Special Article

Academic Pathology
Volume 6: 1–4
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DOI: 10.1177/2374289518824057
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Position Paper From the Association of Pathology Chairs: Assessing Autopsy Competency in Pathology Residency Training

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Keywords
autopsy, certification, competency, graduate medical education, recommendations, pathology

Received October 25, 2018. Accepted for publication December 10, 2018.

Background

Autopsy is an essential part of residency training in pathology, as it provides a high value educational experience in human disease processes, clinical–pathologic correlation, anatomy, and more, even though it may be a relatively minor component of the practice of pathologists not involved in Forensic Pathology. For the purpose of Board eligibility, residents and their program directors have reported compliance with a number-based criterion, where the resident must document, and the residency program director must attest to the resident having completed at least 50 autopsies during training.

Declining numbers of hospital autopsies have challenged the completion of 50 cases in many programs, so that starting in 2002, residents were permitted to share their autopsies between 2 residents, provided that the residents participated in 8 essential parts of the autopsy: (1) review of the clinical history and circumstances of death, (2) external examination of the body, (3) gross dissection, including organ evisceration, (4) review of the microscopic and laboratory findings, (5) preparation of a written description of gross and microscopic findings, (6) development of an opinion as to the cause of death, (7) clinical–pathologic correlation, and (8) review of the autopsy report with a faculty member. The American Board of Pathology has continued to refine these requirements, in 2013 when the definition of a fetal autopsy was more clearly defined and a limitation placed on the number of intrauterine fetal demise autopsies to be counted toward the numeric requirement, and most recently in 2017, when the number of residents who could share an autopsy was limited to 2, and maximum number of single organ and limited autopsies defined.

These changes notwithstanding, residents in some programs still struggle to obtain the required number of autopsies. The amount of time spent during residency training to perform the required cases is felt to have been excessive when new-in-practice pathologists are asked to reflect upon how their time was used during training. Changing from a purely number-based criterion toward a competency-based criterion has been proposed as a solution to mitigate these problems.

In 2016, the Association of Pathology Chairs empaneled an Autopsy Working Group to study documentation of autopsy competency, trainee dissatisfaction with the numeric autopsy requirement, and to make recommendations about how to proceed with a transition to a competency-based criterion, if

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possible. The Autopsy Working Group found itself at first without actionable objective information about how autopsy is taught in US pathology residency training programs. In order to obtain such information, the Autopsy Working Group determined that the first step in obtaining actionable information would be to assemble a list of autopsy service directors, the parties most knowledgeable about resident training on their services. In April 2016, the Autopsy Working Group solicited the directors of 142 US pathology residency training programs for the name of their autopsy service director. Of these, 120 responses were obtained, with the names and contacts of 113 autopsy service directors. In June 2016, these 113 autopsy service directors were surveyed about important aspects of autopsy education on their services, their opinions about the difficulty experienced by residents trying to meet the number-based criterion, and their opinions on whether the current criterion of 50 autopsies was too low, too high, or about right. Although individually identifiable information about respondents is not to be revealed, the survey of autopsy service directors was conducted without anonymizing the responses so as to be able to analyze the gathered data with information about the corresponding residency program from the publicly available data from the Accreditation Council for Graduate Medical Education. There were 66 at least partial responses (58% response rate) received from autopsy service directors, 42 never opened the survey, 4 opened the survey but did not respond, and 1 survey could not be delivered by e-mail. Because the survey was not conducted anonymously, it is acknowledged that there is likely inherent bias where the survey responses of the autopsy service directors may be skewed to be more positive than a truly unbiased, anonymous response might otherwise indicate. The results of the survey of autopsy service directors are presented in the paper by Davis et al.[1]

Recently, the importance of the autopsy has been reemphasized as medical centers focus on quality rankings and reduction in unexpected mortality, and as autopsies performed on patients who experienced complications related to an increasing number of new and innovative therapies provide critical information impacting the treatment of other patients on the same therapies.[2] Competency in performance and timely reporting of autopsy findings remains an essential element of pathology practice with important patient care implications.

