

HCA Healthcare

Scholarly Commons

General Surgery

Research & Publications

2-10-2020

A Handoff Protocol For Pediatric Trauma Patients at a Rural Level One Trauma Center Reduces Length of Stay

Evelyn Coile MD

HCA Healthcare, evelyn.coile@hcahealthcare.com

Kathryn Bailey

Eric J. Clayton MS, MPH

Eric.Clayton@usoncology.com

Tatiana Eversley-Kelso

HCA Healthcare, Tatiana.EversleyKelso@hcahealthcare.com

Heather MacNew MD

HCA Healthcare, heather.macnew2@hcahealthcare.com

Follow this and additional works at: <https://scholarlycommons.hcahealthcare.com/general-surgery>



Part of the [Pediatrics Commons](#), [Surgery Commons](#), and the [Trauma Commons](#)

Recommended Citation

Coile E, Bailey K, Clayton EJ, Eversley Kelso TR, MacNew H. A Handoff Protocol for Pediatric Trauma Patients at a Rural Level One Trauma Center Reduces Length of Stay. Presented at: SESC 2020; February 8-11, 2020; New Orleans, LA.

This Presentation is brought to you for free and open access by the Research & Publications at Scholarly Commons. It has been accepted for inclusion in General Surgery by an authorized administrator of Scholarly Commons.



A Handoff Protocol For Pediatric Trauma Patients at a Rural Level One Trauma Center Reduces Length of Stay

Evelyn Coile, MD, Kathryn Bailey, MSN, FNP, Eric J. Clayton, MS, MPH, Tatiana R. Eversley Kelso, MPH, and Heather MacNew, MD, FACS

Financial Disclosure

- I have no financial interests or relationships to disclose.

Importance of Pediatric Hand offs

- Trauma: Leading cause of death in pediatric population
- Mixed evidence regarding who should manage the pediatric patient in the immediate period vs. post-ED disposition period
- Defined areas of success for pediatric surgeon managed trauma victims in splenic salvage rates

The infographic features a blue background with various icons and text boxes. At the top left is the Children's Minnesota logo. A yellow helicopter icon is positioned above the main title. A red starburst icon labeled 'Helipad' contains the text 'reduces transport time' and 'quicker access to critical care'. A grid icon with the Children's Minnesota logo is on the left. A circular clock icon shows '24/7 In-house pediatric surgeon'. A map of Minnesota with a star in the Twin Cities area is in the center. A circular badge on the right says 'Treat 40% of the pediatric trauma cases in the Twin Cities'. A red ribbon at the bottom right mentions a '\$17.5 million gift from UnitedHealthcare'. A blue box at the bottom center states 'The only Level I pediatric trauma center in a hospital dedicated to kids in MN, ND, SD and western WI.' A blue box at the bottom left says 'state-of-the-art trauma facilities' with icons for a heart, bandage, and pills. A blue box at the bottom center says '+ EMERGENCY' with an ambulance icon. A blue box at the bottom center says '90,000 annual visits'.

Children's MINNESOTA

Children's - Minneapolis

Level I Pediatric Trauma Center and Emergency Department

Helipad • reduces transport time
• quicker access to critical care

Children's MINNESOTA

24/7
In-house pediatric surgeon

90,000 annual visits

state-of-the-art trauma facilities

+ EMERGENCY

The only Level I pediatric trauma center in a hospital dedicated to kids in MN, ND, SD and western WI.

Treat 40% of the pediatric trauma cases in the Twin Cities

Made possible by a \$17.5 million gift from UnitedHealthcare

Purpose

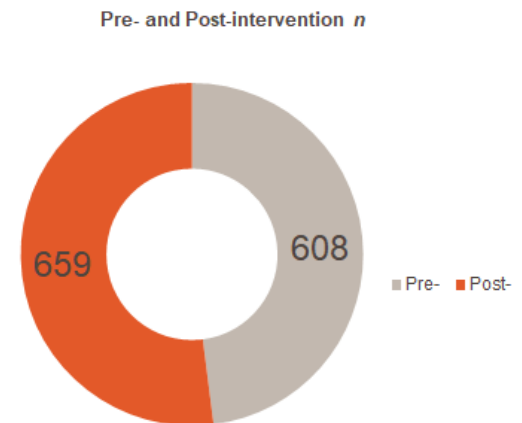
Our study aimed to critically evaluate the handoff from the adult specialty trauma surgeon to the pediatric surgeon within a 24-hour window after initial evaluation and resuscitation within our rural Level 1 trauma center by analyzing length of stay in all post-emergency department (ED) disposition populations, including those transferred to higher levels of care.

