The National Association of Medical Examiners®

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POSITION PAPER: SECOND AUTOPSIES

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Abstract:

Second autopsies are uncommon in the United States yet are of significant public value. A second autopsy may be sought when the first autopsy findings are disputed, considered biased, or inadequately communicated. Second autopsies are technically and interpretatively difficult, and usually rely heavily on investigative information, first autopsy findings, and additional documentation from the first autopsy. Medicolegal second autopsies should be performed only by experienced, board-certified forensic pathologists. Pathologists performing second autopsies should acknowledge and disclose the limitations of second autopsies. The first autopsy pathologist should recognize the quality assurance value of a second autopsy and fully disclose autopsy documentation to the second autopsy pathologist, if permitted by jurisdictional law.

Introduction:

For purposes of this position paper, a second autopsy is defined as a second complete autopsy examination that follows a first complete autopsy examination. This term does not apply to autopsy examinations that follow external examinations without an internal examination (e.g., a "view" or an "external only"), partial autopsies, or cases that were limited to records review.

The National Association of Medical Examiners (NAME) is the professional organization of forensic pathologists, medicolegal death investigators, administrators, and supporting specialists such as forensic toxicologists. NAME strives to ensure that medicolegal autopsies are performed to high standards. Optimally, the "first autopsy" or "primary autopsy" is an integral component of a comprehensive death investigation, including a scene investigation. The pathologist integrates investigative information with autopsy findings, medical history, imaging, toxicology, and other ancillary tests to determine the cause and manner of death. As an organizational advocate of medicolegal autopsy excellence and professionalism, NAME has developed and periodically updates rigorous Autopsy Performance Standards and detailed Office Accreditation Requirements. [1,2] As of December 2022, greater than 100 death investigation systems in the United States are accredited by NAME and serve approximately 50% of the United States population.

Autopsy reports and related documents are often reviewed by consultant forensic pathologists, particularly in deaths that progress to criminal or civil litigation. Such review is a normal component of the adversarial legal system in the United States. In other arenas of clinical medicine, obtaining second opinions is a routine collaborative practice. Similarly, NAME-accredited offices are required to have quality management programs that include internal peer review; consultative review and second autopsies are forms of external peer review.

A first autopsy is the optimal setting for detailed examination of the unaltered body and collection of evidence. Therefore, first autopsies performed to NAME standards may yield contextual conclusions and evidentiary findings that are different from and superior to those outcomes of a second autopsy. Paradoxically, the media and public perception is that the second autopsy findings are invariably superior to the primary autopsy. With possible exceptions, this perception is not correct and denies the reality of what can and cannot be achieved by a second autopsy.

Second autopsies are more common in the United Kingdom and other European countries and are comparatively rare in the United States. It is estimated that less than 50-75 second autopsies are performed per year but data about second autopsy numbers are limited. In 2021, 102 NAME-accredited medical examiner and coroner offices were surveyed to determine the number of second autopsies performed in their jurisdictions in 2020 (Appendix 2). Though the survey had limitations, the responding offices performed 26,719 autopsies in 2020 and were aware of only 4 or 5 second autopsies performed after primary autopsies (roughly 1 second autopsy per 5,300 first autopsies).

Several members of this position paper committee believe that second autopsies are more common than described above. These impressions are based on their personal practice experiences and may represent selection bias. These committee members also suggest that second autopsies are becoming more common. These members provided data that second autopsies accounted for 2-10% of their **a**nnual autopsy workload.

Position Paper Process

The policies and procedures of NAME include a process for writing, evaluating, and ultimately approving position papers.[3] The authors and committee adhered to the prescribed sequence. The key words and databases used for this paper's literature searches are in Appendix A.

