

ED Data Blunt Traumatic Brain Injury (TBI)

Complete this form:

* Prior to reviewing CT or skull x-ray (if obtained)

Data Source: faculty physician, fellow or resident physician, NP or PA with faculty oversight.

Patient Study ID Number

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Site ID #

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Patient Stamp Here:

If no patient stamp:

Patient Name: _____

MR #: _____

Faculty physician, fellow, or resident physician, NP or PA completing data sheet:

(Please print name) Circle One: NP PA resident fellow faculty

Certifications of faculty or fellow physician completing form, or providing oversight (circle all that apply):

Emerg Med Peds Peds EM Internal Medicine Fam Med Other

 Guardian refuses telephone follow-up call.

***If resident physician, NP or PA is completing data sheet, faculty review and signature required.**

Faculty signature: _____

PLEASE COMPLETE DATA SHEET PRIOR TO REVIEWING CT OR SKULL X-RAY (IF OBTAINED)

Inclusion Criteria

All patients with blunt head trauma above the eyebrows (not isolated to face or eyes) who do not meet any of the exclusion criteria below.

NOTE: Patients without history of head trauma are not included unless physical exam has evidence of head trauma and the history is unclear - e.g. hematoma in baby, without explanation.

Exclusion Criteria

If you answer "YES" to any of these questions patient is excluded, otherwise complete form.

- | | | | |
|--|------------------------------|-----------------------------|--|
| Age \geq 18 years? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| > 24 hours since the trauma? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Brain tumor? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Penetrating head trauma (e.g. gunshot, stab)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Pre-existing neurological disease that substantially impacts mental status or neuro exam (e.g. cerebral palsy with developmental delay or autism)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Syncope or seizure <i>preceded</i> (led to) head trauma? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Patient transferred to ED with skull film, head CT, or MRI already obtained? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Substantial language barrier (i.e. only if absolutely no reasonable translation available)? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |
| Does patient meet BOTH <u>criteria I</u> AND <u>criteria II</u> below for trivial head injury? | <input type="checkbox"/> Yes | <input type="checkbox"/> No | If yes, Patient Excluded / STOP |

Trivial head injury is defined as meeting BOTH criteria I and criteria II below:

Criteria I

Sitting, standing, walking or running at ground level, then falling and hitting head against a stationary object or on ground.

AND

Criteria II

- No signs or symptoms of head trauma or
- Presence of a scalp laceration or abrasion alone

Examples of trivial head injury (Patient Excluded)

- Child runs into edge of table and has a scalp laceration but no other symptoms or signs (meets criteria I and criteria II)
- Child who falls from standing and hits head on ground, and has no symptoms or signs (meets criteria I and criteria II)

Examples of non-trivial injury (Patient Included)

- Any fall from a height (e.g. falling from a chair, stroller, or bed) and child hit head, even if no symptoms or signs (doesn't meet criteria I)
- Any motor vehicle accident in which patient hit head, even if no symptoms or signs (doesn't meet criteria I)
- Child with a hematoma after any mechanism of head injury (doesn't meet criteria II)
- Child with headache or vomiting after any mechanism of head injury (doesn't meet criteria II)
- 3 month old who hits head by any mechanism (doesn't meet criteria I as can't sit, stand, walk, or run)

NOTE: IF YOU ARE UNSURE IF IT IS A TRIVIAL HEAD INJURY OR IF YOU HAVE ANY PATIENT CONCERNS REGARDING THE HEAD, INCLUDE THE PATIENT.

EVEN IF PATIENT EXCLUDED, PLACE THIS DATA FORM IN ED LOCK BOX WITH ONLY THE COVER SHEET COMPLETED.

REMEMBER TO PROVIDE GUARDIAN WITH INFORMATION SHEET.

Patient Study ID Number

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I. History

1. Injury Mechanism (select only one mechanism total, from either left or right column of choices):

- Occupant in motor vehicle collision (MVC)
- (check all that apply) Ejected from automobile, Rollover, Death in same collision
- Speed of patient's vehicle? Speed < 60 mph, Speed >= 60 mph, Speed unknown
- Was the patient restrained? Yes, No, Unknown

- Fall to ground from standing/walking/running (e.g. by slipping, tripping or stumbling)
- Walked or ran into stationary object (e.g. door, cabinet)
- Fall from an elevation (Est. height in feet) < 3 ft, 3-5 ft, 6-10 ft, > 10 ft, Unknown

- Pedestrian struck by moving vehicle
- Automobile, Motorcycle, Bicycle, Other (describe):
- (Speed of moving vehicle) 0-5 mph (patient bumped), > 5 mph, Unknown

