Head home: implementation during COVID-19 pandemic

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ABSTRACT

Background Recent research suggests that between 20% and 50% of paediatric head injuries attending our emergency department (ED) could be safely discharged soon after triage, without the need for medical review, using a 'Head Injury Discharge At Triage' tool (HIDAT). We sought to implement this into clinical practice.

Methods Paediatric ED triage staff underwent competency-based assessments for HIDAT with all head injury presentations 1 May to 31 October 2020 included in analysis. We determined which patients were discharged using the tool, which underwent CT of the brain and whether there was a clinically important traumatic brain injury or representation to the ED.

Results Of the 1429 patients screened; 610 (43%) screened negative with 250 (18%) discharged by nursing staff. Of the entire cohort, 32 CTs were performed for head injury concerns (6 abnormal) with 1 CT performed in the HIDAT negative group (normal). Of those discharged using HIDAT, four reattended, two with vomiting (no imaging or admission) and two with minor scalp wound infections. Two patients who screened negative declined discharge under the policy with later medical discharge (no imaging or admission). Paediatric ED attendances were 29% lower than in 2018.

Conclusion We have successfully implemented HIDAT into local clinical practice. The number discharged (18%) is lower than originally described; this is likely multifactorial. The relationship between COVID-19 and paediatric ED attendances is unclear but decreased attendances suggest those for whom the tool was originally designed are not attending ED and may be accessing other medical/non-medical resources

Key messages

What is already known on this subject?

- A previous single-centre study suggested between 20% and 50% of all paediatric head injuries may have been suitable for discharge soon after screening.

What this study adds?

- Local implementation of a head injury screening tool has resulted in 18% of all those screened being discharged without medical review.
- Our paediatric emergency department attendances were nearly 30% lower in 2020 compared with 2018.
- A large multicentre study is required to validate the tool.

We write further to our original paper[1] to report on the implementation of 'Head Injury Discharge At Triage' (HIDAT), which went live in March 2020 at our clinical site. The HIDAT tool was designed to identify patients who could be safely discharged soon after triage without medical review. All emergency department (ED) paediatric triage nurses underwent competency-based assessments for HIDAT with all discharges under the policy reviewed on a monthly basis for adherence to the tool and reattendances.

Pre-implementation feedback on HIDAT led to the inclusion of an additional question; 'Have safeguarding concerns been considered and excluded?' This was to both improve documentation and serve as a reminder to staff to fully consider safeguarding, as children discharged under the policy would not undergo traditional medical review. As noted in our original paper,[1] all children under 1 year are excluded from the tool due to a local policy requiring formal examination by a doctor.

We report on presentations between 1 May and 31 October 2020 for direct comparison with our original paper. There were 9404 ED attendances over the time period, which is 29% lower than 2018 (13 223 attendances). Paediatric ED attendances reduced at the start of the UK 2020 COVID-19 pandemic (March 2020)[2] by approximately 30% and our data suggest this trend is ongoing.

Over this time, a total of 1429 children underwent screening using HIDAT with 610 screening negative as per table 1. The total attendances with head or facial injury in 2020 were 18% lower than 2018.

Of those attending with 'head or facial injury' as the presenting complaint and therefore triggering HIDAT screening, 250 (18%) patients were discharged by nursing staff. Of these, four reattended within 72 hours, two with vomiting who were discharged from ED after review and two with minor scalp wound infections. Two patients declined to be discharged under the pathway and were reviewed and discharged by ED medical staff without imaging or admission.

From all injuries screened using HIDAT, 31 underwent CT of the brain with 6 showing an abnormality (table 2); this is similar to the number of abnormal scans in 2018. Twenty-six further CT scans (no abnormalities detected) occurred in patients for trauma/presumed trauma who did not trigger the screening tool as the triage complaint was not head or facial injury. These 26 patients

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Table 1 All HIDAT screened head or facial injuries (% calculated as per total head or facial injuries for respective year)

	2018	2020
Head or facial injuries—total	1739	1429
HIDAT negative	1053 (61%)	610 (43%)
HIDAT negative—'no other injuries'	348 (20%)	162 (11%)
HIDAT negative—'abrasions or lacerations'	543 (31%)	322 (23%)
HIDAT negative—'other'	162 (9%)	126 (9%)

HIDAT, Head Injury Discharge At Triage.

share similar characteristics (triage complaint) as those from our original study who did not trigger the tool (see table 2—footnote). One CT scan was performed in the group screened negative with our HIDAT tool; this went against local policy and the scan showed no abnormality.

Our original paper[1] identified between 20% and 50% of all head injuries could be discharged using the HIDAT tool and following implementation only 18% were discharged. The reasons are likely to be multifactorial. With a 30% fall in attendances due to the pandemic those patients whom the tool was designed to stream away from ED may not be attending at all, making direct comparison between 2018 and 2020 challenging. Staff confidence with nurse led discharge may also impact on this figure. Some nursing staff may be more comfortable with the process and associated 'clinical responsibility' than others. The addition of the safeguarding concerns question may also have had an impact on this confidence to discharge.

Table 2 Imaging and outcomes

	2018	2020
CT brain due to trauma	72	57
TBI-CT	7	6
ciTBI	0	0
HIDAT positive—CT brain	60	31
HIDAT positive—TBI-CT	6	6
HIDAT negative—CT brain	1	1
HIDAT negative—TBI-CT	0	0

Presenting complaints of patients with no HIDAT trigger and underwent CT (n=26). Seizure (8), injury of limb (upper or lower) (4), collapse (3), headache (2), polytrauma (2), vomiting (2), wound (2), neck pain (1), epistaxis (1), toothache (1).
Traumatic brain injury on computed tomography (TBI-CT) defined[1] by the presence of any of the following criteria: diastasis of the skull and/or skull fracture inclusive of orbit, pneumocephalus, intracranial haemorrhage or contusion, sigmoid sinus thrombosis, traumatic infarction, diffuse axonal injury or signs of herniation.
Clinically important traumatic brain injury (ciTBI)- defined[1] as death due to TBI, intubation for more than 24 hours, neurosurgery or hospital admission of 2 nights or more due to TBI.
CT brain, Brain computed tomography; HIDAT, Head injury discharge at triage.

After feedback from nursing staff on the difficulty of obtaining a blood pressure in some of these children we are considering removing this component of the tool. Children with abnormal blood pressure due to head injury would be likely to have other clinical signs (eg, vomiting, headaches, low conscious level) and would therefore not be discharged using the HIDAT tool.

To conclude, we have successfully and safely implemented HIDAT as a practice change into our paediatric ED. The percentage of patients discharged under this process is lower than originally described, likely due to the confounding factors described above. While the number of attendances reduced, the number of abnormal CTs in 2018 and 2020 was similar. This suggests a fair proportion of patients for whom the tool was originally designed are not attending ED and may be accessing other medical/non-medical resources. A large multicentre study is still required to validate the tool for broader clinical adoption.

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