

Prehospital PECARN Pearls

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[RESEARCH NODE CENTERS](#)[PUBLICATIONS & STUDIES](#)[DATASETS](#)**CHaMP E-RNC***Charlotte, Houston, Milwaukee
Prehospital EMS Research Node***GLACIER***Great Lakes Area Children's
Emergency Research***HOMERUN***Hospitals of the Midwest Emergency
Research Node***PEM-NEWS***Pediatric Emergency Medicine
Northeast, West and South***PRIME***Pediatric Research in Injuries and
Medical Emergencies***SPARC***San Francisco-Oakland, Providence,
Atlanta Research Collaborative***STELAR***Seattle, Texas (Dallas), Los Angeles
Research***EDC***EMSC Data Center*

RESEARCH NODE CENTERS

The teams who brought you...



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Which child with blunt head injury does NOT need a head CT?



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Which child with blunt torso injury does NOT need an abdominal CT?



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Does therapeutic
hypothermia improve
survival with good
neurobehavioral
outcomes in children
with cardiac arrest?



Meh not really

- No difference in survival or neurobehavioral outcomes
- NORMOTHERMIC: AVOID fevers!

Key EMS take aways

Pain, Seizures, C-spine and a teaser



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Pain

EMS tx influences ED treatment

Prehospital opioid analgesia is associated with significant reduction in pain severity & administration of higher doses of opioid analgesia earlier and throughout ED care

Multicenter Study > [Prehosp Emerg Care](#). 2023;27(1):1-9.

doi: 10.1080/10903127.2021.2000683. Epub 2021 Dec 22.

Impact of Prehospital Pain Management on Emergency Department Management of Injured Children

M I Harris ¹, K M Adalgais ², S W Linakis ³, C F Magill ⁴, R Brazauskas ⁵, M I Shah ⁶,
D K Nishijima ⁷, G S Lowe ⁸, K Chadha ⁹, T P Chang ¹⁰, E B Lerner ⁹, J C Leonard ³,
H P Schwartz ¹¹, J B Gaither ¹², J R Studnek ¹³, L R Browne ¹⁴ ¹⁵

We need to treat children & check our biases

< 50% kids with mod-severe pain
from long bone fractures received
opioids

Hispanic and NH Black patients had
lower odds of receiving opioids

[Pediatrics](#). 2020 May; 145(5): e20193370.

Published online 2020 May 1. doi: [10.1542/peds.2019-3370](https://doi.org/10.1542/peds.2019-3370)

PMCID: PMC7193974

PMID: [32312910](https://pubmed.ncbi.nlm.nih.gov/32312910/)

Racial and Ethnic Differences in Emergency Department Pain Management of Children With Fractures

[Monika K. Goyal](#), MD, MSCE,^{Ma} [Tiffani J. Johnson](#), MD, MSc,^b [James M. Chamberlain](#), MD,^a [Lawrence Cook](#),
PhD,^c [Michael Webb](#), MS,^c [Amy L. Drendel](#), DO, MS,^d [Evaline Alessandrini](#), MD, MSCE,^e [Lalit Bajaj](#), MD, MPH,^f
[Scott Lorch](#), MD, MSCE,^b [Robert W. Grundmeier](#), MD,^b [Elizabeth R. Alpern](#), MD, MSCE,^g and PEDIATRIC
EMERGENCY CARE APPLIED RESEARCH NETWORK (PECARN)

**Especially as PECARN has found that ED IN
fentanyl in children with vaso-occlusive pain
episode decreases the need for admission...**