- Fall down stairs (Est. # of stairs) 5 or less, 6-15, > 15, Unknown

- Bike rider struck by automobile
- Was a helmet worn? Yes, No, Unknown

- Sports Describe
- Was a helmet worn? Yes, No, Unknown

- Bike collision or fall from bike while riding
- Was a helmet worn? Yes, No, Unknown

- Assault (check all that apply) Blunt object, Fist/feet blow to head, Unknown, Other (describe):

- Other wheeled transport crash
- Motorized (describe):
- Non-Motorized (describe):
- Was a helmet worn? Yes, No, Unknown

- Object struck head - accidental (describe):
- Unknown mechanism

- Other mechanism (describe):

2. Does the patient have amnesia for the event? No Yes Pt. preverbal (too young to describe) Pt. nonverbal (physically unable to speak) Unknown

3. History of loss of consciousness (LOC)?

- No Yes Suspected (but not sure) Unknown
3a. If yes to LOC, report was given by: (check all that apply) Self report EMT report Witness Unknown
3b. If history of LOC, duration of LOC: < 5 sec 5 sec - < 1 min 1-5 min > 5 min Unknown

4. Post-traumatic seizure? No Yes Unknown

- 4a. History of chronic seizure disorder? No Yes Unknown
4b. If post-traumatic seizure: Immediately on contact Within 30 min of injury > 30 min after injury Unknown
4c. If post-traumatic seizure, duration was: < 1 min 1 - < 5 min 5 -15 min > 15 min Unknown

5. Does parent think child is acting normally / like themselves? No Yes Unknown

Patient Study ID Number

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 6. History of **coagulopathy**? No Yes → answer 6a Unknown

6a. If coagulopathy (check all that apply):

- Hemophilia Platelet disorder Anticoag therapy Von Willebrand Unknown
 Other (describe): _____

 7. **Ventriculo-peritoneal, ventriculo-atrial or ventriculo-pleural** shunt? No Yes Unknown

II. Symptoms

1. **Headache** at time of ED evaluation?

- No → skip to 2 Yes → answer 1a - 1d Pt. preverbal (too young to describe) Pt. nonverbal (physically unable to speak) Unknown

1a. **Severity of headache:**

- Mild (barely noticeable)
 Moderate
 Severe (intense)
 Unclear

1b. **When did headache start?**

- Before head injury
 Within 1 hr of event
 1-4 hrs after event
 > 4 hrs after event
 Unknown

1c. **Location of headache:**

- Diffuse
 Only at site of injury
 At occiput only and clearly due to backboard
 Unclear
 Other (describe): _____

1d. History of frequent headaches prior to head injury (eg. migraine or other)? No → skip to 2 Yes → answer 1e Unclear1e. If yes, is current headache different from prior, typical headaches? No Yes Unclear
 2. **Vomiting** (at any time after injury)? No → skip to 3 Yes → answer 2a, 2b and 2c Unknown
2a. **How many episodes?**

- Once
 Twice
 >2 Times
 Unknown

2b. **When did vomiting start?**

- Before head injury
 Within 1 hr of event
 1-4 hrs after event
 > 4 hrs after event
 Unknown

2c. **When was the last episode of vomiting?**

- < 1 hr before your ED evaluation
 1-4 hrs before your ED evaluation
 > 4 hrs before your ED evaluation
 Unknown

 3. **Dizziness** (at ED evaluation)? No Yes Pt. preverbal (too young to describe) Pt. nonverbal (physically unable to speak) Unknown

III. Mental Status

1. Is your evaluation being made after patient was **intubated**? No Yes
 2. Is your evaluation being made after patient was **pharmacologically paralyzed**? No Yes
 3. Is your evaluation being made after patient was **pharmacologically sedated**? No Yes

4. Current **Glasgow Coma Score**: (Circle one number in each column. For infants ≤ 2 years use the description in parentheses.)

