

Audit

Audit of necropsy reporting in East Anglia

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Abstract

Aims—To establish criteria for the information to be included in a necropsy report, and to improve the quality of necropsy reporting in the Anglia Region.

Methods—Discussion between Anglia histopathologists, based on the guidelines of the Royal College of Pathologists, led to a consensus about the ideal content of a necropsy report. Fifteen consecutive necropsies subsequently undertaken by each consultant were assessed against agreed standards. Reaudit was undertaken nearly two years later, without prior announcement.

Results—The initial standards achieved for demographic details (70%), history (87%), external examination (43–97%), internal examination (76–95%), organ weights (73%), cause of death in OPCS format (94%), and conclusion (90%) were discussed by the group. Changes to necropsy reporting documentation were proposed. Reaudit showed improvement in nearly all categories.

Conclusions—Necropsy reporting in East Anglia is currently carried out to a reasonably high standard, and improvements have occurred as a result of the audit. There was no evidence that reports on coroners' necropsies were of a lower standard than those done for the hospital. Improvement in the format of the documentation increases the likelihood that all relevant and important data are recorded.

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In 1993, the Royal College of Pathologists published a set of guidelines for necropsy reports, in which it set out the information normally to be included in a report.¹ The guidelines set a high standard and some pathologists have questioned whether they are practical or necessary. If they are to be of practical use, it is important to know what standards practising pathologists set themselves, and the extent to which they differ from the Royal College of Pathologists' guidelines. Further considerations were to discover

whether the standards were achieved and, where possible, to improve the quality of necropsy reporting locally. The report of the national confidential inquiry into postoperative deaths (NCEPOD) of 1993,² which examined the records of patients who had died postoperatively, had various criticisms of the necropsy reports. With these considerations in mind, an audit of necropsy reporting in East Anglia was undertaken, starting in 1993.

Methods

After a search of relevant publications, in which the advice of the Royal College of Pathologists and the comments of the NCEPOD report were noted,² there was a period of consultation, operated through the Anglian regional specialty advisory committee for histopathology and cytopathology. Proposed standards were circulated and consultants not present were invited to comment by post. Every consultant in 10 of the 11 acute trusts in the Anglia Region participated, in total 32 consultants. Pathologists did not know exactly when data collection would begin.

Agreement was obtained from the relevant coroners. A pilot study and validation of the data collection and assessment method was carried out. Thirty reports were scored by both observers (MJG, GAG), areas of difference were discussed, and agreement was reached.

The first 15 necropsy reports undertaken by each consultant in 1994 were collected retrospectively by local audit coordinators in each of the participating hospitals (a total of 448 reports). Local coordinators undertook preliminary assessment of the reports. Data were collected into tick boxes on a Formic (optical mark reading) scanning sheet for analysis. Patient, consultant, and hospital identifiers were removed at this stage. Reports were then reviewed by one of two pathologists (MJG, GAG).

Aggregated anonymised data were fed back to each consultant, together with a confidential report on the standards achieved in their own 15 reports. Subsequent discussion was mainly around the documentation of necropsy reporting, and each department undertook to consider their own systems. Reaudit was carried

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Table 1 Agreed standards and findings of the audit: general and external examination

The necropsy report will include:	Standard	Initial standard achieved (n = 448)	Standard at reaudit (n = 154)
Indication if done for coroner or not	100%	93%	99%
Minimum demographic details (name + age/date of birth + necropsy/mortuary number)	100%	70%	90%
Adequate history	100%	87%	97%
External examination			
Height	100%	43%	79%
Weight	100%	43%	50%
General appearance	100%	97%	100%
Scars	100%	58%	63%
Trauma	100%	63%	65%
Commentary/conclusion compatible with findings	100%	90%	95%
Cause of death in *OPCS format	100%	94%	99%

*Office of Population, Censuses and Surveys, now renamed the Office for National Statistics (ONS).

