# CHAPTER TEN

# The Role of Pathology in the Coroner Service

## Hospital and Coroners' Autopsies

10.1 I have already referred in Chapter Nine to the role of the autopsy as one of a number of investigative tools available to the coroner. The purpose of the coroner's autopsy is to identify the cause of death and, in particular, to determine, or assist in determining, whether the death was 'natural' or 'unnatural'. The coroner's autopsy takes place at the direction of the coroner; the consent of the deceased's family is not required. A hospital or 'consent' autopsy is conducted for clinical and/or research purposes. If consent was not given by the deceased in life, such an autopsy requires the consent of the family.

10.2 In the UK, the number of 'consent' autopsies on adults has declined markedly over the past 30 years, whereas the number of coroners' autopsies has remained relatively constant. In 2001, about 130,000 autopsies were conducted in England and Wales. Of these, 121,000 were coroners' autopsies. Coroners ordered autopsies in just over 60% of the 201,000 deaths reported to them. Over 20% of all registered deaths in England and Wales were followed by autopsy. That is more than twice the rate in both Northern Ireland and the Republic of Ireland, 10% more than in Scotland and more than many other jurisdictions.

## The Practitioners Who Conduct Autopsies

10.3 The Coroners Rules 1984 provide that post-mortem examinations should be made, wherever possible, by a pathologist with suitable qualifications and experience.

### Forensic Pathologists

10.4 Where there is a suspicion of homicide, the autopsy will be carried out by a pathologist listed on the Home Office Register of Forensic Pathologists. The police should be consulted about the choice of pathologist. There are very few (about 36 – reduced from 52 in 1992) forensic pathologists in England and Wales. Of these, almost 50% practise independently, often carrying out autopsies in public mortuaries that are not attached to any hospital or other institution. Such public mortuaries are owned and operated by local authorities. Other forensic pathologists have hospital and university appointments. In some districts (e.g. Sheffield), the coroner works alongside a university forensic pathology department and has the benefit of having forensic pathologists to carry out many of his/her 'routine' autopsies. Such arrangements are, however, the exception.

10.5 Forensic pathologists enter into individual service contracts with local police forces. They also provide services for coroners and others, including defendants in criminal cases. They have no management structure and the forensic pathologist service is fragmented. There are perceived problems of lack of training opportunities, uneven standards of practice, difficulties in managing heavy workloads and lack of opportunity for career development. These problems have recently been addressed by the Home Office Review of Forensic Pathology Services in England and Wales, which reported in March 2003.

I shall refer to the recommendations of that Review later in this Chapter. These problems, together with many other issues, were also discussed at one of the Inquiry's seminars, held on 23rd January 2003, as well as during the course of oral evidence.

### Consultant Histopathologists

10.6 In most districts, routine coroners' autopsies are carried out by histopathologists employed in local National Health Service (NHS) hospitals. Such histopathologists should be on the General Medical Council (GMC) specialist register. These practitioners spend most of their time performing histopathological work in connection with the care of living patients. Some histopathologists have a particular interest in conducting autopsies and acquire an expertise in the field. Others are unenthusiastic about the work and do it only because the hospital is a base for coronial autopsy and it is therefore expected of them. Pathologists receive a set fee (currently £78.60) for a routine coroner's autopsy; this is over and above the salary that they receive in connection with their NHS employment. The conduct of coroners' autopsies can be a significant source of additional income and this factor provides some incentive to do the work. GMC-registered trainees can perform coroners' autopsies under the supervision of a trained histopathologist, provided that the coroner agrees.

### Specialist Pathologists

10.7 Certain autopsies are carried out by specialists such as neuropathologists or paediatric histopathologists. However, skill shortages in these areas can make such autopsies difficult to arrange. Furthermore, the Inquiry was told that coroners do not always recognise the need for an autopsy to be carried out by a specialist. The Royal College of Pathologists (RCPath) is currently considering the possibility of developing a list of approved specialist pathologists and making this list available to coroners.

### Other Practitioners

10.8 Until relatively recently, coroners' autopsies were carried out on a reasonably frequent basis by doctors who were not accredited histopathologists. The Inquiry has been told that the number of medical practitioners without specific training in autopsy practice who perform autopsies has decreased. However, at the Inquiry's seminar on pathology, one participant mentioned that he was aware of general practitioners and a microbiologist who still carried out such examinations. Another participant said that he also was aware of general practitioners who currently carried out autopsies.

## Problems with Coroners' Autopsies

### The Number of Coroners' Autopsies Performed

10.9 The Inquiry has heard that there is a substantial body of opinion to the effect that too many coroners' autopsies are performed. At the pathology seminar, there was unanimous support for the suggestion that there should be fewer, better selected coroners' autopsies. Dr Anne Thorpe, who represented the British Medical Association (BMA) and is herself a

consultant in histopathology and cytopathology, said that many autopsies were carried out by reason of automatic triggers, such as the fact that the deceased had not been seen by a doctor during the 14 days before death. Such autopsies frequently added nothing to the knowledge about the deceased or the cause of death. There was a general feeling that too little importance was attached to the results of in-life investigations, which might provide a clear diagnosis of cause of death without the need for an invasive autopsy. Dr Roger Start, another consultant histopathologist, gave examples of autopsies which he and his colleagues had been required to carry out in cases where robust diagnoses had been made during life. There was general agreement that a decision as to whether or not an autopsy should be carried out should be made on a case-by-case basis, rather than by the application of inflexible rules.

