

Medical students' views on necropsies

E W Benbow

Abstract

Second and third year medical students were invited to write down their comments about necropsies during a pilot study of a postal questionnaire on the subject. Their comments were analysed in detail on the following aspects: about how useful and necessary a procedure the necropsy is in medical practice and in education; their personal distaste for the procedure; whether attendance at a necropsy should remain a compulsory part of a medical education; staff attitudes; observance of relatives' wishes; and feelings about necropsies carried out on self or relatives.

The data collated from the questionnaire showed that, although students regard the necropsy as useful in clinical practice, a single demonstration does not clarify what its uses are. For some, the necropsy represents disrespect to its subject, and few students seemed aware of the use of the necropsy as an instrument of quality control.

It is concluded that the unpleasant aspects of a necropsy demonstration should be kept to a minimum to encourage attendance and promote a sense of its value, and that it might be useful to influence and modify students' opinions before they become entrenched, perhaps by giving a higher priority to training in discussing dying and death in the medical curricula.

The rate for hospital necropsies has been in decline for several decades¹⁻⁶ and is now at a very low level in many hospitals.^{3,4,7} The decline has continued despite repeated proof that necropsies often reveal diagnoses which were not made before death, including diagnoses of treatable conditions,⁸⁻¹⁸ and that necropsies can have an important role in clinical audit.^{15,19-22} Indeed, any attempt to carry out audit on the management of potentially fatal disease without the necropsy is a sham.^{23,24}

There are many factors governing this decline, including bureaucratic, financial, and other practical considerations such as workloads,^{25,26} which do not often take the prime importance of maintaining high standards of patient care into account. In addition, unfavourable attitudes held by some clinicians and some pathologists may be important,^{4,25} and these have been studied.^{5,27-30} In contrast,

only cursory attention has been paid to the views of medical students, and how we might attempt to modify them.

I have recorded and analysed comments about necropsies made by second and third year medical students. Some of these comments were predictable, but many were not. Morbid anatomists who demonstrate necropsies to students, and who wish to convince them of the value of the procedure, may find these comments interesting.

Methods

Medical students at the University of Manchester are instructed in systemic pathology during the third MB ChB course which, for most, takes place in their third year at university. Certain exercises are written up in a "workbook" during the year, and count towards the third MB ChB examination. These include a detailed description of a necropsy which the student has attended, either alone or as part of a very small group. These observations are supplemented by a clinicopathological correlation, a description of the histology which is shown at a later date by the pathologist, and a commentary on whether and how histological assessment clarifies the original, naked eye diagnoses. Students may also attend necropsies on patients whom they have clerked during life, but only a few are able to attend organ demonstrations. In practice most students see only the necropsy that they write up in their workbooks.

All the students who completed the second and third MB ChB courses in 1989 were sent a questionnaire during the subsequent summer vacation, with a single reminder being sent to non-responders. This was a pilot study to which responses were made anonymously, and it consisted of eight questions about personal details, nine about personal experiences of necropsies, and 52 about necropsies in general. In addition to these items, to which responses were recorded in a structured manner, the last page was left blank, apart from the invitation: "On this last page, you are welcome to express your personal opinion about any aspect of the autopsy." It is the responses to this invitation that are presented here.

Results

Questionnaires were circulated to 189 post second MB students and 253 post third MB students. Eventually, 146 and 212 were returned by the respective cohorts, of which 42 and 91 included comments on the last page.

Division of
Histopathology,
Department of
Pathological Sciences,
University of
Manchester, Oxford
Road, Manchester
M13 9PT
E W Benbow

Correspondence to:
Dr E W Benbow

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The comments were very wide ranging: they are summarised in the table and discussed in greater detail below.

