View metadata, citation and similar papers at core.ac.uk
brought to you by CORE
provided by CiteSeerX

Online survey of current autopsy practice

Michael J P Biggs, Laurence J R Brown and Peter N Furness

J Clin Pathol published online January 21, 2009
doi: 10.1136/jcp.2008.062117

Updated information and services can be found at:
http://jcp.bmj.com/content/early/2009/01/21/jcp.2008.062117

These include:

P<P Published online January 21, 2009 in advance of the print journal.

Email alerting service Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

Advance online articles have been peer reviewed and accepted for publication but have not yet appeared in the paper journal (edited, typeset versions may be posted when available prior to final publication). Advance online articles are citable and establish publication priority; they are indexed by PubMed from initial publication. Citations to Advance online articles must include the digital object identifier (DOIs) and date of initial publication.

To order reprints of this article go to:
http://jcp.bmj.com/cgi/reprintform

To subscribe to *Journal of Clinical Pathology* go to:
http://jcp.bmj.com/subscriptions

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com
JCP Online First, published on January 21, 2009 as 10.1136/jcp.2008.062117

Online survey of current autopsy practice

[1]Michael J P Biggs, [1]Laurence J R Brown, [1]Peter N Furness

[1]Department of Histopathology, Leicester Royal Infirmary, Leicester, United Kingdom

Word count: Manuscript - 3360
Abstract - 246
Total - 3606

Tables - 6
Figures - 3

Key words: Death, Autopsy pathology, Histopathology

Correspondence to:

Dr M J P Biggs
Department of Histopathology
Sandringham Building
Leicester Royal Infirmary
Leicester
LE1 5WW

Email: mike.biggs@uhl-tr.nhs.uk
Tel: +44 (0)116 254 6594
Fax: +44 (0)116 254 6585

Copyright statement:

The Corresponding Author has the right to grant on behalf of all authors and does grant on behalf of all authors, an exclusive licence (or non-exclusive for government employees) on a worldwide basis to the BMJ Publishing Group Ltd and its Licensees to permit this article (if accepted) to be published in Journal of Clinical Pathology and any other BMJPGL products to exploit all subsidiary rights, as set out in our licence (http://jcp.bmj.com/ifora/licence.pdf).

Copyright Article author (or their employer) 2009. Produced by BMJ Publishing Group Ltd under licence.

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

Abstract
Introduction: The Royal College of Pathologists (RCPath) has for several years published guidance on good autopsy practice.[1,2] However, pressures such as time, cost and the introduction of the Human Tissue Act have generated suggestions that there is a discrepancy between the published guidelines and what can realistically be achieved in daily practice. We wished to determine the extent to which practising pathologists agree with this complaint, and what suggestions they might have for its resolution.
Methods: All histopathologists in the United Kingdom (UK) on the RCPath database (n=1213) were sent an email invitation to participate in an online questionnaire.
Results: 406 pathologists completed the survey, providing both numerical data and free text responses. Results concerning pressures of time, resources and limitations on examination and sampling were in keeping with that expected from recent issues raised. The view that RCPath guidelines are higher than can be achieved in routine coronial autopsy practice was widely supported, but only 45% stated that the RCPath should publish separate guidelines to differentiate between hospital ("consent") autopsies and medico-legal cases.
Conclusion: The circumstances under which coronial autopsies are conducted in many parts of the UK make it difficult or impossible to comply with current RCPath guidance. Pathologists disagree on whether this situation demands a reduction of RCPath standards, an improvement in autopsy practice in medico-legal cases to current RCPath standards, or the implementation of 'double standards'. Resolution of this dilemma requires clarification of exactly what a coronial autopsy is trying to achieve.

Introduction
The recent National Confidential Enquiry into Patient Outcome and Death (NCEPOD) audit of coronial autopsy reports in England, Wales and Northern Ireland was critical of autopsy practice.[3] This audit examined paper records, not actual autopsy procedure, and it was clear that a high proportion of coronial autopsies did not comply with the guidance issued by the RCPath.[1,2] Some pathologists asserted that this criticism was invalid, because RCPath guidance is not appropriate to coronial autopsies.

The RCPath guidance stipulates a uniformly high standard, which documents fully all pathological processes impacting on the body. Arguably, to do any less shows disrespect to the deceased. However, since that guidance was first written, the Human Tissue Act 2004 has underlined society's reluctance for pathologists to undertake compulsory, state-ordered autopsies unless they are absolutely necessary; and that when the state decides that they are necessary, the procedure should not be more extensive than is needed to achieve its specific aim. Consent is largely irrelevant to this discussion, as non-coronial autopsies are now very infrequent, and also because there is rarely any possibility for a pathologist undertaking a coronial autopsy to know what the relatives want.