Independence of Autopsies

The perceived need for a second autopsy may reflect a lack of trust in the independence of the medicolegal death investigation authority, a hospital, the forensic pathologist, or the hospital-based autopsy physician. Second autopsies of those who die during law enforcement intervention or while incarcerated may generate intense public interest. Second autopsies are often described by the media as "independent autopsies," implying that the first autopsy cannot be truly independent. This characterization perpetuates a perception of biased conclusions from the first autopsy and denies the professional independence of forensic pathologists who conduct medicolegal autopsies. In 2013, NAME published the *Medical Examiner, Coroner, and Forensic Pathologist Independence* position paper to explicitly address these concerns. The NAME position is that "Forensic pathologists, medical examiners, and coroners, in the performance of their duties, should be considered neutral experts, and not as "prosecution experts" or "defense experts. . ."[4] Despite this ideal, 70% of surveyed NAME members have experienced pressure to influence their findings at some point in their careers.[4]

Relevant to the ideal of professional independence, autopsy physicians performing second autopsies may be under pressure to deliver expected outcomes given that second autopsies are typically sought, commissioned, and compensated by concerned family members or their attorneys. Dissatisfaction or distrust of the first autopsy conclusions are common motivators. As such, second autopsies are not necessarily scientifically neutral or devoid of biases as parties may have vested interests in particular autopsy findings. However, just as forensic pathologists working in a coroner or medical examiner setting should be able to separate themselves from these various pressures, so should a forensic pathologist who is engaged by a family or attorney representing a family. Forensic pathologists are not

compensated for an opinion per se – compensation is for their expertise and interpretations that allow formulation of an independent expert opinion.

The Second Autopsy:

NAME recommends that second autopsies in non-natural deaths be performed by American Board of Pathology-certified forensic pathologists who possess a current state medical license where the autopsy is performed. Equivalent certification and licensure are acceptable for non-US based forensic pathologists. Given the complexity and technical difficulty of second autopsies, such examinations are typically beyond the purview of general pathologists. Exceptions may be in a presumed natural death with no medicolegal consequences if the general pathologist has extensive autopsy experience. NAME standards require the forensic pathologist to either perform the entire autopsy without assistance or, if using qualified autopsy assistants, be present for the entire examination and actively observe, supervise, and dissect. Forensic pathologists performing second autopsies should be highly skilled and experienced autopsy practitioners. Ideally, they should have prior experience in performing second autopsies.

NAME recommends that the second autopsy be performed in compliance with the NAME Forensic Autopsy Standards[1] in a secure facility with adequate lighting and the other features of facilities accredited by NAME.[2] The second autopsy pathologist should generate a complete autopsy report that includes external and internal examination observations, limitations of the examination, final diagnoses, opinions, and cause and manner of death, unless sufficient information is not available for a cause and manner of death determination. A second autopsy report should fully describe the condition of the body as received (externally and internally) and note organs that are not present in the body. Lastly, a second autopsy report should include a list of all items requested from the first autopsy jurisdiction (e.g., investigative reports and photographs) and what was provided.

Autopsies performed in medical examiner and coroner offices are authorized by law and allow the forensic pathologist both latitude and professional discretion to conduct investigations and examinations. Second autopsies, on the other hand, are permitted by the consent of the next-of-kin, unless court-ordered. Therefore, the second autopsy report and any forensic pathologist opinions are transmitted to the next-of-kin. While a traditional complete autopsy report should be every second autopsy pathologist's objective, the consent authorizing a second autopsy may specify limitations that restrict the autopsy procedure or the reporting. Regardless, NAME recommends that the forensic pathologist performing the second autopsy should advocate for a complete autopsy examination that is unencumbered by reporting limitations.

Legal Considerations

Articles from the legal profession tout the second autopsy as a key component of a complete legal case. One forensic pathologist stated, "If there is any reasonable doubt or relevant issue about the accuracy and validity of the findings reported by the coroner/ME who performed the autopsy on the victim, the attorney should give serious consideration to having a second autopsy performed."[5] Other forensic pathologists wrote that, " . . . performance of a second autopsy (importantly, with review of any organs

or tissues retained at the time of the original autopsy) should be near the top of the list of high value tasks very early in each death case." [6]

