



Principles to Promote Research in Medicolegal Death Investigation

A resource document prepared by the Organization of Scientific Area Committees (OSAC) for Forensic Science’s Medicolegal Death Investigation (MDI) Subcommittee, part of the Medicine Scientific Area Committee

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Keywords: autopsy; biospecimens; cause of death; informed consent; manner of death; medicolegal death investigation; medicolegal death investigation system; next of kin; research

Summary

The National Institute of Standards and Technology (NIST) Organization of Scientific Area Committees (OSAC) for Forensic Science Medicolegal Death Investigation (MDI) Subcommittee, which is comprised of stakeholders including medical examiners, coroners, medicolegal death investigators, public health researchers and others, have identified several barriers to research in MDI.

This white paper outlines some of those barriers to strategically advancing medical research in the field of MDI and the efforts U.S. states and jurisdictions can make to address them. This will address sorely needed improvements to access biospecimens and reduce legal barriers to improve public health, justice, and the rights of next of kin. This document is designed for use by U.S. states, other jurisdictions, and medicolegal death investigation systems.

Background and Rationale

Medical examiner and coroner offices are important to the national biomedical research enterprise. Access to biospecimens is a “critical component to the further advancement of justice, forensic sciences knowledge and the care of Next of Kin.”¹

Forensic Pathology Research: The MDI community should be involved in forensic pathology research.¹⁻³ The MDI community exists for the recognized societal need to establish the causes of death and such research advances this interest. The National Institutes of Health and other biomedical researchers only rarely study such topics and the expertise to perform such research resides in forensic pathologists who work in medical examiner and coroner offices. Investigations of the causes of sudden death, of head trauma, and of drug overdoses are all areas ripe for more research. While research in forensic pathology is valuable for the practice of forensic pathology, collaborative research at the intersection of forensic pathology with other



disciplines often results in findings that have more widespread importance to medicine, health and our society. For example, forensic pathology and psychiatry for suicide prevention, forensic pathology and trauma surgeons for the development of new trauma care protocols, and forensic pathology and radiology to better understand the pathology of COVID lung disease.

Public Health Research: Public health research is another important research area of the MDI community. Research on trauma victims could improve safety measures.⁴ In determining death rates from accidents and diseases, it is important to capture the deaths that fall outside the hospital and for that medical examiner and coroner officers are critical. Furthermore, community surveys of exposures to chemicals or prevalence of infectious diseases, such as seropositivity of SARS-CoV-2 can be performed on the cases seen by the MDI community. The importance of the autopsy to the understanding of COVID-19 disease has been much heralded.^{5,6}

Among many good examples, we can look at the research needs of sudden infant death, which still plagues our society with over 3,500 deaths annually. Standard autopsy procedures have failed to provide clarity on such deaths, and high-quality research in partnership with the MDI community is required to better understand and ultimately eradicate sudden infant death causes. State statutes, such as those that have existed in California since the 1980s for such cases,⁷⁻⁹ have successfully enabled research to the benefit of public health. These research findings have led to the triple risk model in Sudden Infant Death Syndrome (SIDS) and the identification of abnormalities in the brainstem.¹⁰

Research of the Greater Biomedical Enterprise: Moreover, information and biospecimens generated by medical examiner and coroner offices should be made available for appropriate research. Case records provide important information for criminal justice and public health researchers.¹¹ Autopsies present an important source of tissues for biomedical research and quality controls.^{12,13} Research utilizing biospecimens has provided significant benefits for the medical intervention of living persons with natural disease.¹⁴ A New Hampshire state statute recognizes the value of research by allowing for biospecimens to be retained for research and released to educational institutions.¹⁵

Considerations of the Next-of-Kin: Concerns of the next-of-kin should always be a consideration in proposing research on MDI case material. Informed consent of the next-of-kin will be necessary for research when not waived or of minimal risk.³ However, it should also be recognized that research is an avenue for the next-of-kin to help provide a positive aspect from



a tragic event. Furthermore, research may provide a sort of second opinion or other information that families and support groups may find valuable.¹⁶

Impediments to Research: Advancements in MDI medical research are limited due to structural and resource issues.¹⁻³ Research is not clearly a mission of medical examiner and coroner offices that generally, but with notable exceptions, are apart from academic medical institutions, unlike most other medical endeavors.³ In fact, authorizing state statutes may pose legal obstacles to research.³ Medical examiner and coroner offices are poorly funded and poorly staffed, making research difficult even if it were a priority. Lack of time to perform research due to overwhelming casework was the number one complaint in a survey of academic forensic pathology programs,¹ and the caseload has dramatically increased since then. Medical examiner and coroner offices generally do not have staff to help write and support grant applications. Forensic autopsies are performed by statutory authorization rather than consent of the next-of-kin; thus the need for informed consent to conduct biomedical research is outside normal procedures. Moreover, there is little incentive for research in these service offices.