A USEFUL AND NECESSARY PROCEDURE IN MEDICAL PRACTICE

A considerable proportion of students stated that the necropsy is valuable, though those who discussed its clinical value tended to be more grudging in their praise than those who thought it of value in student education; oddly, only a few discussed both aspects. Most of the former qualified their comments and suggested a wide range of restrictions on necropsy practice. Some were less inhibited in their comments, describing the necropsy as "... a necessary and useful procedure in the investigation ... of the disease process ...," and as "... an invaluable part of the clinical process to ensure better care in the future." Several emphasised the importance in patient care, describing it as "... useful for clinicians ...," and as "definitely an important part of clinical practice." Although there were comments such as "... autopsy results are extremely valuable," "the autopsy is clearly an invaluable part of the clinical process to ensure better care in the future," and "I think autopsies ... frequently reveal findings unknown during the patient's life," there were only a few specific references to the role of clinical audit: "... autopsies are a useful source of knowledge in terms of cause of death, ability of clinicians, etc." Those who did imply that there are benefits in unselected necropsies generally emphasised other advantages: "... for epidemiology and pathological research ... resulting in benefit for other patients—ie the public (and you and me!)," and "... to monitor

altering trends in disease which may affect the population."

Many who thought that necropsies are clinically useful stated or implied that there should be restrictions on their use, with three students simply stating that too many necropsies are carried out (though not one of the three showed any knowledge of the actual necropsy rate). One student criticised as outdated the regulation that a doctor can only sign a Death Certificate if he or she has seen the patient within 14 days of death, suggesting that a criterion of six months would be more appropriate. There were other non-specific objections which might, for instance, be taken to oppose a function in audit: "I'm not sure that it is justified for interest's sake ...," "... I find it distasteful for everyone who dies in hospital to have an autopsy ...," and "I see no gain in autopsies proceeding on the principle of an 'off chance' of finding interesting information." This theme is developed by students who take the view, shared with some qualified clinicians, that the necropsy has only one function, which is to determine the cause of death: "autopsies are OK as long as they are not a mere waste of time ie in the case where the cause of death is blatantly obvious," and "I think if the cause of death is known, then there is no point in carrying out an autopsy, just to prove what is already known or even strongly suspected." Fortunately, this view is not unanimous: "signs and symptoms of pathological process that did not lead to death should also be noted."

Some students quoted particular indications, and some particular contraindications. The former were generally predictable, and were mainly related to suspected crime and so on: "... probably the most useful reason for autopsy is for legal reasons/suspicious circumstances of death/poisoning/drowning/child death etc." The contraindications were more surprising, and included several objections to autopsies on the victims of road accidents, on the grounds that the cause of death was already known. Similarly, deaths in the elderly were thought by several students to be predictable and therefore not worthy of further investigation. One student illustrates both viewpoints: "... I still have strong religious views against what may be termed unnecessary autopsies, eg road traffic accident victims, elderly people with vascular disease history who had chest pain etc" This same student, from the junior cohort, goes on to state that, "autopsies should really be limited to suspected serious crime only and all other reasons—except when requested by relatives who don't have religious objections—should not lead to autopsy." A senior student observed a necropsy on an elderly woman with a fractured femur and bronchopneumonia, and "felt that there was no real need or reason why time and money, let alone the unpleasant mutilation should be done on this elderly woman", an attitude clearly fostered by the fact that he "had no idea why our (elderly) lady was having one done."

An item in the structured questionnaire cued comments about competition from other diag-

Breakdown of students' comments

1	<i>A useful and necessary procedure in medical practice</i>	
	(a) without qualification	19
	(b) but not justified as a routine procedure	9
	(c) but with only limited indications	15
	(d) but the total number performed should be reduced	3
	(e) but with particular contraindications	7
2	<i>A useful and necessary procedure in medical education</i>	
	(a) personally interesting experience	14
	(b) important for students' general experience	9
	(c) useful teaching experience	19
	(d) should be extended to pre-clinical students	3
3	<i>Personal distaste</i>	
	(a) present	35
	(b) absent	2
	(c) sympathy for others' distaste	4
4	<i>Student attendance</i>	
	(a) compulsory	6
	Yes	6
	No	6
	(b) voluntary	6
	no wish to see more	4
	wish to see more	4
5	<i>Staff attitudes</i>	
	(a) favourable comments	7
	(b) unfavourable comments	9
	(c) clinicians should be more involved	6
	(d) respect for the deceased	1
	present	11
	absent	5
	(e) inappropriate removal of tissues	5
6	<i>Adherence to relatives' wishes</i>	
	(a) must comply with religious objections	12
	(b) must comply with all objections	9
7	<i>Necropsy on self or relatives</i>	
	(a) accepted	4
	(b) rejected	8

nostic disciplines, and included views reflecting those of qualified clinicians that the value of the necropsy would become, "... less and less with today's imaging techniques to the investigation of disease processes," and "I hope that future developments in 'in vivo,' imaging techniques will diminish the need for autopsies in future. A target of no necessary autopsies in 30 years' time (for instance) should be held in mind because of the barbaric nature of the procedure".

