

# Ascension St. Vincent pediatric severe traumatic brain injury guideline

**Purpose:** Utilization of best practice guidelines to assist with the management of pediatric trauma patients who have sustained a severe traumatic brain injury.

**Scope:** Pediatric trauma patients who have suffered a severe traumatic brain injury.

## Inclusion/Exclusion Criteria:

- Inclusion:
  1. Abnormal CT scan with hematomas, swelling, herniation, compressed basal cistern, or diffuse axonal injury **and** either A or B below:
    - A. Traumatic brain injury (TBI) with GCS  $\leq$  8 (field, transport, or ED)
    - B. TBI patient admitted with GCS  $>$ 8, with deterioration to GCS  $\leq$  8
- Exclusion:
  1. Hypoxic ischemic injuries
  2. Patient that is deemed non-salvageable after discussion/agreement by clinical care team
  3. Infants with open fontanelles

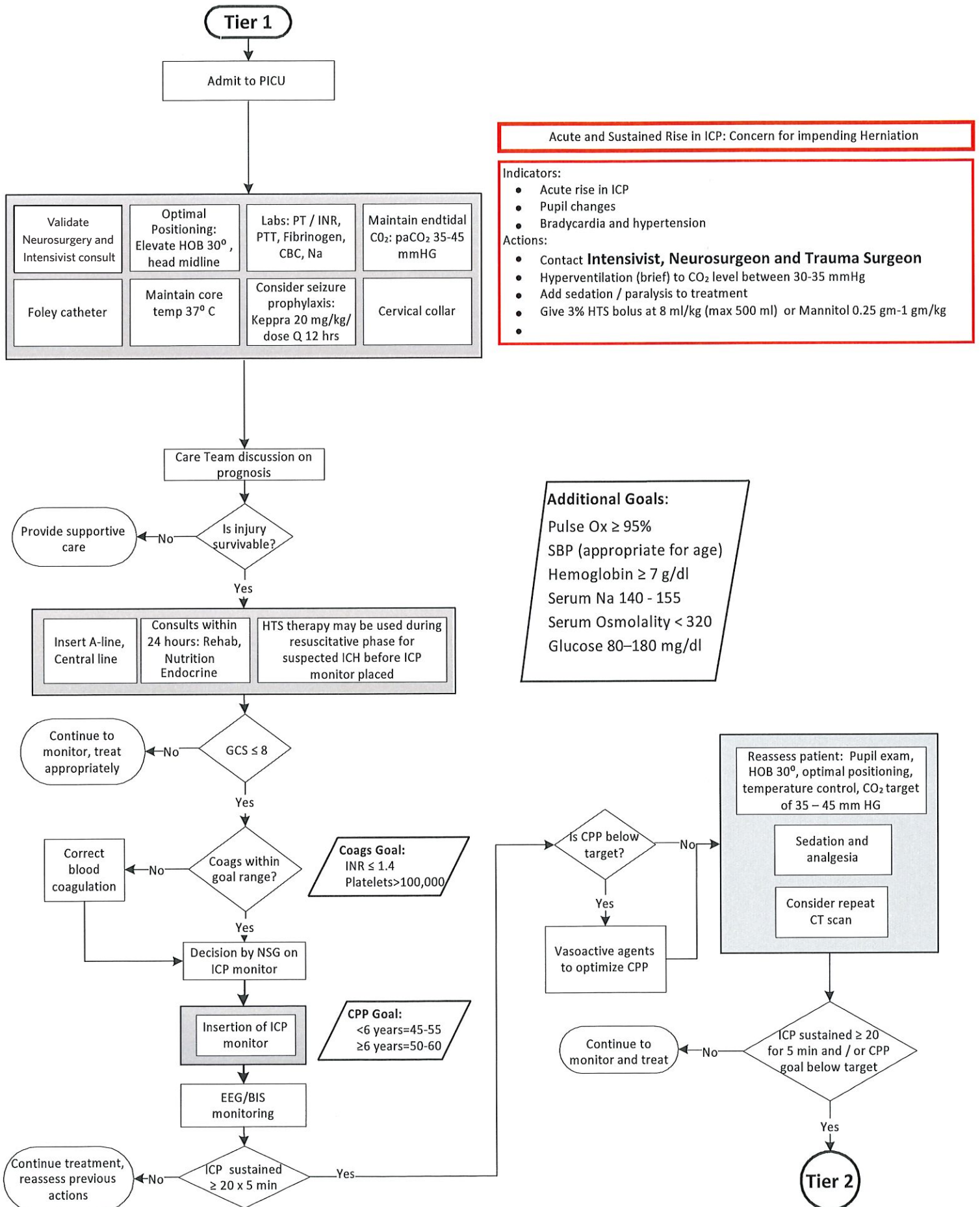
## Guideline:

- Complete primary and secondary survey per guidelines
- Refer to severe TBI algorithm on next page

