

# Predictors of Nephrectomy after High Grade Renal Trauma: An Assessment of the National Trauma Data Bank (NTDB)

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# Background

- Children at higher risk of renal injury compared to adults due to anatomic differences
- Current management of pediatric renal trauma extrapolated from adult data and algorithms
- Gradual shift from immediate surgical intervention to observation for high grade trauma in adult literature
- National trends and predictors of nephrectomy unclear in pediatric population

# Aims

- Assess injury characteristics and outcomes of renal trauma in trauma centers across the United States
- Determine national practice patterns and predictors of nephrectomy in high grade renal trauma

# Methods

- Retrospective review of NTDB 2010-2015
- Patients younger than 18 years
- High grade trauma consists of grade 3 or higher on AAST grading system
- Injury mechanism and type, AAST grade, demographics, hospital course and complications recorded
- Minimally invasive and open interventions were determined based on ICD-9 classifications

# Injury Characteristics Between Adult and Pediatric Hospitals

	Adult hospitals n=689	Pediatric hospitals n=2215	P-value
Age, median	16 [13-17]	14 [9-16]	<0.001
Injury type			<0.001
Blunt	83% (569)	87% (1922)	
Penetrating	13% (90)	7% (164)	
Unknown	4% (30)	6% (129)	
Injury mechanism (top 3)			<0.001
MVA	32%	28%	
Sports-related	19%	22%	
Fall	13%	17%	

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Injury Severity Score	17 [10-27]	17 [10-26]	0.332
Grade			0.15
III	53% (368)	49% (1089)	
IV	38% (260)	41% (909)	
V	9% (61)	10% (217)	

# Predictors of nephrectomy in high-grade trauma

	OR	95% CI	P-value
Older age at injury	1.94	1.07-3.54	0.02
Gunshot wound vs. other mechanisms	4.86	1.0-23.87	0.05
Adult vs. pediatric hospital	1.86	1.0-3.47	0.05

# Conclusions

- Differences in management between pediatric and adult trauma centers highlight need for standardized protocol for assessing and managing renal trauma
- Multi-institutional studies can help delineate role of urologic consultation in decision-making process and utility of open surgical intervention