There are very few academic forensic pathologists in the US. Academic centers should be the stronghold of research in our discipline. Academic forensic pathologists have limited time for research because it is not prioritized over service work by their institutions. Not all academic centers with forensic pathologists have fellowship programs. Those that have programs provide limited training in research. A much greater volume of research emanates from Europe, where forensic pathologists are typically found in universities, where their careers are dependent upon publication.

State Statutory Law: Research in medical examiner and coroner offices is a function of state law. There is no uniformity among the various states on this issue.^{1-3,17-19} Compounding the problem is the absence of any one agency to help guide states. In many states, legal restrictions limit research and thus inhibit the efforts of medicolegal death investigation entities to advance science in public health, forensic science, and justice. State and local policies and statutes “may severely restrict or entirely preclude use of materials, even anonymous specimens destined for disposal.”² In addition, state and local policies may inadvertently restrict families from pursuing promising research avenues that seek to benefit science, as well as contribute to the health outcomes of surviving family members following a sudden death. It is incumbent on state legislatures to reduce the barriers to scientific research and remove constraints. Such efforts would recognize the critical role of forensic research and allow the use of research samples, records, images and other media in the advancement of justice and health.



Recommendations

Variations in State statutes and local policy often impose onerous restrictions on medicolegal death investigation research and advances necessary to provide the scientific basis for the discipline.

In order for progress to be made in research in medical examiner and coroner offices, States should:

- Specifically authorize use of information and biospecimens for approved research use and any legal barriers to such use be removed.
- Allow for the utilization of anonymized biospecimens and contextual information, including imagery, that are retained during a medicolegal death investigation to determine cause and manner of death for research and education.
- Establish IRB oversight of research projects in compliance with Federal Regulations.
- Ensure an appropriate IRB is available to MDI offices to review, approve, and oversee research.
- Indemnify medicolegal death professionals and any parties in compliance of such laws.
- Facilitate academic appointments of forensic pathologist staff in state academic medical institutions.

The National Forensic Science Commission recommended the establishment of a National Office of Medicolegal Death Investigation.¹⁹ An area for federal consideration may include establishing an office of forensic medicine that has authority to provide grant funded research. The NIH and the NSF do not fund forensic pathology research. The National Institute of Justice (NIJ) funds limited forensic pathology research, but the Department of Justice had determined that medicolegal death investigation is outside their scope. The Centers for Disease Control and Prevention provides the most logical home.

Federal support could be used to bolster forensic pathology research by:

- Supporting two to three forensic pathology centers of excellence that provide strong death investigation including surveillance efforts, excellent training to residents and fellows, and a robust research portfolio.
- Establishing research fellowships, career development awards and mentoring awards for forensic pathologists who engage in intra-disciplinary and cross disciplinary research. In academia, money is time. If a faculty forensic pathologist gets a career development award they need to be provided release time by both institutional and federal effort certification requirements.
- Providing basic research education (human subjects and other compliance functions, tissue use ethics, etc.) to each cohort of forensic pathologist fellows through a combination of online and in-person training. Such training might foster some fellows to become researchers. However, what is more important is that they might embrace



collaborating with cross-disciplinary investigators or providing data and other resources to outside investigators in the future.

Conclusion

This document describes the need for increased research in medical examiner offices and the need to make information and biospecimens available for research. State law should specifically authorize such research and incentivize it through academic appointments. The federal government should consider establishing an office specific to medicolegal death investigation and, among other forms of assistance, provide support for external research.

This document was developed using information sourced from government and professional publications widely accepted in the MDI community as representative of best practice standards.

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Appendix A: Terms and Definitions

For purposes of this document, the following definitions apply:

Anonymized: the removal of identifying information from materials for research purposes.

Biospecimen: any biologic specimen derived from a decedent.

Cause of Death: a medical opinion of the disease or injury that resulted in a person's death.

Informed Consent: the process for obtaining permission to perform research using materials.

Disposition: the action of transferring, distributing or disposing of materials (biospecimens).

State Chief Medical Officer: the senior state official designated as head of medical services within the state.

Institutional Review Board (IRB): an administrative body established to protect the rights and welfare of human research subjects recruited to participate in research activities conducted under the auspices of the institution with which it is affiliated.

Manner of Death: a classification system developed for public health statistics based on the circumstances under which death occurred; currently includes accident, homicide, natural, suicide, and undetermined.

Medicolegal Death Investigation: the practice of a formal inquiry into the circumstances surrounding the death of a human; investigative information may be considered with autopsy findings and adjunctive studies (if performed) to determine the cause and manner of death.

Medicolegal Death Investigation System: medicolegal death investigation office(s) (usually a medical examiner or coroner office) within a state or district that is a jurisdictional unit with a single chief medicolegal death investigation officer.

Next of kin: the legally determined hierarchy of interested parties who have authority over the decedent.



Appendix B: Normative/Informative References

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