These opinions notwithstanding, multiple appeals alleging ineffective assistance of counsel based on failure to obtain a second autopsy or pathologist consultation have failed. Legal opinions discussing the reasons these appeals failed have identified several themes. 1) The original autopsy was well documented. The reports and photo-documentation were subject to review and the original autopsy physician was cross-examined effectively.[7] 2) The appellant could not provide factual information that a second autopsy would have changed the trial outcome. Without evidence to the contrary, the court describes the appeal that a second autopsy would have resulted in exoneration (without any corroboration) as conjecture.[8] 3) Choosing not to obtain a second autopsy may have been the result of reasonable legal judgement by trial counsel and not a decision that fell outside the boundaries of competent assistance.[9]

Even if a second autopsy is desired by a party, there may be legal barriers, particularly after the body has been interred. There may be statutory requirements for disinterment, and it may require a court order. In legal decisions and opinions about whether an exhumation should be permitted for the purpose of performing a second autopsy, the courts have balanced the sanctity of the grave against the likelihood of a second autopsy providing information that would change the legal outcome in a criminal or civil proceeding. For example, if the body had not been embalmed and experts opine that decomposition would hamper the examination, the request is often declined.[10]

Since the rights of the decedent's next-of-kin are balanced with the rights of defendants, defendants do not have a right to an exhumation or a second autopsy. Cremation of the body of a homicide victim, without the person accused of committing the homicide having had the opportunity to arrange for a second autopsy examination, does not violate the rights of the accused under either federal or state constitutions.[11] Nonetheless, courts recognize that a body may represent crucial and impermanent physical evidence; courts may act accordingly in the interest of the state.

Cooperation Between the First and Second Autopsy Pathologists

A death investigation system and its affiliated forensic pathologist who conducted the first autopsy should cooperate with plans for a second autopsy to the extent allowed by jurisdictional law and office policy. The extent of cooperation by the first pathologist should include providing contextual investigative information relevant to that pathologist's determination of the cause and manner of death, scene and autopsy photographs, reports of completed ancillary studies (e.g., toxicology and microbiology), imaging reports, and subspecialty consultation reports (e.g., neuropathology and cardiac pathology). The second pathologist should have the opportunity to review, under supervision, original histologic slides or recuts obtained from the first autopsy, and to directly examine residual tissue retained from the first autopsy. Scanned images of autopsy slides may be provided if the technology is readily available. The first forensic pathologist should not obstruct sharing of data with the second autopsy pathologist.

The second autopsy pathologist should recognize the constraints and need for proper authorizations associated with the release of autopsy-related materials, especially in criminal matters. The second

autopsy pathologist should seek permission from the party requesting the second autopsy to share new or unexpected findings from the second autopsy with the first autopsy pathologist, and be willing to have a discussion of discrepant conclusions. In general, the first and second autopsy pathologists should engage in a cooperative, professional manner so as to ensure that neither pathologist is unduly hindered in the pursuit of their respective responsibilities.

It should be re-emphasized that providing autopsy materials, especially when a criminal investigation is active, may be prohibited by jurisdictional law and may require proper authorization for release by family, law enforcement, or other parties. Though NAME endorses the position that second autopsies should be performed by forensic pathologists (with rare exception), the obligation to cooperate remains if a non-forensic pathologist has been retained for the second autopsy.

Autopsy Observation as an Alternative to a Second Autopsy

Occasionally, a medical examiner or coroner may recognize that results of a first autopsy will likely provoke significant controversy or media coverage. In such cases, a medical examiner or coroner may proactively invite the family or representative to obtain a separate forensic pathologist expert to observe the first autopsy. In one NAME-accredited office, some autopsies are postponed for 24 hours to allow family members to consult a physician, preferably a forensic pathologist, to attend the primary autopsy on their behalf. The autopsy witness cannot be an attorney or investigator. The family is given formal written notification of the practice at the beginning of the 24-hour postponement.[12]

It is recommended that efforts to accommodate observers of a first autopsy be respected by all parties.