But what is the specific aim of the coronial autopsy? The requirement to ascertain the cause of death does not explain in what detail the investigation should be undertaken. What level of accuracy is the coroner responsible for, if any, when certifying natural causes of death? There seems to be no clear justification in law for the coroner to investigate pathological processes that did not cause death – even if those processes have implications for family members.

NCEPOD asked, "What exactly is the coroner's autopsy *for*?", but it could not provide a clear answer. Is RCPath guidance unrealistic? If so, what is a reasonable minimum standard for a coroner's autopsy? Pathologists and coroners have variable views. Some

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

coroners expect full compliance with RCPath guidance; others object to further investigation once a reasonably plausible natural cause of death has been identified.

This question is further complicated by recent changes in contracts and remuneration. In the past, most coronial autopsies were undertaken by National Health Service (NHS) histopathologists. "NHS time" was not precisely defined. An autopsy for the coroner was regarded as being, to some extent, part of the NHS job, even though the pathologist usually retained the fee. This is changing: anecdotal information suggests that certain regions (e.g. Bristol, Leeds) are planning relocation of coroner's cases from hospital mortuaries to non-NHS facilities. The new Consultant Contract has defined "NHS time" precisely, and most pathologists are required to undertake coronial autopsies outside that time. This separation puts coronial autopsies on a similar basis to private practice.

These changes represent pressure to perform faster autopsies, potentially not to RCPath standards. Pressure to work quickly could increase if newly appointed histopathologists decide not to undertake autopsies, escalating the burden on autopsy-active pathologists. Increasingly there are challenges to pathologists' findings, both in courts and by the General Medical Council. Pathologists risk judgement by current RCPath standards for autopsy practice, but if RCPath guidance is widely regarded as an unattainable counsel of perfection then what is appropriate for a coronial autopsy? As a first step towards answering this question, we conducted a survey of the opinions and practices of autopsy-active pathologists within the UK.

Methods

An email was sent to all histopathologists (n=1213) identified in the RCPath database as working in England, Scotland, Wales and Northern Ireland. This contained an e-link to an online survey asking questions about current post mortem practice. The survey was created and managed using *Questionpro.com* online research services. Not all questions were viewed by each respondent, as certain questions were either hidden or triggered within the survey according to live responses. After no further survey activity had been recorded for three consecutive months access to the survey was deactivated and the compiled, anonymous results were analysed. Raw data were exported into a *Microsoft Excel* spreadsheet to allow simple descriptive statistics and graphical representations to be created. It should be noted that, although much of this discussion focuses on the coronial system, pathologists in Scotland (where the Procurator Fiscal system is in operation) were included in the data-gathering exercise. Although there are differences between the two legal systems, the physical process of carrying out an autopsy is the matter in question and, as the RCPath guidance applies to both, no distinction was made for the purpose of surveying national autopsy practice.

Results

The survey link was viewed 666 times. Of these, 552 (83%) started the survey. In all, 406 pathologists completed the survey (74% of those who started it, 61% of those who viewed it). In 146 cases, the respondent dropped out after starting the survey.

A total of 491 respondents provided general departmental information. 245 (50%) described their department as a District General Hospital (DGH), 225 (46%) said teaching hospital and 21 (4%) said "other". Reliable workforce data concerning the total proportion of DGH to teaching hospital pathologists were unavailable, but 46% teaching hospital location suggests an element of response bias. Stated staffing levels ranged from 0 to 40

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

consultants (mean: 9.65, median: 7, mode: 5). It is assumed that a staffing level of “zero” reflected the response of a retired individual, and that a response of “one” indicated an independent practitioner. Within these departments, the proportion of consultants involved with autopsy work ranged from 0% to 100% (mean: 71%, median: 75%, mode: 100% - see figure 1). The respondents’ estimation of departmental autopsy workload ranged from 3 to 2500 cases per annum (mean: 677, median: 600, mode: 600 – see figure 2).

Individuals currently conducting autopsy work numbered 397 (81%). Of the 331 providing further detail in this respect, 85% stated that they undertook adult examinations only. The remainder described various combinations of adult, paediatric and perinatal work. The average number of autopsies performed during a mortuary session ranged from 1 to 8 (mean: 2.5, median: 2, mode: 2). The time spent on an “average” autopsy (including reading the history and production of the report, but not including any subsequent inquest work) ranged from 2 to 600 minutes (mean: 90, median: 60, mode: 60 – see figure 3).