A USEFUL AND NECESSARY PROCEDURE IN MEDICAL EDUCATION

Most of the comments under this heading were, not surprisingly, those of the senior cohort, though some of the junior group expressed a readiness to be involved because they believed that they would learn from the necropsy. There was a sharp contrast between some post second MB students who complained that they should not have been expected to comment on the value of a procedure that they had no experience of (they were, in fact, sent the questionnaire as a control group), and others from the same class who extrapolated from their experiences of practical classes in anatomy.

Both the procedure itself and the findings had been of interest: "I found both post mortems interesting . . .", "... a very useful form of teaching", "... very informative and a necessary part of my training," and "... the one autopsy I attended turned up particularly interesting results." Some of the compliments were rather more ambiguous: "... one of the more interesting parts of the pathology course," and "... learned more histology from Dr . . . than I did in the 3 years of lectures."

Several students commented that attendance at necropsy may have fundamental psychological benefits, "... aiding students to come to terms with the death of a patient," and "attending one or more autopsies is good for medical students in that it is one way in which we can come to terms with mortality." One student offered a contrary view, implying that necropsies are bad for students' attitudes towards patients: "the PM exercise is one more step along the path of losing your natural feelings as a doctor". Others emphasised more direct educational benefits, and had found the experience, "... very interesting as I could apply the pathological knowledge I was learning," and "... an important adjunct to clinical teaching."

Rather fewer discussed more distant educational goals, and some saw rather surprising practical benefits, both for themselves and for those colleagues who are clearly seen as unduly squeamish: "during my career as a doctor I will at some time be confronted by, for example, a seriously injured crash victim needing treatment . . . having been shown autopsies . . . may help me overcome the initial fear more quickly," and "... if people can't handle death . . . then they're in the wrong game and they'd be a fat lot of use . . . when they should be scraping someone off the M63." More conventional distant goals were also detected:

"... because later in our careers we will probably have to explain to reassure relatives," "it's good to get an idea of what your colleagues do," and "it is a very good opportunity to see one side of the pathologist's work, if considering pathology as a career."

PERSONAL DISTASTE

Predictably, many found necropsies unpleasant, though the comments range from the flippant to the distressed. Two denied any distaste: "I myself do not feel any revulsion or squeamishness" (about the necropsy), and "... am not at all bothered by dealing with a recently dead body." A few limited their comments to sympathy for others who had found the process distasteful: "I wouldn't blame anybody who didn't want to be involved," "... some people find them unpleasant," and "I think that people (ie medical students) who find it difficult to accept should not be dismissed as being silly . . ."

Some of the more light hearted comments may have been triggered by bravado: "... I can't say I felt like throwing a party after seeing my autopsies," "the only problem is the smell, . . ." and "... and I would rather be doing something different on a sunny Sunday afternoon . . ." Such comments must not distract from the fact that other students are genuinely distressed: "I was fine during the one I saw but must admit to vomiting afterwards," "I didn't enjoy the autopsy, and emotionally found it hard," "... attending a PM is the worst thing I have done" and "... overtaken with pain, grief, palpitations and burst into tears at the sheer sight and thought. Clearly in such a condition, I was no way going to be persuaded that the autopsy was a useful and constructive exercise." The author of the last comment was unable to stay in the necropsy room, and was later criticised by her colleagues for being "narrow-minded, stupid, and girly."

Several students commented that acquaintance with the patient before death significantly exacerbated distress: "I would personally find it very distasteful and unpleasant to be present at the necropsy of anyone I had known as a person," and "one aspect of our clinical teaching I did object to was being taken to see the PM of a patient we had seen alive only a couple of days before, without any warning . . ." Some objections were limited to minor details of necropsy practice: "do you have to keep the hot water hose running all the time?!"

Most students, however, were able to accept the unpleasant aspects as part of the price which must be paid: "I find the sight of dead bodies somewhat disturbing but I have no doubt of the use . . ." There were several calls for better preparation: "the pathologist didn't really appreciate that it was our first time (and) carried on without really explaining to us how unpleasant it was going to be for us," and "it would have been easier to deal with if we had been given some warning before hand, and had a chance to discuss aspects of our views, and then given an idea of what to expect. It would be interesting to discuss some of the ethical aspects of the autopsy, etc in our course."

