**Introduction**

Approximately 33.5 million persons in the United States (US) receive treatment for blunt or penetrating trauma each year; 1.3 million of these patients require hospitalization and more than half of the injuries are a result of their motor vehicle crashes. Blunt trauma is the leading cause of injury death, and covered by managed care, it is important to document the financial consequences of this public health problem from a managed care perspective.

**Objectives**

- Estimate per patient charges for resources utilized by managed care enrollees with admission for blunt or penetrating trauma.
- Assess incremental financial impact for trauma patients incurred during post-discharge medical encounters to those incurred prior to initial injury.

**Methods**

**Study Design**

- Incremental financial impact of trauma: Difference between per patient charges incurred across 6 months pre- to 6 months post-injury.
- Per patient charges (Tables 3 and 4, Figures 1 and 2)
- Discharge status and external injury cause codes (E-codes) are unreliably recorded in the NTDB database; therefore unable to provide additional context.

**Results**

**Table 1. Characteristics of the Study Sample**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISS at Initial Injury</td>
<td>All Patients</td>
<td>23,733</td>
</tr>
<tr>
<td></td>
<td>Isolated TBI</td>
<td>17,374</td>
</tr>
<tr>
<td></td>
<td>T+TBI</td>
<td>13,028</td>
</tr>
<tr>
<td></td>
<td>T-TBI</td>
<td>7,747</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>12,715</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>10,534</td>
</tr>
<tr>
<td></td>
<td>Age 16-24</td>
<td>49.89</td>
</tr>
<tr>
<td></td>
<td>25+</td>
<td>50.11</td>
</tr>
</tbody>
</table>

**Per patient charges (Tables 3 and 4, Figures 1 and 2)**

- In patients with T+TBI, index hospitalization charges were more than three times ($7,747, with non-trauma centers consistently having the highest charges.  
- Pharmacy charges were modest compared to hospital and outpatient charges ($566-1,237), with trauma centers and non-trauma centers having similar charges.
- Overall, incremental charges for post-injury care were more ($3,182 per patient than charges incurred over the entire 6-month period prior to initial injury.
- The difference in pre- to post-injury charges, excluding index hospitalization, was greatest ($17,720) among T+TBI patients.
- T+TBI nearly quintupled (+489%) total healthcare charges when examining incremental charges from 6 months pre- to 6 months post-injury.

**Limitations**

- ICD-9-CM codes, if recorded inaccurately, may have caused some patients to be misidentified as having trauma or to be misclassified as ISS.  
- Costs of the study reflect charges rather than actual payments.  
- Discharge status and external injury cause codes (E-codes) are unreliable in the NTDB database; therefore unable to provide additional context.

**Conclusions**

- The direct economic burden of blunt and penetrating trauma to third-party payors is substantial.
- Sig. higher charges are associated with combined TBI and other trauma (T+TBI), especially among patients with high severity injuries.
- TBI contributes dramatically to trauma patients’ injury severity, whether alone or in combination with other trauma.

**References**

- The Johns Hopkins University and Tri-Analytics, Inc.