

Accounting for the Professional Work of Pathologists Performing Autopsies

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• **Context.**—With an increasing trend toward fee-code-based methods of measuring the clinical professional productivity of pathologists, those pathologists whose clinical activities include the performance of autopsies have been disadvantaged by the lack of generally accepted workload equivalents for autopsy performance and supervision.

Objective.—To develop recommended benchmarks to account for this important and often overlooked professional activity.

Design.—Based on the professional experience of members of the Autopsy Committee of the College of American Pathologists, a survey of autopsy pathologists, and the limited additional material available in the literature, we developed recommended workload equivalents for the professional work associated with performing

an autopsy, which we elected to express as multiples of established Current Procedural Terminology codes.

Results.—As represented in Table 3, we recommend that the professional work associated with a full adult autopsy be equivalent to $5.5 \times 88309-26$. Additional professional credit of $1.5 \times 88309-26$ should be added for evaluation of the brain and for a detailed clinical-pathologic discussion. The corresponding value for a fetal/neonatal autopsy is $4.0 \times 88309-26$.

Conclusion.—Although we recognize that autopsy practices vary significantly from institution to institution, it is hoped that our proposed guidelines will be a valuable starting point that individual practices can then adapt, taking into account the specifics of their practice environment.

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More and more, both academic pathology departments and private pathology practices have begun using professional relative value unit (RVU) workload values to measure the clinical productivity of their faculty and/or members, and to compare that productivity with national averages. This metric is being used to determine such things as salaries, bonuses, access to additional resources, etc. Those pathologists who spend a significant portion of their clinical time performing and reviewing autopsies are at a disadvantage when RVUs are used as the metric because RVUs have never been formally established for autopsy procedures. Although the American Medical Association has created Current Procedural Terminology (CPT) codes for autopsies, neither they nor the Centers for Medicare and Medicaid Services have ever established recommended RVUs for these codes.

The Autopsy Committee of the College of American Pathologists sought to assist practices in developing their own practice-specific assessment of the professional work involved in the performance of autopsy by determining

proposed values for typical autopsy activities. The Autopsy Committee includes members who practice in academic and/or community hospital settings, as well as in medical examiner offices, and each has at least 10 years of experience performing autopsies.

Members of the Autopsy Committee chose to express their perspective on practice-specific autopsy professional work by relating selected professional autopsy activities to established surgical pathology CPT codes rather than attempting to assign specific RVU values to the existing, but typically not used, autopsy CPT codes. This approach was chosen for a number of reasons. Depending upon the table a particular practice may decide to use, the listed RVU values associated with CPT codes may include adjustments for geographic practice cost indices. The professional RVU component includes not only physician work values (a relative measure of the time, skill, training, and intensity needed to provide a particular service) but also practice expense adjustments and malpractice adjustments. These can vary from year to year and region to region. If the professional work associated with the performance of autopsies is expressed as multiples of established surgical pathology CPT codes, the precise RVU values do not need to be further adjusted for these factors. Finally, however, and perhaps most practically, the main reason for determining the amount of professional work associated with autopsy performance is to assist practices in recognizing this work. In many settings, individual productivity is measured by counting up the number of fee codes each pathologist has billed during a particular period of time. These numbers are then entered

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The Autopsy Committee during the period of time covered by this project included Cassie Boggs, MD; Elizabeth Burton, MD; Richard Conran, MD, PhD, JD; Michael Bell, MD; Charles Hitchcock, MD, PhD; Jody Hooper, MD; Patrick Lento, MD; Dylan Miller, MD; Joseph Parisi, MD; Harold Sanchez, MD; and Carmella Tan, MD.

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into a spreadsheet in the appropriate CPT code column. These spreadsheets typically have columns for the standard, established CPT codes and may not readily accommodate additional CPT codes or write-in RVU values.

It is important to recognize that many individuals have become accustomed to associating RVU values with physician reimbursement. Although the issue of appropriate professional reimbursement for autopsy services is an important one, the goal of the process discussed in this paper is simply to provide a means of recognizing the relative professional productivity associated with autopsy performance and not to propose any specific reimbursement model.

