


Gun Violence in Pediatric Patients and the Collection and Preservation of Ballistic Evidence



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About me

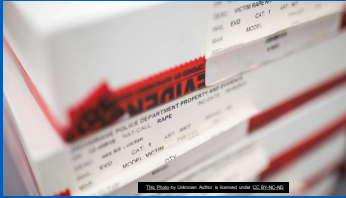
- I have been an ED/Trauma nurse for 19 years at Children's Mercy
- I have been a Sexual Assault Nurse Examiner for 13 years at Children's Mercy
- I am a certified SANE-P with the IAFN
- I have seen the need for forensic evidence collection involving victims of violence and have been looking for ways to implement and improve this process.


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BENEFITS OF HAVING A SANE INVOLVED

- Case law has repeatedly found SANE-collected kits to be among the strongest courtroom evidence in supporting victim testimony and SANE nurses themselves have been noted to be very credible witnesses



—Adult and Adolescent Sexual Assault Patients in the Emergency Care Setting. Journal of Forensic Nursing 13(2):p91-93, 4/6 2017. | DOI: 10.1097/JFN.0000000000000154



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American College of Emergency Physicians

"Victims of sexual assault require special medical, psychological, and legal needs from a specially trained, non-physician medical personnel, such as a SANE."

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ANA Forensic Nursing Scope and Standard of Practice



The nurse who has completed special education as a sexual assault nurse examiner (SANE) is an expert in history-taking, assessment, treatment of trauma response and injury, documentation and collection of evidence and its management, emotional and social support required during a post-trauma evaluation and examination, and the documentation of injury and testimony required to bring such cases through the legal system

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Why Does Photo and History-taking Documentation Matter?

- Documentation is very powerful
- Prosecutors are more likely to press charges when there's a documented injury and thorough history
- Juries benefit from seeing injuries as they appeared after the event.
- History-taking is powerful and Forensic Nurses can testify to a child's disclosure in court. We're one of the few people who can.

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More than just SANE

- Violence is becoming an alarmingly frequent part of our society
- Kids are often victims of violence, particularly in Urban areas
- What are we doing to help ensure social justice for children who are victims of violent crime?
- We are good at helping children survive violent crime, now we need to focus on helping them receive justice afterwards

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What Prompted me to Act?

- Rising gun violence in pediatric patients
- Orphaned bullets discovered
- Bullets should be submitted as evidence
- Bullets have markings on them that can be matched to the gun used in a crime

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Gun Violence Becomes the Leading Cause of Death Amongst Pediatric Patients


- Gun violence was the leading cause of death for all children and teens ages 1-19 in 2018, surpassing motor vehicle accidents for the first time in history. (CDC "Causes for Injury Related Death" 2020)
- Gun violence is rising all over the United States, but, children in big cities, are more than three times as likely to be killed as children in small towns. (NYT 12/14/22 "Childhood's Greatest Danger: The Data on Kids and Gun Violence")

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Quick Facts about Gun Violence Research:



Gun violence is the leading cause of death for Black males under the age of 55, and the second leading cause of death for Hispanic/Latino males under the age of 34.

Young Black males ages 15-34 make up 2% of the U.S. population but account for 37% of all firearm homicide victims.

In 2015, 26% of firearm homicides in the U.S. occurred within census tracts that contained only 1.5% of the population.

The conditions that increase the likelihood of community gun violence include:

- Easy access to guns by people at elevated risk for violence
- Income inequality
- Concentrated poverty
- Underfunded public housing
- Under-resourced public services
- Underperforming schools


ESCV THE EDUCATIONAL FUND TO STOP GUN VIOLENCE

Citation: CDC WONDER Database; Auerhig A, et al. (2017).

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According to the CDC...



- 3,500 children and teens are shot and killed yearly
- **15,000 children are shot and wounded, annually**(CDC, "Underlying Cause of Death 2016-2020, Ages 0-19")
- WE HAVE A PROBLEM!!!

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How Have Pediatric Hospitals Responded?

Pediatric hospitals are responding to the physical and sexual abuse pandemic that our children face with SANE and Child Abuse Programs. However, they are often centered in urban areas and difficult to reach for survivors who live many miles away.

Most pediatric hospitals DO NOT have a forensic program that includes collecting forensic evidence and documenting, forensically, on victims of violent crime.