Limitations of the Second Autopsy

The best opportunity to obtain autopsy documentation and collect evidence is during a competent and complete first autopsy. Second autopsies are inherently limited in what can be directly observed by the autopsy pathologist. The first autopsy substantially alters the integrity of the body. Subsequent autopsy physicians cannot observe all that the original autopsy physician observed (or should have observed). The first autopsy will create artifacts and alterations that cannot be undone.

For example, the initial external appearance of the body has been altered by the first autopsy and is no longer pristine. The clothes and medical intervention devices, if any, have been removed and the body washed. Blood patterns on the body surface, for example, have been lost.

The internal examination will also be markedly altered by the first autopsy. Dissection obliterates the relationships of the organs and tissues. Sectioning of the organs ensures that a holistic view of organs is not possible. Surfaces of organs and soft tissue will be poorly visualized. Determination of gunshot and stab wound injury tracks may be difficult or impossible to recognize and reconstruct, particularly where there are multiple gunshot or stab wound injuries. Routine manipulation of the body during a first autopsy may result in extravasation of blood into soft tissue that can be misinterpreted as bruising or hemorrhage during a second autopsy.

Presuming a competent first autopsy, trace evidence, organs, tissues, fluids, and cavity free air have been removed from the body. Some dissected organs and tissues will remain in the body cavity (commonly in a biohazard bag), but these materials will be extensively comingled. Bullets and bullet fragments have been removed from the body. Focal gross pathologic findings may be specifically selected for histology or other further examination, and may not be available to view by the second autopsy pathologist. Some forensic pathologists routinely excise all or part of gunshot entrance and exit wounds for microscopy. Whole organs such as the brain or heart may have been removed and retained during the primary autopsy for fixation and further examination, or for consultative examination by a neuropathologist or cardiac pathologist. It is common for forensic pathologists to retain the neck structures for further radiographic examination, or to allow for permanent documentation in cases where neck compression was diagnosed or considered. It is therefore possible that the neck structures are not available for the second examination, even in cases of strangulation, "choke holds," or other forms of neck compression.

There is progression of decomposition during the time interval between autopsies. Tissue procurement may also follow the first autopsy examination, which may further interfere with visualization of injuries and result in the absence of tissues. Embalming will result in further artifacts.

For all these reasons, independent conclusions from a second autopsy are difficult and often limited. The second autopsy physician will rely heavily on the first autopsy for at least some findings. Thus, it behooves the original forensic pathologist to carefully document findings in photographs and in writing. The second autopsy physician typically relies on toxicology results or laboratory values derived from the first autopsy.

While many limitations may reduce the value of a second autopsy examination, a thoughtful records review by a fresh set of eyes (the second autopsy pathologist) may be sufficient to address the concerns of the family or other party.

The Delayed Second Autopsy

The inherent difficulty of a second autopsy is compounded by any long delay before the first and second autopsies. Decomposition alters the body and challenges even experienced forensic pathologists during first autopsies, let alone second autopsies. Artifacts of dissection during the first autopsy may further complicate interpretation during a delayed second autopsy. Refrigeration does not arrest decomposition. Freezing the body will induce freeze/thaw artifacts. Burial may introduce artifacts from embalming changes, trocar perforations, mold, water submersion, and desiccation. If a body has been buried long term, its condition is difficult to predict and will range from well-preserved to skeletal.

Toxicologic testing is possible but limited by less-than-optimal decomposed or desiccated specimens and embalming chemicals.

A separate potential complication of a long interval (multiple years) between first and second autopsies is that the quality and availability of first autopsy reports and materials, photographs, and investigative information may be limited. Recovery of documentation should not pose a problem in the current era of electronic records.