MATERIALS AND METHODS

Survey of Autopsy Committee Members

The members of the College of American Pathologists Autopsy Committee, representing individuals from both academic and community practice settings, many of whom are directors of autopsy services, were asked to individually estimate the most appropriate numerical multiplier for the 88309 surgical pathology CPT code that would represent the professional work involved in performing, reviewing, and signing out a typical autopsy. Respondents were asked to separately assess a typical adult autopsy and a typical fetal/neonatal autopsy and were specifically instructed that fractional multipliers were allowed. Evaluation of the brain was to be excluded from the estimate because a different pathologist (neuropathologist) often does that professional work. Submitted values were compiled and then discussed at a face-to-face meeting.

Survey of Autopsy Pathology Education Program Subscribers

In 2009, a survey was conducted of subscribers to the College of American Pathologists Autopsy Pathology (AU) education program, a continuing medical education program based on autopsy cases. This survey asked respondents to indicate, as a free-response question, the amount of time they spent on the professional component (reviewing history, gross organs, glass slides, and writing and/or reviewing the autopsy report) of a typical adult autopsy and a typical neonatal/fetal autopsy. The exact language used was: "Approximately how many hours (on average) are spent per autopsy case for the professional component of an adult autopsy?" and "Approximately how many hours (on average) are spent per autopsy case for the professional component of a fetal/neonatal autopsy?" Those data were subsequently acquired and incorporated into the Autopsy Committee's final recommendation.

RESULTS

The Autopsy Committee of the College of American Pathologists is a 9-member committee of pathologists with a particular interest in autopsy pathology. Members typically serve for staggered 6-year–maximum terms. There is usually representation from academic pathology departments, community hospital pathology departments, and medical examiners' offices. Many members direct the

autopsy services at their home institutions. The membership was asked to estimate the professional work involved in adult and neonatal autopsies at their institutions, to be expressed as a multiple of the 88309 surgical pathology CPT code (Table 1). Evaluation of the brain was specifically excluded, because at many centers, a different pathologist evaluates the brain. Six members provided values for adults; committee members who were medical examiners did not participate because the goal was to develop benchmark values for hospital (ie, nonforensic) autopsies. Only 4 members provided values for fetal/neonatal autopsies because of the limited experience with that type of autopsy at some of the represented institutions. Average values of 6.0×88309 and 4.6×88309 were obtained for adult and fetal autopsies, respectively. For evaluations of the brain, the consensus opinion among the members of the Autopsy Committee, considering typical cases, was 1.5×88309 for an adult brain, and 0.5×88309 for a fetal brain. This brings the average total multipliers to 7.5 and 5.1 for complete adult and fetal autopsies.

To validate the values proposed by the Autopsy Committee members, data from a previously conducted survey of subscribers to the College of American Pathologists AU education program were analyzed. The AU program is a case-based continuing education program designed for pathologists who perform autopsies as part of their professional activities. Each year, there is a survey of subscribers to evaluate the program. In 2009, the survey was supplemented with additional questions developed to learn more about autopsy practices at the institutions represented by the program subscribers. The 2 questions relevant to the current study asked how many hours (on average) were spent per autopsy case for the professional component of an adult or a fetal/neonatal autopsy. One hundred seventy-two responses were received for adult autopsies (Figure, A), and 159 for fetal autopsies (Figure, B). In both cases, values ranged from 0 to 80 hours. Those individuals reporting zero hours apparently did not perform autopsies, and those reporting values in excess of 12 hours presumably misinterpreted the question (ie, were not providing per-autopsy values but rather aggregate values). Nonetheless, the data show that there is significant variability in the autopsy practices across institutions. Mean values were significantly higher than median values (Table 2) because of the disproportional effect of values provided by responders who most likely misinterpreted the question. Removing these outlier values (those providing values of zero or values greater than 12 hours) produces mean values very close to the median values.

