Predictors of Out-of-Home Placement after Non-Accidental Traumatic Brain Injury Among Young Children
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Introduction
- Inflicted traumatic brain injury (TBI) is one of the leading causes of childhood injury and death.
- Studies have consistently demonstrated worse outcomes for children with inflicted TBIs compared to accidental TBIs, likely due to injury-related factors and risk factors associated with child maltreatment.
- Out-of-home placement is a frequent occurrence in inflicted TBI which may also contribute to worse outcomes for children.
- We hypothesize that injury severity, child, and family risk factors will be predictive of out-of-home placement after hospital discharge from an inflicted TBI.

Methods
Participants
- 175 children with inflicted TBIs who received care at Children's Hospital Colorado from 2012 to 2021.
- 88% of children were alive at discharge and were included in the study.
- The total sample included 154 children.
- Ages ranged from 0.2 to 76 months (M = 11.81, SD = 14.50) and 64.9% were male.
- Race/Ethnicity: 66.9% White, 29.9% Latinx or Hispanic, 4.6% Black, 3.3% American Indian or Alaskan, and 22.5% identified another race or ethnicity or identified as multiracial.

Measures

<table>
<thead>
<tr>
<th>Injury Severity</th>
<th>Child Factor</th>
<th>Family Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presence of cutaneous or oral/pharyngeal injuries</td>
<td>Gender</td>
<td>Prior CPS involvement – as a caregiver</td>
</tr>
<tr>
<td># of types of cutaneous injuries present (e.g., burns, bites)</td>
<td>Age at hospital admission</td>
<td>Prior CPS involvement – when the caregiver was a child</td>
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<tr>
<td># of injury types identified (e.g., CNS findings)</td>
<td>Race/ethnicity</td>
<td>Prior criminal history</td>
</tr>
<tr>
<td># of abdominal/visceral injury types identified</td>
<td>GOS-E at hospital discharge</td>
<td>Prior mental health history</td>
</tr>
<tr>
<td># of fractures identified</td>
<td>Total # of previous medical/developmental problems</td>
<td>Prior history of domestic violence</td>
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<tr>
<td>Days spent in the PICU</td>
<td>Total # of equipment needed at discharge from the hospital</td>
<td>Prior substance abuse</td>
</tr>
<tr>
<td>Post-Resuscitation GCS</td>
<td>Relationship to perpetrator</td>
<td>Other psychosocial concerns</td>
</tr>
<tr>
<td>Total number of psychosocial concerns</td>
<td>Total number of psychosocial concerns</td>
<td></td>
</tr>
<tr>
<td>Type of insurance</td>
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</tbody>
</table>

Analytic Strategy
- Given that the dependent variable was categorical, individual logistic regressions were run to assess the effect of each injury severity, child, and family factor on placement after hospital discharge.

Results
- Caregivers with a history of mental health difficulties and/or a history of substance abuse were more likely to have a child placed out-of-home.
- The more caregiver psychosocial concerns reported the higher risk of an out-of-home placement.
- Children with public insurance were significantly more likely to be placed out-of-home than children with private insurance.
- Logistic regressions were carried out to assess the effect of injury severity, child, and every other family factor on placement after hospital discharge and the overall models were not significant.

Conclusions
- Despite expectations, child and injury severity factors did not play a role in placement decisions after an inflicted TBI.
- Caregivers with histories of mental health and substance abuse problems may have more difficulties meeting their child’s needs and providing a stable household, increasing the likelihood of an out-of-home placement.
- Relatedly, families with public insurance may have less of a social safety net and, thus, may have greater difficulty meeting the needs of a child with an inflicted TBI. However, we cannot rule out the effect of bias in child welfare practices.

Future Directions and Limitations
- Placement decisions could differ by county. Given the limited number of participants from each county, county was not included in the present models. Future research should explore whether there is a county effect on placement decisions after hospital discharge.
- Finally, research has indicated that children placed in out-of-kinship homes may fare worse than children placed in familial care. Future research should explore which factors predict kinship versus out-of-kinship placements among children who sustain inflicted TBI and correlate those with long-term developmental outcome.

Acknowledgements
- Thank you to the families who participated in this study.
- References available upon request

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