Table 2 Agreed standards and findings of the audit: internal examination

Internal examination reports will contain:	Standard	Initial standard achieved (n = 448)	Standard at reaudit (n = 154)
CNS macroscopic brain examination	100%	95%	95%
Weight (g) of heart, lungs, brain, liver, and kidneys	100%	73%	84%
Heart muscle, valves, and coronary arteries described even when normal	100%	90%	91%
All other major organs described	100%	96%, excluding lymphoreticular	99%, excluding lymphoreticular
		79%, including lymphoreticular	84%, including lymphoreticular
Fluid collections measured or estimated (ml) as appropriate	100%	80%	79%
Sites of recent operation or trauma reported, as appropriate	100%	76%	100%

out after nearly two years, when a sample of five reports for each consultant was taken, without prior notification of the sampling date. Participation in reaudit was complete apart from one centre (two consultants), and 154 reports were analysed.

Results

Data on compliance with agreed standards are given in tables 1 and 2.

History—Although 389 of all reports (87%) contained an adequate history, only 12 consultants (37%) included an adequate history in all 15 of their reports. This aspect was greatly improved at reaudit, with 97% of histories considered adequate.

External appearance—Patterns of recording height and weight measurements tended to be consistent within trusts. Comment was required on the presence or absence of scars or signs of trauma. While only 49 of the initial reports (11%) included all five components of the external appearance, this improved to 24% at reaudit.

Major organ systems—354 reports (79%) made a comment on all major organ systems. The most common omission was the lymphoreticular system (spleen and/or lymph glands). If these are considered satisfactory reports, then overall 430 (96%) of the internal examinations were adequate. The brain was examined in 426 (95%) of the necropsies.

Cardiovascular system—The description of the cardiovascular system was satisfactory in 403 reports (90%). Where considered unsatis-

factory, the commonest omission was a comment about the heart valves.

Fluid collections were surprisingly common (237, 53% of all reports) and had been measured or estimated in 190 cases (80%).

Sites of trauma or recent operation sites (116, 26% of all reports) were described in 88 cases (76%).

Major organ weights—307 (73%) of the reports recorded all five major organ weights, improving to 84% at reaudit. If only heart, lung, and brain weights were considered, these were recorded in 363 reports (81%).

QUALITY OF NECROPSIES DONE FOR THE CORONER Comparison of the 76 reports (17%) known to be hospital necropsies with the 340 (76%) known to be done as coroners' necropsies is shown in table 3.

Considering the difference in the types of cases referred, it was not surprising that an adequate history was more often available in hospital cases, and that histology was more likely to be required in patients dying in hospital, often of complex conditions. There was no evidence that coroners' necropsies were of generally lower quality.

Discussion

Necropsies are required to fulfil a number of different purposes. Most commonly in England and Wales, they are done to reassure the coroner that death was due to natural causes. They also have importance for the patient's relatives, for clinical staff who have cared for the patient,^{3,4} for clinical staff generally, as a source of teaching or research material,⁵ and for society as a whole, as a means of acquiring accurate epidemiological data. In general, they have not been subject to audit.⁶

If the report is to fulfil these diverse roles then a minimum level of information is required. The Royal College of Pathologists' guidelines list the information that should normally form the basis of a necropsy report, and the agreed standards were based on these guidelines.¹ Although there was little difficulty in agreeing the routine data to be included, many omissions were caused by inadequacy of the systems for collecting the data. For example, in some centres there were no facilities for weighing the bodies. Similarly, there was no consistent recording of the body height, although this measurement is routinely taken by mortuary staff for the benefit of undertakers. Weighing of organs was again inconsistent and variable: all pathologists

Table 3 Comparison of reporting of hospital and coroners' cases, initial audit only

	Hospital	Coroner
Adequate history	72 (95%)	286 (84%)
Adequate description of the heart including coronary vessels, myocardium, and valves	71 (93%)	306 (90%)
Examination of brain	71 (93%)	326 (96%)
Tissues retained for histology	30 (39%)	71 (21%)
Conclusion compatible with history and findings	70 (92%)	306 (90%)

agreed the value of routine weighing of heart, lungs, and brain, but only 81% of reports achieved this. Reaudit showed that consistent improvement had been achieved in these areas.