322 pathologists provided information on mortuary working patterns. 134 (42%) stated that this always consisted of a lone pathologist on his or her own. A further 114 (35%) reported that there was usually only one pathologist at work, but additional help was arranged during busy periods. 179 pathologists (56%) responded that flexible time-shifting was utilised, allowing autopsy work during normal office hours. In contrast, 86 (27%) said that autopsies were carried out during office hours without time-shifting NHS work. Various other permutations of working pattern were recorded outside of these main categories.

Information regarding trainees was provided by 395 pathologists. The majority (82%) worked in departments with trainees. Where trainees were present, the number ranged from 1 to 45 (mean: 5, median: 3, mode: 2). In departments with trainees, all or nearly all of the trainees took part in autopsy work (mean: 94%, median: 100, mode: 100). The respondents’ estimation of the approximate percentage of total departmental autopsy workload carried out by their trainees ranged from 0% to 100% (mean: 23%, median: 14%, mode: 10%).

When asked about the appropriateness of the overall number of coronial autopsies being requested, 331 pathologists answered. 47% felt that the level was “about right”, but 42% felt that there are currently “too many”. Only 11% felt that there are “too few” coronial autopsies being requested.

As NCEPOD reported inadequate examination of epilepsy and cardiomyopathy, we surveyed referral to cardiac or neuropathologists for expert opinion.[3] Of the 328 pathologists who answered these questions, 82% reported referring such cases and 13% did not. (The remaining 5% were themselves cardiac or neuropathology specialists.) Estimated numbers of cardiac cases referred by each pathologist in an average year ranged from 0.25 to 100 (mean: 2.4, median: 1, mode: 1). For neuropathology cases the range was 0.1 to 50 (mean: 2.7, median: 1, mode: 1).

The NCEPOD report asked whether mortuary technicians eviscerated bodies prior to examination by a pathologist.[3] The survey requested details of local working practice both in opening the body cavities (n=322) and in subsequent evisceration of the organ blocks (n=321) – see table 1. The timing of these activities was also reported, together with perceived compliance with published guidance – see tables 2 and 3 respectively.

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

Table 1: Delegation of tasks to the mortuary technicians

	Opening the body	Evisceration
Always	39%	17%
Most of the time	45%	62%
Occasionally	7%	10%
Never	8%	12%

Table 2: Timing of mortuary technician activity

	Opening the body	Evisceration
Before examination of the body by the pathologist	28%	21%
After examination of the body by the pathologist	72%	79%
Before the pathologist has reviewed the history and documentation	9%	6%
After the pathologist has reviewed the history and documentation	91%	94%

Table 3: Perceived compliance of practice in opening and eviscerating bodies with current guidance from the Royal College of Pathologists (n=316)

Yes, I believe my practice complies with RCPath guidance	201	64%
No, because of time / resource constraints	57	18%
No, because I believe the RCPath guidance to be wrong	17	5%
No, for other reasons	10	3%
Don't know	31	10%

Table 4: Level of detail employed during external examination (n=316):

Always an extensive, "forensic" style detailed examination	29	9%
Always minimal, to confirm identity and note any obvious disease or major injury	10	3%
Somewhere between the above extremes, but fairly consistent	224	71%
Highly variable, depending on history, findings, etc.	50	16%
None	1	0.3%
Other	2	0.6%

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

Table 5: Opinion on RCPath guidance on the level of detail necessary during external examination (n=316)

Not enough detail expected	18	6%
About right	158	50%
Too much detail expected	68	22%
Not aware of any guidance	62	20%
Other	10	3%

The level of detail recorded during the external examination and opinions on the published guidance for this external examination are shown in tables 4 and 5 respectively. Asked whether the RCPath should publish separate autopsy standards (one for “consent” post-mortems and one for coronial post mortems), 55% said “no” and 45% said “yes”.

The NCEPOD report highlighted the frequency of failure to open the skull.[3] 74% of the 316 respondents confirmed the head was always opened during an autopsy examination. A further 26% said that this was done only when medically indicated, with an estimated frequency of 10% to 99% (mean: 69%, median: 75%, mode: 80%). No pathologist stated that they *never* opened the head during an autopsy. The head was opened prior to the pathologist’s arrival in the mortuary by 9% of respondents; 91% stated that the head was opened after or during their examination of the body.