**The Shortage of Pathologists**

10.10 Considerable concern was expressed about the shortage of both forensic pathologists and histopathologists. There are few university departments teaching forensic pathology. Fragmentation of the forensic pathology services means that there are few consultant posts or training opportunities. As a consequence, there is a lack of training and experience in the conduct of autopsies among those who have entered the medical profession more recently. A dramatic reduction in the number of hospital autopsies being carried out has had the effect of making it difficult for a trainee to gain experience in carrying out and observing dissection techniques. Some coroners are unwilling to allow trainees to carry out autopsies on their behalf, even with supervision from a consultant.

10.11 There are other factors that tend to deter histopathologists from carrying out coroners' autopsies. Some prefer to work with the living, rather than the dead. The need to attend to give evidence at inquests on a regular basis can be extremely disruptive of the pathologist's other duties. NHS managers tend to view coroners' autopsies as a distraction for staff employed to meet the clinical needs of live patients. Histopathologists may therefore receive no encouragement to perform coroner's autopsy work. In addition, the recent, much publicised controversies relating to the retention of organs and tissues have discouraged some practitioners from becoming involved in coroners' autopsies.

10.12 Professor James Underwood, President of the RCPath said at the pathology seminar that, before doctors embark upon their training, the interest in forensic pathology tends to be high. However, the lack of pathology in the undergraduate curriculum leads to a dissipation of that initial interest. The challenge is to nurture and develop it. The RCPath is working on the development of a modular training programme, which would enable pathologists to elect whether or not to undergo training in autopsies. This would ensure that only those with a real interest in performing autopsies underwent the necessary training. Equally, it would enable a pathologist to specialise in autopsies, either as their sole activity or alongside some diagnostic work connected with living patients. Dr Start pointed out that, as a consultant histopathologist, the only way in which he could carry out autopsies on a full-time basis under the current system would be to become a forensic pathologist, which he does not wish to do. He would welcome the introduction of the opportunity to specialise in the field of autopsy. Plans are also afoot to facilitate the transition from histopathology to paediatric histopathology, in order to alleviate the acute

shortage of practitioners within that specialist field. Both Professor Helen Whitwell, who heads the Forensic Pathology Department at the University of Sheffield, and Professor Underwood reported that the RCPath is currently considering how training in autopsy practice can be improved. The Inquiry has also heard about a national strategy to increase the number of trainees in pathology. Professor Whitwell believed that, if a unified autopsy service were created, medical professionals would be attracted to work in the field.

**The Inadequacy of the Information Available to Pathologists**

10.13 Concerns have been expressed by the RCPath and others about the adequacy and quality of information available to pathologists prior to a coroner's autopsy. Plainly, if the pathologist is to place his/her findings in context and properly interpret them, s/he must have full and accurate information about the deceased's medical history and the circumstances of the death.

10.14 At the pathology seminar, Dr Start observed that, while pathologists in his locality had no difficulty in obtaining the information they required, he was aware that the information received by some of his colleagues elsewhere was confined to that contained on police sudden death report forms and could be extremely limited. He was also aware that some coroners would not make medical records available to pathologists or allow communication between pathologists and clinicians involved in the deceased's care. He said that one of the fundamental problems of the current system was the variation in the practices of different coroners. Others also referred to the problems caused by lack of consistency in practice between coroners.

10.15 Professor Whitwell stressed the importance, particularly in a complex case, of discussion with the clinicians responsible for the deceased's care. The 2002 Report produced by the National Confidential Enquiry into Perioperative Deaths (NCEPOD) recorded how clinicians were frequently unaware of the date or time of an autopsy and were often unable to attend. One surgeon reported to the NCEPOD that the local coroner did not permit communication between a surgeon involved in the deceased's care and the pathologist carrying out the autopsy unless the surgeon had a specific question. Presumably, this policy is intended to ensure that the pathologist is in a position to provide a wholly independent opinion. At the seminars, however, Dr Start said that, if he were not permitted to contact those involved in the deceased's care in order to obtain the information he required, it would seriously diminish his ability to provide the best possible autopsy report. He is fortunate in that he can contact his clinical colleagues and access information about the patient on the hospital computer. Some coroners will not permit pathologists to do this when conducting autopsies on the coroner's behalf.

10.16 The RCPath has advised that a minimum amount of information should be presented to a pathologist who is instructed to carry out an autopsy following a death occurring in the community. This information should include the precise circumstances of the death, the medical history of the deceased and details of any prescribed medications and any recent hospital admissions. Such information is obviously critical to pathologists if they are to carry out their task properly.

