

Structural imaging in the form of CT and MRI are the core neuroimaging examinations that serve as the basis for the evaluation of TBI.

Detailed recommendations for standardization of imaging protocols and for the assessment of imaging studies have been presented by the Common Data Elements Neuroimaging Working Group:

### **Common Data Elements in Radiologic Imaging of Traumatic Brain Injury**

Ann-Christine Duhaime, Alisa D. Gean, E. Mark Haacke, Ramona Hicks, Max Wintermark, Patrik Mukherjee, David Brody, Lawrence Latour, Gerard Riedy

Archives of Physical Medicine and Rehabilitation 1 November 2010 (volume 91 issue 11 Pages 1661-1666 DOI; 10.116/j.apmr.2010.07.238).

### **Common data elements in radiologic imaging of traumatic brain injury**

Haacke, EM, Duhaime AC, Gean AD, et al. J. Magn. Reson. Imaging 2010;32:516-43.

Here we present a simplified approach to the assessment of CT examinations in TBI. Similar approaches have been employed in most TBI studies and trials conducted in the past decade.

# FOLLOW UP CT SCAN

Date of CT:   -    -

Day Month Year

Time of CT:   :   (use 24hr clock)

Hour Minute

## CT classification:

- Category:**
- Diffuse injury, NVP Intracranial pathology not visible on CT scan
- Diffuse injury Cisterns present with shift 0-5 mm, lesions present, but no high or mixed density lesion >25 cc. May include bone fragments and foreign bodies.
- Diffuse injury with swelling Cisterns compressed or absent, shift 0-5 mm, no high or mixed density lesion >25 cc.
- Diffuse injury with shift Shift >5 mm, no high or mixed density lesion >25 cc.
- Mass lesions High or mixed density lesion > 25cc.
- Extradural  Subdural  Contusion

**Scheduled for operation:**  No  Yes

**Depressed skull fracture:**  No  Closed  Open (compound)

**Subarachnoid hemorrhage:**  No  Basal  Cortical

**Midline shift:**  No  Yes If yes, shift in mm:

**Basal cisterns absent/compressed:**  No  Yes

# FOLLOW UP CT SCAN

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  - Mass lesions High or mixed density lesion > 25cc.

**Scheduled for operation:**  No  Yes

**Focal Lesions & Hemorrhage**

	R	L	Bil	PF	Est. volume (ml.)
1. Subdural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
2. Extradural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
3. Contusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____

- Mainly high density
- Mainly mixed
- Mainly low attenuation

4. Parenchymal lesions (small, shearing)

- Supratentorial
- Infratentorial

5. Subarachnoid hemorrhage

	No	Yes
Basal	<input type="radio"/>	<input type="radio"/>
Cortical	<input type="radio"/>	<input type="radio"/>
Tentorial	<input type="radio"/>	<input type="radio"/>
Fisher grade (I-IV)	<input type="text"/>	

6. Intraventricular hemorrhage

- No  Yes

**Mass Effect/Pressure:**

07. Midline shift:  No  Yes

If "Yes", shift in mm:

08. Basal cisterns  Normal  Compressed  Absent

09.  Third ventricle compressed

10.  Contralateral ventricle dilated

**Other:**

11. Depressed fracture  No  Closed  Open (Compound)

12.  Hydrocephalus

13.  Intracranial air

14.  Ischemia  Single arterial territory  Multiple territories  Hemisphere

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Day                      Month                      Year

Time of CT:   :   (use 24hr clock)

Hour                      Minute

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  - Diffuse injury                      Cisterns present with shift 0-5 mm, lesions present, but no high or mixed density lesion >25 cc. May include bone fragments and foreign bodies.
  - Diffuse injury with swelling                      Cisterns compressed or absent, shift 0-5 mm, no high or mixed density lesion >25 cc.
  - Diffuse injury with shift                      Shift >5 mm, no high or mixed density lesion >25 cc.
  - Mass lesions                      High or mixed density lesion > 25cc.

**Scheduled for operation:**     No                       Yes

**Focal Lesions & Hemorrhage**

	R	L	Bil	PF	Est. volume (ml.)
1. Subdural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
2. Extradural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
3. Contusion	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____

- Mainly high density
- Mainly mixed
- Mainly low attenuation

4. Parenchymal lesions (small, shearing)

- Supratentorial
- Infratentorial

5. Subarachnoid hemorrhage

	No	Trace	Mod	Full
Basal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cortical	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tentorial	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Fisher grade (I-IV)

6. Intraventricular hemorrhage

- No                       Yes

**Mass Effect/Pressure:**

07. Midline shift:     No                       Yes

If "Yes", shift in mm:

08. Basal cisterns     Normal  
 Compressed  
 Absent

09.  Third ventricle compressed

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**Other:**

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 Closed  
 Open (Compound)

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14.  Ischemia     Single arterial territory  
 Multiple territories  
 Hemisphere