Eye		Verbal		Motor	
Spontaneous	4	Oriented (coos/babbles)	5	Follow commands (spontaneous movement)	6
Verbal	3	Confused (irritable/cries)	4	Localizes pain (withdraws to touch)	5
Pain	2	Inappropriate words (cries to pain)	3	Withdraws to pain	4
None	1	Incomprehensible sounds (moans)	2	Abnormal flexure posturing	3
		None	1	Abnormal extension posturing	2
				None	1

5. Does patient have **other signs of altered mental status**? (check all that apply):

- None Slow to respond
 Agitated Repetitive questions in ED
 Sleepy
 Other (describe): _____

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IV. Examination (Scalp/head includes the forehead, from above the eyebrows through the back of the head to occiput)

1. Palpable **skull fracture**? No Yes → answer 1a Unclear exam (e.g. scalp swelling impedes exam)

1a. **If yes**, does the fracture feel depressed? No Yes Unclear exam

2. **Anterior fontanelle bulging**? No Yes Anterior fontanelle closed

3. **Signs of basilar skull fracture**? No Yes → answer 3a

3a. **If yes**, check all that are present:

Hemotympanum CSF rhinorrhea Retroauricular ecchymoses (Battle's sign)
 CSF otorrhea Periorbital ecchymoses (Raccoon eyes)

4. **Raised scalp hematoma(s) or swelling(s)**? No Yes → answer 4a, 4b and 4c

4a. **If yes**, location(s) involved: (check all that apply) Frontal Parietal
 Temporal Occipital

4b. **If yes**, size (diameter) of largest hematoma or swelling: Small (<1 cm, barely palpable) Medium (1-3 cm) Large (>3 cm)

4c. **If yes**, quality of largest hematoma or swelling is: Boggy / depressable Firm / non-depressable

5. **Any evidence of trauma** (including laceration, abrasion, hematoma) No Yes → answer 5a
above the clavicles (includes neck/face/scalp)?

5a. **If yes**, what regions (check all that apply):

Face Scalp-frontal Scalp-occipital
 Neck Scalp-parietal Scalp-temporal

6. **Neurological deficit** (other than mental status)? No Yes → answer 6a Unable to assess

6a. **If yes**, (check all that apply):

Motor Reflexes
 Sensory Other deficits (e.g. cerebellar, gait; please describe): _____
 Cranial Nerve (includes pupil reactivity)

7. Clinical evidence of **other (non-head) substantial injuries**: (includes but not limited to fractures, intra-abdominal injuries, intra-thoracic injuries and lacerations requiring operating room repair.) No Yes → answer 7a

7a. Injury to (check all that apply):

Extremity Intra-abdominal Other (describe): _____
 C-spine Pelvis Unable to fully assess
 Chest/back/flank Laceration requiring repair in the operating room

8. Clinical suspicion for **alcohol or drug intoxication** (not by laboratory testing)? No Yes

Site ID # [] [] - [] [] [] [] [] []

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V. Clinical Decision Making (If resident, NP or PA is completing this form, please confer with attending/fellow)

- 1. Is a head CT, skull x-ray or head MRI being ordered or obtained? No Yes
- 2. Suspicion for the presence of TBI on CT regardless of whether a CT is being ordered or obtained (intracranial hematoma, cerebral contusion, cerebral edema or depressed skull fracture; excludes isolated linear skull fracture)
 - <1% 1-5% 6-10% 11-50% >50%

- 3. Suspicion for TBI in need of acute intervention regardless of whether a CT is being ordered or obtained (neurosurgical intervention, elevation of depressed skull fracture, intubation for TBI > 24 hrs, hospitalization for TBI ≥ 2 nights)
 - <1% 1-5% 6-10% 11-50% >50%

- 4. **Answer only if CT ordered or obtained:** check those indications that are **most** important in influencing your decision to obtain a head CT for this child
 - Young age Mechanism LOC Amnesia
 - Seizure Headache Vomiting Decreased mental status
 - Clinical evidence of skull fracture Scalp hematoma Neurological deficit Parental anxiety / request
 - Skull fracture on x-ray Trauma team request Referring MD request (other than mental status)
 - Other (describe): _____

- 5. Was patient given or will patient be given pharmacological **sedation for head CT scan**?
 - No Yes → answer 5a No CT
 - 5a. Why was sedation used or why is sedation going to be used for head CT (check all that apply)?
 - Agitation / Inability to hold still Young age CT tech request Other (describe): _____

- 6. **Was the data sheet completed before head CT, skull x-ray, or MRI reviewed** (if obtained)?
 - Yes No No neuroimaging obtained

VI. General Information

Best Phone Number to Reach Guardian/Parent

[] [] [] - [] [] [] - [] [] [] [] [] []

Alternate Phone Number Cell Work Pager

[] [] [] - [] [] [] - [] [] [] [] [] []

Date of Injury Unknown
[] [] / [] [] / [] [] [] [] [] []
Month Day Year

Time of Injury (24 hour clock, Midnight 00:00)
[] [] : [] [] Unknown
Hour Minute

Date of ED Evaluation Unknown
[] [] / [] [] / [] [] [] [] [] []
Month Day Year

Time of ED Evaluation (on which above data are based) (24 hour clock, Midnight 00:00)
[] [] : [] []
Hour Minute

Date of Birth Unknown
[] [] / [] [] / [] [] [] [] [] []
Month Day Year

Gender
 Male Female

Race (check all that apply, using your best assessment)
 White Black Asian American Indian/Alaskan Native Pacific Islander Unknown Other

Ethnicity
 Hispanic Non-Hispanic Unknown

Guardian Principal Language
 English Spanish Russian French Chinese Unknown Other (specify): _____

PLEASE PROCEED TO NEXT (LAST) PAGE.