### The Standard of Coroners' Autopsies

10.17 I have referred in Chapter Nine to the fact that coroners' autopsies are not always performed to a high standard. There is general concern that the coroner's autopsy is often of lower quality and less thorough than the hospital autopsy. This difference in quality has been attributed to a number of factors. I have already mentioned the fact that pathologists carrying out coroners' autopsies frequently do not have the background information that is necessary in order to put their examination into context. Often, they do not have the same opportunity to consult the medical records or discuss the case with clinicians that they would have if they were conducting a hospital autopsy. The fact that they are carrying out coroner's autopsy work in NHS time (or attempting to fit it in before the start of the working day) may mean that they are under pressure of time. The same pressure of time can arise if the pathologist has a long list of coroners' autopsies to undertake on a single day. Limitations (e.g. as to the histological examination to be carried out) may be imposed by the coroner, and the pathologist may be under pressure to find a cause of death without having conducted all the investigations that s/he would wish to conduct before giving a final opinion. There is no audit or means of quality assurance to ensure that coroners' autopsies are carried out to a suitable standard. The NHS has no such audit procedures since the autopsies are not carried out within the pathologist's NHS employment.

10.18 The RCPath has sought to address these problems by producing a document, 'Guidelines on autopsy practice', which was published in September 2002. A copy of the document has been sent to every coroner in England and Wales. Thus, it is hoped, coroners will at least be able to compare the service that they are currently receiving against the standards set out in the Guidelines. Also, the RCPath is developing minimum standards for autopsies relating to specific types of death. The standards are intended to alert pathologists as to how they should be doing their work. If a coroner refuses to allow the pathologist to include within his/her examination an element (e.g. the taking of a tissue sample for histology) that the pathologist regards as necessary in order to give a full and reliable opinion, the pathologist will be able to rely on the Guidelines in support of his/her request that permission be granted. If it is not, the pathologist may decline to conduct the autopsy.

10.19 Both Professor Underwood, for the RCPath, and Professor Margaret Brazier, Chair of the Retained Organs Commission, agreed with Dr Peter Goldblatt of the Office for National Statistics that the content of a properly conducted autopsy should be given the endorsement of the law, possibly by means of a code of practice with statutory force.

10.20 The RCPath is anxious to ensure that the standards to which coroners' autopsies are carried out should be the same as those applicable to hospital autopsies and that the benefits derived from both types of autopsy should be the same.

## The Future Delivery of Autopsy Services

10.21 The shortage of forensic pathologists, together with perceived problems with the organisation of the forensic pathology service, has led recently, as I have already explained, to a Home Office Review. From that Review emerged the suggestion that a

central body should be created to manage the service and to tackle the various problems confronting it. The Review concluded that, given the close involvement of the forensic pathology service with the criminal justice and coronial systems, both of which are currently administered in part by the Home Office, the responsibility for the management of the forensic pathology service should also lie with the Home Office. The other option which had been considered was to place the service within the jurisdiction of the Department of Health (DoH) by, for example, creating a new Special Health Authority.

10.22 The Review took the view that direct control of the forensic pathology service by a Government Department would be undesirable. Instead, it suggested that the service should be at arm's length from the Home Office. The solution eventually recommended was that the forensic pathology service should be integrated into the existing Forensic Science Service, which is an Executive Agency of the Home Office.

10.23 It was further recommended that specialist regional service delivery centres (centres of excellence) should be established, providing a base for forensic pathologists and suitable mortuary facilities, as well as facilities for histology processing and other purposes.

10.24 It was suggested at the Inquiry's pathology seminar (which took place before the Review reported) that there should be a unified service which would deliver the whole range of pathology services, including those required for routine coroners' autopsies. The service would employ, not just the relatively few forensic pathologists doing mainly cases with a criminal involvement, but also histopathologists performing autopsy work. Although the RCPath is not directly concerned with the organisation and management of pathology services, Professor Underwood, representing the College, supported the idea of a free-standing, independent service, with functions to include a duty to provide autopsy and other related services to the coroner.

10.25 At present, responsibility for pathology services is split between the Home Office and the DoH. The College's view was that this arrangement did not benefit either the public or the profession. Professor Underwood observed that the logical place for all autopsy services was within the DoH, possibly by way of a Special Health Authority. It would then be possible for an NHS consultant to spend most of his/her professional time working in hospital, dealing with disease in living patients, but to be contracted to carry out autopsy work for the new service on a sessional basis.

10.26 Under the working model set out in the Inquiry's Discussion Paper, the Inquiry envisaged that there would be regional coroner's offices, preferably situated at or near to the forensic pathology centres of excellence. There would also be a larger number of district coroner's offices. The district offices would be served by local histopathologists with a particular interest and expertise in autopsy. External examinations and autopsies would be carried out in the mortuaries of local hospitals. At the pathology seminar, Dr William Lawler, representing the British Association in Forensic Medicine, was supportive of such an arrangement. He envisaged that the regional forensic pathology centres would deal with the more complex cases, including many of those involving criminality. The centres would also play a part in training and could provide a career structure, as well as the specialised facilities already mentioned.