Most reports included a comment on the general appearance, but the presence or absence of scars or signs of trauma was recorded in less than two thirds of cases, and at reaudit this was the area least well done. Since the majority of these necropsies were undertaken for the coroner, who needs to establish whether death was due to natural causes, recording the absence of signs of trauma may have considerable importance, as may the absence of scars in identifying a body.

There was discussion about the need for routine description of the lymphoreticular system. Otherwise, the requirement to include a comment on all major systems was largely followed. The agreed standards for the cardiovascular system were more exacting than those laid down in the Royal College of Pathologists' guidelines, as it was felt important to include a description of valves, coronary vessels, and myocardium in all cases, rather than accepting the comment "normal". Here, the standard was achieved in more than 90% of the cases, with failure generally due to lack of comment on the heart valves.

The NCEPOD report of 1993, which examined the records of patients who had died post-operatively, criticised the necropsy reports in the following areas: absent history (23%), no correlation of clinical and pathological findings (49%), and fluid collections not measured (38%).² Comparable figures for Anglia were 13%, 10%, and 20%, which is consistently better than the national rates, and there was further improvement at reaudit.

The history was considered inadequate in 13% of initial reports. The majority of these were coroners' cases, where the printed proforma did not always allow space for a history, and the police reports were separate from the pathologist's report. In the opinion of the assessors, the necropsy report should be a "stand alone" document, with clinical details contained within the body of the report. Preprinted proformas had a further disadvantage, in that they did not allow expansion of a particular area of interest. It was noticeable that reports using a computerised format were both easier to read, and more likely to be complete than preprinted forms. One centre claimed that the coroner would not approve of any other format: however, another said that they had changed to a word processed form without any problem. At reaudit, there was a considerable improvement, with inadequate histories reduced to 3%.

A satisfactory summary and conclusion was found in 90% of the necropsy reports. However, this means that one in 10 was considered unsatisfactory, most often because of the absence of clinical details with which to correlate the findings. One example was a death recorded as due to drowning, when nothing in the history or findings had indicated that this was likely. If clinical colleagues are to be believed, the summary is often the only

section that they read. Equally, as a legal document, it is vital that a clear explanation of findings is given.⁷ At reaudit, 95% were considered satisfactory.

The OPCS format does not always lend itself to the recording of hospital deaths where multiple pathologies may not fit into the rather rigid structure. However, if the Office of Population, Censuses and Surveys (now Office of National Statistics) is aware that a necropsy has been performed, it requests the pathologist to update the cause of death. Despite the limitations of the system, it may be better practice to record all deaths in this format at the time of necropsy, and to add additional information for the benefit of clinicians. It has been noted that considerable information is lost when only pathology relating to the cause of death is recorded.⁶ The group suggested that a common European Union system would be desirable.

CONCLUSION: VALUE OF THIS AUDIT

The pathologists in East Anglia work to a reasonably high standard in reporting necropsies for both hospital and coroner. The participants acknowledged that there was room for improvement in standards, particularly in documentation, and various changes have been made, including alterations in the format of the report to improve clarity, more mention of external appearances, including negative findings, and more use of a written summary. Reaudit nearly two years after the initial audit showed general improvement.

When this audit was first proposed, it was not greeted with universal enthusiasm. Concerns were expressed about confidentiality, and hidden agendas were suspected with regard to funding of necropsies. The standards were agreed by a majority, but not unanimously. While the Royal College of Pathologists' guidelines were not on the whole contentious, they stated, "Recent publications indicate the desirability of retention of tissues for histological examination in most cases". It was not possible to get agreement with this statement, and the use of histopathology in these audited reports is the subject of a separate paper.⁸

Otherwise, the guidelines issued by the Royal College of Pathologists in 1993 would appear to provide useful guidance about the quality of reporting. In most centres, improvement in the format of the documentation would increase the likelihood that all relevant and important data were recorded. A standard word processed format for necropsy reporting would be useful nationally, and could be made available through the College.

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