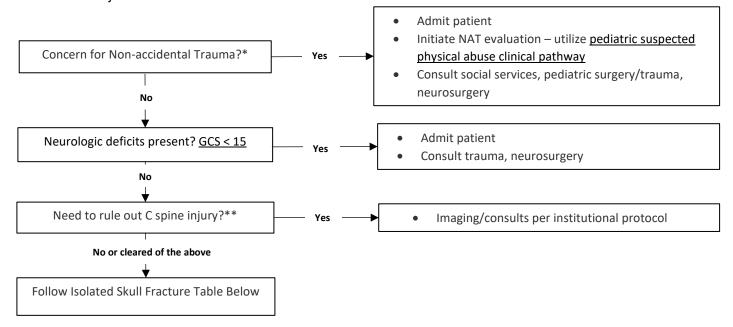


Skull Fracture (Isolated)

Purpose: This pathway is for patients with isolated non-depressed skull fracture without intracranial findings and no other traumatic injuries



Fracture Location	Time since injury	Zofran in ED?	Management Plan
Occipital Frontal Parietal Or Temporal (squamous only)	0 – 4 h	Yes	Admit to peds floorConsult neurosurgery
		No	 Observe for a minimum of 4 hours since time of injury (may include time of observation that occurred at home prior to arrival) If tolerated PO trial, DC home w/ neurosurgery follow up in 1-2 weeks (utilize ED discharge "dot phrase" for instructions and send EPIC chat to NSG with pt MRN) No Neurosurgery consult required
	> 4h	Yes	Admit to peds floorConsult neurosurgery
		No	 DC home w/ neurosurgery follow up in 1-2 weeks (utilize ED discharge "dot phrase" for instructions and send EPIC chat to NSG with pt MRN) No neurosurgery consult required

*Concern for Non-accidental Trauma?

- Absence of traumatic history to adequately explain skull fracture
- History of other injuries, or presenting with other injuries on physical exam
- Prior CPS/DCFS involvement
- Changing/conflicting stories of present trauma
- Delay of >/= 72h in medical evaluation of injury

** C spine eval – per ED physician judgement or established trauma per local guideline/protocol

Created by	Department	Creation Date	Version Date
D. Li, J. McCarthy	ER and NSG	11/2023	1/2024



Skull Fracture (Isolated)

References:

- Reynolds RA, Kelly KA, Ahluwalia R, Zhao S, Vance EH, Lovvorn HN, Hanson H, Shannon CN, Bonfield CM.
 Protocolized management of isolated linear skull fractures at a level 1 pediatric trauma center. J Neurosurg
 Pediatr. 2022 Jul 1:1-8. doi: 10.3171/2022.6.PEDS227. Epub ahead of print. PMID: 35901741.
- Tang AR, Reynolds RA, Dallas J, Chen H, Vance EH, Bonfield CM, Shannon CN. Admission trends in pediatric isolated linear skull fracture across the United States. J Neurosurg Pediatr. 2021 Jun 4:1-13. doi: 10.3171/2020.12.PEDS20659. Epub ahead of print. PMID: 34087799.
- White IK, Pestereva E, Shaikh KA, Fulkerson DH. Transfer of children with isolated linear skull fractures: is it worth the cost? J Neurosurg Pediatr. 2016 May;17(5):602-6. doi: 10.3171/2015.9.PEDS15352. Epub 2016 Jan 1. PMID: 26722759.
- Arrey EN, Kerr ML, Fletcher S, Cox CS Jr, Sandberg DI. Linear nondisplaced skull fractures in children: who should be observed or admitted? J Neurosurg Pediatr. 2015 Dec;16(6):703-8. doi: 10.3171/2015.4.PEDS1545. Epub 2015 Sep 4. PMID: 26339955.
- Mackel CE, Morel BC, Winer JL, Park HG, Sweeney M, Heller RS, Rideout L, Riesenburger RI, Hwang SW.
 Secondary overtriage of pediatric neurosurgical trauma at a Level I pediatric trauma center. Journal of Neurosurgery: Pediatrics. 2018 Jun 29;22(4):375-83.
- Donaldson K, Li X, Sartorelli KH, Weimersheimer P, Durham SR. Management of Isolated Skull Fractures in Pediatric Patients: A Systematic Review. Pediatr Emerg Care. 2019 Apr;35(4):301-308. doi: 10.1097/PEC.000000000001814. PMID: 30855424.
- Blackwood BP, Bean JF, Sadecki-Lund C, Helenowski IB, Kabre R, Hunter CJ. Observation for isolated traumatic skull fractures in the pediatric population: unnecessary and costly. J Pediatr Surg. 2016 Apr;51(4):654-8. doi: 10.1016/j.jpedsurg.2015.08.064. Epub 2015 Sep 24. PMID: 26472656.
- Reuveni-Salzman A, Rosenthal G, Poznanski O, Shoshan Y, Benifla M. Evaluation of the necessity of hospitalization in children with an isolated linear skull fracture (ISF). Childs Nerv Syst. 2016 Sep;32(9):1669-74. doi: 10.1007/s00381-016-3175-2. Epub 2016 Jul 21. PMID: 27444293.
- Dallas J, Mercer E, Reynolds RA, Wellons JC, Shannon CN, Bonfield CM. Should ondansetron use be a reason to admit children with isolated, nondisplaced, linear skull fractures? J Neurosurg Pediatr. 2019 Dec 13:1-7. doi: 10.3171/2019.9.PEDS19203. Epub ahead of print. PMID: 31835245.
- Wood JN, Christian CW, Adams CM, et al. Skeletal surveys in infants with isolated skull fractures. *Pediatrics*. 2009;123:e247–e252.
- Laskey AL, Stump TE, Hicks RA, et al. Yield of skeletal surveys in children </= 18 months of age presenting with isolated skull fractures. *J Pediatr*. 2013;162:86–89.
- Flaherty EG, Perez-Rossello JM, Levine MA, et al. Evaluating children with fractures for child physical abuse. *Pediatrics*. 2014;133:e477–e489.
- Dallas J, Mercer E, Reynolds RA, Wellons JC, Shannon CN, Bonfield CM. Should ondansetron use be a reason to admit children with isolated, nondisplaced, linear skull fractures? J Neurosurg Pediatr. 2019 Dec 13:1-7. doi: 10.3171/2019.9.PEDS19203. Epub ahead of print. PMID: 31835245.
- Green-Hopkins I, Monuteaux MC, Lee LK, Nigrovic LE, Mannix R, Schutzman SA. Use of Ondansetron for Vomiting After Head Trauma: Does It Mask Clinically Significant Traumatic Brain Injury? Pediatr Emerg Care. 2020 Aug;36(8):e433-e437. doi: 10.1097/PEC.000000000001315. PMID: 29040247.

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