NCEPOD found a relative lack of histopathology supporting causes of death[3]. The survey investigated rates of sampling during coronial autopsy work. 316 pathologists gave rates of histology sampling, ranging from 1-100% (median: 20%). Rates of microbiology and toxicology sampling were also provided, but are not included here as these are heavily dependent on case mix.

These sampling rates revealed that:

- 37% “regularly” felt limited in their ability to undertake such sampling
- 32% “occasionally” felt limited
- 11% “rarely felt limited
- 10% “never” felt limited
- 9% “always” felt limited.

Reasons given for such a perceived limitation included:

- Human Tissue Act concerns (40%)
- Coroner refuses permission (25%)
- Cost / resources (19%)
- Time” (9%).

Of these 316 pathologists 46% felt they could request autopsy radiology, but with difficulty. 37% could not request radiology and only 10% said they could request this easily. (A more detailed, specific response was provided under the category “other” by the remaining 6%.)

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

Table 6: Opinion on lack of X-ray facilities by those with no access (n=118)

I am regularly limited by the lack of an ability to obtain X-rays during autopsies	2	2%
Although I would rarely request an X-ray, such a facility would be useful	70	59%
I would never use X-rays in an autopsy, and so there is no point in such a facility	36	31%
Other	10	8%

Only 27% of those with access to radiology made use of it. Table 6 records the opinions of those lacking autopsy radiology facilities. The approximate number of cases per year that prompted radiological investigation ranged from 0.01 to 220 (it was not possible to calculate the mean as many responses simply stated "less than 1").

A total of 156 general free text comments were received, some highly detailed, with several recurring themes. The general points made are summarised below:

- Pressure of work and increased inconvenience leading some pathologists to consider ceasing (or had indeed already ceased) autopsy practice
- Perceived constraints of the Human Tissue Act
- Underpayment for coronial autopsies
- The RCPath guidance is unrealistically rigorous for the aims and purposes of coronial practice
- Poor information from Coroners' Officers
- Pressure of time resulting in hurried autopsies
- Requirement for further training
- Criticisms of the decline in hospital autopsies
- The burden of training and the difficulties of allowing senior trainees to work unsupervised

The following direct quotations have been chosen as they are either representative of the general theme of the free text comments, or they say something unique that has not been included in the general discussion:

"We perform too many autopsies for the wrong reasons. Either there needs to be a change in attitude towards death certification that allows deaths to be designated as natural causes without the need for a detailed cause of death or there has to be appropriate investment in autopsy services to allow for more to be performed so allowing more precise death certification. I think we would be making better use of our time if we were performing post mortem examinations on patients who have died following expensive treatments (surgery, chemotherapy, radiotherapy) rather than on old people who have died at home without seeing a GP for several days."

"We are encouraged to provide a sloppy and inadequate service because of the constraints applied by the Human Tissue act and coroner's rules, the lack of time due to the service being outside the NHS and the inadequate remuneration."

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

"A meeting with the family is very important, in terms of proper communication and the public perception of the autopsy. Pathologists who are not willing to meet families should be excluded from autopsy practice."

"The general standard of coronial PMs is a disgrace to the profession. The grubbing after money by those uninterested in autopsy pathology is sordid and unprofessional. It needs root and branch reform and a genuine lead from the college, not appeasement of those with vested interests."

"My autopsy practice is entirely coronial now with very few hospital cases coming through, which tend to be done by junior medical staff in any case."

"At best this work is fascinating, provides great opportunity for teaching and provides a modest/minimal extra income. At worst it is pretty 'gross' and I think many pathologists would prefer to drop the work if it became too onerous or if the income generated was not worth the effort."

A complete list of all free text comments can be found at

http://www.pathology.plus.com/PMquotes.htm

Discussion

The purpose of this study was not to dictate the "correct" autopsy procedure, nor was it to test conformity to any standard. Many respondents asked what level of detail is either necessary or desirable during an autopsy, or what a coronial autopsy is actually for. This study was not designed to answer those questions, but aimed to provide an overview of current autopsy practice and inform debate. There are obvious limitations to a survey of this kind, but it is hoped that these data are more objective than anecdotal evidence alone.

24 respondents stated that they had either given up, were about to give up or were seriously considering giving up autopsy work altogether. The reason for stopping was invariably to escape increasing pressures and constraints (repeatedly described as "hassle"), rather than a decreased interest. Furthermore, many stated that the only reason that they had not given up already was a reluctance to leave their colleagues in an even worse off position. Many regarded the decreased interest amongst histopathology trainees (with decreased opportunity for adequate training) and the reduction in applicants to vacant consultant posts as worrying for the future provision of an autopsy service.

