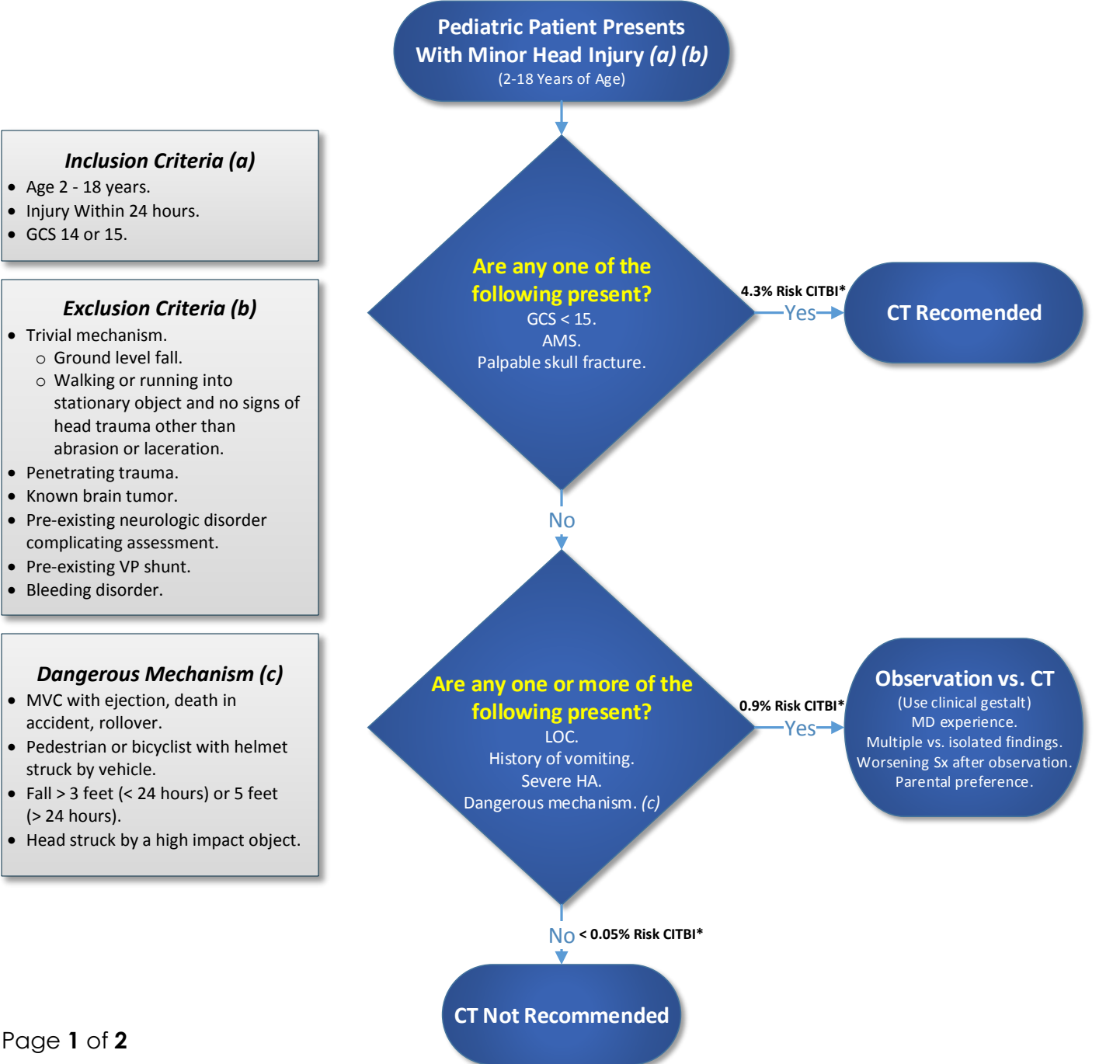




# MANAGEMENT OF Pediatric Minor Head Injury

(2-18 Years of Age)

*This EPPA Clinical Guideline is intended to guide most, but not all, encounters involving pediatric minor head injury and should not replace clinical judgment; deviate from or adapt this guideline to meet the individual patient's needs.*





# MANAGEMENT OF Pediatric Minor Head Injury

(2-18 Years of Age)

## References:

- Kuppermann N, et al. Identification of Children at Very Low Risk of Clinically-Important Brain Injuries after Head Trauma: A Prospective Cohort Study. *Lancet*. 2009; 374(9696): 1160-70.
- Easter JS, et al. Comparison of PECARN, CATCH, and CHALICE Rules for Children with Minor Head Injury: A Prospective Cohort Study. *Ann Emerg Med*. 2014; 64(2): 145-52
- Pickering A, et al. Clinical Decision Rules for Children with Minor Head Injury: A Systematic Review. *Arch Dis Child*. 2011; 96(5): 414-21.
- Dayan PS, et al. Risk of Traumatic Brain Injuries in Children Younger Than 24 Months with Isolated Scalp Hematomas. *Ann Emerg Med*. 2014; 64(2): 153-62.

© 2015 Emergency Physicians Professional Association. All rights reserved.

This guideline was established by a peer review organization and is protected under Minn. Stat. § 145.65

## Key Points:

### *Pediatric GCS Scale*

	<b>Eye Opening</b>	
Spontaneously		4
To Verbal Command		3
To Pain		2
No Response		1
	<b>Motor Response</b>	
Obeys		6
Localizes Pain		5
Flexion - Withdrawal		4
Flexion - Abnormal (Decorticate Rigidity)		3
Extension (Decerebrate Rigidity)		2
No Response		1
	<b>Verbal Response</b>	
	<b>&gt; 5 Years</b>	<b>2-5 Years</b>
Oriented		Appropriate Words / Phrases 5
Disoriented / Confused		Inappropriate Words 4
Inappropriate Words		Persistent Cries and Screams 3
Incomprehensible Sounds		Grunts 2
No Response		No Response 1

### **Original Study – 42,000 patients 25% < 2 Years Old:**

- **Results < 2 Years Old**
  - Sens 100% (86% to 100% CI)
  - NPV 100% (99.7% to 100% CI)
- **Results > 2 Years Old**
  - Sens 96.8% (89% to 99.6% CI)
  - NPV 99.95% (99.8% – 99.9% CI)

### **\*Clinically Important Traumatic Brain Injury (CITBI) (Definition):**

- Death from TBI.
- Need for neurosurgical intervention.
- Intubation for > 24 hours for TBI.
- Hospital admission of > 2 nights associated with TBI on CT.

### **Bottom Line:**

- If < 2 years of age, and no risk factors present, then likelihood CITBI = < 0.02%
- If > 2 years of age, and no risk factors present, then likelihood CITBI = < 0.05%

### **Risk of Radiation?**

- Average background radiation = 3 mSv/year
- CT Scan of Head = 2 mSv = Very Low Risk (1/10,000 to 1/100,000 Risk of Fatal Cancer)
- CT Scan of Neck = 6 mSv = Low Risk (1/1,000 to 1/80,000 Risk of Fatal Cancer)

## Follow-Up Resources:

- **Primary Care**
- **[HCMC Traumatic Brain Injury Center \(Click For Website\)](#)**
- **[Gillette Children's Specialty Healthcare \(Click For Website\)](#)**