

# DATA QUALITY AUDIT

## INTRODUCTION

### Key points

- There is no uniform case note system in the NHS.
- Some hospitals were unable to retrieve the notes of deceased patients.
- Clinicians are failing to send NCEPOD copies of clinical documents.
- Completed questionnaires contain inaccuracies, which may lead to flawed judgements on clinical care.
- Failure to submit complete and accurate data threatens the future maintenance of confidentiality.

Since the introduction of clinical governance there has been an increase in the percentage return of questionnaires to NCEPOD. In our 2000 Report 'Then & Now'<sup>13</sup> we noted a return rate of 83% for surgeons and 85% for anaesthetists; the highest return rates ever recorded by NCEPOD. We believe that the data contained in these questionnaires

remains robust but this belief has been questioned<sup>28</sup>. It is possible that the questionnaires may be completed in a rather careless manner in order to achieve compliance with NCEPOD without regard to accuracy or completeness. An example of this was revealed during the analysis of the data for this report. There appeared to be too many deaths in elective day cases. Further painstaking review of the surgical questionnaires by NCEPOD coordinators showed that 42 cases had been incorrectly classified as day cases when they were mostly elective inpatient admissions. At least three-quarters of these particular questionnaires had either been completed by consultants or at least seen by them. If one small piece of information is incorrectly submitted, one has to question the thoroughness of questionnaire completion in other areas. So, we had to verify our overall impression that the data remained accurate and that clinicians were being accurate in their returns. An audit of the data was required in order to confirm or negate this impression.

To do this audit, which NCEPOD hoped would dispel any doubts about the veracity of our data, would mean a loss of anonymity for those clinicians/hospitals whose case notes were reviewed. However the Clinical Coordinators are fully conversant with the requirements of confidentiality, and preliminary soundings through Advisors and a selection of

Medical Directors, suggested that this study would be welcomed and viewed as timely by clinicians and managers. A proposal to conduct the audit was therefore submitted to the NCEPOD Steering Group and subsequently approved.

## METHOD

We devised a small pilot study, which involved comparing the clinical notes with certain verifiable entries in the questionnaires.

The six Clinical Coordinators visited hospitals within the geographic areas within which they work. Within these areas, the hospitals were chosen at random from amongst those from whom we had received questionnaires. We decided that the pilot study did not need to be comprehensive, in terms of covering the whole country, but a mixture of hospital types was desirable. Hospitals in the private sector indicated their willingness to participate but, as the number of questionnaires from this sector was very small, it was decided to exclude them from the initial study. Participation was voluntary and was confirmed with both the Chief Executives and Medical Directors of the chosen hospitals.

The participating hospitals and Trusts were:

- Airedale General Hospital (Airedale NHS Trust)
- Conquest Hospital (Hastings & Rother NHS Trust)
- Cumberland Infirmary (Carlisle Hospitals NHS Trust)
- Doncaster Royal Infirmary (Doncaster Royal Infirmary & Montagu Hospital NHS Trust)
- North Tees General Hospital (North Tees & Hartlepool NHS Trust)
- Hillingdon Hospital (Harrow & Hillingdon Healthcare NHS Trust)
- Middlesbrough General Hospital (South Tees Acute Hospitals NHS Trust)
- Maidstone Hospital (Maidstone & Tunbridge Wells NHS Trust)
- Kent & Sussex Hospital (Maidstone & Tunbridge Wells NHS Trust)
- Queen Elizabeth Hospital (King's Lynn & Wisbech Hospitals NHS Trust)
- Queen Elizabeth The Queen Mother Hospital (East Kent Hospitals NHS Trust)
- Royal Infirmary (North Staffordshire NHS Trust)
- Stepping Hill Hospital (Stockport NHS Trust)

- Leeds General Infirmary (Leeds Teaching Hospitals NHS Trust)
- Walsgrave Hospital (University Hospitals Coventry & Warwickshire NHS Trust)
- West Suffolk Hospital (West Suffolk Hospitals NHS Trust)
- Wexham Park Hospital (Heatherwood & Wexham Park Hospitals NHS Trust)

NCEPOD wish to express their gratitude for the warm welcome they received at all the participating hospitals and for the open and interested attitudes expressed towards the visits and data audit.