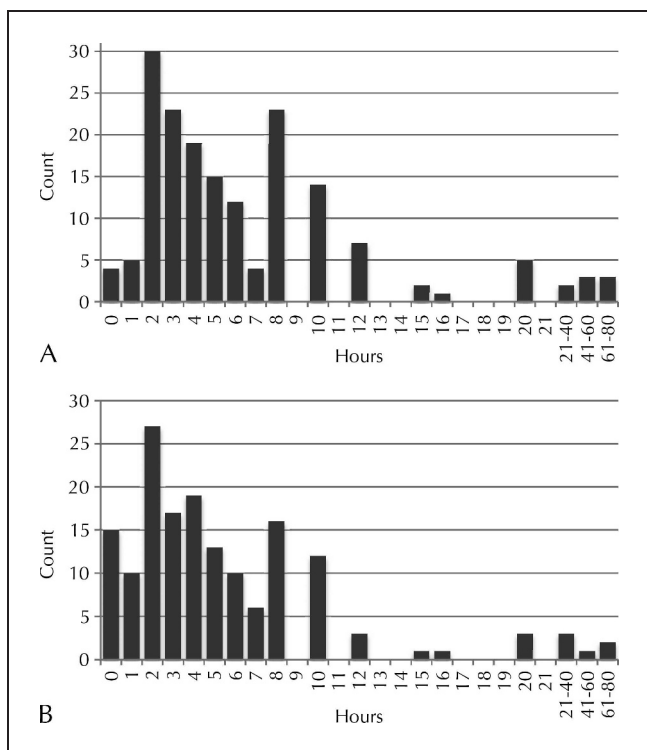
COMMENT

Decreasing reimbursements for pathologists' professional activity have led many pathology practices to develop methods of measuring the productivity of their

Table 1. Survey of College of American Pathologists Autopsy Committee Members—Summary^a

	Institution No.						Average
	1	2	3	4	5	6	
Adult autopsy	7.5	6.5	5.0	6.1	6.1	5.0	6.0
Fetal autopsy	6.0	4.3	4.0	4.1	4.6

^a Estimates of each pathologist on the Autopsy Committee as to the amount of professional work involved in performing autopsies of the indicated type are shown, expressed as a multiple of the 88309 surgical pathology Current Procedural Terminology code (eg, 5.0 means 5.0×88309). Values in both cases exclude evaluation of the brain, which was separately valued, by consensus, at 1.5×88309 for an adult brain and 0.5×88309 for a fetal brain.



Survey of the Autopsy Pathology Education Program subscribers. Frequency distribution of the survey responses for the number of hours of pathologist professional time associated with the performance of (A) adult and (B) fetal/neonatal autopsies.

professional staff. Despite obvious inequities in fee-code-based calculations (eg, the amount of work required to evaluate a skin biopsy is not comparable to the amount of work required to evaluate a breast biopsy), CPT-based systems are typically being used, both because this is the most common approach in other specialties and because it is arguably the best measure readily available. Business offices obtain counts of the number of CPT codes billed by each pathologist, enter these into a spreadsheet, and then convert these to RVUs to arrive at a total measure of professional productivity. Pathologists who perform autopsies are disadvantaged by this approach because, although CPT codes do exist for autopsy performance, these codes are rarely used because the American Medical Association has never developed RVU values for these codes.

The Autopsy Committee of the College of American Pathologists sought to assist practices wishing to recognize the professional work associated with the performance of autopsies by developing proposed relative measures for this professional activity. In order to most easily allow practices to incorporate our proposal into currently used CPT-based evaluation methods, we chose

to express the professional work associated with autopsy performance as a multiple of existing surgical pathology CPT codes, because the above-mentioned spreadsheets already have columns for those codes. Understanding that there is great variability in the autopsy practices across institutions, a conclusion very much supported by the survey data presented here, the Autopsy Committee still felt there was value in providing benchmark values that individual institutions could then tailor to their own specific practice environments.

The first approach used was to poll the members of the Autopsy Committee, a 9-member group of pathologists with extensive familiarity with the autopsy practices at their institutions. Values obtained were remarkably similar (Table 1) with the exception of the values from institution 1, which were higher than the others. On further discussion, it was determined that institution 1 included a detailed clinical-pathologic correlation discussion (typically 1 to 2 pages) in each autopsy report, including an in-depth discussion of the findings correlated with the clinical history, presentation, and circumstances of the death, an explicit statement as to the most likely underlying cause and sequence of events leading to the death, and a researched and referenced discussion of the major disease process(es) present in the patient. This practice was not typical of the other institutions. It was decided that this activity, estimated as being equivalent to approximately 1.5×88309 , should be removed from the Autopsy Committee's final recommendations and included as an add-on activity. Excluding this from the values of institution 1 drops the average multipliers for adult and fetal autopsies, respectively, to 5.8 and 4.2 without inclusion of the brain, or 7.3 and 4.7 with inclusion of the brain (1.5 for an adult brain, 0.5 for a fetal brain).