10.27 Professor Underwood, representing the RCPath, spoke of the importance of pathologists having the appropriate skills for the particular examination to be undertaken. For example, in a case where a deceased person had been in intensive care for some time prior to death, a knowledge of intensive care procedures and the changes in the living body which can result from those procedures was required. It was to be hoped that the provision of a unified service would enable a variety of such skills to be developed and to be made available at a regional, if not a district, level. Professor Whitwell referred to the need for specialists in maternal deaths, a need not always recognised by coroners. The requirement for a specialist to conduct autopsies in perinatal deaths is more widely recognised. Professor Whitwell also mentioned the need for facilities to carry out radiology, which, in her view, is under-used at present in post-mortem investigations.

10.28 At present, coroners' autopsies are conducted outside the NHS, although they are usually conducted by an NHS employee, in the mortuary of an NHS hospital, with the assistance of other staff employed by the NHS and often within the hours of the pathologist's NHS employment. However, because the autopsies are commissioned by coroners, the NHS has no control over how they are performed. There is no audit of coronial autopsy reports and no quality assurance. The autopsy report will usually be received by a coroner who has no medical expertise and is therefore not in a position to judge the adequacy or acceptability of its contents. Professor Whitwell expressed the view that it would be appropriate for the NHS to assume responsibility for a patient up to the point of disposal of the body, rather than, as at present, merely up to the point of death. If the new service were based within the health sector, this could be done. Placement within the health sector would also enable there to be proper quality control of autopsies. It would mean that issues such as communication with relatives about autopsies, organ and tissue donation and other relevant matters could be dealt with in a consistent manner, whether the autopsy was being undertaken by consent or at the direction of the coroner. This view was supported by Dr Stephen Leadbeatter (Director of the Wales Institute of Forensic Medicine), Dr Start and Professor Brazier. Professor Brazier said that the Retained Organs Commission would endorse the idea of a Special Health Authority providing pathology services independent from the NHS. She felt that such an arrangement would help to provide quality, as well as consistency, of service.

10.29 For the BMA, Dr Thorpe stressed the need for pathologists to be independent of the NHS. At present, autopsies in cases where there is a suggestion of wrongdoing on the part of the clinical team responsible for caring for the deceased are carried out on the instructions of the coroner. He or she can instruct the pathologist of his/her choice, with the experience which s/he deems necessary. If, for any reason, the pathologist is unwilling to carry out the autopsy (e.g. because s/he knows the deceased's family has complained about the deceased's care or s/he does not feel s/he possesses the right skills), the coroner will instruct another pathologist. There are fears within the profession that, if a system were to be created whereby a hospital trust contracted to provide pathology services for the coroner, there would be pressure on pathologists to carry out autopsies in circumstances where it would be inappropriate for them to do so. That problem would not arise if pathology services were provided by a free-standing, independent pathology service.

## The Purpose of the Autopsy

10.30 The purpose of the hospital autopsy is to increase medical knowledge, either in relation to the particular case or more generally. The autopsy may also reveal genetic features relevant to other members of the deceased's family. It may add to the family's understanding of the death and may help them come to terms with their loss. It can be used for the purposes of audit and research.

10.31 Over recent years, the number of hospital autopsies has declined markedly. There are a number of reasons for this. Professor Underwood, representing the RCPath, said that one reason was a misplaced confidence by clinicians in ante-mortem diagnoses of causes of death. Clinicians no longer regard autopsies as important and do not request them. In addition, following the recent controversies about the retention of organs and tissues, there is heightened suspicion on the part of the public about the purpose of autopsies and a reluctance on the part of doctors to ask for consent for an autopsy to be conducted. The procedures which have to be undertaken in order to obtain consent are, the Inquiry was told, in themselves a deterrent. Furthermore, the general pressure on the pathology services has made the performance of hospital autopsies less attractive. Nevertheless, there was a general view among participants at the pathology seminar that hospital autopsies had an important role to play in the understanding of disease and the audit of clinical care.

10.32 Hospital autopsies are generally carried out in the hospital where the deceased died. The pathologist has access to the latest information about the deceased's medical history. He or she has contact with the clinicians who were responsible for the deceased's care. The autopsy is carried out within the pathologist's employment with the NHS and the results are made available to clinicians.

10.33 In its 2002 Report, the NCEPOD drew a distinction between hospital and coroners' autopsies. It suggested that the coroner's autopsy had lost its link with clinical medicine. As a consequence, it was failing to provide lessons which clinicians needed to learn in order to understand the patient's death. It observed that clinicians were feeling more and more disillusioned and frustrated with the information obtained from coroners' autopsies, which may not help in the understanding of a patient's death. The problem, the Report observed, appeared to be that the information required by a coroner from an autopsy was quite different from that required by clinicians. The Report said that the current system put limits on the quality of information that a pathologist can contribute to his/her clinical colleagues and upon his/her ability to function within a team. The RCPath has also expressed concern that the potential benefits that could accrue to society from the large number of coroners' autopsies undertaken in England and Wales are not being realised. This has become particularly important at a time when the number of hospital autopsies being undertaken is declining and is now such a small proportion (about 10%) of the total number of autopsies being conducted.

10.34 Quite apart from the frequent lack of communication between pathologists and clinicians before coroners' autopsies are conducted, there is often a lack of communication after the autopsy. Autopsy reports are not always made available to the clinicians who treated the deceased. Thus, the potential for harnessing valuable information gleaned on autopsy is

lost. Sometimes, the reports of coroners' autopsies are in any event superficial, dealing only with the immediate cause of death diagnosed and containing little information of interest to the clinician.

