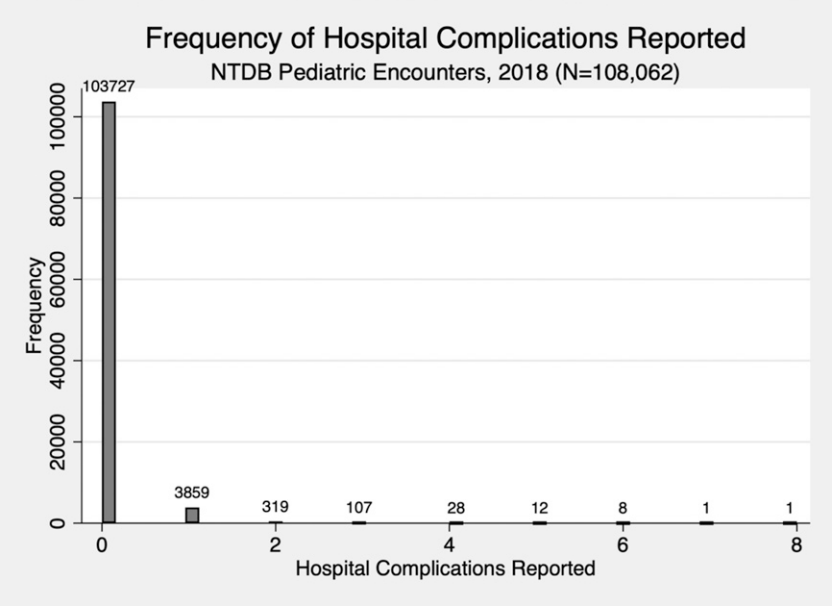
Supplemental Information



SUPPLEMENTAL FIGURE 3 Frequency of hospital complications reported.

SUPPLEMENTAL TABLE 4 Comorbid Conditions in the 2018 National Trauma Data Bank

Comorbid Conditions Present Before Current Injury
1. Advanced directive limiting care
2. Alcohol use disorder
3. Angina pectoris (includes chest pain)
4. Anticoagulant therapy (eg, antiplatelet agents; excludes aspirin therapy)
5. Attention-deficit disorder/ADHD
6. Bleeding disorder (eg, hemophilia, von Willebrand disease)
7. Cerebrovascular accident (with continued dysfunction, eg, hemiplegia, aphasia)
8. Chronic obstructive pulmonary disease
9. Chronic renal failure
10. Cirrhosis (ie, end-stage renal disease)
11. Congenital anomalies (eg, cardiac, pulmonary, GI)
12. Congestive heart failure (includes pulmonary edema; lists common manifestations)
13. Currently receiving chemotherapy for cancer
14. Dementia (includes senile, vascular dementia)
15. Diabetes mellitus ("requires exogenous parenteral insulin or an oral hypoglycemic agent")
16. Disseminated cancer (widespread presence of cancer in multiple sites)
17. Functionally dependent health status (difficulty completing activities of daily living; lists examples)
18. Hypertension
19. Mental/personality disorder ("depressive disorder, bipolar disorder, schizophrenia, borderline or antisocial personality disorder, and/or adjustment disorder/posttraumatic stress disorder")
20. Myocardial infarction (occurred in the previous 6 mo)
21. Other
22. Peripheral arterial disease ("narrowing or blockage of the vessels that carry blood from the heart to the legs")
23. Prematurity (ie, delivered before 37 wk gestation, and bronchopulmonary dysplasia, or vent support >7 d)
24. Steroid use ("regular administration of oral or parenteral corticosteroid medications within 30 d before injury for a chronic medical condition"; excludes topical, inhalation, rectal delivery)
25. Substance abuse disorder

Data abstractors are instructed to check all that apply. Abstractors follow a specific hierarchy for collecting information on comorbid conditions, as defined in the data dictionary. They first consult history and physical, physician's notes, and progress notes. They then consult case management, nursing notes/flow sheet, triage/trauma flow sheet, and discharge summary. Source: Committee on Trauma. 2018 Admissions. Appendix 3: Glossary of Terms. In: American College of Surgeons, ed. *National Trauma Data Standard Data Dictionary*. 2018. GI, gastrointestinal.

