

Paige E Naylor, Andrea Jagusch, Emma Basel, Michelle Loman, Elisabeth Vogt
Medical College of Wisconsin, Milwaukee, WI, USA

Objective: Integration of neuropsychological services into multidisciplinary clinics for pediatric patients requiring neurocritical care has previously been shown to improve access to care and promote connection to vital services for children recovering from traumatic brain injuries or other serious insults or infections impacting the brain. As such, the objective of this study is two-fold. First, to explore the unique model of care provided by a neuropsychological inpatient service at the Medical College of Wisconsin/Children's Wisconsin. Secondly, to describe the benefit of neuropsychology in the Brain Recovery Assessment and Interdisciplinary Needs Clinic (BRAIN) a neurocritical care outpatient follow-up multidisciplinary clinic.

Participants and Methods: Participants include N =298 pediatric inpatients from a Level 1 Pediatric Trauma center referred to the neuropsychological inpatient consultation service from February 2020 to July 2022. Qualitative methods were used to describe the flow and number of patients initially referred to the neuropsychological inpatient service and then those who followed up in outpatient neuropsychological care prior to and after the implementation of a multi-disciplinary clinic for children admitted to the Neurocritical Care Unit. Rates of follow-up with neuropsychological care were compared pre- and post-establishment of the multidisciplinary clinic. Additional analyses were conducted to explore factors known to impact follow-up with care post-hospitalization (e.g., socioeconomic status, race, ethnicity).

Results: Prior to the establishment of the BRAIN clinic, approximately 60 to 70% of patients were referred for outpatient neuropsychological follow-up. Approximately 30% of patients referred to the inpatient neuropsychological service following the establishment of the BRAIN clinic were referred for multidisciplinary care, while 20% did not require additional intervention and 50% were referred for outpatient neuropsychological follow-up. Analyses indicated increased follow-up rates with neuropsychological care following the establishment of the BRAIN clinic.

Conclusions: Integration of neuropsychology into inpatient care and subsequent multi-

disciplinary settings for pediatric patients with traumatic brain injuries or other serious insults and CNS infections increased access to neuropsychological care. Additional clinical implications will be discussed.

Categories: Acquired Brain Injury (TBI/Cerebrovascular Injury & Disease - Child)

Keyword 1: traumatic brain injury

Keyword 2: stroke

Correspondence: Paige Naylor, PhD Medical College of Wisconsin pnaylor@mcw.edu

37 Predictors of Out-of-Home Placement after Non-Accidental Traumatic Brain Injury Among Young Children

Stephanie A. Hitti, Amy K. Connery, Antonia Chiesa
Children's Hospital Colorado, Denver, Colorado, USA

Objective: 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. Out of home placement, a known developmental risk factor, is a frequent occurrence in inflicted TBI, which may also contribute to worse outcomes for children. Little is known about what injury, child, and family factors predict out-of-home versus in-home placements. 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.

Participants and Methods: Participants included 175 children with inflicted head injuries ages who received care at a large children's hospital 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 distribution was as follows: 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 included injury severity (e.g., days spent in the PICU, post-resuscitation GCS), child (e.g., race/ethnicity, gender), and family factors (e.g., prior history of domestic violence,

type of insurance). Individual logistic regressions were run to assess the effect of each injury severity, child, and family factor on placement after hospital discharge.

Results: Results indicated that having a caregiver with a history of mental health difficulties and/or a history of substance abuse increased the likelihood of an out-of-home placement for the child after an inflicted TBI. Results also demonstrated that the more caregiver psychosocial concerns reported, the higher the risk of an out-of-home placement for the child after discharge from the hospital. Finally, results indicated that having public insurance significantly increased the risk of an out-of-home placement for the child after discharge from the hospital. Post-hoc analyses were conducted to assess the effect of insurance type on out-of-home placement, while controlling for psychosocial concerns. Results indicated that, even when taking total psychosocial concerns into account, having public insurance significantly increased the risk of an out-of-home placement. Logistic regressions were carried out to assess the effect of injury severity, child, and every other family factor (e.g., prior criminal history) on placement after hospital discharge and the overall models were not significant.

Conclusions: One explanation for these findings is that families with public insurance have less of a social safety net and, thus, are unable to meet the needs of a child with an inflicted TBI. However, we cannot rule out the effect of bias in child welfare practices. Similarly, caregivers with histories of mental health difficulties and substance abuse are likely to have a harder time meeting their child's needs and providing a stable household, increasing the likelihood of an out-of-home placement. Despite expectations, child and injury severity factors did not play a role in placement decisions after an inflicted TBI, indicating that placement decisions rely more heavily on caregivers' abilities to meet the child's needs rather than the child's medical complexity or the severity of the inflicted TBI.

Categories: Acquired Brain Injury (TBI/Cerebrovascular Injury & Disease - Child)

Keyword 1: brain injury

Keyword 2: pediatric neuropsychology

Correspondence: Stephanie A. Hitti, Children's Hospital Colorado, Stephanie.a.hitti@gmail.com

38 Fluid Cognition Deficits Persisting Beyond Clinical Recovery in Pediatric Mild Traumatic Brain Injury

Lauren N Irwin Harper, Julia Nahman, Luis Ahumada, Sarah Irani, P. Patrick Mularoni, Danielle M Ransom
Johns Hopkins All Children's Hospital, St. Petersburg, FL, USA

Objective: Evidence-based consensus in children and adolescents following uncomplicated mTBI indicates acute cognitive symptoms resolve over time with minimal long-term impact. However, traditional paper-and-pencil neuropsychological measures used in many studies have been criticized for lacking sensitivity to subtle changes in attention and executive functions. The National Institutes of Health Toolbox Cognition Battery (NIHTB-CB) is a computerized tool assessing overall cognition, fluid cognition, and crystallized cognition with few studies in pediatric mTBI. The aim of this study is to continue to explore the utility of the NIHTB-CB in adolescents recovering from mTBI compared to orthopedic injuries (OI) and healthy controls (HC).

Participants and Methods: The current pilot study utilized a prospective cohort design with longitudinal follow-up in three cohorts of high school student-athletes aged 14-18 (N= 52). Participants with mTBI (n= 17) or OI (n= 15) sustained during sport were recruited within 10 days of injury from a quaternary care setting. An age- and gender-matched cohort of healthy controls (HC) in an active sport season was included for community comparison (n= 20). The NIHTB-CB was administered as part of a neuropsychological screening battery at enrollment and one month after medical clearance (mTBI and OI) or eight weeks after enrollment (HC).

Results: Results of a 3(group) x 2(time) ANOVA revealed a main effect of time ($p < .001$), but not group ($p = .06$), on the overall Fluid Cognition Composite. The mTBI group showed significantly lower performance on a measure of attention/inhibitory control (Flanker) compared to healthy controls acutely post-injury ($p = .04$; $d = 0.72$) and following clinical recovery ($p < .01$; $d = 0.98$), with no decline observed in the magnitude of group differences over time. The mTBI and OI groups exhibited deficits in performance on a measure of cognitive flexibility (Dimensional Change Card Sort) compared to the HC group