We have a huge gap in care for our pediatric survivors of violent crime.

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Current State

- Victims of violent crime (such as gunshot wounds and stabbings) receive excellent trauma care, helping them to survive their injuries.
- Victims of Sexual assault and abuse receive excellent forensic care. Evidence collection, court, trials, etc.

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Ideal State

Excellent care helping trauma patients survive

Victims of violent crime receive forensic nursing care.

Excellent forensic nursing care

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What can we do?

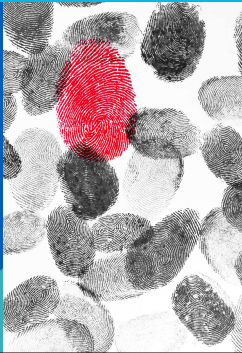
- In addition to community-based efforts to curb violent crimes, we need to respond to patients' forensic needs when they present to the ED after a violent crime.
- Photo-document their injuries using forensic photo-documentation techniques
- Thoroughly document their injuries and history
- Collect and preserve forensic evidence



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Forensic Evidence in Court Cases

"The presentation of valid forensic evidence nearly doubles the odds of a guilty verdict in criminal investigations (Ling et al., 2021). Loss of evidence can have devastating impacts on case outcomes (Filmlalter et al., 2018)."




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Why do bullets matter?

- As with fingerprints, every firearm has unique characteristics. The barrel of a weapon leaves distinct markings on a projectile. The breech mechanism also leaves distinct markings on the cartridge case. These markings are produced by the breech face itself, the firing pin, extractor, and ejector. Firearms examiners are able to examine bullets and cartridge casings to determine if they were expelled from the same firearm.
- <https://www.atf.gov/firearms/automated-firearms-ballistics-technology#:~:text=As%20with%20fingerprints%2C%20every%20firearm,crime%20fighting%20technology%20can%20provide.>



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What do you do with bullets?



- Tasked with matching orphaned bullets to police report numbers and jurisdictions
- Contacted the police to retrieve each bullet
- Recognized a need to create standardized work and policies for collection and preservation of ballistic evidence

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Met with Key Stakeholders

- Social Work
- Emergency Department
 - Nursing management
 - Director
 - Trauma Liaison
 - Senior Director
 - Medical Director
- Medical Director of Trauma Services
 - Senior Nursing Director of Trauma
- Operating Room:
 - Nursing managers and charge nurses
- Ortho Trauma Surgery
- Chief Nursing Officer



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A research article is born

- Chief of Trauma Services connected me with a surgical fellow.
- We met and discussed the problem and the solutions.
- We developed a redcap database to track all bullets.
- We began to research and gather evidence and data and other research articles
- It became clear that there is a literature gap for handling ballistic evidence in pediatric patients
- We decided to write an article about our process



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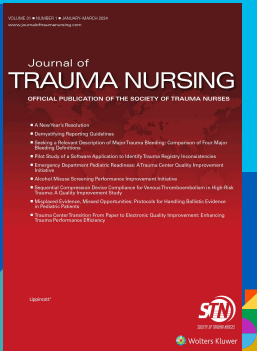
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Published!

"Gun-related injury is now the number one cause of death in pediatric trauma patients. Many hospitals lack dedicated forensic nurses or updated protocols for handling ballistic evidence. Evidence not collected, handled improperly, or misplaced may deny a victim the basic human right to justice." January 2024

Titled: Misplaced Evidence, Missed Opportunities: Protocols for Handling Ballistic Evidence in Pediatric Patients

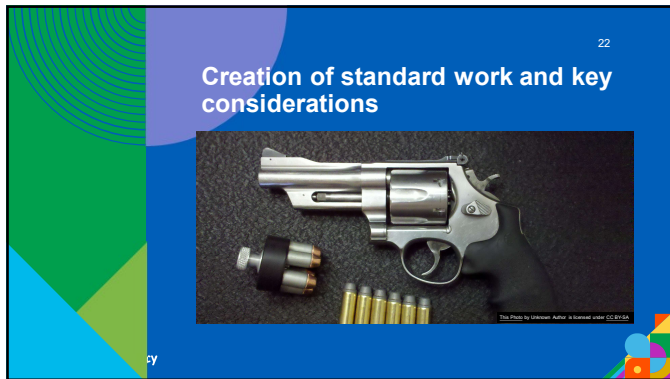
This is a quarterly publication by the Society of Trauma Nurses.



