

TEN-4-FACESp

Bruising rule for children less than 4 years of age

Kids play and sometimes that play can result in minor cuts, scrapes and bruises. These injuries are often found on bony areas like knees, shins, elbows and foreheads. However, other types of bruises should raise a red flag for possible abuse.

When is bruising concerning for abuse in children less than 4 years of age?

If bruising is present in any of the three components (Regions, Infants, Patterns) without a reasonable explanation, strongly consider evaluating for child abuse and/or consulting with an expert in child abuse.

REGIONS	INFANTS	PATTERNS
TEN Torso Ears Neck  FACES Frenulum Angle of jaw Cheeks (flesh part) Eyelids Subconjunctivae	4 months and younger  Any bruise, anywhere <i>Kids that don't bruise, rarely bruise.</i>	Patterned bruising  Bruises in specific pattern like slap, grab or loop marks

TEN-4-FACESp is not a diagnostic tool; it is a screening tool to improve the recognition of potentially abused children with bruising who require further evaluation.

TEN-4-FACESp was developed and validated by Dr. Mary Clyde Pierce and colleagues. It was published and available for FREE download at luriechildrens.org/ten-4-facesp. © Ann & Robert H. Lurie Children's Hospital of Chicago

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Summary of features associated with child physical abuse/non-accidental trauma



HISTORICAL FACTORS

- Injuries inconsistent with age and/or developmental abilities
- Vague history or one that changes with time, repetition or caregiver
- Delay in seeking care



HEAD INJURIES

- Serious head injuries in young children or infants reported to be the result of a short fall or without a history of any trauma



SKELETAL INJURIES:

- Fracture patterns inconsistent with age, developmental level, or degree of mobility
- Skeletal survey to screen for occult fractures is indicated for children less than 2 years of age with suspected physical abuse
- Rib fractures, especially posterior, in children less than 24 months of age
- Metaphyseal (corner) fractures in children less than 12 months of age



SKIN INJURIES

- Injuries in the TEN-4-FACESp distribution
- Burns on the buttocks, perineum, soles of the feet, genitals
- Symmetrical burns suggestive of immersion (glove or stocking pattern bilaterally)
- Burns with a pattern or imprint



ABDOMINAL INJURIES:

- Hollow viscous injuries in children less than 4 years of age, particularly duodenal injuries
- Combined hollow viscus and solid organ injuries
- Elevated liver function tests, even in the absence of visible bruising or external signs of trauma
- Abdominal injuries in children less than 5 years with non-motor vehicle collision mechanism reported



SCREENING TOOLS:

- Clinical decision rule for bruising in children under 4 years of age
 - TEN-4-FACESp
- Clinical predication rules for abusive head trauma in children under 3 years of age
 - PediBIRN
 - Evaluates key findings such as respiratory compromise, bruising of the torso/ears/neck, specific subdural hemorrhage patterns, and skull fracture characteristics
 - PredAHT
 - Incorporates six clinical features: head or neck bruising, seizures, apnea, rib fractures, long bone fractures and retinal hemorrhages
- For children with positive screening results, consider consultation with a child abuse pediatrician to facilitate comprehensive evaluation, diagnosis and care planning.

References:

Escobar, Mauricio A., et al. "The Association of Nonaccidental Trauma with Historical Factors, Examination Findings, and Diagnostic Testing during the Initial Trauma Evaluation." *Journal of Trauma and Acute Care Surgery*, vol. 82, no. 6, June 2017, pp. 1147–57. Pierce, Mary Clyde, et al. "Validation of a Clinical Decision Rule to Predict Abuse in Young Children Based on Bruising Characteristics." *JAMA Network Open*, vol. 4, no. 4, American Medical Association, Apr. 2021, pp. e215832–32. Pfeiffer, H., et al. "Clinical Prediction Rules for Abusive Head Trauma: A Systematic Review." *Archives of Disease in Childhood* 2018, 103 (8), 776–783. Pediatric Brain Injury Network - PediBIRN