

Comparison of PECARN, CATCH, and CHALICE Rules for Children with Minor Head Injuries

Easter, Joshua S. ; Bakes, Katherine ; Dhaliwal, Jasmeet ; Miller, Michael ; Caruso, Emily ; Haukoos, Jason S.

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Background



While the best modality for identifying traumatic brain injuries, a CT is **costly** and **exposes patients to radiation**



How do existing clinical decision rules **compare in performance** to each other and to clinician judgement?

Serious intracranial injuries occur in <5% of children presenting with minor head injuries, but **>1/3 are ordered a CT**

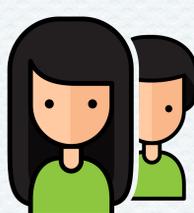


Study Design

Inclusion Criteria



Presented within 24 hours of minor head injury and a GCS \geq 13



Patients were < 18 years old and there was concern for a traumatic brain injury

Exclusion Criteria

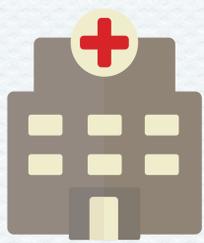


Bleeding disorders and anticoagulant therapy



Brain Tumors or Ventricular Shunts

Design



Single Center Prospective Cohort Study



Variables for: **PECARN**, **CHALICE**, and **CATCH** were recorded



Physician estimation and physician practice were recorded for each patient

Results

Of the 1,009 children included in the study, **21 clinically important*** traumatic brain injuries were identified

Diagnostic Accuracy of Clinical Decision Rules and Physician Judgement

	Sensitivity (%)	Specificity (%)
Physician Estimation	95	68
Physician Practice	100	50
PECARN	100	62
CHALICE	84	85
CATCH	91	44

*Defined as death from traumatic brain injury, a need for neurosurgery, intubation lasting greater than 24 hours for traumatic brain injury, or hospital admission greater than 2 nights for traumatic brain injury.

Bottom Line

PECARN was the only clinical decision rule that had **100% sensitivity in detecting clinically important traumatic brain injuries** in pediatric patients with minor head injuries

REFERENCES:

Easter JS, Bakes K, Dhaliwal J, 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

This infographic was created by Anthony Rousseaux and edited by Alvin Chin