A few items in the structured questionnaire cued comments on pathologists' tolerance of their work: "I do not believe that a pathologist can become immune to an autopsy's smell or sights," "... all the pathologists I know ... have taken a great deal of time to come to terms with this side of their work."

STUDENT ATTENDANCE

Because the necropsy write-ups contribute marks to a professional examination, attendance in the necropsy room is regarded as compulsory. It is clear that there has been extensive discussion among the students about this, but comments on the questionnaire were equally divided on the issue. The views of the pro-necropsy lobby were particularly uncompromising: "one autopsy is a reasonable quota for ALL students to attend as a compulsory part of the course," "... everyone should see one ...," "... imperative that medical students should attend at least one autopsy because later in our careers we will probably have to explain to/reassure relatives ...," and "I'm fed up with people whingeing about autopsies—and their rights not to do them."

Those who felt that attendance should not be compulsory also had strong feelings: "... observe people's wishes and don't force anyone to attend/perform an autopsy ...," "... I do feel that a choice should be given to students," and "it should not be compulsory. As a substitute, a few more pots and pans could do no harm." Some commented on the degree of involvement: "... I do not think that people should have to assist with the actual procedure unless they specifically want to."

A few students, including some who had found their workbook necropsy useful, stated that they did not want to attend any more. Others were enthusiastic: "... instead of a day, making it a week to see a wide selection of autopsies," and "I will attend more autopsies." The most balanced attitude put forward was that, "... further autopsies should be encouraged and easy to attend but totally optional." Individual or small group teaching was liked: "the fewer people present at the autopsy the easier it is to get involved and ask questions."

A small number of second MB students had already attended necropsies on their own initiative, and clearly found it of benefit: "... and found it quite useful for anatomy purposes." Others clearly wished that they had taken such opportunities: "... it would be valuable if all pre-clinical students were given the opportunity to attend an autopsy," and "I think it was about time I was present at one." Some junior students were perceptive enough to anticipate some of the major benefits: "I do think that it is important for us all to attend at least one autopsy since if we ever had to make the decision to send a body for one, we would have some idea what is involved." One or two students expressed apprehension at the prospect, despite anticipating personal benefit: "although I do believe it a worthwhile thing to do I do not personally relish the thought of participating."

STAFF ATTITUDES

A remarkable range of views was expressed, with considerable praise for pathologists, their attitudes, and their skills: "the pathologist ... was extremely pleasant and very helpful. He talked me through everything he was doing, and explained everything in great detail," and the necropsy was "... carried out professionally (and was) well presented and explained"; "Dr ...'s attitude to the autopsy seemed appropriately neutral"; another demonstration was said to have been "... very well carried out with the correct balance of professional attitude and human regard." Criticisms of pathologists were relatively mild, and a cheerful demeanour was criticised as an "... attitude somewhat distasteful and inappropriate." A "professional autopsy" was marred for one student because "... the pathologist ... continued singing songs and cracking jokes. He obviously enjoyed his work."

There was also praise for morticians: "... support staff were excellent in their help and attitude." Another student who attended the same mortuary found, however, that, "the mortuary staff are incredibly miserable." There seems to have been friction between mortuary technicians and students: "... one of the technical staff took it upon himself to be unnecessarily unpleasant. It would serve no purpose to elaborate." Morticians find students an additional burden, and some "were not keen to show us, although once we were there, we were well taught." There are obviously difficulties in interpreting some comments: what might be regarded as a professional act by one student might be seen entirely differently by another: "the technicians treated the evisceration of a human being with the same feeling and tact as if gutting a fish ... the organs were removed in a way that was intended to shock ...". One student fell foul of the department's secretaries while attempting to obtain a copy of the pathologist's report to supplement his own observations: "... the secretarial staff ... I found to be rude and as difficult as they could manage."