SUPPLEMENTAL TABLE 5 Examples of Injuries at Different Levels of Severity

ISS Category[a]	Severity	Example Case	General Observations
1–8	Mild	Concussion	• Likely involves only 1 body region (self-contained) • Management of injury should be straightforward • Could be considered trauma because of the mechanism of injury (eg, motor vehicle crash)
9–15	Moderate	Multiple fractures, same body region + lung contusion + laceration	• Likely involves >1 body region
16–24	Severe	Major liver laceration + femur fracture	• Multiple body regions involved • Likely requires extensive management • High risk of decompensation
25–75	Most severe	Diffuse axonal injury with prolonged coma (>24 h) + lung contusion + pelvic fracture + minor liver laceration, not included in ISS	• Multiple body regions involved • Requires critical care management and life-threatening

[a] The abbreviated injury scale-derived ISS is a composite score that ranges from 0 to 75. Each body region's scores range from 0 to 6, where the 3 body regions with the most severe injuries are squared and then summed.[28] The formula is as follows: ISS = (most injured body region 1 score)^2 + (most injured body region 2 score)^2 + (most injured body region 3 score).^{2} The ISS was established in the 1970s[29,30] and continues to be used as the standard today.[31,32]

SUPPLEMENTAL TABLE 6 STROBE Statement: Checklist of Items That Should be Included in Reports of Cross-Sectional Studies

	Item No.	Recommendation	Page No.
Title and abstract	1	(1) Indicate the study's design with a commonly used term in the title or the abstract.	1
		(2) Provide in the abstract an informative and balanced summary of what was done and what was found.	1
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported.	3–4
Objectives	3	State specific objectives, including any prespecified hypotheses.	3–4
Methods			
Study design	4	Present key elements of study design early in the article.	4–7
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection.	4
Participants	6	Give the eligibility criteria, and the sources and methods of selection of participants.	4 (Fig 1)
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable.	4–5
Data sources/ measurement	8[a]	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is >1 group.	4–7
Bias	9	Describe any efforts to address potential sources of bias.	6–7
Study size	10	Explain how the study size was arrived at.	Fig 1
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why.	4–7
Statistical methods	12	(1) Describe all statistical methods, including those used to control for confounding.	5–7
		(2) Describe any methods used to examine subgroups and interactions.	6–7
		(3) Explain how missing data were addressed.	7
		(4) If applicable, describe analytical methods taking account of sampling strategy.	N/A
		(5) Describe any sensitivity analyses.	6–7
Results			
Participants	13[a]	(1) Report numbers of individuals at each stage of study (eg, numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed).	7–8 (Fig 1)
		(2) Give reasons for nonparticipation at each stage.	7–8 (Fig 1)
		(3) Consider use of a flow diagram.	Fig 1
Descriptive data	14[a]	(1) Give characteristics of study participants (eg, demographic, clinical, social) and information on exposures and potential confounders.	7–8 (Table 1; Supplemental Table 7)
		(2) Indicate number of participants with missing data for each variable of interest.	Supplemental Table 7
Outcome data	15[a]	Report numbers of outcome events or summary measures.	7–8 (Table 2)

SUPPLEMENTAL TABLE 6 Continued

	Item No.	Recommendation	Page No.
Main results	16	(1) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included.	7–8 (Tables 1 and 3)
		(2) Report category boundaries when continuous variables were categorized.	9–10
		(3) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period.	N/A
Other analyses	17	Report other analyses done (eg, analyses of subgroups and interactions, and sensitivity analyses).	9–10
Discussion			
Key results	18	Summarize key results with reference to study objectives.	10–11
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias.	14–15
Interpretation	20	Give a cautious overall interpretation of results, considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence.	10–14
Generalizability	21	Discuss the generalizability (external validity) of the study results.	11–13
Other information			
Funding	22	Give the source of funding and the role of the funders for the current study and, if applicable, for the original study on which the present article is based.	Title page

An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The Strengthening the Reporting of Observational Studies in Epidemiology checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the Strengthening the Reporting of Observational Studies in Epidemiology Initiative is available at www.strobe-statement.org. N/A, not applicable; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology.

