## SJMH Emergency Services Guideline

# Neurological Monitoring Guideline

Emergency Department
Pediatric Emergency Department

Guideline Number #1

Effective Date: March 6, 2008
Revised Date:
Reviewed Date:

Approved by: Emergency Operations
Pediatric Joint Practice

**Policy:**

This policy is intended to identify patients who require close observation of neurological status while in the emergency department. This guideline will also specify frequency of documented checks by the nursing staff.

**Purpose:**

This guideline applies to all head injured patients who have either a deviation for their baseline mental status and/or an acute intracranial injury identified by Computer Tomography Scan (CT Scan).

**Inclusion Criteria:**

1.Patients with normal neurological exam, with evidence of an intracranial injury (i.e. cerebral contusion, subdural, epidural, subarchanoid hemorrhage) identified with CT Scan.
2.Confused patients with a head injury whose baseline mental status cannot be confirmed
3. Patients with a head injury who are impaired (Drug or alcohol intoxication) with abnormal mental status.

**Procedure:**

1. Once any of these criteria have been met neurological checks must be performed and documented on a neurological flow sheet (Addendum A).
    a. Glasgow Coma Scale, pupils, grips/grasps every 15 minutes for the first hour.
    b. Glasgow Coma Scale, pupils, grips/grasps every 30 minutes for the next 6 hours and hourly there after
2. Any deterioration from the patient's initial baseline must be reported to the Attending Physician immediately.
3. The nursing staff should initiate this protocol, but an order needs to be placed in the computer chart by the physician.
4. The neurological flow sheet will need to be scanned into the electronic medical record upon final disposition of patient.

**Responsibility**

Registered Nurse

**References:**

Emergency Nurses Association (1998). Sheehy's Emergency Nursing Priciples and Practice
Emergency Nurses Association (2007). Emergency Nursing Core Curriculum
Emergency Nurses Association (2005). Sheehy's Manual of Emergency Care

| ***Approval*** | ***Consultation*** | ***Committee/Person*** | ***Date*** |
|---|---|---|---|
| X | | Madonna Walters, Trauma | 12/16/2008 |

_____ _____

Medical Director-Emergency Services Date

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Service Delivery Leader Date

*Source:* St. Joseph Mercy Hospital, Ann Arbor, MI.

## Addendum A

SAINT JOSEPH MERCY HEALTH SYSTEM
A Member of Trinity Health

☐ ST. JOSEPH MERCY ANN ARBOR
☐ ST. JOSEPH MERCY SALINE

# Neurological Observation Flow Sheet

32011-003 R 9/08 (PC) D

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| Signatures & Initials | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initials | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Dates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hours | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Pupils size reaction R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Grasp weak/strong<br>R equal to L R greater than L R Lesser than L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Leg Lift weak/strong<br>R equal to L R greater than L R Lesser than L | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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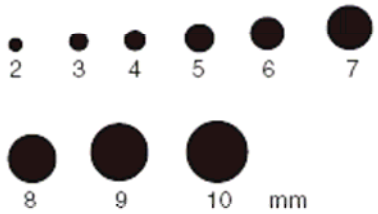
| **Communication/Cognitive Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Glasgow Coma Scale | Eyes Open | Spontaneously 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | To Verbal command (persistently) 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | To pain 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | No response 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Motor Response | Obeys verbal commands 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Localizes pain 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Flexion-withdrawal from noxious stimuli 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | OR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Patient moves spontaneously but not to command or with any control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Flexion-abnormal/decorticate rigidity 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Extension/decerebrate rigidity 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | No response 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Verbal Response | Not Intubated/Trached | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Oriented and converses 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Disoriented and converses 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Inappropriate words 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Incomprehensible sounds 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | No response 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Intubated/Trached | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Appears to converse 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Responsive but ability to converse is questionable 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Generally unresponsive 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Level of Consciousness** (total score) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

# The Glascow Coma Scale scores the patient's "BEST" response.

### Pupil Size

Record the pupillary size before and after constriction, or unable to open eye due to swelling.




### Pupil Reaction

R equal to Reactive
Brisk
Sluggish

NR equal to No Reaction

### Strength

Grasp: Record R equal to L,
R greater than L, or
R less than L
and
W equal to Weak
S equal to Strong

Leg Lift: Record R equal to L,
R greater than L, or
R less than L
and
W equal to Weak
S equal to Strong

### Verbal Response

Score **5** if patient is oriented to person, place, and time.

Score **4** if patient is not oriented to person, place, and time, but is still able to converse.

Score **3** if patient only speaks in words or phrases that make little or no sense.

Score **2** if patient responds with incomprehensible sounds.

Score **1** if patient does not respond verbally.

### Verbal Response
*(Intubated or Trached Patient)*

| | |
|---|---|
| Appears to converse | equal to 5 |
| Responsive but orientation in question | equal to 3 |
| No Response | equal to 1 |

### Motor Response

Patient can obey a command such as "raise your hand" equal to 6

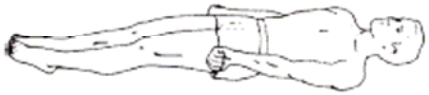
Patient purposefully tries to remove a painful stimulus equal to 5

Patient flexes in reponse to pain, not a purposeful response to pain. equal to 4

### Motor Reponse
*(Unconscious Patient)*

**Abnormal flexion/decortication equal to 3**
Involves flexion of the arms at the elbow with internal rotation of the wrist. One or both arms are drawn up toward the chest, and legs are regidly extended.

**Abnormal extension/Decerebration equal to 2**
Extension of one or both arms at the elbow with internal rotation of the shoulders and wrists. Legs are also rigidly extended.



**No Motor response equal to 1**
No response to painful stimuli

Hint: It is possible to see a patient who responds with a different motor response on each side, ie decorticate on left, decerebrate on right. If this occurs, rate the highest score.