Current Practice

From its survey of autopsy service directors, the Autopsy Working Group made several important observations[1]:

1. There is great variation among programs in the availability of autopsies for training residents.

Our results indicate that not only do total numbers of autopsies on the main service under the direction of an autopsy service director vary by orders of magnitude, there is also considerable variation in the mix of cases available for this training. Both of these factors may affect the training of residents on service. Even extending the numbers of autopsies available per resident by the reported rates of sharing autopsies, most responding programs could not achieve the required 50 autopsy quota on their main services alone. In many cases, residents are sent offsite to perform forensic autopsies, which do complement the hospital autopsy experience, but should not replace it.

2. Autopsy training is a team activity.

In learning to perform autopsies, pathology residents should learn to master many component entrustable tasks. Although much of the teaching comes from faculty, including a service director and other faculty assigned to the autopsy service, very significant teaching contributions are made by other trainees, as well as by participating support staff.

The sharing of responsibility for autopsy, instituted to prolong the number-based criterion, has created a dialog between residents working together to complete their complex task, which is a valuable team experience to be gained in residency.

Because, as noted above, it is likely that residents learn to perform autopsies in more than one service, they may be exposed to a variety of procedures and philosophies.

3. Resident education in autopsy is not conducted in a standardized fashion.

One predicate of a number-based criterion for assessing competency in autopsy is that each counted autopsy should have a similar instructive value from resident to resident and from program to program. In addition to the previously noted differences in available cases and in the mixture of specialized cases on different services, the very act of sharing cases fundamentally changes the unit value of every case for an individual resident. Sharing of cases has allowed for the number-based criterion of 50 cases to last for a few more years on the basis that sharing residents are required to participate in 8 broadly defined component parts of the autopsy. The reality is that cases cannot be completely shared at the most basic level. Only one person in a team will remove the brain, only one will run the bowel, and only one will draft the report for the first time. On the other hand, as noted above, sharing autopsies does permit for a positive social interaction among residents, who might otherwise be left alone to complete the complex task.

Perhaps more importantly, our results show great variation in the technical aspects of autopsy training among programs. A number-based criterion that allows as equivalents en masse evisceration followed by dissection as the standard protocol in one program, organ-by-organ dissection as the standard protocol in a second program, and in situ examination as the standard protocol in a third program seems to have missed its mark.

Chart review is an essential part of the autopsy and provides insight into the treatment and progress of the patient, influencing how the autopsy may be conducted and guiding communication of results with the health-care team. The clinical information available includes clinical laboratory data that may be both educational and important in guiding autopsy performance and clinical correlation. Processes to include clinical

laboratory findings and integrate anatomic and clinical pathology education into the autopsy are utilized by some centers.[3]

4. There is need for accountability for autopsy training to the residency program director and ultimately to the American Board of Pathology.

A relative minority of autopsy service directors are also Residency Program Directors. As a part of the present application to sit for credentialing by the American Board of Pathology, the resident must represent, and the program director must attest to the Board that a stated number-based training requirement has been met. It is concerning that the majority of autopsy service directors who are not concurrently the Residency Program Director do not provide a list of cases completed by each resident to the program director. More concerning still is that in trying to collect the list of autopsy service directors, it became apparent that no such person existed in some programs.

Issues Resulting From Current Practice

As a result of the analysis of autopsy survey findings and feedback from new-in-practice pathologists, several problems have become evident. The current number-based criterion for competency to perform autopsy is failing in several ways:

Some large and well-regarded pathology residency training programs find it impossible to provide their residents with sufficient hospital autopsies, and must rely upon outside services where the program cannot assure the quality of the learning environment.

In order to attain the number-based criterion for competency in autopsy, many new-in-practice pathologists believe that they spent too much time learning autopsy during residency, which in most cases comprises a negligible part of their practice.[4] Despite the perception of the limited value of autopsy training, many program directors view the autopsy as an essential educational tool where residents become competent to perform gross dissection and descriptions, sample organs for microscopy, perform microscopic examinations as appropriate to the case, review clinical history and perform a pathologic correlation, and communicate with other clinicians and even family members. Mastering these competencies is vital to much more of pathology practice than the mere performance of an autopsy.

