

# Colorado State Trauma Designation and Pediatric Readiness

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## BACKGROUND

- Prior studies demonstrate an association between higher weighted pediatric readiness scores (WPRS) and pediatric outcomes, facility trauma designation was not associated with improved pediatric readiness.
- A recent 2020 update to the NPRP assessment with certain new metrics around safety and disaster planning provides an opportunity to explore which aspects of pediatric readiness may be associated with trauma designation level.
- Colorado, with a robust state trauma designation system, was one of two states that piloted the updated 2020 NPRP assessment.

## RESULTS

- There was an 83% response rate among 89 hospitals in Colorado. We analyzed data on 69 facilities meeting inclusion criteria.
- Unadjusted, increasing level of trauma designation was positively associated with higher pediatric readiness scores with a median WPRS (maximum score 100) for level I, II, III, IV, and non-designated centers of 71.9, 74.1, 62.9, 54.0, and 65.7, respectively (p= 0.008).
- Higher levels of trauma designation was also positively associated with increasing presence of selected factors in pediatric care (Fig. 1).
- Only 42% of all hospitals in Colorado that responded to the NPRP that they had a disaster plan (n=29), among which, the majority reported including pediatric considerations (82%).

## CONCLUSIONS

State trauma designation is positively associated with the 2020 WPRS and with certain consensus-based pediatric readiness factors in the emergency care of children. Improving pediatric readiness remains a challenge for all emergency departments and this study demonstrates wide variation in the presence of selected factors for pediatric care across trauma level designation. The highest levels of state trauma designation (i.e. Level I & II) may serve as examples of pediatric readiness for referring facilities in their communities. These findings have implications for statewide pediatric readiness programs, who may be able to leverage their state trauma designation programs to support pediatric readiness across the state.

## METHODS

- This was a cross-sectional study of the 2020 NPRP pilot assessment in Colorado.
- We compared hospitals with and without state trauma designation with regard to their 2020 WPRS and selected factors in pediatric care including: weight in kilograms, precalculated pediatric drug dosing, child maltreatment assessment, radiation dosing protocols for pediatric imaging, policy for pediatric deaths, pediatric pain assessment, interfacility transfer agreements, and disaster plans that include pediatric considerations.
- Analysis with one-way ANOVA test with p < 0.05 as statistically significant for WPRS.

	Adult Trauma 1 (n=4)	Adult Trauma 2 (n=10)	Adult Trauma 3 (n=21)	Adult Trauma 4 (n=27)	Non-designated (n=8)	p-value
WPRS, median (IQR)	71.9 (61.6-86.0)	74.1 (58.5-83.5)	62.9 (54.6-72.0)	54.0 (50.5-60.6)	65.7 (55.0-68.3)	0.03
WPRS, mean (SD)	73.6 (14.7)	73.2 (16.7)	63.0 (9.3)	57.8 (12.5)	62.2 (9.8)	0.01
Safety Kilo Weigh, n (%)	4 (100%)	10 (100%)	19 (90.5%)	14 (51.9%)	7 (87.5%)	0.003
Safety Kilo Record, n (%)	4 (100%)	9 (90.0%)	20 (95.2%)	16 (59.3%)	7 (87.5%)	0.02
Safety Vitals, n (%)	4 (100%)	10 (100%)	20 (95.2%)	25 (92.6%)	8 (100%)	>0.99
Safety Dosing, n (%)	3 (75.0%)	9 (90.0%)	19 (90.5%)	16 (59.3%)	6 (75.0%)	0.10
Safety Interpret, n (%)	4 (100%)	10 (100%)	21 (100%)	26 (96.3%)	8 (100%)	>0.99
Safety LOC, n (%)	3 (75.0%)	10 (100%)	21 (100%)	22 (81.5%)	8 (100%)	0.07
Safety Pain, n (%)	4 (100%)	10 (100%)	20 (95.2%)	24 (88.9%)	8 (100%)	0.84
Policies Maltreat, n (%)	4 (100%)	9 (90.0%)	18 (85.7%)	21 (77.8%)	5 (62.5%)	0.54
Policies Child Death, n (%)	2 (50.0%)	7 (70.0%)	11 (52.4%)	14 (51.9%)	6 (75.0%)	0.71
Policies Imaging, n (%)	3 (75.0%)	7 (70.0%)	14 (66.7%)	16 (59.3%)	7 (87.5%)	0.72
Disaster Plan, n (%)	2 (50.0%)	6 (60.0%)	10 (47.6%)	7 (25.9%)	4 (50.0%)	0.28
Disaster Policy Peds, n (%)*	2/2 (100%)	5/6 (83.3%)	8/10 (80.0%)	6/7 (85.7%)	3/4 (75.0%)	>0.99
Disaster Policy Peds Surge, n (%)*	2/2 (100%)	6/6 (100%)	7/10 (70.0%)	6/7 (85.7%)	4/4 (100%)	0.61
*Among those with a disaster policy.						
Guidelines, n (%)	3 (75.0%)	9 (90.0%)	12 (57.1%)	19 (70.4%)	3 (37.5%)	0.16
Component Transfer, n (%)	3/3 (100%)	9/9 (100%)	11/12 (91.7%)	18/19 (94.7%)	3/3 (100%)	>0.99
Agreements	3 (75.0%)	9 (90.0%)	14 (66.7%)	23 (85.2%)	6 (75.0%)	0.47

Used Wilcoxon Mann Whitney test to compare the WPRS median scores and one way anova for the mean score. Fisher's exact for the categorical data

## CONTACT INFORMATION

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