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Findings Concerning for Abusive Head Trauma

- Retinal hemorrhages
- Traumatic retinoschisis
- Subdural hematoma with or without skull fracture
- Unexplained intracranial injury
- Unexplained scalp injury or skull fracture
- Cerebral ischemia on neuroimaging

Exclusion criteria:

- Injury due to motor vehicle or bike accident
- Non-abusive injury witnessed by multiple people
- Known injury occurring at birth

Additional Medical Evaluation

(Based on SCAN recommendations; usually requires admission)

Laboratory Testing

- Obtain CBC, PT, PTT
- Obtain factor VIII level and factor IX level
- Obtain fibrinogen and D-dimer, if there is history of neurologic compromise
- Review newborn screen

Radiologic Testing

- Obtain MRI/MRV of head and total spine
- Discuss need for sedation/anesthesia with radiology (avoid sedation if possible)

Ophthalmologic Exam

- Place Ophthalmology consult for a dilated exam
- Discuss timing of exam with admitting team, as dilation can impact neurologic exams

Reference

Anderst, J., et al. (2022). Evaluation for bleeding disorders in suspected child abuse. *Pediatrics*, 150(4), e2022059276. <https://doi.org/10.1542/peds.2022-059276>

When a Report is Needed

- A social worker will complete a PAR to document a psychosocial assessment if concern for potential abuse. A PAR is initiated whenever abuse is under consideration. A PAR does not mean a child protective services report will be made
- If a mandated reporter believes in good faith there is a reasonable cause to suspect abuse, a hotline report must be made without unnecessary delay to the appropriate state agency and/or law enforcement.

Patient undergoing medical evaluation following head CT for suspected abusive head trauma (AHT)

Initial Steps

- Stabilize as needed prior to further evaluation
- If not at Adele Hall, transfer to CM Adele Hall ED
- Children with abusive head trauma may have other injuries; therefore, review the [Child Physical Abuse Clinical Pathway](#) and utilize associated Order Sets before continuing

Does the CT head show an intracranial injury?

No

Yes

Consult

- Consult Neurosurgery
- Consult Trauma
- Consult Social Work
- Consult SCAN

Review

Review results with SCAN Physician. Additional evaluation may be indicated, based on SCAN recommendations

Update Social Work and request assistance with On-Site Safety Precautions (1:1 observation and/or visitor restrictions, refer to [Abuse/Neglect Process Flowchart](#) for details)

Communicate

- Clearly communicate process with families
- Provider and Social Work Education
- Ensure closed loop communication with all teams involved

Collaborate with Social Work and determine if a report to child protective services and/or law enforcement is needed

Admit to Trauma Surgery, unless otherwise directed by Trauma

[Inpatient Management](#)

Off Pathway.

- A normal CT or CT with skull fracture alone **does not** rule out intracranial injury
- If ongoing concern for AHT, consult SCAN Physician to discuss additional work-up
 - If other ongoing neurological concerns, consider differential diagnosis and consult Neurology to discuss additional work-up
 - Refer back to [Child Physical Abuse Clinical Pathway](#) as needed

Differential Diagnosis

- Accidental head trauma
- Accidental toxic ingestion
- Birth trauma
- Congenital condition (e.g., glutaric aciduria - type 1, Menkes disease)
- Neoplastic condition
- Seizures/epilepsy
- Meningitis/encephalitis
- Focal intracranial infection, refer to [Focal Intracranial Infection Clinical Pathway](#)
- Stroke, refer to [Stroke Clinical Pathway](#)
- Obstructive hydrocephalus
- Bleeding disorder
- Vascular abnormalities (e.g., aneurysm, hereditary hemorrhagic telangiectasia)

This list is not all inclusive of possible differential diagnoses

Provider and Social Work Education Videos

Conversations about suspected child abuse can be challenging. These 5-minute videos demonstrate effective communication with families.

Available to Children's Mercy providers and social workers through the [Child Abuse Toolkit](#)

Abbreviations:

PAR = Patient At Risk Assessment
PICU = Pediatric Intensive Care Unit
SCAN = Safety, Care, and Nurturing

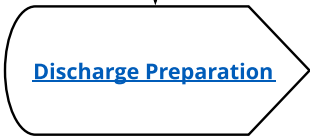
All children hospitalized for **suspected abusive head trauma (AHT)**



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Triage and Acute ICU care, (e.g. fluids & electrolytes, ICP management, EEG monitoring) are outside the scope of this pathway. Follow unit specific protocols to stabilize the child and medically manage the traumatic and/or anoxic brain injury.
For Children's Mercy ICU providers, refer to internal "Severe Traumatic Brain Injury Guideline."

