

What Percent of Pediatric Femur Fractures Get Screened for Non-Accidental Trauma?

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Purpose: The femur is the most common location for non-accidental trauma (NAT)-related fractures. The American Academy of Orthopaedic Surgeons clinical practice guidelines (CPG) recommend screening all patients with a diaphyseal femur fracture aged 36 months and under. Unfortunately, this guideline is variably adhered to. The purpose of this study is to determine the patient characteristics associated with a physician’s decision to perform a NAT workup and results of NAT workup.

Methods: A retrospective review of patients 0 to 36 months old diagnosed with a femur fracture between 1 January 2004 and 9 April 2019 at our institution. NAT was defined as a positive workup identified by social services, skeletal survey, or ophthalmological examination. Patients with incomplete medical records were excluded.

Results: A total of 277 patients were identified, and 71% were screened for NAT. Patients under 1 year old were significantly more likely to undergo a NAT workup (P = 0.009, odds ratio [OR] 2.3; 95% confidence interval [CI] 1.2-4.4) and receive a positive result from the NAT workup (P<0.001, OR 11.3; 95% CI 4.6-27.4). Additional injuries were also a significant predictor of a positive NAT workup (P<0.001, OR 5.3, 95% CI 2.4-11.9). Patient race/ethnicity, sex, and fracture type were not significantly associated with the physician’s decision to perform an NAT workup.

Conclusion: Children under 1 year of age presenting with pediatric femur fractures should be screened for NAT. Further studies evaluating the effect of patient race/ethnicity and socioeconomic status on evaluation for NAT from a perspective of intersectionality would further illuminate bias in physicians’ approach to abuse evaluation and reporting.

Table 1. Demographic Predictors of Patients Identified for NAT Workup

	Patients Identified for NAT Workup (n=197)	P-value
Age at Presentation		
Under 1 year	69/84 (82%)	0.009
1 year and older	128/193 (66%)	
Sex		
Female	62/80 (78%)	0.1
Male	135/197 (69%)	
Race/Ethnicity		
Asian	12/14 (86%)	0.7
Black/African American	24/34 (71%)	
White	22/36 (61%)	
Hispanic	118/158 (75%)	
Other	21/35 (60%)	
Type of Fracture		
Transverse	14/17 (82%)	0.6
Spiral	71/96 (74%)	
Comminuted	3/3 (100%)	
Oblique	25/35 (71%)	
Buckle	4/5 (80%)	
Not Indicated	80/121 (66%)	
Additional Injuries		
Yes	32/41 (78%)	0.3
No	165/236 (70%)	

p -values from logistic regression.

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