.

• The complications of diverticular disease are common and continue to be difficult to manage, particularly in the very elderly.

• There is a reluctance to catheterise patients with urinary incontinence.
• Trauma patients were more likely to suffer delays for non-medical reasons than patients in other specialities.

Recommendations

• Early consideration of diagnostic or therapeutic radiological procedures might avoid surgery in some high risk patients.
• Acute hospitals should continually review their radiological provision to ensure the availability of appropriate and modern methods for the investigation and treatment of emergency cases.
• Fluid balance and urinary incontinence should be proactively managed especially in orthopaedic patients.

VASCULAR SURGERY

• Correction of coagulopathy, including the use of platelets, is important in the management of bleeding associated with surgery for ruptured abdominal aortic aneurysms.
• MRSA infection is a hazard for surgical patients.

Recommendations

• There needs to be sufficient ICU/HDU beds to support vascular surgery.
• Those hospitals admitting vascular emergencies should take steps to ensure that there are sufficient surgeons of appropriate ability to provide an acceptable emergency vascular surgical rota.
• The concept of consultant invincibility is outmoded; surgical units should be organised to provide support for newly appointed surgeons.
• There is a need for a scoring system to assess the likelihood of survival of a patient with a ruptured abdominal aortic aneurysm.
• At the end of an aortic operation it is essential to assess the adequacy of the circulation in both legs and, if deficient, to correct it.
• Blood banks should have platelets readily available for the correction of coagulopathy for ruptured AAA cases.

ONCOLOGY

• The system is failing patients with a cancer, particularly those who present as an emergency. Currently the picture is one of varying expertise, poor compliance with recommendations and failure to collect data and run adequate multidisciplinary teams.
• Many of the recommendations of the Calman-Hine report have not been implemented.
• Patients are being managed in units and centres with very different caseloads and experience levels. Some caseloads are very low and it is doubtful whether clinicians are able to maintain clinical skills.
• Some patients are being subjected to lengthy and complex surgical procedures for palliation, where the benefits of surgery are unclear.
• Data collection appears to be deficient and many clinicians are unable to demonstrate knowledge of simple demographic data about the cancer being treated, including survival data.
• In some specialties, rates of cancer staging are very low.
• Some patients are receiving inappropriate diagnostic operative procedures, because of a failure to use appropriate preoperative imaging modalities, or because of a lack of resources for diagnostic facilities.

Recommendations

• Hospitals should review the availability of sub-specialists for those patients who present as an emergency.
• Ever effort should be made for all patients with a cancer to be considered by a multidisciplinary oncology team. This applies especially to those patients admitted for urgent or emergency surgery.
• All clinicians should use a recognised staging system in the management of patients.

HISTOLOGY REPORTS

• A third of histology reports contained insufficient information to support tumour staging and subsequent clinical management.

Recommendations

• All histology reports relating to oncology cases should match the Calman Minimum Datasets for the standardised reporting of common cancers.

PATHOLOGY

• The postmortem examination rate has remained constant at 31%, a minority of these (5%) being consented (hospital) postmortem examinations.
• The majority of postmortem reports (69%) were

satisfactory or better. However, there has been a marked deterioration in the quality of postmortem reports when compared with the previous year.
• The operation is now reported in the ONS cause of death in 76% of cases, compared to 37% in 1998/99.

• Lack of a histology report detracted significantly from the quality of the postmortem report in 28% of cases.

Recommendations

• Recently published national recommendations for obtaining informed consent to retain tissues and organs should be applied.
• Consultation between clinician and pathologist before the postmortem examination could improve the quality of postmortem reports.
• The Royal College of Pathologists' guidelines to the postmortem examination should be updated into a minimum dataset format, with guidance on ONS (formerly OPCS) formatting for cause of death.
• The ONS guidelines should be modified with the adoption of a restricted list of acceptable conditions similar to national clinical disease coding lists.
• Clinicians need to be informed of the time and place of the postmortem examination in order that they may attend and inform the process.
• Completed reports on hospital (consented) and coroner's postmortems should be available for review in multidisciplinary mortality audit meetings.
• Full information should be available to the families about the results of postmortem examinations.

NCEPOD Corporate Structure

Chairman

Mr. J .L.Williams

Chief Executive

Mrs. C. M. K. Hargraves

Principal Clinical Coordinators

Mr. R .W. Hoile (Surgery)
Dr. G. S. Ingram (Anaesthesia)

Clinical Coordinators

Mr. K. G. Callum (Surgery)
Mr. I. C. Martin (Surgery)
Dr. A. J. G. Gray (Anaesthesia)
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

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 now provide the majority of the organisation's funding. 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 £550,000 (2001/02).

NCEPOD collects basic details on all deaths occurring in hospital within 30 days of a surgical procedure. A designated Local Reporter within each hospital submits this data to the Enquiry. 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 major NCEPOD report, to be published in 2002, will review a sample of patients who died on the day of, or within the first three days of surgery.

The 2003 report will re-visit 'Who Operates When' which was undertaken in 1995/96 and published in 1997.

Obtaining the full report:

The 2001 report is available for downloading from the NCEPOD Web site.

Alternatively please send a sterling cheque for £20 (inc. P&P) payable to NCEPOD.

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Contact details:

NCEPOD,
35-43 Lincoln's Inn Fields, London WC2A 3PE
Email: info@ncepod.org.uk
Tel: 020 7831 6430
Fax: 020 7430 2958
Website:www.ncepod.org.uk

Registered Charity Number: 1075588 Company Number: 30193821118