The Human Tissue Act featured in many of the comments as being detrimental to the quality of autopsy practice. Political correctness following previous adverse publicity was stated as a reason for markedly reduced levels of histological examination.

Many commented that the current coronial post mortem fee does not reflect the time required, level of complexity involved and responsibility taken for each case. The data indicate that many autopsies are completed in less than an hour, with a significant number taking less than half an hour. Figure 3 demonstrates the degree of variation estimated. It seems inherently unlikely that the requirements of the RCPath guidance can be satisfied in

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

full during this short time. Yet even with such brief procedures, the remuneration for coronial autopsy practice (when considered as an hourly rate) does not compare favourably with work of a similar quality conducted by other professionals, or by similar professionals when engaged in private practice. In short, the fee paid is currently too small for the amount of work needed to comply with RCPath standards and leaves many feeling that their work is too rushed, of lower quality than they would wish, and severely undervalued.

Pathologists feel there is a gulf between realistically achievable daily practice and the guidance from the RCPath, which many regard as unnecessarily rigorous. There was no consensus on how to resolve this problem. Some respondents stated that a separate (lower) standard for coronial post mortems would be wrong, whereas others wanted current guidance to be relaxed to allow more pragmatic flexibility from case to case. There is a wish for clearer guidance on the exact aims and limitations of coronial autopsy practice from both the RCPath and the Coroners' Society to alleviate the common problem of pathologists and coroners having different agendas. Several references were made to the coroner not allowing "best practice" (as defined by the RCPath), to reduce cost and time penalties associated with permitting histology, toxicology, etc. to be taken. Most coroners do not require the high level of detail that the pathologists would prefer. With clearly stated, nationally consistent aims for the coronial autopsy, pathologists might be able to tailor their practice to suit better the needs of the coroner. Similarly, coroners will more readily be able to assess whether their needs are being addressed by the autopsy reports. Despite concerns about the chasm between published guidelines and realistic practice, only 45% of respondents wished to see separate guidance ("double standards") published.

Respondents complained that the quality and reliability of information provided by coroners' officers was suboptimal and variable, notably where sudden death in the community was contrasted with in-hospital death. Several highlighted the deleterious effects of time constraints placed on coronial autopsy work: the sheer number of coronial autopsies forced a "rush" to complete cases in the scant time available. Inappropriate selection of cases was felt to increase this high workload, possibly compromising standards as resources were stretched. Requirements to "time shift", and not to delay funeral arrangements compound this problem. Many NHS Trusts restrict the provision of coronial autopsy services by inflexible consultant job plans.

Numerous individuals called for specific medico-legal training and qualification to establish coronial autopsy work as a separate sub-discipline. Others wished only for additional training and practical update courses overseen by the RCPath. The important role of the autopsy (and pathology in general) in education and quality control was emphasised repeatedly. The decline in "consent" autopsies was lamented, and a reluctance of clinicians to embark on the laborious process of obtaining consent was cited as a factor. In order to redress the situation, it was suggested that efforts be made to increase the number of "consent" autopsies with the routine inclusion of histology. Whilst this may appear at odds with concomitant remarks regarding excessive workload, the increased academic stimulation and perceived usefulness in teaching offered by "consent" autopsies over "routine" coronial cases must be considered.

The presence of trainees within a department was felt to increase workload significantly. "Autopsy-free" training and the need for supervision of senior and experienced trainees in the mortuary were questioned and comparison was made with senior trainees in clinical specialties undertaking unsupervised work.

Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com

In summary, the free text comments suggest that pathologists believe:

- There should be fewer coronial cases
- Coronial cases should be more appropriately selected
- Coronial cases should be conducted to a better standard.
- Histology and toxicology should be more frequently permitted.
- Most pathologists are working hard and doing the best possible job within constraints that they find onerous
- Standards are extremely variable
- The service is in need of clarification and reform

Coronial autopsies will make up a considerable proportion of the average UK histopathologist's workload for the foreseeable future. In the ever-changing medicolegal environment there exists a need for clear direction to help guide and protect those pathologists who continue this important work. There is a risk that official guidance will strive ever closer towards theoretical ideals, whilst realistically achievable daily practice is pushed in the opposite direction by practical pressures and constraints. This conflict must be acknowledged, and rationalisation must be attempted. When debating these issues previously, individuals have had to rely on personal, local and anecdotal experience. This study provides a broader body of opinion in the form of a substantial report of actual national autopsy practice.

