

Neurotrauma Plan of Care – Immediate Transfer Policy

Effective Date: 1/12/26

Retires Policy Dated: N/A

Original Effective Date: 1/12/26

Updated Date: N/A

SCOPE

This policy applies to the evaluation, stabilization, and disposition of adult trauma patients with suspected or confirmed traumatic brain injury (TBI) and/or spinal injury under the care of Trauma Services.

PURPOSE

To provide clear, evidence-based directives for the initial management, stabilization, and mandatory transfer of patients with neurotrauma, and to eliminate ambiguity regarding admission versus transfer. This policy prioritizes early definitive neurosurgical care and aligns with ACS TQIP best practices and regional trauma transfer standards.

ABSOLUTE PRINCIPAL

Any patient with intracranial hemorrhage OR spinal cord injury with neurologic deficit/paralysis SHALL be stabilized and transferred directly from the Emergency Department to a higher level of care. These patients will not be admitted locally.

DEFINITIONS (For Policy Enforcement)

- Intracranial hemorrhage (ICH): Any traumatic subdural, epidural, intraparenchymal, intraventricular, or subarachnoid hemorrhage.
- Neurologic deficit: Objective motor weakness, sensory loss, paralysis, or signs of spinal cord injury.
- Lateralizing signs: Unilateral pupillary dilation, hemiparesis, decorticate/decerebrate posturing.
- Higher level of care: ACS-verified trauma center with in-house neurosurgery.

MANAGEMENT OF TRAUMATIC BRAIN INJURY

Initial Workup

Patients with GCS \leq 13 and signs of head trauma

- Activate immediate transfer via Riverside County EMS Agency (REMSA) Continuation of Trauma Care Policy 5302.
- No imaging is required to initiate transfer.

Diagnostic Imaging

- CT Head without contrast is the diagnostic modality of choice if it does not delay transfer.

Mandatory Immediate Transfer Criteria (NO ADMISSION)

Patients meeting any of the following criteria must be stabilized and transferred directly from the ED:

- Any intracranial hemorrhage, regardless of size, GCS, or symptom severity.
- Clinical evidence of spinal cord injury or paralysis.
- Radiographic spinal fracture with associated neurologic deficit.
- Lateralizing neurologic signs or CT evidence of cerebral edema.

Emergency Department Stabilization Prior to Transfer

The following interventions shall be initiated in the ED prior to transfer:

- Antiepileptic Therapy
 - Levetiracetam (Keppra) 1 gram IV once in the ED.
- Airway Management
 - Definitive airway for GCS ≤ 8 or inability to protect airway.
- Intracranial Pressure (ICP) Management (*if lateralizing signs or CT evidence of cerebral edema*)
 - Head of bed elevated to 30 degrees.
 - Adequate sedation and analgesia (propofol, fentanyl, midazolam as appropriate).
 - Hyperosmolar Therapy (choose one):
 1. Mannitol 0.25–1 g/kg IV (use caution in hypovolemia or hypotension).
 2. OR Hypertonic Saline 3% NaCl, 250 mL IV over 30 minutes.
 - Controlled ventilation targeting PaCO₂ 30–35 mmHg if signs of herniation.
- Anticoagulation Reversal
 - Initiate reversal per Adult Anticoagulation Reversal Policy without delaying transfer.

Limited Observation (EXCEPTION CATEGORY)

Observation may be considered at Trauma Surgeon discretion ONLY IF ALL criteria below are met:

- GCS 15.
- No focal neurologic deficit.
- No definitive intracranial hemorrhage (questionable, tiny, or trace findings only).
- Injury occurred >12 hours prior to presentation.

Observation Protocol:

- Frequent neurologic examinations.
- Repeat CT Head at 6 hours.
- Keppra 1 gram IV once, then 500 mg IV/PO every 12 hours for 7 days.
- Trauma team reassessment at 6 hours.
- Any neurologic change, seizure, or radiographic progression → Immediate transfer.

MANAGEMENT OF SPINE INJURIES

Initial Workup

- CT scan without contrast of the suspected spinal region.
- MRI for age-indeterminate fractures or suspected ligamentous injury if it does not delay transfer.

Mandatory Immediate Transfer (NO ADMISSION)

The following patients must be transferred directly from the ED:

- Any spinal cord injury with neurologic deficit or paralysis.
- Any cervical spine fracture.
- Burst fractures.
- Fracture-dislocation injuries.
- Fractures with retropulsion into the spinal canal.
- Ligamentous injury on imaging.
- Patients unable to be reliably examined (intubated, intoxicated) with radiographic spinal injury.

Spine Injuries Eligible for Local Management (Orthopedic Spine Service)

Spinal fractures without neurologic deficit may be evaluated on a case-by-case basis by Orthopedic Spine to determine operative versus non-operative management.

Thoracic or Lumbar Compression Fractures (<25% Height Loss)

- Admit to Med/Surg.
- Multimodal pain control.
- PT/OT evaluation.
- TLSO brace.
- Upright radiographs with brace.
- Failure of pain control or instability → Transfer for neurosurgical evaluation.

Spinous Process or Transverse Process Fractures

- Admit to Med/Surg.
- Multimodal pain control.
- PT/OT evaluation.
- No brace required (optional for comfort).

DVT PROPHYLAXIS

- For patients admitted locally, initiate pharmacologic DVT prophylaxis 72 hours after a stable CT Head, if applicable.

POLICY ENFORCEMENT STATEMENT

- Patients meeting mandatory transfer criteria SHALL NOT be admitted.
- Transfer decisions shall not be delayed for imaging, laboratory results, or specialist consultation.
- This policy supersedes discretionary admission for neurotrauma meeting the above criteria.

Version Control Record			
Version	Date	Author/Reviewer	Description of Changes
1	1/12/26	Paul Wisniewski, D.O.	Initial review and update to reflect latest evidence/practice

REFERENCES

1. American College of Surgeons Committee on Trauma. *ACS TQIP Best Practices in the Management of Traumatic Brain Injury*. 2015.
2. Joseph B, et al. *J Trauma Acute Care Surg*. 2014.
3. Nahmias J, et al. *Am Surg*. 2018.
4. Riverside County EMS Agency (REMSA). *Continuation of Trauma Care Policy 5302*. 2022.

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Important Notes:

- The guidelines are for informational purposes only and are not intended to replace professional medical judgment. They should be used as a reference and adapted to the specific needs of individual patients.
- Application of these guidelines should be made by healthcare providers, taking into account the unique medical history, condition, and circumstances of each patient.
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For specific medical concerns, treatment advice, or patient management, please consult directly with a qualified healthcare provider.