Hypothesis

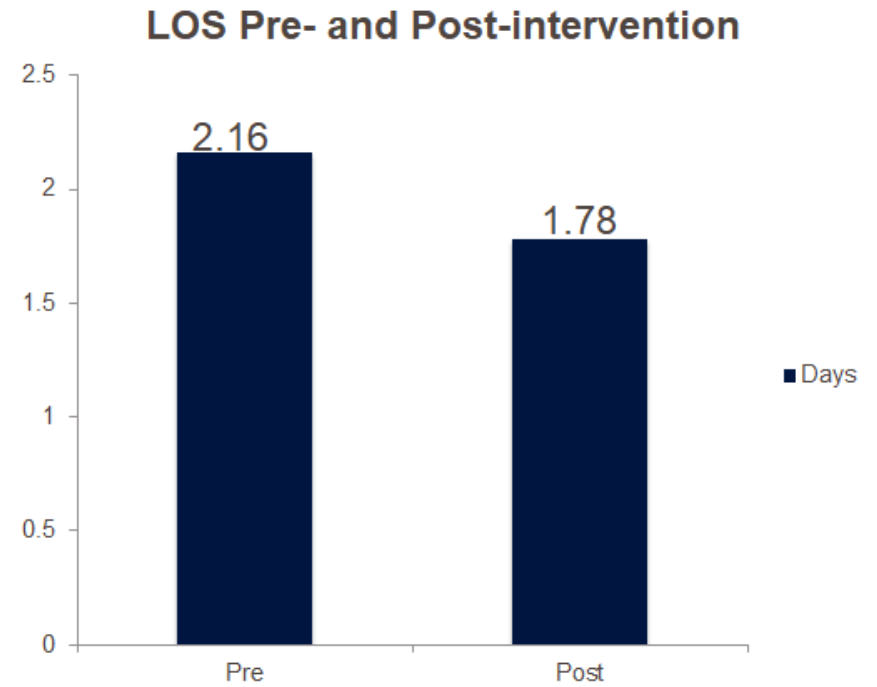
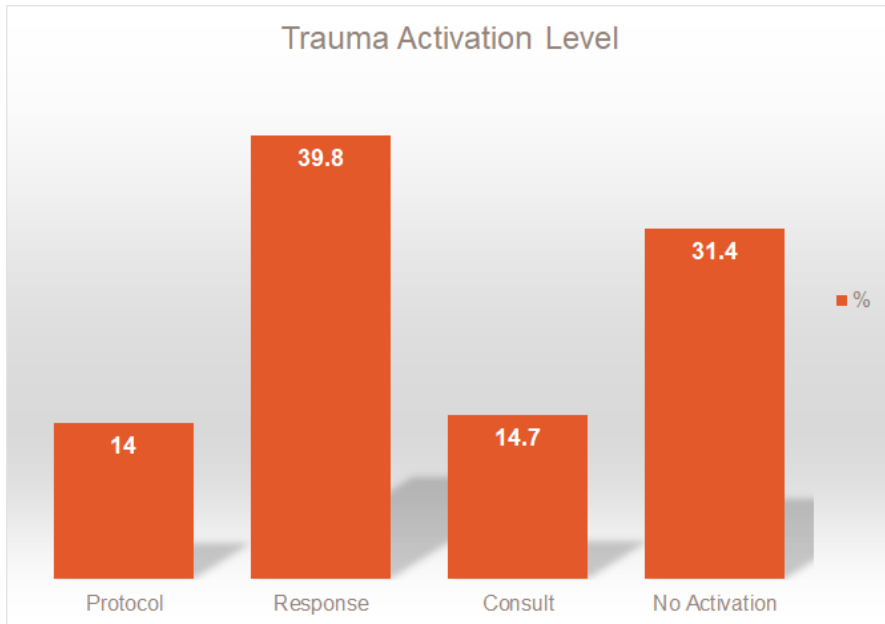
A post-resuscitative handoff protocol will decrease length of stay among pediatric trauma patients.