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VII. Course in ED (to be completed only for those patients for whom decision to obtain or not obtain CT was made after a period of observation after your initial ED evaluation.)

1. Was the patient observed in the ED after your initial ED evaluation to determine whether to obtain head CT?

- No → skip to section VIII Yes → answer 2 - 4

2. Prior to CT or if no CT obtained, the patient's headache:

- | | | |
|---|---|---|
| <input type="checkbox"/> Patient never had headache | <input type="checkbox"/> Improved (but did not resolve) | <input type="checkbox"/> Can't assess - Pt preverbal or nonverbal |
| <input type="checkbox"/> Resolved without any analgesia | <input type="checkbox"/> Stayed the same | <input type="checkbox"/> Did not reassess |
| <input type="checkbox"/> Resolved with analgesia | <input type="checkbox"/> Worsened | |

3. Prior to CT or if no CT obtained, the patient's vomiting:

- | | |
|--|--|
| <input type="checkbox"/> Patient never vomited | <input type="checkbox"/> Continued (stayed the same) |
| <input type="checkbox"/> Resolved without meds | <input type="checkbox"/> Worsened |
| <input type="checkbox"/> Resolved with meds | <input type="checkbox"/> Did not reassess |

4. Prior to CT or if no CT obtained, the patient's mental status/GCS:

- | | | |
|--|---|---|
| <input type="checkbox"/> Patient never had GCS < 15 | <input type="checkbox"/> Improved but not to normal | <input type="checkbox"/> Worsened |
| <input type="checkbox"/> Improved to normal (GCS 15) | <input type="checkbox"/> Stayed the same | <input type="checkbox"/> Did not reassess |

VIII. ED Disposition

- | | | | |
|--|--|--------------------------------------|--|
| <input type="checkbox"/> Home | <input type="checkbox"/> Admit - general inpatient | <input type="checkbox"/> ICU | <input type="checkbox"/> Transferred to _____ |
| <input type="checkbox"/> OR | <input type="checkbox"/> Admit short-stay (< 24 hour) / observation unit | <input type="checkbox"/> Death in ED | <input type="checkbox"/> AMA Name of hospital |
| <input type="checkbox"/> Other (Describe): _____ | | | |

****You are now done - please place form in locked box now.****

THANK YOU!!!

REMEMBER TO PROVIDE GUARDIAN WITH INFORMATION SHEET.

Complete this form:

* For all patients for whom head CT, skull x-ray or head MRI was performed.

Patient Study ID Number

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Data Source: Radiology record, completed by HEDA RA

I. ED Imaging (This section is only to be completed for patients for whom head CT, skull x-ray or head MRI was performed during ED visit.)

1. Head CT obtained during the patient's ED visit? No → skip to 2 Yes → answer 1a -1e

1a. Date and Time of Initial ED Head CT: *(attach a copy of CT interpretation to data sheet)*

Date of Initial ED Head CT

--	--	--	--	--	--	--	--

Month

Day

Year

Time of Initial ED Head CT

(24 hour clock, midnight is 00:00)

--	--	--	--

Hour

Minute

1b. **Initial ED Head CT Findings** (check all that apply)

- Normal (No intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → skip to 2
- Abnormal (Includes intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → answer 1c, 1d, 1e
- Limited quality (radiologist dictation states CT is of limited quality due to motion or other artifact)
- Not interpretable (radiologist dictation states CT is not interpretable due to motion or other artifact)

1c. Any traumatic findings? (check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> No | <input type="checkbox"/> Diastasis of the skull | <input type="checkbox"/> Pneumocephalus |
| <input type="checkbox"/> Cerebellar hemorrhage | <input type="checkbox"/> Epidural hematoma (EDH) | <input type="checkbox"/> Skull fracture |
| <input type="checkbox"/> Cerebral contusion | <input type="checkbox"/> Extra-axial hematoma | <input type="checkbox"/> Subarachnoid hemorrhage (SAH) |
| <input type="checkbox"/> Cerebral edema | <input type="checkbox"/> Intraventricular hemorrhage (IVH) | <input type="checkbox"/> Subdural hematoma (SDH) |
| <input type="checkbox"/> Cerebral hemorrhage / Intracerebral hematoma | <input type="checkbox"/> Midline shift / Shift of brain structures | <input type="checkbox"/> Traumatic infarction |
- Other traumatic finding (describe): _____
- Radiologist's finding(s) were equivocal (e.g. described as "possible", "questionable", "unclear") (need site PI to clarify with radiologist)