[a] Give information separately for exposed and unexposed groups.

SUPPLEMENTAL TABLE 7 Missing Data Comparison

Characteristic	Overall		Complete Data		Missing Data		*P*	% Missing
N (%)	124 488	100%	108 062	86.8%	16 426	13.2%	—	—
SHCN, *n* %[a] (*n* = 124 488)	20 580	16.5%	17 781	16.5%	2799	17.0%	.060	0.00%
Male sex, *n* % (*n* = 124 472)	80 918	65.0%	70 390	65.1%	10 528	64.2%	**.014**	0.01%
Hispanic/Latino *n* % (*n* = 118 787)	21 997	18.5%	19 730	18.3%	2267	21.1%	**<.001**	4.58%
Race, *n* % (*n* = 121 522)							**<.001**	2.38%
White	80 672	66.4%	71 994	66.6%	8678	64.5%		
Black	23 016	18.9%	20 575	19.0%	2441	18.1%		
Other	17 834	14.7%	15 493	14.3%	2341	17.4%		
Insurance type, *n* % (*n* = 122 641)							**<.001**	1.48%
Private	55 830	45.5%	49 357	45.7%	6473	44.4%		
Public	53 987	44.0%	47 217	43.7%	6770	46.4%		
Other	12 824	10.5%	11 488	10.6%	1336	9.2%		
Age, mean (SD) (*n* = 124 488)	10.3	5.6	10.4	5.6	9.4	5.6	**<.001**	0.00%
Age, *n* % (*n* = 124 488)							**<.001**	0.00%
1–5 y	33 259	26.7%	27 930	25.8%	5329	32.4%		
6–11 y	32 591	26.2%	28 190	26.1%	4401	26.8%		
12–18 y	58 638	47.1%	51 942	48.1%	6696	40.8%		
ISS, mean (SD) (*n* = 123 855)	7.1	7.7	7.2	7.7	6.4	7.2	**<.001**	0.51%
GCS, mean (SD) (*n* = 116 927)	14.3	2.4	14.3	2.4	14.2	2.8	**<.001**	6.07%

Boldface text indicates significance at $P < .05$. —, not applicable.
[a] No observations have not applicable or unknown. Unknown or not reported = coded as 0 for SHCN.

SUPPLEMENTAL TABLE 8 Association Between CYSHCN Status and Hospital Outcomes, Pediatric Trauma Encounters Subset by Age (2018)

Hospital Outcome	CYSHCN Overall	1–5 y		6–11 y		12–18 y	
(Logistic Regression)	**ARR**	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***
Any hospital complications	**2.980**	**6.296** (5.583–7.101)	<.001[a]	**4.747** (4.187–5.383)	<.001[a]	**1.954** (1.811–2.108)	<.001[a]
Unplanned admission to the ICU	**1.996**	—	—	—	—	**1.922** (1.460–2.529)	<.001[a]
In-hospital mortality	0.926	1.285 (0.939–1.760)	.155	1.071 (0.694–1.653)	.764	**0.850** (0.720–1.003)	.044
(Negative binomial)	**IRR**	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***
Hospital LOS	**1.119**	**1.058** (1.023–1.095)	.001[a]	**1.084** (1.056–1.114)	<.001[a]	**1.143** (1.123–1.163)	<.001[a]
ICU LOS	**1.319**	**1.280** (1.124–1.457)	<.001[a]	**1.491** (1.335–1.667)	<.001[a]	**1.269** (1.200–1.341)	<.001[a]

Boldface indicates statistically significant at the $P < .05$ level. ARR and IRR displayed pertain to the CYSHCN indicator variable. Models controlled for sex, race/ethnicity, insurance status, ISS, and GCS (not shown). CI, confidence interval. —, indicates that this value for the dependent variable was not estimated because of the small cell size (<70 observations).
[a] Results statistically significant after FDR adjustment.

