

Use of Fentanyl in Pediatric Trauma Patients Post Implementation of the Handtevy™ Field Guide



Lara Rappaport MD MPH, David Edwards NREMT, Whitney Barrett MD, Aaron Eberhardt MD, Kevin McVane MD, Kathleen Adelgais MD MPH
¹Department of Emergency Medicine, Denver Health Medical Center, Denver CO
²Department of Pediatrics, University of Colorado School of Medicine, Aurora, CO



Department of Emergency Medicine
 SCHOOL OF MEDICINE
 UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

WHAT WE LEARNED

Introduction of a field guide with pre-calculated doses of medication resulted in a substantial increase in prehospital analgesia to young patients

BACKGROUND

- Multiple barriers to prehospital analgesia administration to children exist, including fear of dosing error and difficulty obtaining intravenous (IV) access
- A field guide with customized dosing recommendations for IV and intranasal (IN) opioid delivery may improve treatment of pain in the prehospital setting

OBJECTIVE

- To evaluate the change in prehospital fentanyl administration to children after the introduction of the Handtevy™ field guide in our hospital-based EMS system

METHODS

- Design: quasi-experimental before-after study
- Setting: Denver Paramedic Division, Denver, Colorado
- Inclusion: trauma patients <14 years of age and transported by EMS
- Study period: July 2014 – July 2016 (12 months before and 12 months after implementation of the Handtevy™ system)
- Data source: prehospital patient care data
- Primary analysis: Comparison of difference in treatment proportions between the two time periods, with age and route of administration as subgroups

TABLE

Fentanyl use	All ages					
	Pre Handtevy n=1649			Post Handtevy, n=1770		
	13.2% (217)			17.9 (317)*		
	Age stratification					
	Age <5 years			Age 6-13		
	Pre n=316	Post n=400	OR (95% CI)	Pre n=506	Post n=538	OR (95% CI)
Total	4.5% (16)	11.0% (42)	2.2 (1.2, 4.0)	19.4% (98)	22.9% (119)	1.2 (0.9, 1.6)
IV	2.0% (7)	1.6% (6)	0.6 (0.2, 2.0)	12.1% (61)	13.5% (70)	1.1 (0.8, 1.6)
IN	2.5% (9)	9.5% (36)	4.1 (1.9, 8.6)	7.3% (37)	9.4% (49)	1.3 (0.8, 2.0)

RESULTS

- 3,419 total patients
 - 1,649 patients pre Handtevy
 - 1,770 patients post Handtevy
- Groups similar with regard to age, gender
- Increase in the proportion of patients receiving pain medications (13% vs 18%, p<0.05)
- Patients were more likely to receive fentanyl in the 0-5 years of age group after the intervention (5 % vs. 11%, p<0.05)
- 4 fold increase in IN fentanyl administration in 0-5 year of age
- The intranasal route was more widely used in all ages 0-14

LIMITATIONS

- Administrative data
- Not adjusted for other potential confounders, including pain severity

CONCLUSIONS

- The introduction of the Handtevy™ field guide with pre-calculated doses of fentanyl resulted in an overall increase in analgesia administration
- Among age and route of administration subgroups there was a substantial increase in the provision of analgesia, including specifically in those <5 years of age
- Patients were more likely to receive fentanyl IN in all ages

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