1d. Any non-traumatic finding(s) on head CT? (does not include sinusitis or fluid in sinuses) No Yes → please summarize below

1e. Skull fracture present on head CT? No → skip to 2 Yes → answer 1f Unknown

1f. **If fracture:** (check all that apply) Linear Complex Depressed → answer 1g and 1h Basilar

Other (describe): _____

1g. **If fracture depressed**, was the inner table depressed by at least the thickness of the entire bone?

No Yes Not stated

1h. **If fracture depressed**, how many millimeters was the depression? mm Not stated

Note: If head CT positive (including a skull fracture), type radiologist "final impressions" verbatim into database.

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2. Was a skull x-ray performed while patient in the ED? (*attach copy of interpretation if performed*)

No → skip to 3 Yes → answer 2a

2a. **Fracture on skull x-ray?** No → skip to 3 Yes → answer 2b Equivocal findings
(need site PI to clarify with radiologist)

2b. **If fracture:** Linear Complex Depressed → answer 2c and 2d Basilar

Other (describe): _____

2c. **If fracture depressed**, was the inner table depressed by at least the thickness of the entire bone?

No Yes Not stated

2d. **If fracture depressed**, how many millimeters was the depression? mm Not stated

Note: If skull x-ray positive type radiologist "final impression" verbatim into database.

3. Was a head MRI performed while patient in the ED? No → skip to section II Yes → answer 3a

3a. **ED MRI Findings** (check all that apply)

- Normal (No intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → skip to section II
- Abnormal (Includes intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → answer 3b, 3c
- Limited quality (radiologist dictation states MRI is of limited quality due to motion or other artifact)
- Not interpretable (radiologist dictation states MRI is not interpretable due to motion or other artifact)

3b. Any traumatic findings? (check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> No | <input type="checkbox"/> Diastasis of the skull | <input type="checkbox"/> Pneumocephalus |
| <input type="checkbox"/> Cerebellar hemorrhage | <input type="checkbox"/> Epidural hematoma (EDH) | <input type="checkbox"/> Skull fracture |
| <input type="checkbox"/> Cerebral contusion | <input type="checkbox"/> Extra-axial hematoma | <input type="checkbox"/> Subarachnoid hemorrhage (SAH) |
| <input type="checkbox"/> Cerebral edema | <input type="checkbox"/> Intraventricular hemorrhage (IVH) | <input type="checkbox"/> Subdural hematoma (SDH) |
| <input type="checkbox"/> Cerebral hemorrhage / Intracerebral hematoma | <input type="checkbox"/> Midline shift / Shift of brain structures | <input type="checkbox"/> Traumatic infarction |

Other traumatic finding (describe): _____

3c. Any non-traumatic finding(s) on head MRI? (not including sinusitis or fluid in sinuses) No Yes → please summarize below

Note: If head MRI positive (including a skull fracture), type radiologist "final impressions" verbatim into database.

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II. Imaging While Hospitalized (only to be completed for patients hospitalized from ED visit)

1. Was patient hospitalized after initial ED visit (or initially discharged, but subsequently hospitalized as determined by follow-up survey, trauma registry, CQI review or morgue review)?

- No → skip to section III Yes → answer 2

2. Was a second head CT obtained after the initial head CT? *(If yes, attach a copy of the second CT interpretation to this data sheet)*

- No → skip to 4 Yes → answer 2a and 2b

(Note to RA: Also use this section: a) for the rare hospitalized patient who did not receive an ED head CT, but whose first head CT was as an inpatient. Indicate this occurred by checking the following box. b) for the rare patient who received 2nd ED head CT. Indicate this occurred by checking the following box.)