To validate these values, the Autopsy Committee analyzed survey data obtained in 2009 from subscribers to the College of American Pathologists's AU education program. Although these data had the advantage of being already available, they used a different unit of measure: the Autopsy Committee members provided values as multiples of the 88309 surgical pathology CPT code, whereas the AU program subscribers provided values in hours. Thus, a conversion factor is needed in order to directly compare these numbers. Literature benchmarks from other specialties include typical values of 3.5 to 6.5 RVUs per hour for emergency medicine,^{1,2} 2.5 RVUs per hour for internal medicine,³ 2.5 to 3.0 for radiology,⁴ and approximately 2.1 for primary care.⁵ No values could be found in the literature for pathology. An informal poll of pathologists at the author's institution suggested that, based on the types of surgical specimens currently billed as 88309, this typically represented about 50 minutes of professional work. That would suggest a conversion factor of 1.2×88309 per hour, or 3.36 RVUs per hour (the 88309 CPT code currently represents 2.80 work RVUs). Using this conversion factor and the mean values obtained from

Table 2. Survey of Autopsy Pathology Program Subscribers—Summary^a

Autopsy Type	Responses	Range, h	Median, h	Mean, h	Mean Excluding Outliers, h
Adult	172	0–80	5	8.2	5.2
Fetal/neonatal	159	0–80	4	6.5	4.8

^a Participants were asked, "Approximately how many hours (on average) are spent per autopsy case for the professional component of a xxxxx autopsy?" Median and mean responses are shown, as well as a mean after excluding outlier values (those who responded 0 or those providing values greater than 12 hours).

the survey of AU program subscribers after excluding the outliers yields $5.2 \times 1.2 = 6.24$ for adult autopsies and $4.8 \times 1.2 = 5.76$ for fetal autopsies. These values presumably include evaluation of the brain, because that was not excluded in the survey question. Comparable values from the Autopsy Committee members were 7.3 and 4.7 (without a detailed discussion).

The existing literature provides very little information about other attempts to determine appropriate RVUs for autopsy performance in the United States. Some of the reluctance to do this seems to stem from the association of RVUs with reimbursements, and this extends into the controversy about whether or not autopsy services are appropriately reimbursed under the current model of being incorporated into Part A payments to hospitals, or whether they should be separately reimbursed. However, in the original study from Hsiao et al⁶ at the Harvard School of Public Health in 1991, research that formed the basis for the RVU system adopted by the then United States Department of Health and Human Services proposed some preliminary values for the work involved in performing an autopsy. The scenario described was: "Autopsy, gross and microscopic, with brain for sudden unexpected death of a 38-year-old single male admitted 2 days prior with fever, hypertension, and cardiac arrhythmias." The work value proposed, relative to suggested values for 88309, ranged from 3.4 to 6.9×88309 , with an average of 4.9×88309 . This was a relatively uncomplicated autopsy scenario and is unlikely to be representative of the typical medical autopsy performed today. More recently, the Massachusetts General Hospital has developed a compensation model for academic pathologists, derived from the RVU system but modified to account for a number of other factors and to address compensation for autopsies.⁷ Details of these authors' conclusions and process were presented in the form of a short course at the United States and Canadian Academy of Pathology, and are available online.⁸ They concluded that an adult autopsy, without brain, was the equivalent of 7.5×88309 . An autopsy with the brain was 9.0×88309 . Stillborn autopsies were given a value of 5.0×88309 . These values did include detailed clinical-pathologic discussions, and are very comparable with the values proposed by the Autopsy Committee. Brain-only autopsies were given a value of 3.0×88309 .