Three other hospitals or groups of hospitals were invited to participate but did not respond.

Each hospital was asked to provide the clinical notes, relating to the anaesthetic and surgical questionnaires held by NCEPOD, and a room where the visiting Clinical Coordinator could work in private. All the participating hospitals cooperated enthusiastically. The number of notes reviewed varied from hospital to hospital (see results below). The visiting Coordinators took with them a folder relating to each questionnaire. This contained a proforma, on which to enter the comparison of notes and questionnaires, and photocopied extracts from the questionnaire; these text extracts could then be compared with entries in the original notes. At no time did any of the original returned questionnaires leave the NCEPOD office. The proforma was designed to look at both accuracy and general style/attitude of completion of the NCEPOD questionnaire. Where requested documents, e.g. an operation note, had not been sent to NCEPOD, the Coordinators checked whether these were in the hospital notes. A small number of specific questions were asked, relating to information in the questionnaires, which we believed could be easily verified from the notes, e.g. 'Is the disclosure of the postoperative complications correct?'

The Coordinators also assessed the general quality and content of the notes relating to the questionnaires. The notes were compared with published guidelines<sup>29</sup> and scored using a recently published method, the CRABEL score<sup>30</sup> (CRABEL is an acronym of the author's names), thus allowing some comparison of performance within the sample.

An internal audit was also done to assess the thoroughness of questionnaire completion. Thus, if a

question asked for certain information to be specified, we checked whether this information was provided.

An analysis of the results is given below. The full results are contained in the data set available separately from NCEPOD.

## RESULTS

### General remarks

The visits to most hospitals were very successful. The Coordinators were usually received enthusiastically, the appropriate notes were available and a suitable area was provided for the Coordinator to work. A member of the host hospital's Clinical Audit Department was often on hand to assist with queries or the identification of documents. In some hospitals the Medical Director or Chief Executive met the Coordinators and ensured that all was proceeding smoothly.

### Ability to retrieve notes

Two hospitals were unable to provide any of the notes requested for the day of the visit, despite adequate notice. One hospital reported that the notes were not only stored off-site but in another city. There appeared to be no filing system and no simple method for retrieval of the notes relating to deceased patients. The visit to this hospital was cancelled and the Trust Chief Executive was informed of the problem. Subsequent correspondence from clinicians suggests that there is a widespread problem with retrieval of medical records at this hospital. This situation is discussed further in the section on General Data. The second hospital failed to provide the notes, claiming that the correspondence concerning the visit had been mislaid.

### Number of notes reviewed

There was a potential total of 103 notes to review at the participating hospitals. Only 81 were reviewed. The reasons why 22 notes were not reviewed are given in Table 4.1.

Table 4.1 Reasons why notes not able to be reviewed	
Reason	Number
Hospital unable to participate	9
Shortage of time for coordinator	7
Notes not found	3
Wrong notes obtained	1
No notes found for last admission/procedure	2
<b>Total</b>	<b>22</b>

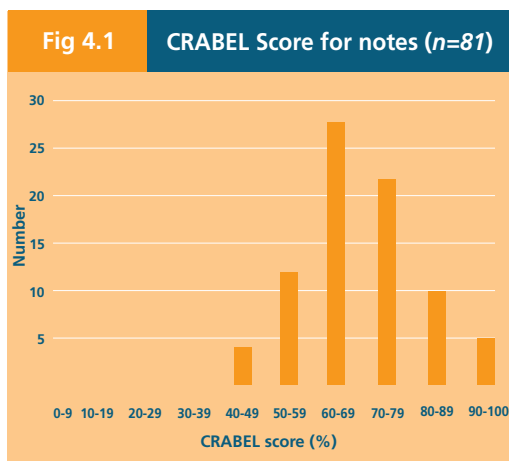
This brief attempt to review the notes of deceased patients revealed a worrying situation in many

hospitals. From a random sample of 103 sets of notes, 15% (15/103) either could not be retrieved on request or the hospital produced incorrect or inappropriate records. This has serious implications for researchers using retrospective data and for Trusts faced with litigation.