2a. Date and Time of second CT:

Date of Second CT

		/			/			
--	--	---	--	--	---	--	--	--

Month

Day

Year

Time of Second CT (24 hour clock, Midnight 00:00)

		:		
--	--	---	--	--

Hour

Minute

2b. **Second Head CT Findings** (check all that apply)

- Normal (No intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → skip to 3
- Abnormal (Includes intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → answer 2c
- Limited quality (radiologist dictation states CT is of limited quality due to motion or other artifact)
- Not interpretable (radiologist dictation states CT is not interpretable due to motion or other artifact)

2c. Any traumatic findings? (check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> No → skip to 3 | <input type="checkbox"/> Diastasis of the skull | <input type="checkbox"/> Pneumocephalus |
| <input type="checkbox"/> Cerebellar hemorrhage | <input type="checkbox"/> Epidural hematoma (EDH) | <input type="checkbox"/> Skull fracture |
| <input type="checkbox"/> Cerebral contusion | <input type="checkbox"/> Extra-axial hematoma | <input type="checkbox"/> Subarachnoid hemorrhage (SAH) |
| <input type="checkbox"/> Cerebral edema | <input type="checkbox"/> Intraventricular hemorrhage (IVH) | <input type="checkbox"/> Subdural hematoma (SDH) |
| <input type="checkbox"/> Cerebral hemorrhage / Intracerebral hematoma | <input type="checkbox"/> Midline shift / Shift of brain structures | <input type="checkbox"/> Traumatic infarction |
- Other traumatic finding (describe): _____

2d. Does radiologist state that, compared to first CT, traumatic findings on second CT (describe):

- Decreased (describe): _____
- Increased (describe): _____
- Did not change (describe): _____
- New traumatic findings (describe): _____
- Does not say

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3. Was a third head CT obtained? (If yes, attach a copy of the third CT interpretation to this data sheet)

- No -> skip to 4
Yes -> answer 3a and 3b

3a. Date and Time of third CT:

Date of Third CT

Month / Day / Year

Month Day Year

Time of Third CT (24 hour clock, Midnight 00:00)

Hour : Minute

Hour Minute

3b. Third Head CT Findings (check all that apply)

- Normal (No intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) -> skip to 4
Abnormal (Includes intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) -> answer 3c
Limited quality (radiologist dictation states CT is of limited quality due to motion or other artifact)
Not interpretable (radiologist dictation states CT is not interpretable due to motion or other artifact)

3c. Any traumatic findings? (check all that apply)

- No -> skip to 4
Cerebellar hemorrhage
Cerebral contusion
Cerebral edema
Cerebral hemorrhage / Intracerebral hematoma
Diastasis of the skull
Epidural hematoma (EDH)
Extra-axial hematoma
Intraventricular hemorrhage (IVH)
Midline shift / Shift of brain structures
Pneumocephalus
Skull fracture
Subarachnoid hemorrhage (SAH)
Subdural hematoma (SDH)
Traumatic infarction
Other traumatic finding (describe):

3d. Does radiologist state that, compared to second CT, traumatic findings on third CT (describe):

- Decreased (describe):
Increased (describe):
Did not change (describe):
New traumatic findings (describe):
Does not say

4. Was a head MRI performed while patient hospitalized? (If yes, attach copy of interpretation)

- No -> form complete
Yes -> answer 4a and 4b

4a. Date and Time of MRI:

Date of MRI

Month / Day / Year

Month Day Year

Time of MRI (24 hour clock, Midnight 00:00)

Hour : Minute

Hour Minute

4b. MRI Findings (check all that apply)

- Normal (No intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) -> form complete
Abnormal (Includes intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) -> answer 4c
Limited quality (radiologist dictation states MRI is of limited quality due to motion or other artifact)
Not interpretable (radiologist dictation states MRI is not interpretable due to motion or other artifact)

4c. Any traumatic findings? (check all that apply)

- No
Cerebellar hemorrhage
Cerebral contusion
Cerebral edema
Cerebral hemorrhage / Intracerebral hematoma
Diastasis of the skull
Epidural hematoma (EDH)
Extra-axial hematoma
Intraventricular hemorrhage (IVH)
Midline shift / Shift of brain structures
Pneumocephalus
Skull fracture
Subarachnoid hemorrhage (SAH)
Subdural hematoma (SDH)
Traumatic infarction
Other traumatic finding (describe):

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III. Imaging as Outpatient (This section is only to be completed on patients discharged from ED, for whom follow-up survey, trauma registry, CQI review or morgue review, indicates that patient returned to a health care facility and a head CT, skull xray or head MRI was performed.)

1. Was patient discharged to home from ED, than returned to any facility and received a head CT, skull x-ray, or head MRI?