10.35 Professor Whitwell gave the example of the elderly person who dies with dementia. If the cause of death was bronchopneumonia, most coroners will be satisfied with 'pneumonia due to dementia' as the cause of death. The type of dementia cannot be ascertained without detailed neuropathological examination of the brain. If the relatives knew that such an examination were possible or that it might be of benefit to them and to others, they might well be happy for such an examination to go ahead. But, with the coroner's autopsy, the relatives will not usually be informed of the possibility of such an examination and the opportunity will therefore be missed.

10.36 At the seminars, there was discussion about the aims and purposes of a coroner's autopsy. There was a general view among the pathologists that, once a decision had been taken to perform an autopsy, whether by consent or for the coroner, the autopsy should be carried out as thoroughly as possible. Professor Underwood, for the RCPath, observed that it is only by reliably ascertaining the cause of the death that a picture of the health of the nation can be developed and that changing patterns of disease incidence can be observed which, in turn, might lead to the discovery of new causes of disease. He said that the autopsy made a very important contribution to public health.

10.37 Professor Brazier, for the Retained Organs Commission, said that, in her experience, once a decision has been taken to perform an autopsy, most families wish the maximum amount of useful information possible to come out of it, both for their own benefit and for the benefit of others. She felt that the crucial factor was that the family should be given a full explanation of what was going to be done and why. She acknowledged that there would be a small minority of families for whom any form of autopsy is a violation of their personal faith or personal convictions and who would want the autopsy to be as narrowly focussed as possible.

10.38 In general, however, there was a strong feeling that all autopsies, whether carried out by consent or at the direction of the coroner, should be carried out with the same thoroughness and to the same high standard.

## External Examination

10.39 The RCPath Guidelines criticise the practice whereby a mortuary technician is permitted to remove and dissect organs before the pathologist has checked the identity of the deceased and carried out an examination of the external surfaces of the body. The effect of this practice may be to destroy signs that should be observed by the pathologist and thus to impair the value of the autopsy. In her evidence to the Inquiry, Professor Whitwell strongly supported the College's position on this issue.

10.40 At the seminars, the potential of an external examination of the body as a possible alternative to the full autopsy was discussed. Professor Whitwell was of the view that careful assessment of clinical records and death scene circumstances, coupled with a thorough external examination of the body, could potentially reduce the number of cases

in which an autopsy was required. These steps could be combined with random toxicology in some cases.

10.41 At the seminars, Dr Start referred to the difficulty, even for an experienced pathologist like himself, in distinguishing between external marks (e.g. bruising) which were, or might have been, caused by violence and those which were innocent in origin. The task was particularly difficult where a patient had been subjected to vigorous treatment by paramedics or staff in an accident and emergency department. Such treatment might give rise to marks on the body. Dr Start said that the tendency of pathologists at present is to overlook marks (e.g. bruising in an elderly patient living in a care home), because of ignorance of how properly to interpret the marks.

10.42 Dr Start observed that, if external examination were going to be performed by health professionals other than pathologists, or by persons other than health professionals, a significant amount of training would be needed. Professor Whitwell said that, for some time, there had been a lack of training among doctors in basic forensic medicine, such as bruise and wound interpretation. Professor Underwood, for the RCPath, agreed. He said that, if doctors were to be required to undertake detailed external examinations of bodies, the GMC would have to ensure that proper training was in place.

10.43 Dr Lawler, for the British Association in Forensic Medicine, envisaged a two-stage process whereby the initial screener, who need not be medically qualified but must be carefully trained, would carry out an external examination according to a protocol. If anything untoward was observed, that person would raise the alert and a further examination by a medically qualified person (probably a pathologist) would follow. That sort of arrangement exists informally at present. Dr Lawler said that he knew of homicide cases where enquiries into the death had been initiated as a result of information given by mortuary technicians who had identified suspicious features on bodies received at the mortuary.

10.44 Both Professor Underwood and Dr Lawler raised a note of caution as to the likely accuracy of diagnoses of causes of death based on external examination of the body. Dr Lawler observed that it would inevitably result in less accurate determinations of the cause of death than if a full autopsy had been carried out. Research into the efficacy of external examination by trained personnel as a way of diagnosing cause of death would have to be undertaken.

## The Partial Autopsy

10.45 There was discussion at the pathology seminar about the value of partial autopsies, limited to only a part, or certain parts, of the body. This idea had been canvassed in evidence and had received little support from witnesses or from respondents to the Discussion Paper. Two possible circumstances in which a partial autopsy might be appropriate were suggested. First, where an unequivocal cause of death (e.g. a ruptured aortic aneurysm) was found at an early stage of the investigation and the deceased's family were known to be opposed to the principle of an autopsy. Second, where there was a risk of infection (e.g. from brain tissue) and a cause of death was found before the brain was examined. In

evidence, Dr Martin Gillett, a consultant histopathologist who frequently carries out coroners' autopsies, said that there were occasions when he received a message from the coroner to the effect that, if he found a cause of death that did not involve opening the skull, he was not to proceed to open the skull, as the relatives had asked that this should not be done.

