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

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

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.
**ADMISSION CT SCAN**

<table>
<thead>
<tr>
<th>Date of CT:</th>
<th>Time of CT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Month</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CT classification:**

- **Category:**
  - Diffuse injury, NVP
  - Diffuse injury
  - Diffuse injury with swelling
  - Diffuse injury with shift
  - Mass lesions

- **Intracranial pathology not visible on CT scan**
- **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.**
- **Cisterns compressed or absent, shift 0-5 mm, no high or mixed density lesion >25 cc.**
- **Shift >5 mm, no high or mixed density lesion >25 cc.**
- **High or mixed density lesion > 25cc.**
  - Extradural
  - Subdural
  - Contusion

- **Scheduled for operation:**
  - Yes
  - No

**Depressed skull fracture:**

- Yes
  - Closed
  - Open (compound)

- No

**Subarachnoid hemorrhage:**

- Yes
  - Basal
  - Cortical

- No

**Midline shift:**

- Yes
  - If yes, shift in mm: [ ]

- No

**Basal cisterns absent/compressed:**

- Yes

- No
Intermediate

**ADMISSION CT SCAN**

<table>
<thead>
<tr>
<th>Date of CT:</th>
<th>Time of CT:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Month</td>
</tr>
</tbody>
</table>

**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 >25 cc.

**Scheduled for operation:** No Yes

**Focal Lesions & Hemorrhage**

<table>
<thead>
<tr>
<th>R</th>
<th>L</th>
<th>Bil</th>
<th>PF</th>
<th>Est. volume (ml.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Subdural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Extrudural</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Contusion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Parenchymal lesions (small, shearing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Subarachnoid hemorrhage</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Intraventricular hemorrhage</td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**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

**If penetrating:**

**Missile Tract:**
- Bihemispheric lesions: No Yes
- Multilobar injuries: No Yes
- Ventricular involvement: No Yes
- Crossing major cerebral artery or venous sinus: No Yes
- Air Sinus involved: No Yes
**ADMISSION CT SCAN**

**Date of CT:**
- Day
- Month
- Year

**Time of CT:**
- Hour
- Minute

(Use 24hr clock)

**CT classification:**

- **Category:**
  - Diffuse injury, NVP
  - Diffuse injury
  - Diffuse injury with swelling
  - Diffuse injury with shift
  - Mass lesions

- **Intracranial pathology not visible on CT scan**
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- Cisterns compressed or absent, shift 0-5 mm, no high or mixed density lesion >25 cc.
- Shift >5 mm, no high or mixed density lesion >25 cc.
- High or mixed density lesion > 25cc.

**Scheduled for operation:**
- No
- Yes

**Focal Lesions & Hemorrhage**

1. **Subdural**
   - R
   - L
   - Bil
   - PF
   - Est. volume (ml.)

2. **Extradural**
   - R
   - L
   - Bil
   - PF
   - Est. volume (ml.)

3. **Contusion**
   - Mainly high density
   - Mainly mixed
   - Mainly low attenuation

4. **Parenchymal lesions (small, shearing)**
   - Supratentorial
   - Infratentorial

5. **Subarachnoid hemorrhage**
   - Basal
   - Cortical
   - Tentorial
   - Fisher grade (I-IV)

6. **Intraventricular hemorrhage**
   - No
   - Trace
   - Mod
   - Full

**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

**If penetrating:**

**Missile Tract:**

- Bihemispheric lesions: No
- Multilobar injuries: No
- Ventricular involvement: No

- Crossing major cerebral artery or venous sinus: No
- Air Sinus involved: No