New Findings or Contrary Conclusions in Second Autopsies

Individuals who perform second autopsies point to these examinations as ensuring the thoroughness of the first autopsy and providing closure to the family based on autopsy findings they trust. For example, concerning the thoroughness of a first autopsy, an autopsy study of decedents repatriated to Germany from 56 countries between the years 1999 and 2018 included 91 bodies that had documentation indicating performance of a first autopsy.[13] The three major body cavities (head, thorax, and abdomen) had been opened during the first autopsy in 78% (71/91). Body cavities had not been opened in 5.5% (5/91) of cases purporting to have had a first autopsy and a "sutured, typical autopsy incision" without an internal examination was present in 3 cases. In a related study using the same data, 84% of autopsies performed abroad did not meet "German and European standards" and in almost one-quarter the second autopsy changed the cause of death determination.[14]

Clearly, there are examples of second autopsies that identified sham, incomplete, or poorly performed first autopsies and exposed incorrect findings, but there are few documented examples of second autopsy results that affected a legal outcome or exonerated a defendant.[15,16,17,18] Baker et al. reported a second autopsy on an exhumed infant following documented child abuse in his living adopted sibling.[19] The first autopsy report described lung hemorrhage and four rib fractures but did not accurately document anatomical location of the fractures. The second autopsy documented 52 fractures and the infant's father was eventually convicted in a military court of having caused fatal blunt trauma.

In contrast, even if the second autopsy reaches a conclusion contrary to the primary autopsy, this may not alter outcome of a trial or an appeal. In *Hinkle v. City of Clarksburg, W.VA* the medical examiner concluded a single perforating gunshot wound of the chest with direction from front to back. The body was exhumed months later at the request of the decedent's family. An individual described as an "independent medical examiner" performed a second autopsy and concluded an entrance on the back, and therefore a direction from back to front. The family's civil action failed because, in part, the stated back to front direction was inconsistent with objective information from the scene investigation.[20] An additional example is found in *Smith v. Harrison County MS.*[21]

There are many examples of agreement in opinions generated during first and second autopsies. In the 2011 death of Develt Bradford who was found hanging in a Cook County, IL jail cell, the first autopsy performed in the Cook County Medical Examiner's Office and a second autopsy requested by Bradford's family concluded that the manner of death was suicide, with no contributory causes of death.[22] Other examples are found in *Dixon v. Dearborn*[23] and *Morales v. Ault*[24].

Media Interactions and Disclosure of Autopsy Findings

Regarding the primary autopsy, release of information practices vary by jurisdiction and are typically established by law. As noted previously, a second autopsy may be driven by a lack of access to data from the first autopsy. It is incumbent upon all autopsy pathologists conducting autopsies in an official capacity to provide information to those legally eligible to receive it as rapidly as possible.

In contrast, second autopsy reports and materials belong to the family who arranged for and authorized the autopsy, usually through an attorney, with the exception of court-ordered second autopsies.

A second autopsy pathologist should use great care when disclosing second autopsy findings to the family or representative. Despite the NAME recommendations for transparent sharing of information from first to second autopsy pathologists, the second autopsy pathologist may not have substantive investigative or first autopsy information at the time of the second autopsy. Limitations of the second autopsy pathologist's interpretation should be emphasized to the family or representative. This practice is particularly important when there is incomplete investigative information detailing the specific circumstances of injury and when findings/artifacts of the first autopsy are not fully communicated to the second autopsy pathologist. The second autopsy pathologist must offer a patient, clear, and honest interpretation that acknowledges limitations and states levels of confidence given the extent (or gaps) of contextual information known to the second autopsy pathologist.

Second autopsies are often performed in potentially controversial deaths such as in-custody deaths, and thereby may generate intense public attention.[25,26] The news media and public interest can create significant pressure for immediate release of second autopsy findings. There are multiple recent examples of autopsy information being released soon after completion of the second autopsy examination. As second autopsies are usually arranged by family members or their legal representative, those parties typically have control of information release. NAME recommends that autopsy findings from second autopsies not be released until the forensic pathologist who performed the second autopsy 1) is satisfied that he/she has reviewed and incorporated all available documentation from the primary autopsy and 2) has completed the written report of the second autopsy. This approach means that toxicology results and consultative reports should be received prior to release of second autopsy information. A reasonable waiting period for information from the first autopsy may prevent public release of incorrect autopsy findings, which may be particularly harmful and difficult to reverse in volatile situations. Exceptions to the first recommendation exist if collegial efforts to obtain case data from the first autopsy pathologist are unsuccessful.