10.46 For the RCPath, Professor Underwood said that he could see a role for the partial autopsy in the context of a hospital autopsy, where the purpose of the autopsy might be to answer a specific question about the nature of the disease. He did not think that a partial autopsy in a coroner's case would be appropriate. In its Guidelines, the College had stated its view that any autopsy carried out should be as full, and of as high a quality, as possible and should address all questions relating to the death. Professor Brazier, on behalf of the Retained Organs Commission, took the view that, in the majority of cases, it was the initial intrusion upon the body that gave rise to the distress felt by families. Once the process had begun, provided that the family were properly informed about what was to happen, they would usually accept a full examination, particularly since that might result in findings (e.g. about genetic disease) which would benefit other family members. Also, she felt that, if the family had been led to expect a limited examination only, and the expected cause of death was not found, there might have to be further discussions about extending the examination, which would be more distressing than if a full examination had taken place in the first instance. Other participants, all of them pathologists, were doubtful about the value of partial autopsies and were concerned about the potentially valuable information which would be lost by limiting the extent of the examination. Dr Start pointed out that the standards set by the RCPath were intended to be applicable to all autopsies. A suggestion that some autopsies might be partial would introduce a 'grey area' and might expose the pathologist to criticism if s/he did not comply in full with the standards.

10.47 During the course of discussion at the pathology seminar, I pointed out that, where an autopsy was being imposed upon a family against their wishes, or those previously voiced by the deceased, it was difficult to see how an examination going further than was necessary to establish the cause of the death could be justified. I suggested that, in such a case, it would be a matter for the coroner to agree with the family limitations on the extent of the autopsy and to give appropriate guidance to the pathologist. In response, Professor Brazier voiced her belief that, if families had clear explanations, only a few would seek restrictions. She agreed that there was a place for compromise but observed that it would be extremely difficult to negotiate such a compromise, bearing in mind that the position could change once the examination started. She also stressed the need for absolute clarity of the pathologist's position.

## The Use of Non-Invasive Techniques

10.48 In recent years, there has been increased interest in various non-invasive or minimally invasive post-mortem investigations such as magnetic resonance (MR) scanning, thoracoscopy, laparoscopy, radiology and needle biopsy with histology, as alternatives to the full invasive autopsy. Such techniques have particular attractions for those minority groups who hold strong religious and cultural objections to the invasive autopsy. In Manchester, for example, the use of MR scanning has been pioneered by Dr Rob Bisset,

a consultant radiologist at the North Manchester General Hospital. The Jewish community has paid for scans to be carried out on its members where an invasive autopsy would otherwise have been necessary and, where Dr Bisset has been able to identify a cause of death from the scan, the coroner has certified that cause of death.

10.49 Dr Bisset told the Inquiry that MR scanning gives excellent results in some areas of the body. However, he acknowledged that it has limitations. It cannot detect metabolic disease, nor can it at present define the coronary arteries. With more powerful resolution in the future, the latter should be possible. Dr Bisset has carried out MR scanning in a relatively small number of cases. He observed that scanning had produced a cause of death in the majority of those cases without recourse to an invasive autopsy. Others have pointed out that there has been little research as yet as to the quality of the correlation between the causes of death reached as a result of MR scanning and those which would have been diagnosed on invasive autopsy.

10.50 Dr Bisset said that there is a shortage of MR scanners in the UK. The one which he uses is privately owned and is therefore available for use upon payment. Dr Bisset also pointed out that there is an even greater shortage of radiologists. He observed that, as things are at present, the pressure on the use of MR scanners for live patients is so great that use of scanning for post-mortem investigations on a large scale is unlikely to be acceptable to the public other than in relation to neonatal deaths. In a letter to the Inquiry, the Royal College of Radiologists referred to the need for further research to identify more clearly the limitations of MR scanning in ascertaining the cause of death. The College supports such research, but has serious concerns about the general introduction of MR scanning post-mortem. Its letter referred to the shortage of scanners, radiologists and radiographers and pointed out that waiting lists for living patients are very long.

10.51 Dr Ian Barnes, a pathology modernisation adviser to the DoH, referred to a study which had recently been commissioned by the Department. This had concluded that the research evidence as to the effectiveness of non-invasive techniques of post-mortem examination was at present limited. The Department was currently seeking funding to conduct more detailed research. There was considerable support at the seminars for further exploration of the potential of non-invasive techniques to provide an alternative to autopsy, at least in some cases. Professor Underwood said that the RCPath would welcome a well-funded research study. There was a need to research and audit the accuracy of the techniques. However, Professor Brazier emphasised that, even if other techniques came into regular use, it was important that families should be made aware of the limitations of those techniques and of the fact that invasive autopsy may ultimately be necessary in their particular case.