After lengthy deliberation considering all of the information available, the Autopsy Committee proposed the values presented in Table 3. This recommendation credits the pathologist with 5.5×88309 for a typical adult autopsy, without the brain. Evaluation of the brain represents an additional 1.5×88309 worth of work, but should obviously be credited to the pathologist who evaluates the brain, who may be a neuropathologist rather than the pathologist who evaluates the rest of the case. The complexity of the autopsy report is also an important element to consider. Some institution's autopsy reports simply list significant findings at autopsy, but do not provide further discussion of these findings. Others provide detailed correlation of the autopsy findings with the clinical presentation and course, and include a specific statement as to the underlying cause of death and likely sequence of events leading up to the death. This discussion may be supplemented by literature citations. The Autopsy Committee suggests crediting the pathologist with up to an additional 1.5×88309 for the time and effort involved in preparing this type of discussion. Discussions intermediate between these 2 extremes should be appropriately scaled. For a typical fetal autopsy, a base value of 4×88309 is suggested for the full fetal autopsy without a brain, with 0.5×88309 credit to the pathologist who evaluates the fetal brain (assuming the fetal brain is evaluable) and up to 1.5×88309 for a detailed discussion. Additionally, if the placenta is evaluated as part of the autopsy (rather than as a separate surgical specimen), the appropriate already-established CPT code, based on the gestational age, should be used. The lower value for fetal autopsies is not in any way intended to suggest that all fetal autopsies are easier or otherwise require less professional work than adult autopsies. Rather, as with all CPT codes, the value assigned is intended to represent an average for all fetal autopsies, and many fetal autopsies (eg, anatomically normal fetuses that died from placental events) do require less professional effort.

There is clearly significant variability in autopsy practices from institution to institution, as evidenced by the wide range of responses for the average time per autopsy obtained from a survey of pathologists. These variations include the type of cases that typically come to autopsy, the detail of dissection, the number of special studies performed and evaluated, the level of technical

Table 3. Autopsy Committee Suggested Values for Measuring the Professional Activity Associated With the Performance of Autopsies^a

Adult autopsy	
Full autopsy (without brain):	88309-26 \times 5.5
Additional (add-on):	
Adult brain	88309-26 \times 1.5
Detailed clinical-pathologic discussion ^b	88309-26 \times 1.5
Fetal/neonatal autopsy	
Full autopsy (without brain):	88309-26 \times 4.0
Additional (add-on):	
Fetal brain	88309-26 \times 0.5
Placenta (if done with autopsy)	88307-26 \times 1.0 for third trimester 88305-26 \times 1.0 prior to third trimester
Detailed clinical-pathologic discussion ^b	88309-26 \times 1.5

^a The final multiplier for a given case is the sum of the base multiplier for that case type and any appropriate add-on multipliers. These values do not include any technical component that may be performed by the pathologist.

^b For purposes of these recommendations, a detailed clinical-pathologic discussion is defined as an in-depth discussion of the findings at autopsy, correlated with the clinical history, presentation, and clinical course; an explicit statement as to the most likely underlying cause and sequence of events leading to the death; and a researched and referenced discussion of the major disease process(es) present in the patient.

and professional assistance available, and the detail and scope of the final autopsy report. Individual practices choosing to recognize the professional work of pathologists who perform autopsies are encouraged to take into account the details of autopsy practices at their institutions, and to adapt the values proposed here to account for those differences. Variation in the detail of the report, as discussed above, is important to consider. Additionally, the type of typical fetal autopsy encountered at one's institution may vary. Some institutions, typically those associated with children's hospitals, may routinely encounter fetal and neonatal autopsies with complex malformations and/or genetic syndromes for which professional work values closer to the adult values may be more appropriate. In contrast, other institutions may have a greater number of elective early terminations where the purpose of the autopsy is simply to confirm that the fetus is normal, and for these cases, lower values for the professional work may be more appropriate.

Individual institutions may also elect to take other factors into account when doing an accounting of the pathologist work associated with the autopsy. Certainly, if the pathologist performs elements of the technical work associated with the case, such as the evisceration or organ dissection without the assistance of a pathology resident, pathologist's assistant, or autopsy technician, that effort should be recognized. Additionally, the inherent inefficiencies associated with intermittent individual cases (ie, it is far more efficient, per case, to sit down and sign out 5 cases in succession than to sign out 1 case every few days), particularly when coordinated viewing between an attending and a resident needs to be arranged to move a case along, may be considered. Finally, some practices use structured templates for their

reports, which may decrease the amount of work associated with the case.

The purpose of this study was to develop a mechanism that practices can easily adopt to recognize the professional work of pathologists who perform autopsies, and was not done with any goal toward changing the reimbursement model for autopsies. However, general adoption of mechanisms to recognize this professional activity may represent an important early step in the process of reexamining the current compensation model or in collecting the necessary data to propose alternative models.

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