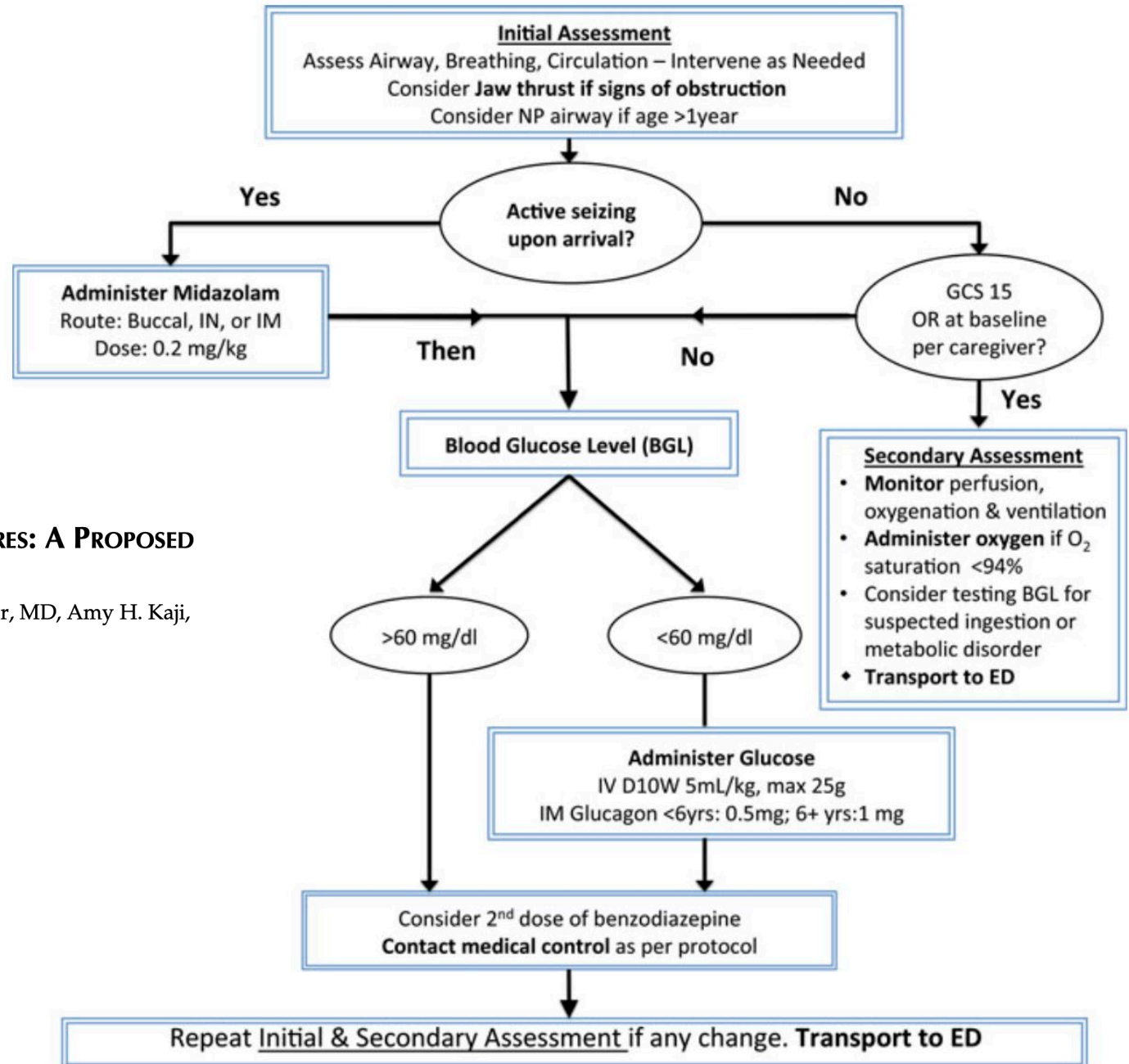
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Seizures

PREHOSPITAL GLUCOSE TESTING FOR CHILDREN WITH SEIZURES: A PROPOSED CHANGE IN MANAGEMENT

Katherine Remick, MD, Christopher Redgate, MD, MS, Daniel Ostermayer, MD, Amy H. Kaji, MD, PhD, Marianne Gausche-Hill, MD



NOT PECARN
(2017)



Seizures

NASEMSO
National Model EMS Clinical Guidelines

Version 3.0


NOT PECARN

Multicenter Evaluation of Prehospital Seizure Management in Children

Manish I. Shah, Daniel G. Ostermayer, Lorin R. Browne, Jonathan R. Studnek, John M. Carey, Chelsea Stanford, Nicole Fumo & E. Brooke Lerner