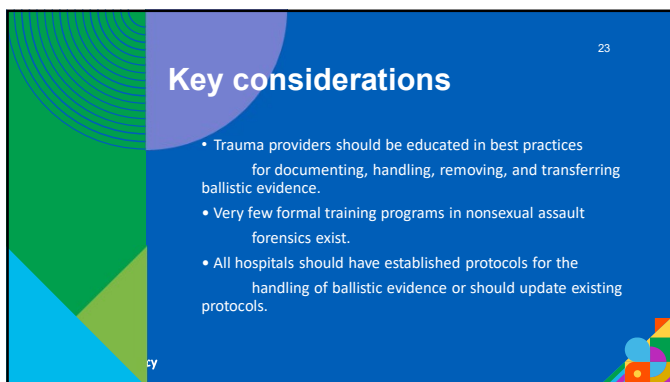
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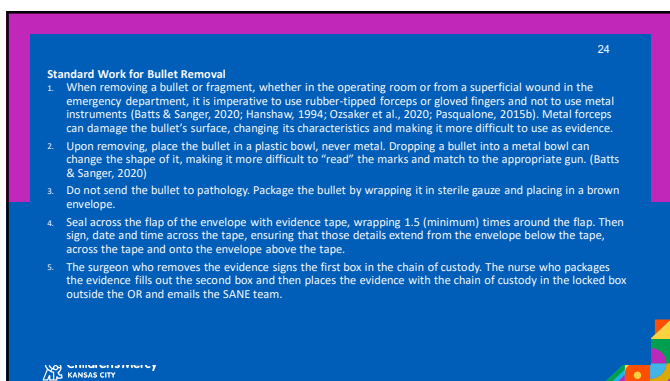


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- Trauma providers should be educated in best practices for documenting, handling, removing, and transferring ballistic evidence.
- Very few formal training programs in nonsexual assault forensics exist.
- All hospitals should have established protocols for the handling of ballistic evidence or should update existing protocols.



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Standard Work for Bullet Removal

1. When removing a bullet or fragment, whether in the operating room or from a superficial wound in the emergency department, it is imperative to use rubber-tipped forceps or gloved fingers and not to use metal instruments (Batts & Sanger, 2020; Hanshaw, 1994; Ozsaker et al., 2020; Pasqualone, 2015b). Metal forceps can damage the bullet's surface, changing its characteristics and making it more difficult to use as evidence.
2. Upon removing, place the bullet in a plastic bowl, never metal. Dropping a bullet into a metal bowl can change the shape of it, making it more difficult to "read" the marks and match to the appropriate gun. (Batts & Sanger, 2020)
3. Do not send the bullet to pathology. Package the bullet by wrapping it in sterile gauze and placing in a brown envelope.
4. Seal across the flap of the envelope with evidence tape, wrapping 1.5 (minimum) times around the flap. Then sign, date and time across the tape, ensuring that those details extend from the envelope below the tape, across the tape and onto the envelope above the tape.
5. The surgeon who removes the evidence signs the first box in the chain of custody. The nurse who packages the evidence fills out the second box and then places the evidence with the chain of custody in the locked box outside the OR and emails the SANE team.

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Forensic Nursing Protocol for Evaluation and Documentation of Patients With Gunshot Wounds


- 1. Retrieve the Forensic Folder and bring it to the trauma bay.
- 2. Prioritize lifesaving and stabilization measures before proceeding with collection of evidence.
- 3. When clinically appropriate, take photo documentation of the patient while they are being treated in the trauma bay.
- 4. Collect and preserve any available clothing (even if cut away by trauma providers or brought in from the scene).
- 5. Avoid cutting through bullet holes or existing rips/tears when removing clothing.
- 6. Package each article of clothing separately, placing one item per bag. Pairs, such as socks, can be packaged together.
- 7. Seal each bag with tape, sign, date, and time across the seal. Attach a patient label indicating the contents (e.g., "shirt").

