

Prehospital Management of Paediatric Traumatic Brain Injury: Protocol for A Systematic Review of Clinical Practice Guidelines

INPLASY202430015

doi: 10.37766/inplasy2024.3.0015

Received: 04 March 2024

Published: 04 March 2024

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ADMINISTRATIVE INFORMATION

Support - Royal Embassy of Saudi Arabia Cultural Bureau.**Review Stage at time of this submission** - The review has not yet started.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202430015**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 March 2024 and was last updated on 04 March 2024.

INTRODUCTION

Review question / Objective What clinical practice guidelines (CPGs) currently exist to guide the care of children with isolated head injuries in the prehospital environment?

Condition being studied Children (aged <16 years) receiving an emergency ambulance response for an isolated head injury – Any paper discussing head injuries in children will be included in the review, regardless of the specific injury scale or severity level employed in the study. However, guidelines addressing multisystem trauma, even if it includes the head, will be excluded from the review.

METHODS

Search strategy Search will be conducted in OVID (MEDLINE, Embase, and Cochrane Library) from

01/03/2014 to 01/03/2024. OVID search strategy using Boolean searching operators such as AND, and OR to narrow down the search. Two reviewers, acting independently, will complete the search. All relevant articles, identified by either reviewer, will be shortlisted for further screening. In the event of any discrepancies between the reviewers, a third reviewer will adjudicate. Unpublished literature search including dissertations/theses, or Conference papers will be conducted using grey literature sources such as Proquest, and preprint servers (MedRxIV). Pubmed (Bookshelf) will be used for books search. Additionally, the references from the papers included will be checked manually. The search tips for each platform were meticulously reviewed to establish an effective search strategy.

Participant or population Children (aged <16 years) receiving an emergency ambulance response for an isolated head injury.

Intervention Prediction models, triage tools, interventions, and medications.

Comparator Non.

Study designs to be included Retrospective, prospective, and randomised control trial (RCT) full-text studies written in English will be eligible to be included in the study. Editorials, conference papers, and opinion articles will be excluded. Furthermore, studies not reporting on paediatric TBI and studies including hospital based paediatric TBI will be excluded. All papers identified will be screened by two reviewers, and in the event of any discrepancies between the reviewers, a third reviewer will adjudicate. Where more than one version of a given guideline is identified, the latest version will be included.

Eligibility criteria 1- CPGs for the prehospital management of children (aged <16 years) with head injury published in English language. 2- Guidelines covering both adult and paediatric with head injury will be included. 3- The guidelines must apply to the care provided by prehospital service personnel.

Information sources OVID (Cochrane, EMBASE, Medline), manual reference check, stakeholders expertise.

Main outcome(s) Deep insight of the published guidelines' recommendations reported on prehospital care for children with head injury by:

1. Identifying the factors on which management is prioritised. For example:
 - a. Anatomical factors including injury location, and symptoms.
 - b. Physiological factors including GCS, vital signs.
 - c. Mechanical factors including the mechanism of injury.
 - d. Special considerations such as coagulopathy or non-accidental injury
2. Evaluate the recommendations for prehospital medication administration for children with head injuries.
3. Analyse the recommendations for managing and optimizing vital signs in the prehospital setting.
4. Analyse the recommendations for determining the appropriate destination for transport.

Additional outcome(s) • Analysis of variations and similarities in prehospital guidelines for paediatric head injury.

- Identifying gaps for improvement in prehospital paediatric head injury care guidelines.

Data management To ensure transparency in reporting the data, two reviewers will independently extract data using a spreadsheet form developed by the research team before initiating the extraction process. General data such as the first author's name, the date of publication, sample size, country, and type of the study will be extracted. Additionally, specific guideline-related data will be extracted such as anatomical, physiological parameters, mechanism of injury, transportation preference that may impact the prehospital management, and recommendations to improve the care quality. In the event of conflicts, a third reviewer will be consulted.

Quality assessment / Risk of bias analysis This study aims to explore published guidelines related to prehospital paediatric TBI, with a focus on ensuring the quality of CPGs through risk of bias assessment and critical appraisal. Two reviewers will independently evaluate the published guidelines using the Appraisal of Guidelines for Research & Evaluation II (AGREE II) tool. Any disagreements regarding the quality of the studies will be resolved through discussion or by consulting a third researcher to avoid conflicts.

Strategy of data synthesis In qualitative research, the inclusion of diverse perspectives enhances the analysis, ensuring the reliability and validity of findings. Consequently, the analysis process in this systematic review will be a collaborative effort. A narrative approach will be employed to thoroughly review the CPGs, followed by a content analysis approach for a comprehensive qualitative analysis. Content analysis proves to be a practical method for identifying and understanding themes, patterns, and relationships within the textual and visual content of the CPGs. The content of the CPGs will be thoroughly assessed for any conflicts in practice that may result in variations in clinical approaches. Any similarities or variations in guidelines will be presented through graphs, tables, and text.

Subgroup analysis • Children with head injury prehospital guidelines recommendations per age group.

- Comparison between international guidelines and CPGs that intend to be practice within the UK.

Sensitivity analysis Not Applicable.

Country(ies) involved UK, KSA.

Keywords Paediatrics, TBI, Prehospital, guidelines.

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