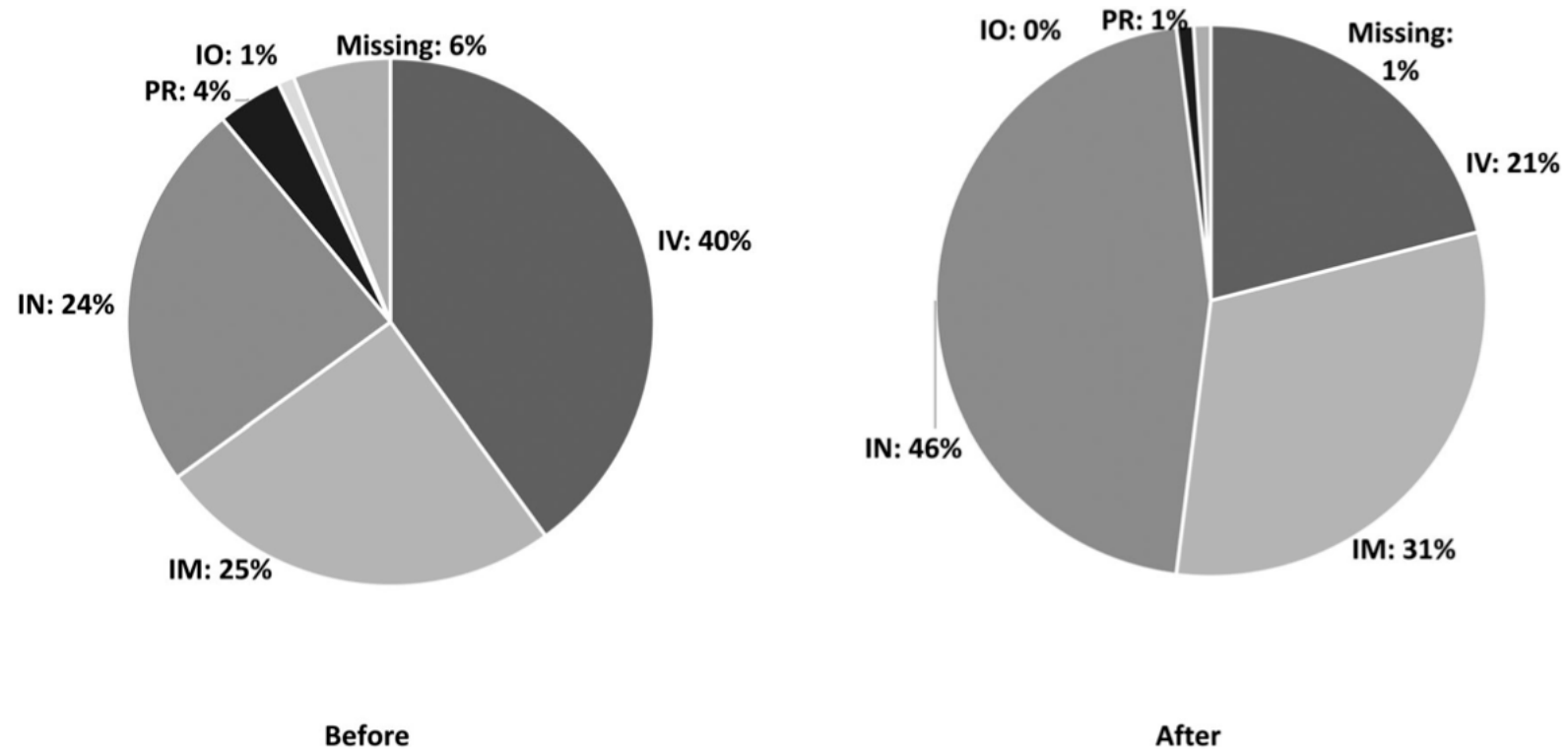
To cite this article: Manish I. Shah, Daniel G. Ostermayer, Lorin R. Browne, Jonathan R. Studnek, John M. Carey, Chelsea Stanford, Nicole Fumo & E. Brooke Lerner (2021) Multicenter Evaluation of Prehospital Seizure Management in Children, Prehospital Emergency Care, 25:4, 475-486, DOI: [10.1080/10903127.2020.1788194](https://doi.org/10.1080/10903127.2020.1788194)



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- 2021 Retrospective before and after of 3 EMS Agencies implementing NASEMSO Model guidelines (Houston, Milwaukee, Charlotte)
- **533 seizing pediatric patients at 3 EMS agencies**
 - More likely to admin at least 1 dose benzo after protocol update (61 vs 71%)
 - 14 min to administration