Competing interests

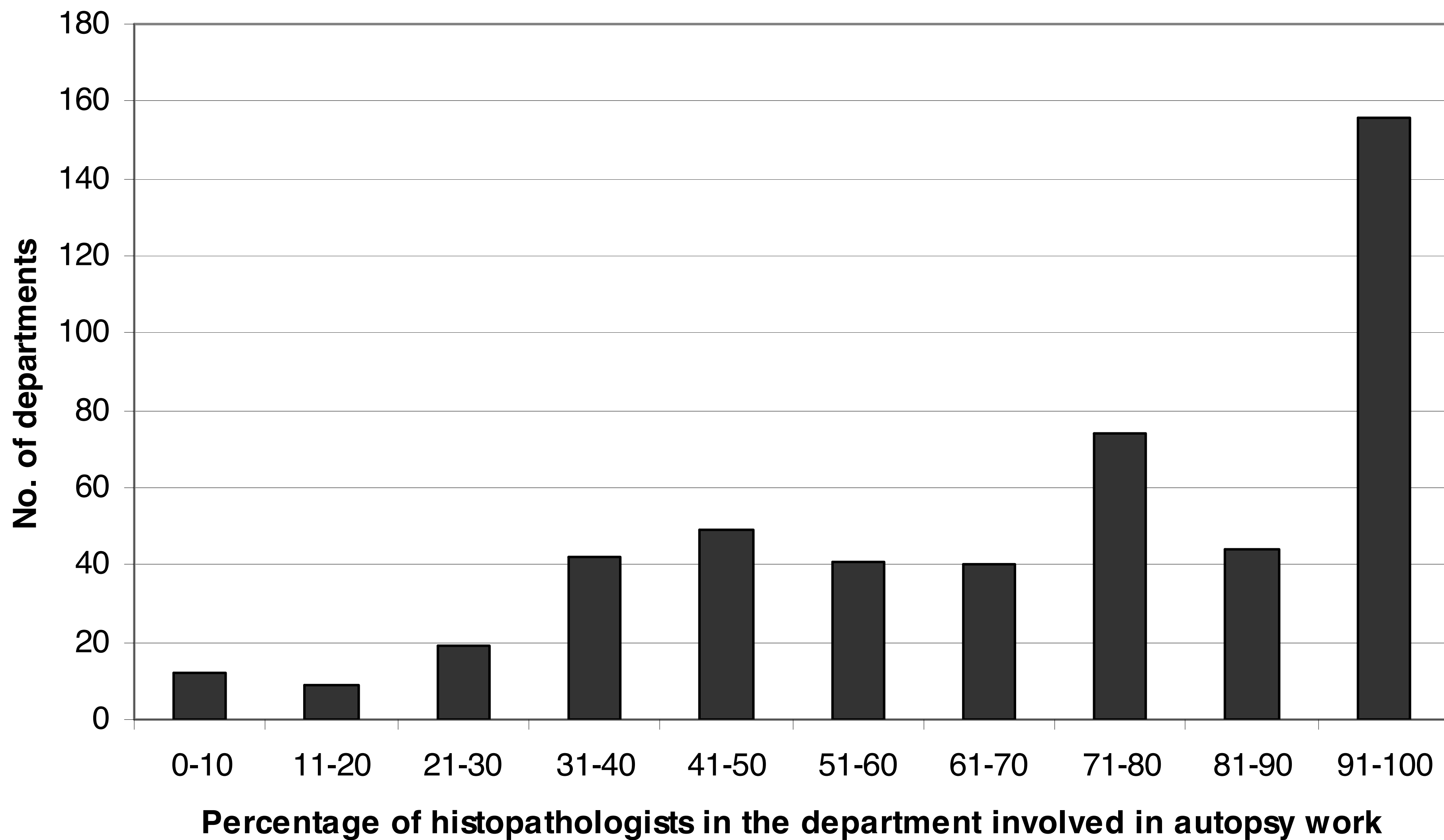
None declared.

