

Assessing Follow-up Care Compliance in Children Hospitalized for Traumatic Brain Injuries

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Background and Hypothesis: There is limited information regarding healthcare utilization and outcomes in children hospitalized for traumatic brain injury (TBI). Nearly 50% of adults hospitalized for trauma do not attend follow-up appointments, although completion of post-discharge care is associated with improved outcomes and decreased likelihood of subsequent emergency department (ED) visits. The Regestrief Institute Indiana Network for Patient Care (INPC) is a regional health information exchange (HIE) with health record data. This includes inpatient, outpatient, and ED visits, as well as imaging and lab data. The objective of this study is to use HIE data to assess long-term healthcare utilization, complications, and sequelae of pediatric patients hospitalized for TBI to see if follow-up compliance can identify patients at risk for post-TBI complications, including unplanned care, as well as long-term secondary health conditions.

Methods: 387 patients treated at a pediatric level 1 trauma center in Indiana admitted for TBI were identified using trauma registry data. EHR data in the INPC on patients for two years post-discharge were analyzed. Associations between compliance with follow-up care instructions given at discharge/subsequent medical visits and longitudinal utilization/outcomes were examined using Fisher's exact test.

Results: After reviewing patient records, we found that 60.7% of patients received all follow-up care and 8.5% of patients received partial follow-up care, leaving 25.1% of patients receiving no follow up care and 5.7% of patients lost to follow-up after discharge. 12% of patients went to the ER for an injury-related issue and 6.2% of patients were readmitted. 19.4% of individuals experienced complications from injury while 12.4% of individuals had suspected sequela. Factors influencing recovery included race, age, insurance, injury severity, ICU admission, and ventilator usage.

Implications and Importance: Using HIE data can identify factors of hospitalized children vulnerable to not achieving optimal recovery and determine what care is critical to improving long-term health and quality of life outcomes.

Hannah Bozell is a third year medical student who is currently undecided but is interested in primary care.

What is your most important takeaway from your research?

"The IMPRS summer program allowed me to combine my interests in medicine with other interests regarding social justice and patient advocacy. With my research alongside Dr. Teresa Bell, I was able to investigate the outcomes of children with traumatic brain injuries and variables that impacted a patient's ability to attend follow-up appointments. The vantage point of follow-up care abidance following traumatic injury was not something I have thought much about. I learned a lot regarding all different types of follow-up care and the importance of abidance after traumatic injury. Through my results, I saw firsthand how different health disparities can affect a patient's health outcome. I also learned the difficulties surrounding follow-up care abidance in children involved with Child Protective Services. These results sparked future research questions regarding how variables such as clinicians per capita and income levels affect follow-up care abidance.

As a researcher, I've also gained new skills and confidence. I was able to create a research question through the help of my mentor and the IMPRS class sessions assigned throughout the summer. I also learned statistical analyses regarding qualitative data, and how to analyze transcriptions of qualitative interviews. My knowledge of statistics grew exponentially with this experience as well as the help of IMPRS class sessions.

IMPRS overall gave me a new vantage point into how clinical research is another way to advocate for individuals affected by health disparities. I am continuing my research with my mentor to learn more and shed a better light on these issues to improve the quality of life and healthcare for underserved populations."