One student was impressed "that the consultant and SHO of the team caring for the patient ... both took the time to attend ...," and another had resolved to continue such exemplary practices: "I want to give my patients the best care ... even if it means following up their cases in the post mortem room." One student noted that attendance might not always be possible, but that even if the clinician fails to attend at the mortuary, "it is important that she pays attention to the PM report as it is a useful learning device." It was disappointing to note, however, that necropsies are thought to lose their value as clinical staff become more experienced: "... when we qualify, we should attend the autopsy of the patient that was under our care ... but only during our junior years ...". McGoogan and Cameron found a similar attitude among consultants.²⁷ A particularly perceptive student noted that, "... autopsies are useful to attend but by the same score the pathologist should remain in touch with the situation on the ward ...".

It was disturbing to note that a considerable number of the respondents felt that inadequate respect had been shown to the dead. This is a problem shared with the pre-clinical course: "I was disturbed by the way some of the anatomy demonstrators treated the cadavers with so little respect (absent mindedness flicking bits of fat around, wiping grease into their hair, licking dirty fingers, etc) and generally being rather too flippant," but hospital mortuary practices seem equally at fault. Autopsies are carried out "... without dignity or respect for the dead person," and "... in the autopsy I attended, there seemed to be a lack of respect ... it was carried out at great speed, viscera were thrown about and the organs stuffed in a bag ...". There is again a problem of perception: this last description might have fulfilled another respondent's requirement that, "the autopsy should be carried out as quickly and efficiently as possible." Pathology staff are, of course, not the only group deserving of criticism: "students should ... show more respect than at present." Although a lack of respect was frequently criticised, there were hardly any definitions of what would represent adequate respect, though one junior student noted, "that unnecessary chat or remarks eg humour, should not occur, even though I understand this does infringe on the pathologist's ability to relax or enjoy his work."

There were also surprising comments about the removal of tissue, and one student believed that he had witnessed the illegal removal of fresh tissue by a research registrar from another department. Many were clearly unaware that the standard hospital necropsy consent forms include permission to retain material for research or for teaching purposes: "I don't think organs should be retained without the permission of relatives," and "in respect to removing organs for research at autopsy, FULL consent should be obtained from the patient before death or from relatives after death." Others express an unexpected viewpoint, whereby retention of any material, with or without permission, was deemed inappropriate, requiring that, "... all the body be buried." Another expects that, "the highest respect is shown. This includes burying/cremating ALL of the body together." It is, of course, realised that relatives may not have the significance of consent forms adequately explained by clinicians: "... I wonder how many relatives realise that their loved ones are buried/cremated without the organs, such as the brain, being replaced? I suspect few if any are told." Other aspects of obtaining consent were also criticised, and rightly so, if the students' accounts are correct interpretations of what they observed. For example, a "patient's family had refused permission for a post mortem to be carried out, but ... her consultant had then rung the coroner so the coroner would request one," and "the clinician involved asked the relatives if he could do an autopsy because of his research interest in ... disease. They refused; the clinician rang the coroner and said he was unsure of the cause of death (untrue) and the autopsy was performed. This was surely unacceptable ..."

OBSERVANCE OF RELATIVES' WISHES

A total of 21 students emphasised their belief that relatives' objections to necropsies should be respected, nine specifying compliance with religious objections. Only a few elaborated on their views: "... people's wishes must be adhered to whether or not one agrees ...," "religious views should be strongly sympathised with ...," "... other people's religious views should be strictly respected," and "... the views and wishes of relatives involved should be respected absolutely and adhered to 100%."

Some indirect understanding of forensic requirements was shown by a student who thought that, "religious views should be strongly sympathised with and wherever possible heeded to—even if that requires laxation of the law." Another realised that coroners can overrule relatives' objections, and thought that there were also some non-forensic circumstances where such objections might be ignored for the greater good of the general public, such as "cases where public health is being endangered, say, if confirmation of a clinical diagnosis of an infectious disease is being sought." Apart from these, no one directly discussed the possibility that medicolegal necropsies may have to proceed despite objections from the family.

Only one showed any awareness of the problems associated with necropsies in a multiethnic society: "would it be possible to have procedures explained by doctors (and priests) of similar religious background." No student discussed views pertaining to any particular religion, even though several items in the questionnaire might have cued such comments.

There was considerable understanding of, and sympathy with, the views of relatives: "it can obviously affect people to know that a close relative's body is being totally dissected even though they are dead anyway," "... it may be disturbing to the family to think of a relative cut up for no good reason," and "it can only make things worse for the family, when the death was violent, for example, and then further mutilation is carried out at autopsy." Another commented on the need to help relatives "... to come to terms with what so many times be seen as the mutilation of their loved one by a group of mad scientists."