Take home messages

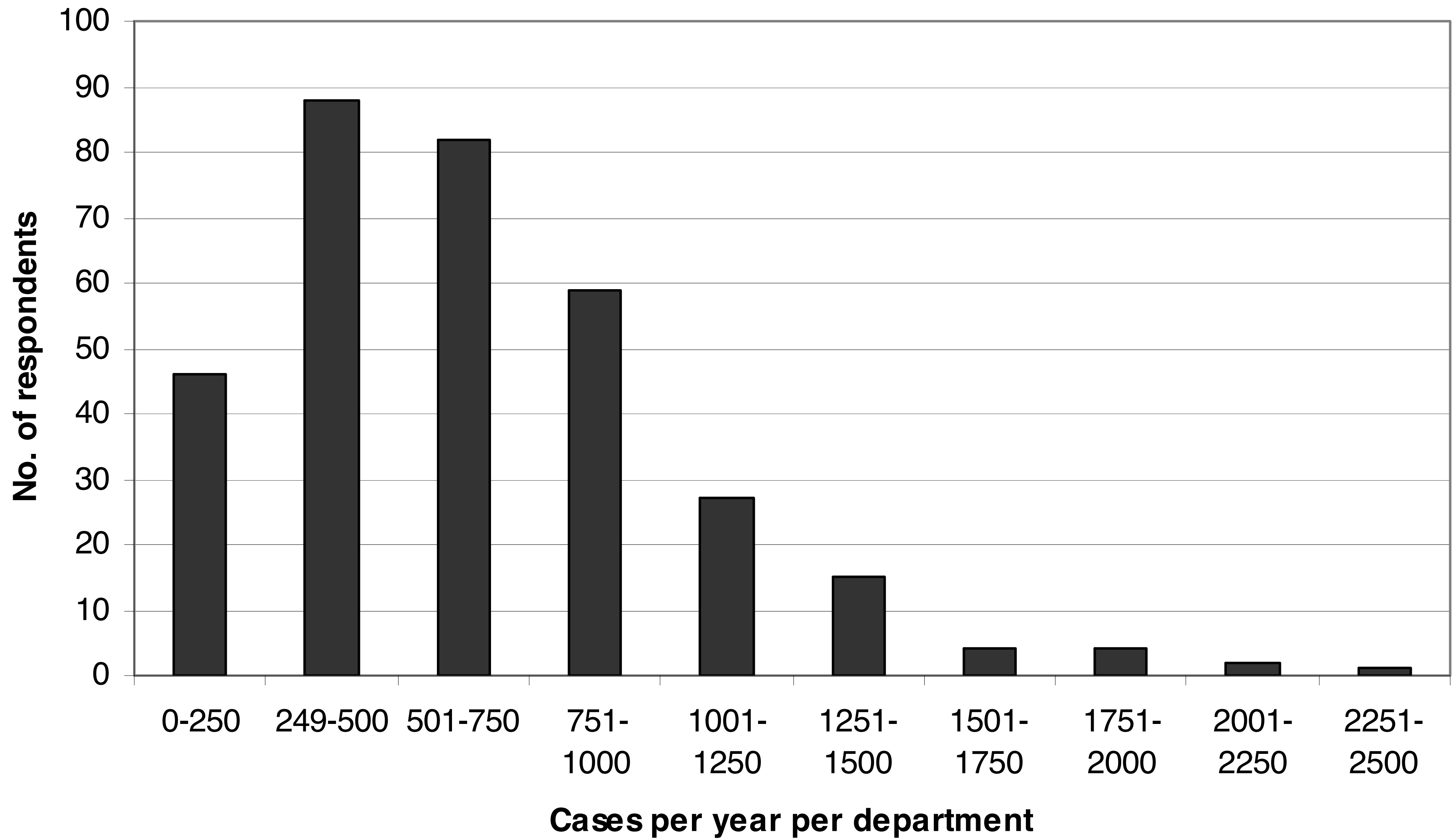
- Autopsy practices and standards vary considerably
- Debate has recently focussed on the discrepancy between recommended best practice, and that which is realistically achievable
- Within this survey report lie facts that may be used to inform such debate over current and future autopsy practice