Stakeholders cannot be confident that all Board-certified anatomic pathologists have the practical skills to perform an autopsy with minimal assistance when called upon to do so.

Position of the Association of Pathology Chairs, Supported by the Residency Program Directors Section

1. Autopsy training should remain an essential part of pathology training. Training programs should integrate anatomic and clinical laboratory education as part of autopsy training.
2. All pathology residency training programs should have an identified autopsy service director with primary responsibility for assuring the learning environment on service.
3. Timely autopsy reports are a must, with provisional reports entered into the medical record within 2 working days and final reports within 60 working days. Departments are encouraged to establish benchmarks for completion of final reports within 30 working days, in order to enhance the communication of final autopsy diagnoses to the health-care team while the details of the clinical care remain clear.
4. When autopsies are conducted on patients experiencing morbidity and mortality from of new and innovative therapies, where other patients are being similarly treated and autopsy findings may directly influence patient care, the autopsy service should provide close liaison to communicate to concerned clinicians updated reports of findings as they become available.
5. Autopsy remains an essential part of the pathologists' professional work. A set of Autopsy Entrustable Professional Activities,[5] defined as "tasks or responsibilities to be entrusted to the unsupervised execution"[6] on day 1 of independent practice, should be developed.
6. For the purpose of demonstrating competency in autopsy, residents should be required to learn to perform and report cases using the method of Letulle, with en masse evisceration followed by dissection, which requires and reinforces knowledge of anatomy and allows for systematic evaluation of all hollow and solid organs. Other methods may be used, as required for the case, but the trainee needs to gain competence in the Letulle method.
7. The autopsy service director should provide the residency program director with current numbers and types of cases performed by each resident, as well as the progress of residents in gaining competency in Entrustable Professional Activities related to autopsy performance and reporting.
8. When the above changes have been implemented, the number-based criterion should be modified to require an appropriate balance of adult and pediatric hospital autopsies, performed using the Letulle or equivalent method, along with forensic and additional autopsy cases in order to meet existing Board numeric requirements. The required Letulle method autopsies may be shared by no more than 2 residents and are not to include single organ or limited autopsies. The remaining autopsies needed to meet the American Board of Pathology (ABP) numeric and other specific requirements and to achieve competency and readiness to perform autopsy-related Entrustable Professional Activities on completion of training could be met by a combination of single organ or limited autopsies, fetal autopsies, and forensic autopsies. Residents having met these numeric and qualitative requirements, but who

have not demonstrated readiness to perform autopsy-related Entrustable Professional Activities, will be expected to complete additional cases selected to best address gaps in performance until competency is achieved. Having reached any diminished number-based criterion should not be cause for a resident to refuse to perform an assigned case while on service.

Future Practice Overviews

If the recommended changes in autopsy training during pathology residency are made, the satisfaction of stakeholders should be monitored. Complaints to the American Board of Pathology about deficient autopsy skills of newly Board-certified anatomic pathologists should be closely monitored. Stakeholder groups with the ability to survey employers of newly Board-certified pathologists should collect data about the autopsy skills of their new hires. If satisfactory improvement is made in the consistency and quality of autopsy training, the number-based criterion should be revisited, and perhaps eliminated entirely so as to implement a purely competency-based criterion.

Authors' Note

This position paper was reviewed and approved by the 2018-2019 Council of the Association of Pathology Chairs (APC) and the 2018-2019 Council of the Pathology Residency Program Directors Section (PRODS). See www.apcprods.org for a complete list of Council members.

Acknowledgment

The authors wish to acknowledge the valuable input of the APC and PRODS Council members, along with members of the APC Graduate Medical Education Committee, as well as the efforts and contributions of Ms Priscilla Markwood.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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