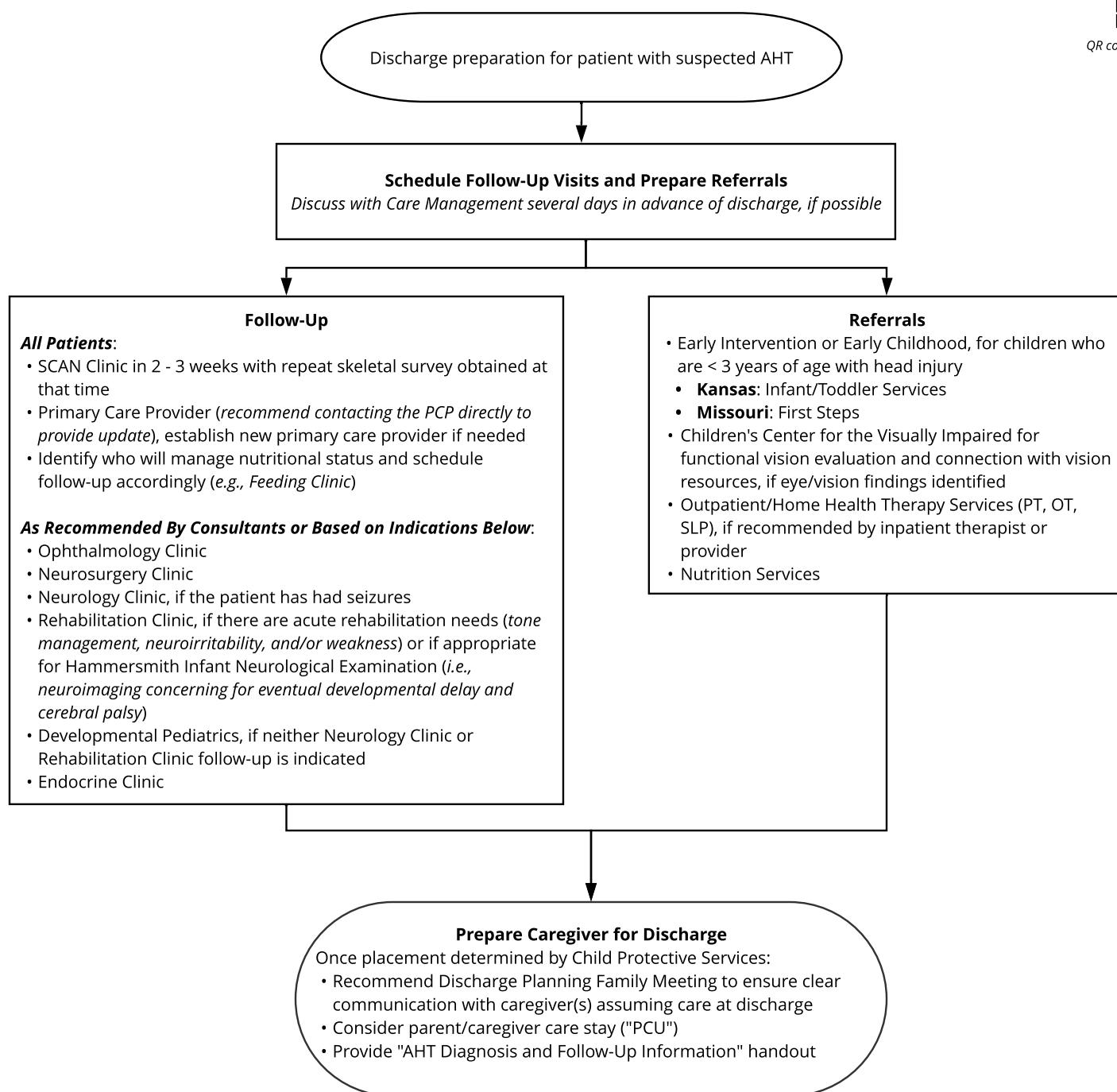
Additional Inpatient Management Based on Severity of Injury			
When transferring between teams (<i>Intensive Care, Neurosurgery, Gen Peds, Rehabilitation</i>) communicate about pending/incomplete action items			
Injury severity based on post-resuscitation Glasgow Coma Scale (GCS)			
	Mild (13-15)	Moderate (9 -12)	Severe (≤ 8)
Consults <i>Timing can vary based on the child's needs. Some consults may take place in ICU vs Med/Surg</i>	• Trauma • SCAN • Social Work • Ophthalmology • Neuropsychology Service • Endocrinology • On case-by-case basis: • Rehabilitation Medicine • Physical Therapy • Occupational Therapy • Speech Therapy • Neurology • Neurosurgery	• Trauma • SCAN • Social Work • Neurosurgery • Ophthalmology • Rehabilitation Medicine • Neuropsychology Service • Endocrinology • On case-by-case basis: • Neurology • Physical Therapy • Occupational Therapy • Speech Therapy	• Trauma • SCAN • Social Work • Neurosurgery • Ophthalmology • Neurology • Rehabilitation Medicine • Neuropsychology Service • Endocrinology • Physical Therapy • Occupational Therapy • Speech Therapy • Audiology (<i>most appropriate at end of stay</i>) • On case-by-case basis: • Palliative Care Team
Seizure prophylaxis and monitoring	Mild/Moderate • If intracranial hemorrhage, levetiracetam prophylaxis is indicated for 7 days post-injury (<i>Dosing: Load 60 mg/kg [max 4500 mg], then 20 mg/kg/dose [max 1000 mg] every 12 hours for 7 days</i>) • EEG monitoring is indicated for patients < 2 years of age with subdural hemorrhages and/or in the setting of concern for clinical or subclinical seizures		Severe • EEG monitoring for at least 24 hrs • Levetiracetam for minimum of 7 days. <i>If there are no seizures in 7 days, may discontinue.</i> • Additional recommendations per Neurology
Endocrine evaluation	All Levels of Severity • BMP • Cortisol (8 am), ACTH (8 am), IGF - 1, prolactin • TSH, free T4 • If urine output is > 5 cc/kg/hour over 3 - 4 hours, obtain: serum sodium, serum osmolality, urine sodium, urine specific gravity, urine osmolality		
Additional work-up for suspected abuse	Await SCAN consult recommendations		
Be aware of sub-acute complications such as DI, SIADH, cerebral salt wasting, seizures, obstructive hydrocephalus, autonomic instability			



Abbreviations:
DI = Diabetes insipidus
ICP = Intracranial pressure
SCAN = Safety, Care, and Nurturing
SIADH = Syndrome of Inappropriate Antidiuretic Hormone



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Abbreviations:

AHT = Abusive Head Trauma
OT = Occupational Therapy
PT = Physical Therapy
SCAN = Safety, Care, and Nurturing
SLP = Speech Language Pathologist