


**Use of Postmortem Computed Tomography Scans
in Pediatric Trauma Patients with Uncertain
Cause of Death: A Literature Review**

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Disclaimer







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Background




Postmortem Imaging:
CT – MRI – Radiograph – US



Conventional Autopsy:
Traditional


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Background (cont.) 

COVID-19 Pandemic:
 ↑↑↑ in fentanyl deaths in San Diego
 Limits rate of autopsies performed


Trauma Cases:
 CT Scans may may diagnosis and cause of death, particularly in NAT

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Purpose 

To provide an overview of the current state of knowledge on **postmortem (PMCT) scan use** in the investigation of **pediatric traumatic deaths**.

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Methods 

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  graph TD
    A[Literature Search Designed] --> B["Postmortem; CT scans; Pediatric"]
    B --> C[Title and Abstract Screening]
    C --> D[Full Text Review]
    D --> E[Data Extraction]
    E --> F[Analysis of Findings]
  
```

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Methods




Inclusion Criteria:
Discussed PMCT use in pediatric traumatic deaths compared to standard autopsy

Exclusion Criteria:
PMCT in non-trauma or only adults
Did not mention autopsy comparison

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Results



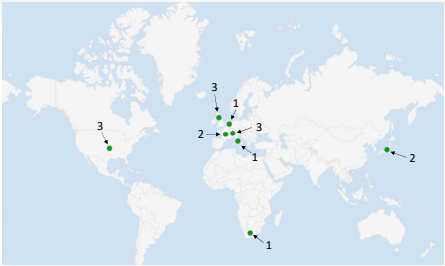
41 articles (General)

16 articles (Trauma)
Published 2008 - 2023

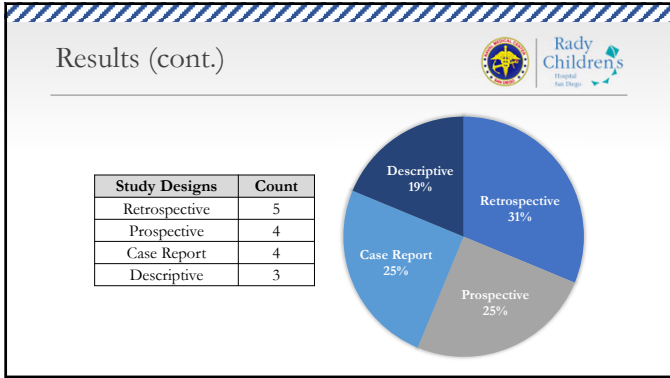
25 Excluded:
Adult
Sudden infant death
Prenatal findings
Non-traumatic death

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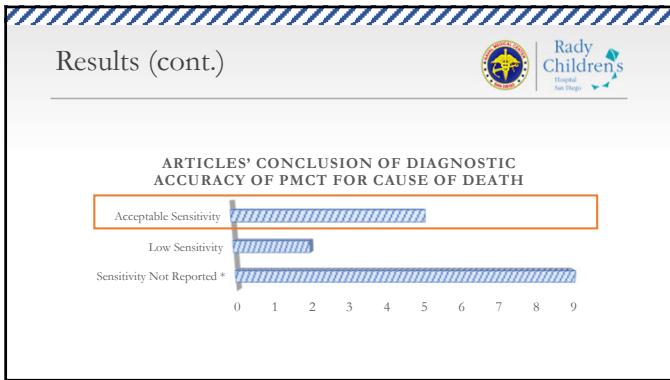
Results (cont.)



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Results (cont.)

Recent USA/Canada Questionnaire Based Survey:


- 25 out of 50 institutions performed pediatric PMCT in general
 - 76% of these used a protocol
 - 62% Forensics → 84% reported 1-20 cases a year
- Variability in protocols, reporting procedures, and clinical correlation


Hany, M. P., Ghah, S. W., Arshad, O. J., Miller, E., Hanley, H. T., & SPR Forensic Imaging Committee (2022). Current utilization of pediatric postmortem imaging in North America: a questionnaire-based survey. *Pediatric radiology*, 52(6), 1130–1143. <https://doi.org/10.1007/s00381-022-05866-8>


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Discussion 

Major Barriers in the US:

 Lack of Funding


 Lack of Interest Among Clinicians

 No Formalized Education

Harry, M. P., Gould, S. W., Arshad, O. J., Miller, E., Hancock, H. T., & SPR Pediatric Imaging Committee (2025). Current utilization of pediatric protonium imaging in North America: a questionnaire-based survey. *Pediatric radiology*, 55(6), 1113-1143. <https://doi.org/10.1007/s00261-025-01100-6>

Gould, S. W., Harry, M. P., Garcia, N. E., Chinnaiyan, T. T., Garcia, E. N., & Hancock, H. T. (2019). Pediatric protonium computed tomography: initial experience at a children's hospital in the United States. *Pediatric radiology*, 49(7), 1113-1120. <https://doi.org/10.1007/s00261-019-0443-1>


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Discussion 

General Consensus:


- Meets diagnostic needs of pediatric trauma cases
- Can better serve families, public health, and criminal justice system
 - But being performed without standardization

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Conclusion 

Studies suggest PMCT scans have acceptable diagnostic accuracy in the cause of death for the pediatric trauma population.


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Future Directions 

Rady's Children Hospital San Diego

- Last 10 years – 3 PMCT's for traumatic deaths completed
 - Started protocolizing use of PMCT before autopsy
 - Anticipate use of PMCT will increase

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Questions 



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