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Forensic Nursing Protocol for Evaluation and Documentation of Patients With Gunshot Wounds

- 8. Collect any items removed from the patient for evidence, such as bullets (or fragments) or knives, and package them in breathable paper bags. Include these individually packaged items in the larger brown bag.
- 9. If any items are wet, freeze them separately and create a separate chain of custody form.
- 10. Swab the patient's hands for gunshot residue and place the swabs in a cardboard holder.
- 11. Consolidate the individually packaged clothing/articles into a large brown bag. Attach white label on the outside, listing all items inside. Tape the top of the bag and sign, date, and time across the sealed tape.
- 12. Establish a chain of custody, documenting each packaged item on the form.
- 13. Capture photographs of any soot, tattooing (stippling), abrasion collars, or comet-tailed abrasions observed around or near the wounds.
- 14. Photograph each individual injury, including entrance/exit wounds, graze wounds, stab wounds, bruising, etc. Document as appropriate in the patient's electronic medical record.
 - a. Take a shot from a distance for perspective.
 - b. Capture a close-up shot.
 - c. Include a close-up shot with a measuring device for scale.

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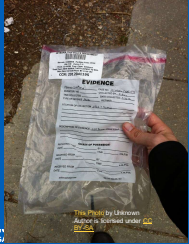
Forensic Nursing Protocol for Evaluation and Documentation of Patients With Gunshot Wounds

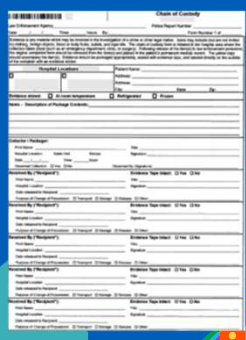
- 15. Gather a comprehensive history of the assault from social work, the patient, and the police.
- 16. Document the information appropriately, including:
 - a. Brief history of the assault including the distance from the gun and body position of the patient during the incident (sitting, standing, curled up, running, etc.).
 - b. Detailed record of injuries.
 - c. Total number of wounds.
 - d. List of evidence collected.
 - e. Body diagram illustrating the injuries.
 - f. Police report number and jurisdiction(s) involved.
- 17. Communicate with social work to obtain a police report number, which should be included on the packaged evidence, the chain of custody form, and the patient's chart.
- 18. Communicate with local law enforcement to arrange evidence pickup as soon as possible.

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Chain of Custody





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After protocols were established


- The OR follows standard procedures and packages bullets appropriately
- SANE is notified to retrieve bullets
- Law enforcement is notified
- We track the time from bullet removal to retrieval by law enforcement
- It went from several years, to about 1 week, on average.



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The Big Test: Super bowl parade shooting February 14, 2024







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Process in the chaos



- We were able to quickly stabilize all 9 patients
- Some to the OR
- Some discharged home after wound care and antibiotics
- Some admitted to the hospital
- I cared for two patients: 15-year-old shot through the lower leg and another 15-year-old shot in the head.
- After they were stabilized, I was pulled to collect evidence.


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Evidence Collection

- 9 bags of evidence
- Took 2.5 hours to collect, catalog, and package
- Each chain of custody was intact
- Evidence submitted to the appropriate police officer for each victim
- Worked for several hours the next day with crime lab to ensure a smooth hand-off of all evidence
- Retrieved evidence that had been removed from patients in the OR, including bullets.
- Packaged appropriately and turned over to law enforcement.
- Utilized protocols and standard work that had been developed for evidence collection in the ED and the OR.



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Was it helpful? Does this matter?

KCPD crime lab was contacted a couple of weeks later to ask if the evidence was helpful.

They said they couldn't provide specific details, but they were able to use the evidence provided to match the bullet to a gun and the gun to a shooter.

This is why we do what we do!

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References

- Adult and Adolescent Sexual Assault Patients in the Emergency Care Setting. Journal of Forensic Nursing 13(2):p 91-93, 4/6 2017. |
- CDC "Causes for Injury Related Death" 2020
- NYT 12/14/22 "Childhood's Greatest Danger: The Data on Kids and Gun Violence"
- CDC WONDER Database, Aufrechtig A, et al, (2017)
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- American College of Emergency Physicians, Policy Statement: Sexual Assault Nurse Examiner Programs and Facilities, April 2024
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Thank you for your time!

- I want to thank the SPN for having me speak and I'd like to thank my hospital for sponsoring my trip.
- Please feel free to reach out to me with questions or comments.
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Thank you

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