



Child Maltreatment Related Injuries: Incidence, Hospital Charges, and Correlates of Hospitalization

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Background

• Child Maltreatment (CM):

- Comprise child abuse & child neglect
- Associated with profound health effects
 - Physical injuries & disabilities
 - Mental & behavioral problems

• Lack of epidemiology of CM-related injuries resulting in hospitalization:

- Albeit *injury* is one of the hallmarks

Purpose

- Determine the incidence, hospital charges, correlates, and outcomes associated with inpatient treatment of child maltreatment (CM)

Significance

- Enhance health care personnel's reporting habits of CM, particularly those resulting from injury
- Mandatory reporting agencies to CPS:
 - 16% rate by Education personnel
 - 13% rate by Law Enforcement personnel
 - 12% rate by Social Services personnel
 - 11% rate by Health Care personnel

Methods

- Retrospective 1-year, population-based study using 1995 PA HDD
- Computation of per capita rates
 - *Denominator*: 1995 estimated pop. of PA
 - *Cut-off point*: 5 discharges
- Determination of correlates of admission *via* Logistic Regression Modeling

Participants

- Case identification (persons 0-19 yr.)
 - E codes: external cause-of-injury codes
 - Codes denoting procedures, observations, or medical diagnoses associated w/ CM
- Comparison group (persons 0-19 yr.)
 - A 5% random sample not related to CM

Incidence Rates

- Overall rate = 10.8 per 1,000
 - N = 348 maltreated children 0-19 yr.
 - 12.5% of all assaultive & self-inflicted injuries
- Highest among < 1 yr. (67.8 per 1,000) & blacks (23.2 per 1,000)

Hospital Charges

• Total hospital charges = \$5.4 m

- Medicaid *alone* paid for 45%
- Mean = \$5776; Median = \$15,587
- Mean and median charges were not significantly different from those of non CM related injury discharges

Demo. Characteristics - I

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. for Injury from Other Cause (n=1052)		p
<u>Age of Child</u>					
< 1 year	102	(29)	48	(5)	P< .0001
1-4 years	91	(26)	161	(15)	
5-9 years	29	(8)	170	(16)	
10-14 years	54	(16)	248	(24)	
15-19 years	72	(21)	425	(40)	
<u>Race of Child</u>					
White	207	(60)	712	(68)	P< .005
Black	92	(26)	183	(18)	
Other	48	(14)	152	(14)	

Demo. Characteristics - II

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. for Injury from Other Cause (n=1052)		p
<u>Gender of Child</u>					
Male	177	(51)	668	(64)	P< .0001
Female	171	(49)	384	(36)	
<u>Hispanic Origin</u>					
Yes	16	(5)	36	(3)	P= .33
No	332	(95)	1015	(97)	
<u>Resid. Location</u>					
Urban	175	(50)	525	(51)	P< .09
Mixed	127	(13)	324	(17)	
Rural	45	(37)	175	(32)	

Adm. Characteristics - I

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. For Injury from Other Cause (n=1052)		p
<u>Adm. Source</u>					
E.R.	197	(57)	707	(67)	P< .0001
M.D. Refer	79	(23)	198	(19)	
Transfer	61	(17)	41	(4)	
Other Refer	11	(3)	106	(10)	
<u>Type of Adm.</u>					
Emergency	241	(69)	775	(72)	P< .005
Urgent	86	(25)	186	(18)	
Elective	20	(6)	106	(10)	

Adm. Characteristics - II

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. for Injury from Other Cause (n=1052)		p
<u>Expected Payer</u>					
Self-pay	9	(3)	46	(4)	P< .0001
Medicaid	163	(47)	232	(22)	
B.C./Comm	125	(36)	583	(56)	
Other	51	(15)	191	(18)	
<u>Hosp. L.O.S.</u>					
<= 1 day	68	(20)	468	(45)	P< .0001
2-3 days	82	(24)	309	(29)	
4-7 days	96	(28)	158	(15)	
8-14 days	44	(13)	59	(6)	
> 14 days	58	(17)	58	(5)	

Injury Characteristics - I

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. For Injury from Other Cause (n=1052)		p
<u>Mechanism</u>					
Poisoning	61	(20)	156	(16)	P< .05
Cut/Piercing	19	(6)	44	(5)	
Fall	9	(3)	204	(21)	
Struck by	6	(2)	88	(9)	
Other	207	(69)	461	(49)	
<u>Intent</u>					
Unintentional	49	(16)	769	(81)	P< .0001
Self-inflicted	66	(22)	111	(12)	
Assault	181	(60)	57	(6)	
Other/Undet	6	(2)	16	(2)	

Injury Characteristics - II

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. For Injury from Other Cause (n=1052)		p
<u>Severity</u>					
Minor	71	(40)	205	(28)	P< .0001
Moderate	61	(34)	359	(49)	
Serious	17	(10)	131	(18)	
Severe/Crit.	30	(17)	38	(5)	
<u>Assoc. Mental Condition</u>					
Yes	104	(31)	30	(3)	P< .0001
No	244	(69)	1022	(97)	

Disp. Characteristics

Characteristic	No (%) Disch. for Injury from Maltreatment (n=348)		No (%) Disch. For Injury from Other Cause (n=1052)		p
<u>Discharge Disp</u>					
Routine home	298	(86)	919	(87)	P< .05
Disch to O/F	40	(11)	125	(12)	
Died	10	(3)	8	(1)	

Correlates of Admission - I

Characteristic	Crude OR (95% C.I.)	Adjusted OR (95% C.I.)
<u>Age of Child</u>		
< 5 years	5.0 (3.9-6.5) *	12.2 (8.1-18.3) **
5-19 years	1.0	1.0
<u>Race of Child</u>		
Black	1.7 (1.3-2.3) *	1.2 (0.7-1.9)
Other	0.9 (0.7-1.3)	0.7 (0.4-1.2)
White	1.0	1.0
<u>Adm. Source</u>		
E.R.	0.6 (0.5-0.8) *	0.5 (0.3-0.9) **
Referral	1.2 (0.9-1.6)	0.6 (0.4-1.4)
Transfer	1.0	1.0

Correlates of Admission - II

Characteristic	Crude OR (95% C.I.)	Adjusted OR (95% C.I.)
<u>Expected Payer</u>		
Medicaid	3.1 (2.4-4.0) *	3.0 (2.0-4.5) **
Other	1.0	1.0
<u>Severity of Injury</u>		
Serious/Crit	1.2 (0.8-1.7)	1.2 (0.7-1.9)
Minor/Mod	1.0	1.0
<u>Type of Adm.</u>	Excluded from Multivariate Logistic Modeling Due to Multi-collinearity Issues	
<u>Intent of Injury</u>		
<u>Associated M/C</u>		

Discussion

• Results corroborate those of others:

- *NCCAN, 1988* - young children, females
- *2NIPSCAN, 1993* - corr. w/ young children
- *Irazuzta et al, 1997* - high cost to treat CM
- *APAM, 2000* - 4x in-hospital mortality

• However, present study demo:

Conclusions

• Injury from CM:

- A major cause of hospitalization
- A significant cost to publicly financed health care in the U.S.

• Children injured from CM unique:

- Demographic characteristics
- Admission, injury, & outcome



Footnote

A Manuscript
based on presentation is
in press
with
Child Abuse & Neglect