## Histopathology

10.52 In its 2002 Guidelines, the RCPath stated that:

> **'Diagnostic or confirmatory histopathology should be done in all cases, subject to the requirements of the Human Tissue Act 1961 and the instructions of the Coroner.'**

10.53 As I have already mentioned, coroners' attitudes to the taking and retaining of samples for histology vary widely, particularly since the recent controversies about organ and tissue retention. Pathologists are sometimes prevented by coroners from taking tissue samples which the pathologist believes are necessary in order to establish or confirm the cause of death. The only course open to the pathologist in those circumstances is to decline to state a cause of death before histology has been done. Often, however, the pathologist might be able to state a provisional cause, in which case some coroners would not permit histology. Funding for histology can also be a problem. In the past, hospitals were prepared to carry out basic histology without charge. This is less common today. The Inquiry heard of one coroner who will pay for histology only in a case where an industrial disease is believed to have caused the death. If a pathologist in that area feels that histology is necessary in a non-industrial disease case, s/he takes it, but neither s/he nor the hospital receives any payment for it. If a great deal of histological investigation is required in a non-industrial disease case, the coroner will sometimes agree to pay on a 'one-off' basis.

10.54 At the pathology seminar, Professor Underwood, for the RCPath, emphasised the fact that an organ or tissue which looks normal to the naked eye at autopsy may well be found to be abnormal if examined microscopically. He also referred to the College's view (shared by the BMA) that tissue blocks and slides which have been subjected to histological examination should be retained as part of the deceased's medical records. Examples of cases in which this is of value are deaths stated to be caused by Sudden Infant Death Syndrome where the occurrence of a second similar death in the family, or the advance of medical science, might make it necessary for the death to be re-appraised. It is also sometimes desirable in criminal cases. In the case of a coroner's autopsy, organs and tissues may be retained only for such period as the coroner thinks fit. Sometimes, coroners refuse to allow material to be retained in circumstances where the pathologist believes it is necessary. Obviously, there is a need for consistency of practice in those cases where there is a real medical need for retention.

10.55 Professor Brazier explained that the Retained Organs Commission was recommending the creation of an authority to regulate collections of organs and tissues taken for non-coronial purposes. She agreed that, in the future, coroners might have to adjudicate on the retention of material taken during coroners' autopsies but stressed that they would have to be clear as to the purposes for which the material was being retained.

10.56 Dr Start referred to the uncertainty on the part of pathologists as to what they can and cannot do in terms of histology. He stressed the need to validate the observations made with the naked eye and to discover whether the pathologist's belief about the disease processes present was correct. He regarded this as vital to maintaining the quality of autopsies. On occasions, the finding on histology can produce surprises that wholly change the pathologist's view of the case. Moreover, the present system, whereby different coroners operate different rules about the taking of histology, would prevent the effective policing of the quality of all autopsies in accordance with the RCPath's new Guidelines.

10.57 Dr Start observed that the establishment of a unified autopsy service, especially with in-house histopathology, would mean that the histological element of the autopsy was

accorded a greater priority than at present when, in a busy histopathology department, histology associated with coroners' autopsies comes at the bottom of the pile. Delay in informing relatives of the cause of death causes distress and diminishes the value of the examination. Sufficient support staff should be available to deliver a quality service.

## Toxicology

10.58 Most forms of toxicological death will not show any specific features on autopsy, although there may be non-specific findings and a history suggestive of the cause. Sometimes, needle marks may be evident on an examination with the naked eye or tablet material may be seen among the gastric contents. However, toxicology is necessary to establish the cause of death. In a young person who dies with no evident macroscopic cause of death, toxicological analysis will generally (and, according to Professor Whitwell, should always) be undertaken. However, toxicology is much less frequently carried out among the elderly since, in an elderly person, there is usually some condition evident on autopsy which could constitute a plausible cause of death.

10.59 In the case of many, if not all, of Shipman's victims, if an autopsy had been carried out in the absence of toxicology, it is highly unlikely that the true cause of their deaths would have been revealed. Certainly, this was so in the case of Mr Charles Barlow, one of Shipman's victims, who was subjected to an autopsy. I have referred to Mr Barlow's case in Chapter Nine of this Report. In some jurisdictions, much greater use is made of toxicology. It is performed in conjunction with virtually every autopsy and is also carried out in some cases where there is no autopsy. The Inquiry was told about the experience in Maryland, USA, which is that 'random' toxicology of this type throws up some surprising results. Drugs have been found in babies, young children and the very elderly. Indeed, a response to the Inquiry's Discussion Paper from a consultant histopathologist in London related how, at the time of the Shipman trial, he undertook a coroner's autopsy on an elderly woman found dead at home. There was no history of suspicious circumstances and ample evidence of coronary heart disease. He gave the cause of death as ischaemic heart disease but, out of interest, sent a blood sample for toxicological examination. When the results were returned, he found that there had been a fatal overdose of anti-depressants. It seems likely that, if greater use were made of random toxicology, some deaths which would otherwise be characterised as 'natural' would be discovered to have resulted from the administration, or self-administration, of a drug.

10.60 In England and Wales, samples taken for toxicology usually consist of blood, urine and/or stomach contents; on occasions, tissues are also taken. Tests for alcohol (and, often, a drugs screen) are carried out in all deaths by road traffic accident. Dr Lawler explained that the first drugs screen is qualitative only, in that it reveals the presence of a drug. If further quantitative testing is necessary, this can take a considerable time and is expensive.