References

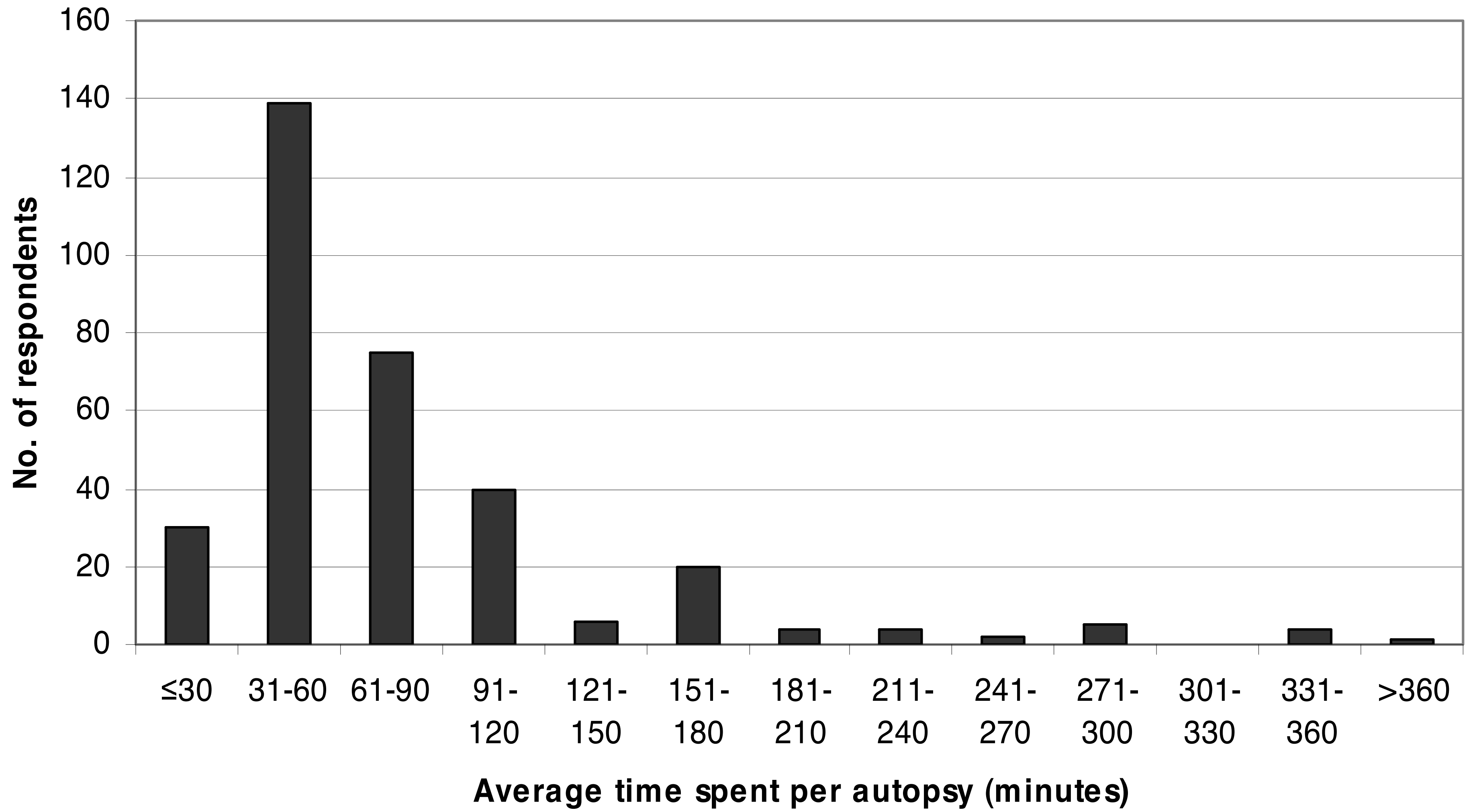
1. Guidelines on autopsy practice. Royal College of Pathologists, London 2002. http://www.rcpath.org/index.asp?PageID=240
2. Guidelines on autopsy practice – best practice scenarios. Royal College of Pathologists, London 2006. http://www.rcpath.org/index.asp?PageID=687
3. The coroner's autopsy: do we deserve better? A report of the National Confidential Enquiry into Patient Outcome and Death. NCEPOD, London 2006.
4. Burton JL. The external examination: An often-neglected autopsy component. *Curr Diagn Pathol* 2007;13(5):357-365.
5. Suvarna SK. National guidelines for adult autopsy cardiac dissection and diagnosis – are they achievable? A personal view. *Histopathology* 2008;53:97-112.
6. Burton JL, Underwood JC. Necropsy practice after the "organ retention scandal": requests, performance and tissue retention. *J Clin Pathol* 2003;53:537-41.
7. Furness P. Coroners' post-mortems: passion, problems, perceptions and politics. *Bull R Coll Pathol* 2007:Oct;60-64.
8. Burton JL, Underwood J. Clinical, educational and epidemiological value of autopsy. *Lancet* 2007;369:1471-80.



Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com



Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com



Downloaded from jcp.bmj.com on December 27, 2009 - Published by group.bmj.com