Methods

- Prospective data collected and retrospectively reviewed on 1,267 injured pediatric patients over 4 year period (2 years pre- and post-intervention).
- Data variables: Age, ISS, GCS, LOS, and MOI

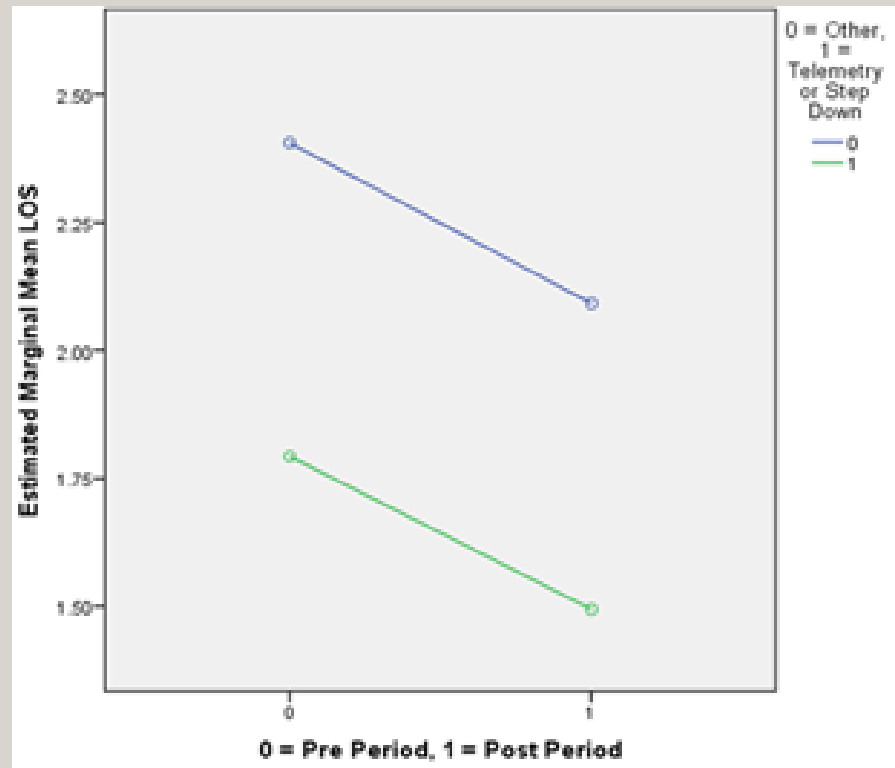


Results



Results

Length of Stay (LOS) pre- and post-intervention by ED disposition



13

Figure 1. Estimated mean LOS by intervention period and post-ED disposition

Results

Table 3. Multivariable linear regression models of intervention period and demographic or patient characteristic variables predicting mean LOS

Model	β	t	p	R^2
Variables				
Model 1				
Pre/Post	-0.331	-2.663	.008	
ISS	0.099	11.278	<.0005	.198
Pre/Post*ISS	0.005	0.412	.680	
Model 2				
Pre/Post	-0.498	-4.029	<.0005	
Age	0.017	1.801	.072	.041
Pre/Post*Age	0.016	0.923	.356	

Conclusion

- Handoff at 24 hours from adult specialty trauma surgeon to pediatric surgeon significantly reduced length of stay by 0.38 days during our post-intervention period.

Literature Cited

1. Borse NN, Gilchrist J, Dellinger AM, Rudd RA, Ballesteros MF, Sleet DA. CDC Childhood Injury Report: Patterns of Unintentional Injuries among 0 -19 Year Olds in the United States, 2000-2006. Atlanta (GA): Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2008.
2. Oyetunji, T. A., Haider, A. H., Downing, S. R., Bolorunduro, O. B., Efron, D. T., Haut, E. R., Chang, D. C., Cornwell III, E. E., Abdullah, F., Siram, S. M. (2011) Treatment outcomes of injured children at adult level I trauma centers: are there benefits from added specialized care? *The American Journal of Surgery*; 201, pp. 445-449.
3. Stiles, P. J., Helmer, S. D., Ward, J. G., Reyes, J., Harrison, P. B., Haan, J. M. (2015) Pediatric trauma system models: do systems using adult trauma surgeons exclusively compare favorably with those using pediatric surgeons after initial resuscitation with an adult trauma surgeon? *The American Journal of Surgery*; 210: 1063-1069.
4. Keller, M. S. and Wave, D. W. (1995). Management of pediatric blunt splenic injury: Comparison of pediatric and adult trauma surgeons. *Journal of Pediatric Surgery*; 30 (2), 221-225.
5. Kelley-Quon, L. I., Crowley, M.A., Applebaum, H., Cummings, K., Kang, R. J., Tseng, Chi-Hong, T., Mangione, C. and Shew, S. B. (2015). Academic- community partnerships improve outcomes in pediatric trauma care. *Journal of Pediatric Trauma*; 50: 1032-1036.
6. Doolin, E. J., Browne, A. M., and DiScala, C. (1999). Pediatric trauma center criteria: an outcome analysis. *Journal of Pediatric Surgery*; 34(5): 885-890.
7. <https://images.app.goo.gl/fpkjB2kyAokpSgPm7>