Occasionally, the second autopsy conclusions are materially different to those of the first autopsy. This may be the result of a poor quality first autopsy where injuries, disease, or evidence were not identified or not considered important, which will likely yield one or more significant errors in interpretation of autopsy findings. On the other hand, the second autopsy conclusions may differ from the first due to first autopsy artifacts limiting the second examination and/or lack of contextual data from the first autopsy. More commonly, it is the interpretation of the findings and the role that each played in causing or contributing to death that is source of debate. Two qualified forensic pathologists can disagree as to the weight that varying factors played in a death, and neither individual is necessarily incorrect.

A high quality first autopsy with case appropriate radiologic imaging, photographic documentation, ancillary testing, and a complete written autopsy report will serve as the best rebuttal to erroneous conclusions of a second autopsy. One may respond to inaccurate reports made to the public by working with the investigative authorities, even if only to release basic correct factual information that will not compromise the investigation but will serve to present the first autopsy findings without the limitations of the second autopsy. Death investigation systems may anticipate such a situation by establishing a

working relationship with their investigative colleagues and agreeing on guidelines for release of information before such a need arises.

Conclusion

Excellence in forensic autopsies and medicolegal death investigation are founding objectives of the National Association of Medical Examiners. Outcomes of forensic autopsies, particularly when conducted in the context of high-quality medicolegal death investigation, may be essential components of public health and administration of justice.

It is the position of NAME that the first (or "primary") forensic autopsy examination is the best opportunity to identify, document, and interpret the spectrum of trauma and/or disease that caused death. It is the position of NAME that second autopsies are technically challenging and interpretatively difficult, and that medicolegal second autopsies should be performed by experienced board-certified forensic pathologists only. Due to many inherent limitations of second autopsies, the quality, reliability, and clarity of the second examination depend on complete documentation during the first autopsy and transparent cooperation between the first and second autopsy pathologists, if legally permitted.

Autopsy pathologists commonly consult peers to enhance their diagnostic accuracy. The second autopsy is a form of second opinion and peer review. An autopsy pathologist who conducted a first autopsy should facilitate a second autopsy in the spirit of collaborative peer review for the ultimate release of information, diagnoses, and conclusions to the family of the decedent and to the public.

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APPENDIX A: SEARCH STRATEGY

Pubmed	"second autops*" OR "2nd autops*"
Embase	(second OR 2nd Or repeat OR defense OR defence) within 2Words of (autopsy OR autopsies OR obduction* OR 'postmortem examination*' OR post-mortem examination*')
Web of Science	(second OR 2nd Or repeat OR defense OR defence) within 2Words of (autopsy OR autopsies OR obduction* OR 'postmortem examination*' OR post-mortem examination*')
HeinOnline	(second OR 2nd Or repeat OR defense OR defence) within 2Words of (autopsy OR autopsies OR obduction* OR 'postmortem examination*' OR post-mortem examination*')

EBSCO Platform*	(second OR 2nd Or repeat OR defense OR defence) within 2Words of (autopsy OR autopsies OR obduction* OR 'postmortem examination*' OR post-mortem examination*')

*Databases searched on EBSCO platform: Cumulative Index of Nursing and Allied Heath; Academic Search Complete; Criminal Justice Abstracts with Full Text; Family Studies Abstracts: Health Source: Nursing/Academic Edition; History of Science; Technology & Medicine; Legal Collection; APA PsycInfo; Social Work Abstracts

APPENDIX B

NAME ACCREDITED OFFICES: 22/102 Responded (22% Response rate)

Number of jurisdictional autopsies	Range 197-4229, Mean 1214, Median 1158
Number of offices aware that second autopsies had been performed on any of their cases in 2020	4 (18% of responding jurisdictions)
Number of second autopsies performed on cases in 2020	4 or 5 in 26,719 total first autopsies
Did the accredited office perform any second autopsies themselves in 2020?	1 office performed one second autopsy