10.61 Professor Whitwell, who works alongside a medical professor of toxicology, pointed out that the interpretation of post-mortem toxicology can be extremely complex. In some laboratories, with no medical input, the interpretation of testing may be inaccurate. In the long term, she would like to see toxicology departments, with medical expertise, available

at the regional centres of excellence previously referred to. In the shorter term, regional centres could deal with the more straightforward cases (e.g. many of those involving alcohol) and could refer the more complex cases to the specialist toxicological centres, such as the one at Sheffield.

10.62 Dr Start said that, at present, routine screening by the University of Sheffield Department in suicide and road traffic accident cases costs, on average, about £225 per case. Coroners were understandably reluctant to incur this level of cost in all but those cases where it was obviously necessary to do so. As a result, toxicology is not carried out in some cases where the pathologist might feel it to be justified.

10.63 Professor Whitwell pointed out that the cost of £225 would include both quantitative and qualitative screening. Her understanding is that urine, which is available in the majority of cases, can be screened for the presence (as opposed to the quantity) of alcohol and drugs much more cheaply than this figure, and within a short time. Her view was that the aim should be to use screening toxicology in virtually every autopsy. Professor Kevin Park, Professor of Pharmacology at the University of Liverpool, said that, with greater throughput and the technological advances that are likely to be made, he would expect the cost of toxicology to reduce in the future. For the DoH, Dr Barnes pointed out that, as well as improved technology, there was a need to train and recruit skilled technical and scientific staff to produce analytical data and to interpret that data.

10.64 Dr Lawler drew attention to the fact that, in some cases, a urine screen may be negative, but sampling of the blood may show the presence of a lethal substance. He gave the example of a case in which he had been involved recently, where there was a fatal level of morphine present in the blood which, because the individual had died rapidly after administration of the drug, was not present in the urine. He pointed out that this had particular significance in the context of Shipman's mode of killing.

10.65 Professor Underwood, for the RCPath, agreed with a suggestion that there should be a protocol governing toxicological investigations which should deal with matters such as identifying the drugs to be tested for, the samples which should be taken, how long after death the samples should be taken and from where in the body.

## Challenge to the Decision to Hold or Not to Hold an Autopsy

10.66 If homicide is suspected, it is plain that the public interest in holding an autopsy would outweigh any individual view as to whether the autopsy should be held. In all other cases however, there was general support for a right to challenge the decision to be given to properly interested parties, provided that the challenge could be mounted and resolved speedily. For the Retained Organs Commission, Professor Brazier supported the right to challenge a decision to hold an autopsy. She emphasised the need for the challenge to be dealt with swiftly. She also observed that the right should be real, in that the family should fully understand the processes involved and be able to make their challenge effectively and with appropriate support. She herself was concerned that a right to legal representation might draw out the appeal process and would create funding issues. However, some members of the Commission are, she reported, concerned that, without

legal representation, the right of challenge for many people could not be exercised effectively. Professor Brazier also considered that there should be a right for families to request an autopsy in a case where the coroner did not regard one as necessary. However, the family would have to advance a valid argument in order to justify the use of resources in their particular case.

10.67 For the RCPath, Professor Underwood observed that an American colleague of his refers to autopsies as 'information therapy', meaning that the family can derive benefit, comfort and satisfaction from knowing the reason for their loss. He suggested that it should be a part of the NHS bereavement service that relatives should have the opportunity of a publicly funded autopsy. This would be another facet of the principle previously discussed that the NHS should assume responsibility for a patient until the time of disposal of his/her body.

## Conclusions

10.68 It is clear that, at present, there are serious deficiencies with some coroners' autopsies. Autopsies are conducted in circumstances where they are unnecessary. Insufficient thought is given to whether the result of medical investigations carried out in life provide an adequate diagnosis of the cause of the death. Often, pathologists are supplied with information that is wholly insufficient to enable them to place their findings in context. Sometimes, they are prevented from seeing the medical records or from conferring with their clinical colleagues. As in other respects, the approach of coroners varies widely from district to district, making it difficult for a pathologist to know what s/he can and cannot do.

10.69 Coroners' autopsies are focussed on a specific purpose. The results are often not disseminated to clinicians. Even if they are, they may not be very helpful for clinical purposes. The potential benefit of the coroner's autopsy to increase medical knowledge is frequently lost. Moreover, families do not derive the benefit from, for example, genetic features ascertainable on autopsy and are often unaware that the opportunity to derive such benefit exists.

10.70 All these problems plainly need addressing. I wholeheartedly support the efforts of the RCPath to do so by way of the Guidelines, which I have mentioned and the minimum standards which they are currently developing.

10.71 Any future coroner service will be dependent on an efficient, high quality autopsy service to support and assist its investigations into deaths. Given the current problems with pathology provision, the recommendation of a unified pathology service seems to me an excellent one. I agree with the RCPath that it should include, not only Home Office registered forensic pathologists, but also those histopathologists who wish to conduct an autopsy practice, whether full-time or part-time. It should also include facilities for histology, toxicology, radiology and other necessary support services. In Chapter Nineteen, I shall set out my recommendations for the future of the service and for the place that it should occupy within the structure of Government.