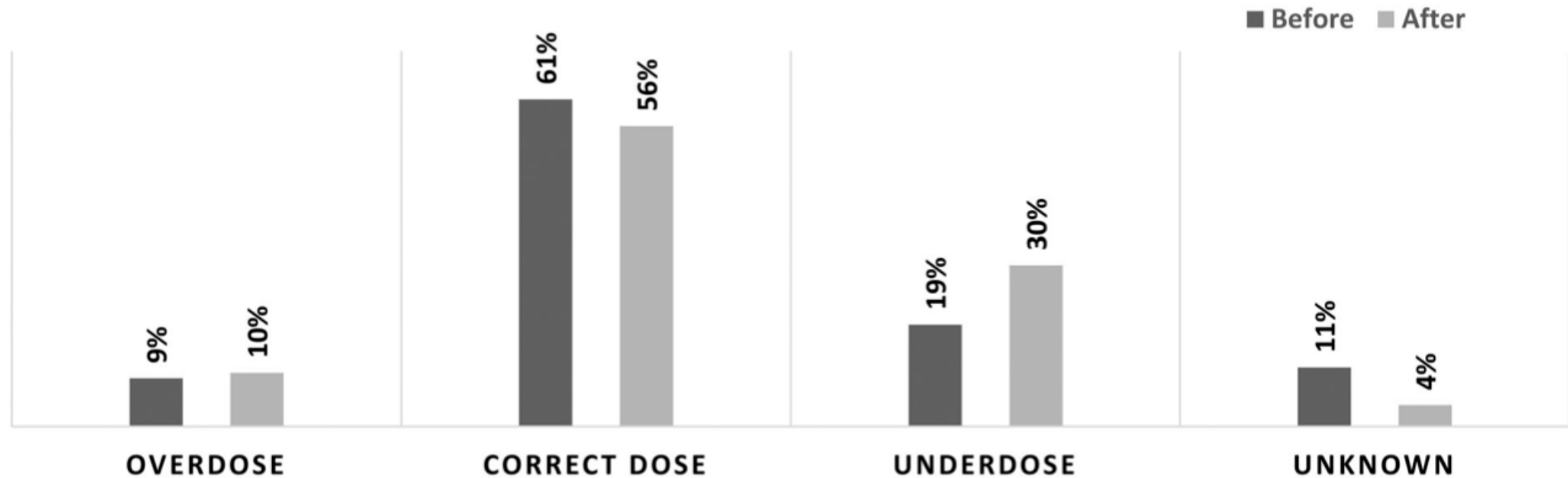
More likely to admin first dose IN or IM after protocol (49 vs 77%)



$p < 0.001$, OR = 3.24 (2.01-5.21)

FIGURE 1. Route of first dose of midazolam administration IM = intramuscular, IN = intranasal, IO = intraosseous, IV = intravenous, PR = rectal.

Incorrect dose 36% (72% of these being too low)



P=0.40, OR = 0.83 (0.53-1.29)

FIGURE 2. Administration of first dose of midazolam.