NECROPSY ON SELF OR RELATIVES

Four students described necropsies carried out on their own relatives, three of which had been recent. The fourth gave an account of necropsies carried out on several family members that had taken place at various times in the remote past, emphasising that each had been justified and potentially useful. Another student made a series of very positive general comments, ending with a statement that his comments "may have been coloured by the fact that I had to authorise an autopsy on my father last year." The other two students had strong negative views. One complained that his grandfather had been subjected to a coroner's necropsy, despite the family's objections, because there had been a suspicion of industrial lung disease;

he was particularly "distressed and angry" that the necropsy had proceeded despite the family's assurances that they did not intend to make any claim for compensation. Another's personal experience was even more immediate: "within the past month my mother died very suddenly. The prospect of a necropsy being performed on my mother was a source of much grief to me." She went on to relate that she was especially distressed because she knew that her mother's brain tissue would not be replaced in the cranium, but within the thoraco-abdominal cavity.

Several students, even those willing to request necropsies on their patients, rejected it on members of their own families: "I would not wish any close relative to have an autopsy," ". . . and I would never be able to allow autopsy of a relative knowing how it is carried out—ie without dignity or respect for the dead person," ". . . I would be unwilling for a relative of mine to undergo one," and ". . . I would not want one performed on a close relative unless there were clear medical grounds that it would shed light on the death." Another student "would not want any of my associates to examine the body of any relative of mine." A student who complained that he had seen a necropsy "carried out at great speed" found it, "upsetting to think that one day one might be treated in just the same way."

Others were more sanguine and even flip-pant about the prospect: ". . . nor would I mind an autopsy being performed on me or a member of my family as I (and they) believe that the body is simply that—a body"; another ". . . would happily leave my body in the hands of necrophiliacs if I knew any."

Discussion

When structured questionnaires are set it is usual to provide an opportunity for respondents to make free-hand comments. This is especially useful when the topic is controversial or emotive, and the opportunity to express personal opinions is said to improve return rates.³¹ Responses may reveal facets not previously considered by the investigators, and they may even suggest avenues for future research. Although the unstructured responses can only be subjected to very limited quantitative analysis, and despite the fact that they are to some degree cued by the content of the structured items, they are important clues to those aspects which the respondents thought important.

The data show that, although students are ready to regard the necropsy as useful in clinical practice, a single demonstration does not clarify what its uses are. The students' ignorance is not, however, merely a reflection of their lack of experience, for many of their ideas reflect those of qualified clinicians,^{4,27} so it might be useful to influence and modify students' opinions before they become firmly entrenched prejudices. Other views are more closely akin to those of the layman,²⁶ and one might expect these to change with experience and maturity; obviously, some aspects will be

more amenable to change than others. It is clear from the comments quoted by McGoogan and Cameron that age and experience do not wither the revulsion that some feel in the necropsy room,²⁷ and it is likely that this revulsion colours some people's view of the necropsy in general. Certainly, the most vehement critics of the use of the necropsy were also those who complained most bitterly about how disgusting they found it. It is inconceivable that this revulsion can be countered in a single visit, so it is important that the unpleasant aspects of the necropsy demonstration should be kept to a minimum by maintaining a proper professional attitude throughout. In this context, it is distressing that so many students felt it important to comment that the necropsy represents disrespect to its subject. Unfortunately, none of the respondents explained how they felt the procedure might be modified to afford proper respect. It might be useful to investigate this fact further, for medical students occupy a uniquely privileged position between the layman and the qualified professional which might afford the latter some important insights into the views of the former. Such insights might even be useful in making necropsies more acceptable to the general public.

The belief that nothing is gained by examining the bodies of road traffic accident victims is consistent with the idea, held by many clinicians, that the necropsy has no function other than to reveal the cause of death.²⁰ Similarly, the belief that necropsies on the elderly are unnecessary reflects the precipitate decline in necropsy rates that occurs with increasing age^{2,32,33}; qualified clinicians retain similar views, despite the well known difficulties of accurate clinical diagnosis in the elderly,^{34,35} and despite the fact that necropsy studies of elderly populations have indicated numerous treatable diseases and avoidable deaths.^{36,37} Furthermore, despite the current high profile of medical audit, there were very few comments to suggest that students were aware of the necropsy as an instrument of quality control.