### Quality of notes in general (CRABEL scores)

Many notes were immaculate, secure and clearly labelled. However, some were very scruffy with loose pages, no clear order for sections and these were very difficult to work through. Occasionally microfilmed reproductions were of poor quality and difficult to interpret. Coordinators reported difficulties in familiarising themselves with the individual format of the medical records at each hospital. The lack of a uniform note layout within the NHS was noted and deplored. All these general defects must also have implications for the ability of the service to retrieve information in the event of a complaint, inquiry or litigation (see also section on General Data).

The Coordinators found the CRABEL system of scoring easy to use although there were some anomalies. The system works by deducting points for omissions e.g. patient's name or a clinicians' signature, and then calculating a final score as a percentage. Perfect notes would score 100%. Limited notes, as a result of an early death, score highly as there will be few deductions. However, this system was useful and showed that there is a spectrum of quality within record keeping. Figure 4.1 shows the distribution of scores with a mean of 67%. Trusts could use such a system of note review to assess the standard of notes and to motivate attempts at improvement.



## Data quality analysis of anaesthetic records

When the 81 sets of notes were reviewed and compared against the anaesthetic questionnaires, the Coordinators identified nine cases where there was no return from an anaesthetist. However, some of these cases were identified as receiving a local anaesthetic and hence an anaesthetic questionnaire would not have been expected. Thus there were only 72 anaesthetic questionnaires to compare with the original notes.

The Coordinators first looked at the return of requested documents and the compliance of the clinicians with this request (Table 4.2).

Data concerning measures taken in theatre to maintain body temperature could not be verified from the clinical records in 28% (20/72) of the cases. Many anaesthetists will have answered this question from knowledge of their usual practice. We do want clinicians to provide information to the best of their ability and in the spirit of audit. We recognise that this is a limitation of this particular method of data evaluation and this data represents a ‘softer’ end point in our analysis.

An internal audit of the completed anaesthetic questionnaires was also done. This assessed whether the forms had been properly filled in where, for instance, an answer needed specific information to qualify a positive answer.

**Table 4.2** Availability of anaesthetic information

	Sent to NCEPOD	In the notes but not sent	Not in notes	Not applicable	Total
Preoperative anaesthetic record	62	6	3	1	72
Final anaesthetic record	66	4	2	0	72
Previous relevant anaesthetic record	10	3	52	7	72
Recovery room record	36	7	24	5	72
Fluid balance charts	39	18	13	2	72
Drug prescription charts	61	8	3	0	72
Pain assessment form	31	8	25	8	72

This is an interesting table, which demonstrates that information and the forms were in the notes, e.g. anaesthetic records and fluid charts, but they were not sent to NCEPOD as requested. This failure to send information was in the order of 10%. It is recognised that the information may not have been in the notes because it did not exist e.g. previous anaesthetic records if there has been no previous illness. It would seem that the system for the filing of recovery room and fluid balance charts is poor. Some hospitals do not retain fluid charts in patients’ notes. That recovery charts for critically ill patients are not retained, on the scale suggested in this audit, is deplorable and a matter for Trusts to address.

This internal audit showed a high standard of completion (98-100%) and few omissions.

Questions were then asked about the accurate disclosure of preoperative respiratory, cardiac and renal disorders. These were incorrect in 14% (10/72), 13% (9/72) and 17% (12/72) of cases respectively. Questions were also asked about the accurate disclosure of postoperative complications in the form of ventilatory, cardiac and renal disorders. These were found to be incorrect in 18% (13/72), 13% (9/72) and 15% (11/72) of cases respectively. These are facts that are verifiable from the clinical notes and as such represent ‘strong’ end points with which to judge the data.

Table 4.3 Availability of surgical information					
	Sent to NCEPOD	In the notes but not sent	Not in notes	Not applicable	Total
Surgical operation notes	59	15	2	0	76
Discharge summary	35	20	16	5	76
Histology report(s)	18	5	44	9	76
Postmortem report	17	5	45	9	76

## Data quality analysis of surgical records

Out of 81 cases, five surgical questionnaires were not returned and, therefore, could not be included in the study. This left 76 sets of notes for review.

