

National Prehospital Guidelines for Pediatric Seizure and Traumatic Pain Management Do Not Concur with Information on the Broselow-Luten Length Based Tape

Kathleen M. Adalgais, Karl Marzec, Toni Gross, Lara D. Rappaport, University of Colorado School of Medicine

Background: The Ambulance Equipment List includes the pediatric length/weight-based tape. The Broselow-Luten Pediatric Emergency Tape (Broselow LBT) has assessment tools, equipment selection, and medication doses. Recent prehospital evidence-based guidelines (EBG) provide pediatric-specific recommendations for seizure and traumatic pain management. The purpose of this study was to examine the ability of the Broselow LBT to facilitate care per these two EBGs. We hypothesize that the Broselow LBT can correctly facilitate only a few EBG recommendations.

Methods: A critical review of the pediatric seizure and traumatic pain EBGs identified specific recommendations related to assessment tools, equipment size, and medication dose. Four study investigators examined the Broselow LBT (2011, Edition A) using a standardized scoring sheet to classify each recommendation: "CAN be followed" (stratified by correct and incorrect information), and "CAN NOT be followed" (no information listed). To validate the scoring process, investigators utilized a modified Delphi iteration with a target for consensus of >90%. The primary outcome was the number of recommendations for which Broselow LBT provided correct information to facilitate management.

Results: Pediatric seizure and traumatic pain EBGs contained 8 and 11 relevant recommendations; respectively. Target consensus for classifying recommendations was achieved after 2 iterations. The Broselow LBT provided correct information for 3 recommendations on the seizure guideline (dextrose and lorazepam dose; size of IV/IO catheters). The Broselow LBT stated dose for midazolam was 3 times that recommended on the EBG. For 3 non-parenteral doses of midazolam (first-line EBG treatment recommendation), no information was available. For the traumatic pain EBG, only 1 recommendation (size of BP cuff to assess for hypotension), could be correctly followed per the Broselow LBT. Broselow LBT listed incorrect information for 3 recommendations, end-tidal CO₂ equipment and IV fentanyl dose options; the only dose of IV Fentanyl being 3-fold that recommended for pain management. Most recommendations (7/11), could not be followed, including dose of intranasal fentanyl and morphine, assessment of pain score, Glasgow Coma Scale, and pulse-oximetry equipment

Conclusion: Few prehospital EBGs recommendations can be accurately followed by information on the Broselow LBT. Additional tools to facilitate pediatric care according to prehospital EBG recommendations may be necessary.