No → form complete Yes → answer 2

2. Head CT obtained? No → skip to 3 Yes → answer 2a, 2b

2a. Date and Time of Head CT: *(attach a copy of CT interpretation to data sheet)*

Date of Head CT

		/			/			
--	--	---	--	--	---	--	--	--

Month

Day

Year

Time of Head CT*(24 hour clock, midnight is 00:00)*

		:		
--	--	---	--	--

Hour

Minute

2b. **Head CT Findings** (check all that apply)

- Normal** (No intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → skip to 3
- Abnormal** (Includes intracranial findings or skull fractures: Note, head CT with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → answer 2c - 2e
- Limited quality** (radiologist dictation states CT is of limited quality due to motion or other artifact)
- Not interpretable** (radiologist dictation states CT is not interpretable due to motion or other artifact)

2c. Any traumatic findings? (check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> No | <input type="checkbox"/> Diastasis of the skull | <input type="checkbox"/> Pneumocephalus |
| <input type="checkbox"/> Cerebellar hemorrhage | <input type="checkbox"/> Epidural hematoma (EDH) | <input type="checkbox"/> Skull fracture |
| <input type="checkbox"/> Cerebral contusion | <input type="checkbox"/> Extra-axial hematoma | <input type="checkbox"/> Subarachnoid hemorrhage (SAH) |
| <input type="checkbox"/> Cerebral edema | <input type="checkbox"/> Intraventricular hemorrhage (IVH) | <input type="checkbox"/> Subdural hematoma (SDH) |
| <input type="checkbox"/> Cerebral hemorrhage / Intracerebral hematoma | <input type="checkbox"/> Midline shift / Shift of brain structures | <input type="checkbox"/> Traumatic infarction |

Other traumatic finding (describe): _____

Radiologist's finding(s) were equivocal (e.g. described as "possible", "questionable", "unclear") (need site PI to clarify with radiologist)

2d. Any non-traumatic findings on head CT? (does not include sinusitis or fluid in sinuses) No Yes → please summarize below

2e. Skull fracture present on head CT? No → skip to 3 Yes → answer 2f Unknown

2f. **If fracture:** (check all that apply) Linear Complex Depressed → answer 2g and 2h Basilar

Other (describe): _____

2g. **If fracture depressed**, was the inner table depressed by at least the thickness of the entire bone?

No Yes Not stated

2h. **If fracture depressed**, how many millimeters was the depression?

--	--	--

 mm Not stated

Note: If head CT positive (including a skull fracture), type radiologist "final impressions" verbatim into database.

Patient Study ID Number

		-					
--	--	---	--	--	--	--	--

Site ID #

Study ID #

3. Was a skull x-ray performed at the return visit? (*attach copy of interpretation if performed*)

No → skip to 4

Yes → answer 3a

3a. **Fracture on skull x-ray?**

No → skip to 4

Yes → answer 3b

Equivocal findings

(need site PI to clarify with radiologist)

3b. **If fracture:** Linear

Complex

Depressed → answer 3c and 3d

Basilar

Other (describe): _____

3c. **If fracture depressed**, was the inner table depressed by at least the thickness of the entire bone?

No

Yes

Not stated

3d. **If fracture depressed**, how many millimeters was the depression?

--	--	--

mm

Not stated

Note: If Skull x-ray positive type radiologist "final impression" verbatim into database.

4. Was a head MRI performed at the return visit?

No → form complete

Yes → answer 4a

4a. **MRI Findings** (check all that apply)

Normal (No intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → form complete

Abnormal (Includes intracranial findings or skull fractures: Note, head MRI with isolated scalp injuries, e.g. scalp hematoma, is considered normal. Also, sinusitis or fluid in sinuses is considered normal.) → answer 4b, 4c

Limited quality (radiologist dictation states MRI is of limited quality due to motion or other artifact)

Not interpretable (radiologist dictation states MRI is not interpretable due to motion or other artifact)

4b. Any traumatic findings? (does not include sinusitis or fluid in sinuses) (check all that apply)

No

Diastasis of the skull

Pneumocephalus

Cerebellar hemorrhage

Epidural hematoma (EDH)

Skull fracture

Cerebral contusion

Extra-axial hematoma

Subarachnoid hemorrhage (SAH)

Cerebral edema

Intraventricular hemorrhage (IVH)

Subdural hematoma (SDH)

Cerebral hemorrhage / Intracerebral hematoma

Midline shift / Shift of brain structures

Traumatic infarction

Other traumatic finding (describe): _____

4c. Any non-traumatic finding(s) on head MRI? No

Yes → please summarize below

Note: If head MRI positive (including a skull fracture), type radiologist "final impressions" verbatim into database.