The Coordinators again looked at the return of requested documents and the compliance of the clinicians with this request (Table 4.3).

In 20% (15/76) of the cases the surgeon did not send the operation note as requested. Over a quarter of the discharge summaries were not sent and, where available, histology and postmortem examination reports were not sent in 22% (5/23) and 23% (5/22) of cases respectively. Some explanations are possible. In some hospitals formal discharge summaries are not produced for deceased patients. Histology and/or postmortem examination reports are not always pertinent to certain cases and there would be none in the notes. There is, however, no excuse for failing to forward an operation note when requested.

Evidence of a working diagnosis was sought and 89% (68/76) records contained a clear working diagnosis which agreed with that notified to the Enquiry. The notes were scrutinised for the accuracy of diagnosis and preoperative problems, as reported to NCEPOD by surgeons. There was a high level of accurate reporting with 80% of questionnaires containing accurate information. The reason for considering the remainder as incorrect was that often one of several comorbidities was omitted. The disclosure of postoperative complications was incorrect in 11% (8/76) of cases. In a similar manner to the anaesthetic data (see Table 4.2) this represents ‘hard’ evidence of compliance with requests for accurate data.

However, when evidence to corroborate statements about personnel present in theatre was sought, no evidence to support the statements could be found in 13% of the notes (10/76). This may be ‘soft’ information that is not recorded in the clinical records but which may be available from theatre information systems or record books.

There was no consent form filed in the notes in 18% (14/76) of the sample. This is a serious failing of the medical records system unless consent was irrelevant e.g. for a ruptured abdominal aortic aneurysm or other dire emergency. Where there was a consent form this was unacceptable or only partially acceptable in 23% (14/62) of cases. Eight consent forms were unacceptable because they were not legal, e.g. unsigned or consent given by relatives without legal powers to do so, and six were partially unacceptable because of omissions such as a lack of explanations of complications, illegible names or abbreviated procedures.

When referral to the coroner occurred, this could not be verified from the notes in 29% (15/51) of cases. In general, there was no documented evidence to support statements about the whole process of decision-making concerning postmortem examination in three-quarters of the notes examined.

The internal audit of completed surgical questionnaires showed a high degree of complete answers but questions about the qualifications of the operator and checking of the questionnaire by a consultant were less well answered with omissions of 36% (27/76) and 8% (6/76) respectively.

## COMMENT

A pilot study such as this clearly has limitations and whilst there are many 'hard' end points with which to form opinions it must be admitted that there are also 'soft' data. The Clinical Coordinators are all experienced clinicians, used to navigating clinical notes, but it is possible that pieces of information were present in the notes but overlooked or not identified. Some questions within the questionnaires do rely on recall of the events, or other sources of information, and memory may be altered with time. However, there can be no excuse for leaving answers to questions totally blank.

The review of this small sample of notes has confirmed the existence of problems within the organisation of the NHS medical records service. It really is not acceptable for two hospitals to be unable to retrieve the notes of deceased patients. The quality of presentation and completion of medical records has also been found to vary considerably. If this small sample is an accurate reflection of the state of records within the NHS, then there is considerable scope for improvement.

NCEPOD bases conclusions and recommendations on the information received in the form of completed questionnaires and copies of documents from the patient's notes. This 'snapshot' of the original clinical notes raises serious concerns about omissions and accuracy of the data on which we found our comments. Clinicians fail to forward approximately 10-20% of important documents. These are in the hospital notes and there can be no excuse for failing to comply with the request from a National Confidential Enquiry.

Cooperation with an enquiry such as NCEPOD is now mandatory. However there is evidence here that participation is less than complete. Indeed there is a high level of inaccuracy.

A wider audit of data submitted to NCEPOD may be needed but the suspicion is that the data received is incomplete and inaccurate in more than 10% of instances. This is information on which the Coordinators and Advisors base their comments concerning clinical care. If a larger audit were to show inaccuracies in the data, a consequence might be the requirement to submit clinical records in their entirety, thus losing anonymity.

## 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.