PediDOSE Study



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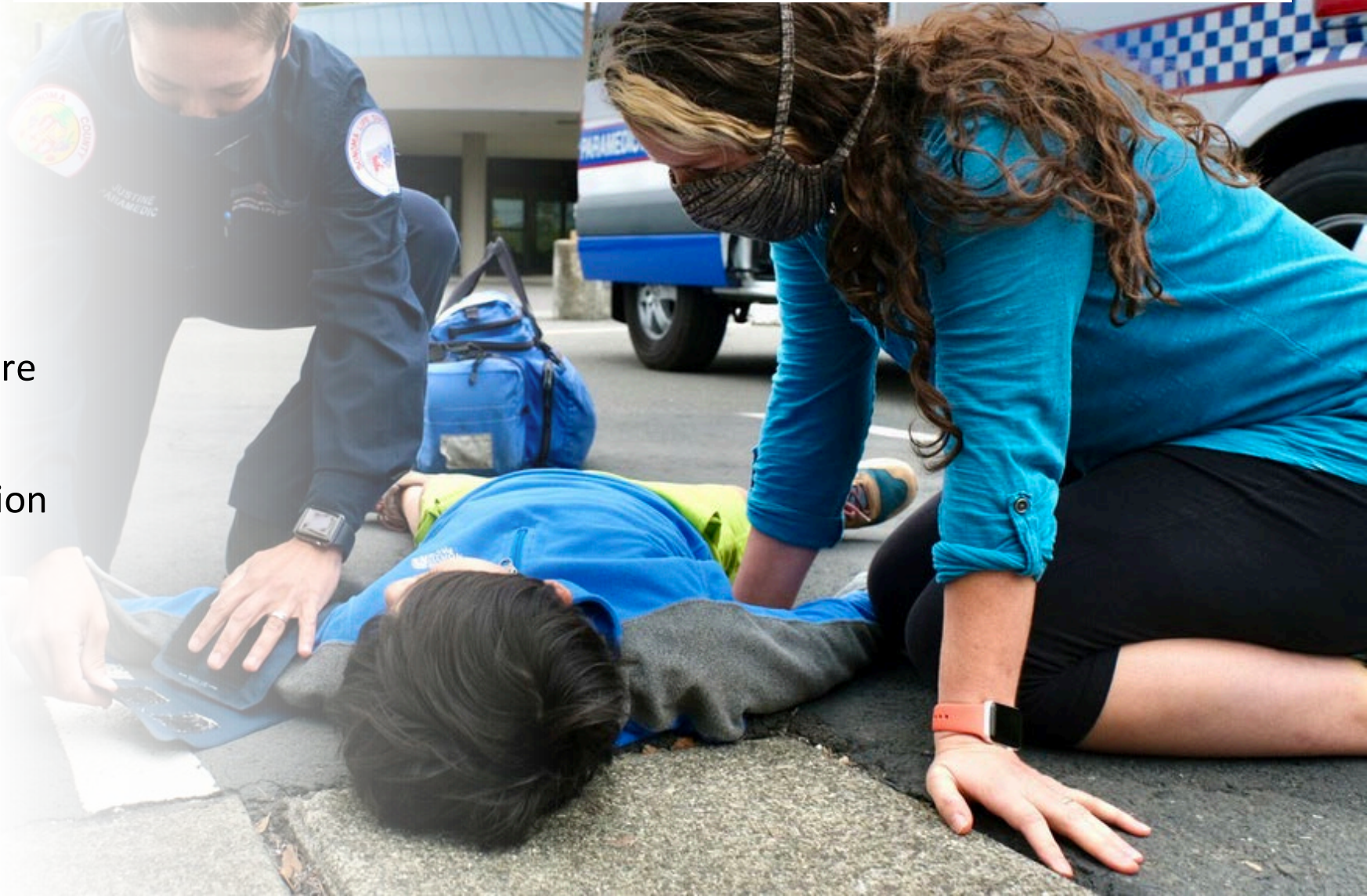
C-spine

Prehospital Factors Associated With Cervical Spine Injury in Pediatric Blunt Trauma Patients

Lorin R. Browne DO ✉, Fahd A. Ahmad MD, MSCI, Hamilton Schwartz MD, MEd, Michael Wallendorf PhD, Nathan Kuppermann MD, MPH, E. Brooke Lerner PhD, Julie C. Leonard MD, MPH


7 risk factors identified by EMS

- Axial load injury
- **Altered mental status**
- Signs of basilar skull fracture
- Respiratory distress
- Decreased Oxygen saturation
- **Substantial torso injury**
- Substantial thoracic injury



TXA?

Traumatic injury clinical trial evaluating tranexamic acid in children (TIC-TOC): A pilot randomized trial

Daniel K. Nishijima MD, MAS , John M. VanBuren PhD, Seth W. Linakis MD, Hilary A. Hewes MD, Sage R. Myers MD, MSCE ... [See all authors](#) ✓

First published: 10 March 2022 | <https://doi.org/10.1111/acem.14481> | Citations: 1

The logo for the TIC-TOC trial. It features the text 'TIC-TOC' in large, bold, black capital letters. The letter 'i' in 'TIC' has a red flame icon above it. The letter 'O' in 'TOC' has a black stopwatch icon inside it.

**Traumatic Injury Clinical Trial Evaluating
Tranexamic Acid in Children**

Follow the data

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