SUPPLEMENTAL TABLE 9 Association Between Special Health Care Need Category and Hospital Outcomes, Pediatric Trauma Encounters (2018)

	CYSHCN Overall	Mental Health		Alcohol/SUD		Medical	
(Logistic Regression)	**ARR**	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***
Any hospital complications	**2.980**	**1.418** (1.271–1.583)	<.001[a]	**1.452** (1.215–1.734)	.001[a]	**1.724** (1.513–1.964)	<.001[a]
Unplanned admission to the ICU	**1.996**	—	—	—	—	—	—
In-hospital mortality	0.926	—	—	—	—	—	—
(Negative binomial)	**IRR**	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***
Hospital LOS	**1.119**	**1.168** (1.145–1.192)	<.001[a]	**1.303** (1.257–1.350)	<.001[a]	**1.145** (1.116–1.175)	<.001[a]
ICU LOS	**1.319**	**1.298** (1.206–1.396)	<.001[a]	**1.706** (1.500–1.940)	<.001[a]	**1.403** (1.278–1.540)	<.001[a]

Boldface indicates statistically significant at the $P < .05$ level. ARR and IRR displayed pertain to the SHCN category indicator variable. Models controlled for sex, race/ethnicity, insurance status, age, ISS, and GCS (not shown). CI, confidence interval. —, indicates that this value for the dependent variable was not estimated because of the small cell size (<70 observations).
[a] Results statistically significant after FDR adjustment.

SUPPLEMENTAL TABLE 10 Association Between ISS Category and Hospital Outcomes, Pediatric Trauma Encounters (2018)

	CYSHCN Overall	ISS 1–8		ISS 9–15		ISS 16–24		ISS 25+	
(Logistic Regression)	**ARR**	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***	**ARR (95% CI)**	***P***
Any hospital complications	**2.980**	**5.132** (4.681–5.626)	<.001[a]	**2.828** (2.475–3.231)	<.001[a]	**2.035** (1.723–2.403)	<.001[a]	**1.405** (1.251–1.578)	<.001[a]
Unplanned admission ICU	**1.996**	—	—	1.719 (1.051–2.809)	.063	**2.378** (1.457–3.880)	.005[a]	1.095 (0.683–1.756)	.714
In-hospital mortality	0.926	—	—	—	—	0.760 (0.470–1.230)	.219	0.945 (0.813–1.099)	.455
(Negative binomial)	**IRR**	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***	**IRR (95% CI)**	***P***
Hospital LOS	**1.119**	**1.077** (1.060–1.094)	<.001[a]	**1.115** (1.087–1.142)	<.001[a]	**1.219** (1.160–1.282)	<.001[a]	**1.186** (1.099–1.280)	<.001[a]
ICU LOS	**1.319**	**1.392** (1.248–1.552)	<.001[a]	**1.213** (1.110–1.325)	<.001[a]	**1.132** (1.036–1.236)	.006[a]	**1.141** (1.035–1.258)	.008[a]

Boldface indicates statistically significant at the $P < .05$ level. ARR and IRR displayed pertain to the CYSHCN indicator variable. Models controlled for sex, race/ethnicity, insurance status, age, and GCS (not shown). CI, confidence interval. —, indicates that this value for the dependent variable was not estimated because of the small cell size (<70 observations).
[a] Results statistically significant after FDR adjustment.

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