THANK YOU!!! FORM IS NOW COMPLETE

Complete this form (for hospitalized patients only)
*Masked to all other CRFs and ED record
*After hospital discharge or up to 14 days after admission if patient still hospitalized
Data Source: Medical and radiology record, completed by HEDA RA

Patient Study ID Number
[][] - [][][][][]
Site ID # Study ID #

1. Neurosurgical procedure performed? No → skip to 2 Yes → answer 1a
1a. If yes, check all that apply:
 Dura repair for CSF leak Intracranial pressure (ICP) monitor Tissue debridement
 Fracture elevation Lobectomy Ventriculostomy
 Hematoma drained
 Other (describe): _____

2. Patient intubated? No → skip to 3 Yes → answer 2a and 2b
2a. If intubated, was the intubation > 24 hours? No Yes → answer 2b
2b. If intubated > 24 hrs, was the intubation for head trauma? No Yes Unsure → ask site PI

3. Hospitalized two or more nights (From ED triage time until the time of discharge from hospital, with night definition before 00:00)?
 No Yes → answer 3a
3a. Hospitalized ≥ 2 nights for head injury? No Yes Unsure → ask site PI
(If site PI unsure, refer to Nodal Champion for review.)

Note for RA's: If hospitalized for multiple injuries, site PI's best assessment of whether head injury required ≥ 2 nights stay

4. Death in hospital? No Yes → answer 4a
4a. If yes, death due to TBI? No Yes Unsure → ask site PI (If site PI unsure, refer to Nodal Champion for review.)

5. Other documented substantial injuries (check all that apply):
(includes but not limited to fractures, intra-abdominal injuries, and intra-thoracic injuries)
 None (isolated head injury) Extremity CSpine / spinal Cord Chest/back/flank Intra-abdominal Pelvis
 Other (describe): _____

6. Answer only if patient had post traumatic seizure (indicated on CRF 1, pg. 2, question #4), otherwise skip to 7.
If post traumatic seizure, did patient have another seizure within first 7 days of hospitalization? No Yes

7. Discharged/Transferred to: (check all that apply):
 Home Rehab/chronic care facility Another acute care facility Patient died
Note: If transferred to another acute care facility, you will need to obtain and review the medical record from the other acute care facility to determine outcomes.

Date of ED Triage
[][] / [][] / [][][][] Not documented
Month Day Year

Time of ED Triage
[][] : [][] Not documented
Hour Minute

Date of Hospital Discharge or Transfer
[][] / [][] / [][][][] Not documented
Month Day Year

Time of Hospital Discharge or Transfer
[][] : [][] Not documented
Hour Minute

Date of Death (if patient died)
[][] / [][] / [][][][] Not documented
Month Day Year

Time of Death (if patient died)
[][] : [][] Not documented
Hour Minute

8. ICD-9 codes upon discharge (If ICD-9 codes not available, list top 10 discharge diagnoses)

1.	[][][] . [][]	_____	6.	[][][] . [][]	_____
2.	[][][] . [][]	_____	7.	[][][] . [][]	_____
3.	[][][] . [][]	_____	8.	[][][] . [][]	_____
4.	[][][] . [][]	_____	9.	[][][] . [][]	_____
5.	[][][] . [][]	_____	10.	[][][] . [][]	_____

Injury in Need of Intervention (Kappa)

Complete this form:

* From chart review of a random 5% of hospitalized patients

Data Source: Medical record, completed by HEDA PI

Patient Study ID Number

		-					
--	--	---	--	--	--	--	--

Site ID #

Study ID #

Evaluator Name:

(Please print name)

Date of ED Evaluation

		/			/				
--	--	---	--	--	---	--	--	--	--

Month

Day

Year

Date of Form Completion

		/			/				
--	--	---	--	--	---	--	--	--	--

Month

Day

Year

For Hospitalized Patients Only:

1. Neurosurgical procedure performed? No → skip to 2 Yes → answer 1a

1a. If yes, check all that apply:

Dura repair for CSF leak

Fracture elevation

Hematoma drained

Intracranial pressure (ICP) monitor

Lobectomy

Tissue debridement

Ventriculostomy

Other (describe): _____

2. Patient intubated? No → skip to 3 Yes → answer 2a and 2b

2a. If intubated, was the intubation > 24 hours? No Yes → answer 2b

2b. If intubated > 24 hrs, was the intubation for head trauma? No Yes Unsure

3. Hospitalized two or more nights (From ED triage time until the time of discharge from hospital, with night definition before 00:00)?

No

Yes → answer 3a

3a. Hospitalized ≥ 2 nights for head injury? No Yes Unsure

4. Death in hospital? No Yes → answer 4a

4a. If yes, death due to TBI? No Yes Unsure