All of these defects could be easily remedied: for instance, important forensic and social aspects could be illustrated by discussion of Christian's data on the interaction of natural disease and accidents,³⁸ perhaps supplemented by a carefully managed clinicopathological conference. Early clinical experience of the particular diagnostic difficulties associated with the elderly might be supplemented by data from studies such as those of Puxty *et al*³⁷ and Middleton *et al*,³⁹ and the potential value of the necropsy in audit can be illustrated by comparing the discrepancy rates from the wide array of published studies.⁵⁻¹⁸ The latter point might be usefully supported by studies showing that the discrepancy ratio has not improved with time, even with modern diagnostic techniques,^{13,16} and that errors are still being made similar to those described by Cabot in 1912.⁴⁰ Unrealistic expectations are also counterproductive, and the published data also contain quotable examples which illustrate the limitations of the necropsy.⁴¹

Data from the structured part of the questionnaire (manuscript in preparation) suggest that the pathologists were able to make both the procedure and the implications of their findings understandable, but we might take care not to give offence by, for instance, singing or by being excessively cheerful. It is easy to forget that many of our students have still to come to terms with dying and death, and that this might influence their perception of necropsies. The structured questions indicate that the morticians were generally well regarded, but it is clear that a few students rapidly developed a hostile relationship. Casual discussions with the morticians suggest that some students were partly at fault: in particular, individual students who complained to the morticians about aspects beyond the morticians' control, such as clashes with other classes and so on, were resented. Students should have preparatory information about how and why necropsies are carried out, the organisation of mortuary services, and the role of mortuary technicians. Iversen quotes a consensus view that the importance of the necropsy should be introduced early within general pathology courses,⁴² whereas others suggest that it should be introduced early in systemic pathology courses. In turn, mortuary technicians should be made aware of the difficulties faced by medical students with overloaded timetables and conflicting demands on their time. Friction between the two groups could easily develop into long term resentment, and this should be avoided. In particular, it is important to ensure that mortuary technicians realise that they have an important role: some of ours have become skilful at dealing with unhappy students, and are adept at explaining—for example, the methods by which organs are removed. They should be encouraged to participate, and be allowed to feel that their role is rewarding. Similarly, friction with other pathology staff can only be counterproductive.

It is pleasing that the educative value of the necropsy was so clearly appreciated, and it is interesting that there was controversy among students about whether they should be compelled to attend necropsies. Pathologists may feel that an individual who has never seen a necropsy may be at a disadvantage when he or she has to seek permission from a family during his or her subsequent clinical practice. On the other hand, a few students are clearly distressed by the procedure, and to coerce them into attending might be counterproductive. At the very least, we should be careful to minimise the unpleasant aspects, and to counsel any student who is visibly distressed. It is clear that permission for necropsy often has to be sought by very junior and inexperienced doctors, and it is to be hoped that their undergraduate experience of necropsies should not inhibit them when they carry out this onerous task. Training in discussing dying and death needs to be given a higher priority in most medical curricula,⁴³ and obtaining consent for necropsy could be usefully incorporated into such teaching.

There is a prominent and laudable humanis-

tic ethos among today's medical students which is reflected in their general concern for the feelings of the families of the deceased. Such sympathy is recognised as one of the causes of the decline in the necropsy rate,²⁵ and students should be made aware that studies of family attitudes have shown these to be surprisingly favourable,^{26,44} and that families sometimes request necropsies.³ It is disappointing that several students should state that they would not give permission for necropsy on members of their families, but we should reserve our criticism until we have considered Robertson's criterion,⁴⁵ first presented in 1924 and recently revived by Anderson and Hill,²⁸—that we should be clear what we would do in the same situation.

Even though the potential value of the necropsy in undergraduate teaching is very large, its prominence has diminished in recent decades, and medical students in some schools may qualify without ever entering a mortuary.⁴ Indeed, the workbook exercises used in this department were instituted partly to correct this trend. Although student attendance in the necropsy room is primarily intended for teaching purposes, it is also an opportunity to impress its value on each individual. When students see so few, each one should make a positive and lasting impression.

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