## Review/Revision History:

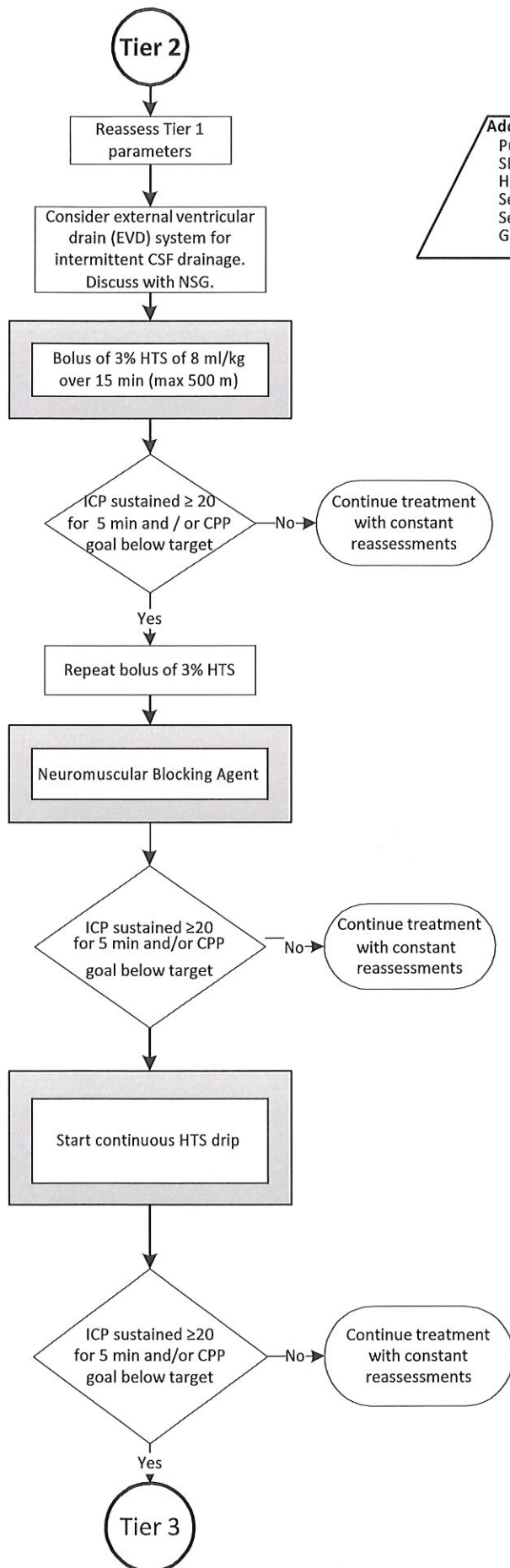
Review /Revision Date:	Approved by:
Created 02/2018	Trauma Services
Revised 02/2022	Trauma Services
Revised 03/2022	Trauma Services

# Pediatric severe traumatic brain injury: Guideline for management of ICH in STICU

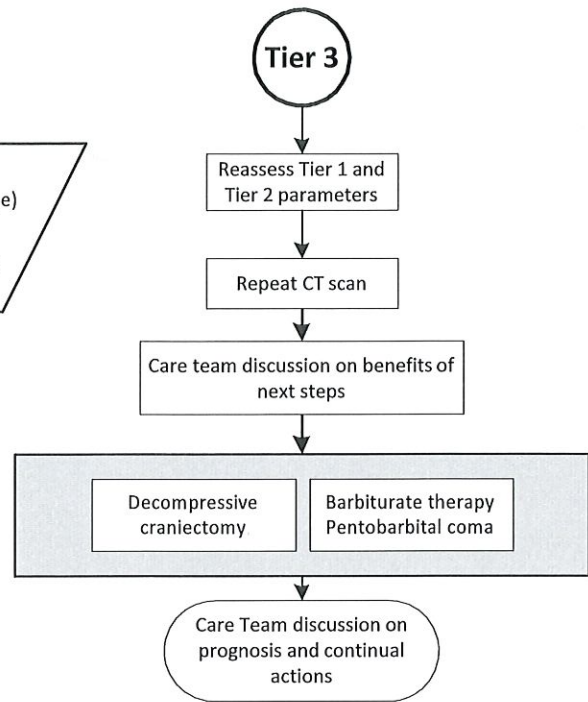


**Tier 2: ICP Non Responsive to Tier 1 Therapy**

**Tier 3: ICP Non Responsive to Tier 2 Therapy**



**Additional Goals:**  
 Pulse Ox  $\geq$  95%  
 SBP (appropriate for age)  
 Hemoglobin  $\geq$  7 g/dl  
 Serum Na 140-155  
 Serum Osmolality  $<$  320  
 Glucose 80-180 mg/dl



**Barbiturate Therapy**

- Pentobarbital loading dose: 5 mg/kg over 30-60 minutes
- Continuous drip 0.5–1 mg/kg/hr; titrate in increments of 0.5 mg/kg/hr for burst suppression (max dose = 5 mg/kg/hr)

**Hyperosmolar Therapy**

- 3% HTS bolus, 8 ml/kg over 15 minutes (max of 500 ml)
- Typical range of 3% HTS continuous infusion, 0.25 – 1 ml/kg/hr; titrate to keep ICP  $<$  20 or Na level below 160
- Concentrate maintenance fluids where possible
- When treating with hyperosmolar therapy, serum sodium and serum osmolality should be assessed every 6 hours.
- Caution should be used if serum osmo exceeds 360 mEq/L
- Consider Mannitol, if osmo  $<$  320; maintain osmo  $<$  360