

OSAC RESEARCH NEEDS ASSESSMENT FORM



Title of research need: Pediatric Forensic Pathology to improve the accuracy of cause and manner of death certification

Keyword(s): SIDS, SUID, sudden death, accidental suffocation, SUDC, unsafe sleep, autopsy

Submitting subcommittee(s): MDI **Date Approved:** 2/28/2021

(If SAC review identifies additional subcommittees, add them to the box above.)

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

Not at this time.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

Yes, there was recently a book published on this topic by NAME but additional research continues to be needed.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

SWGMDI's Report and Recommendations for Research in Forensic Pathology/Medicolegal Death Investigation (June 2014), Scientific Working Group for Medicolegal Death Investigation (SWGMDI)

Kim SY, Shapiro-Mendoza CK, Chu SY, Camperlengo LT, Anderson RN. Differentiating cause-of-death terminology for deaths coded as sudden infant death syndrome, accidental suffocation, and unknown cause: an investigation using US death certificates, 2003-2004. J Forensic Sci. 2012;57(2):364-369.

Krous HF, Chadwick AE, Crandall L, Nadeau-Manning. Sudden Unexpected Death In Childhood: A Report of 50 Cases. Pediatric Dev Pathol. 2005;8:307-319

Hesdorffer DC, Crandall LA, Friedman D, Devinsky O; Sudden unexplained death in childhood: A comparison of cases with and without a febrile seizure history. Epilepsia. 2015 Aug;56(8):1294-300. doi: 10.1111/epi.13066. Epub 2015 Jun 29

Rudd R, Capizzi Marain L, Crandall L To Hold or Not to Hold: Medicolegal Death Investigation Practices During Unexpected Child Death Investigations and the Experiences of Next of Kin. Am J Forensic Med Pathol. 2014 Jun;35(2):132-9

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at <https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest>? Is your research need identified by NIJ?

No.

5. In what ways would the research results improve current laboratory capabilities?

Pediatric Forensic Pathology was rated as the second and top priority among the two surveys of medicolegal death investigation (MDI) professionals assessing areas of critical research needs via SWGMIDI in 2009 and 2011. Unexplained deaths of infants and children represent the largest group of undetermined deaths in the field of MDI. Yet, given this overwhelming public health problem, the MDI community lacks evidence-based research and standard practices for these investigations. This has likely resulted in inaccurate diagnoses and poor national statistics to address this public health issues. Specific areas in pediatric forensic pathology to address include: 1. Autopsy standards including neuropathology 2. Sudden unexplained death 3. Cause of Death (COD) in unsafe sleep environments (e.g., bed sharing, soft bedding, etc.) and deaths where findings are inconclusive.

The laboratory in which medicolegal death professionals work is that of a medical examiner/coroner office which is charged with investigating sudden and unexpected deaths. According to the CDC, about 3500 infants and 350 children (aged 1-18) die annually without a known cause. Research that supports accurate diagnoses of deaths that are currently classified as undetermined would significantly improve current death certification and direct public health efforts. These cases represent some of the most time and resource intensive investigations for an office, and yet evidence based research is severely lacking resulting in inconsistent and unstandardized efforts and a heavy burden on office resources.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

Research would improve consistent data collection, and accurate diagnoses and manners of death. This will improve national data for the analysis of public health trends that guide public awareness and allocate funds for prevention measures.

7. In what ways would the research results improve services to the criminal justice system?

Accurate causes and manners of death would increase the consistency of identifying cases where a crime has been committed and where one has not. Decreasing the annual incidence of thousands of pediatric undetermined deaths in the United States through accurate diagnoses will decrease the burden on the criminal justice system by allocating resources to cases in need of further investigation versus those that have been determined to be natural by evidence based research.

8. Status assessment (I, II, III, or IV):

II

Major gap in current knowledge

Minor gap in current knowledge

No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.