INPLASY

Trigger Tools in Critical Care: A Systematic Review Protocol

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202480091

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 20 August 2024 and was last updated on 20 August 2024.

INTRODUCTION

Review question / Objective - Population: Medical records or healthcare data from critical care settings, including ICUs, PICUs, NICUs, HDUs, and ERs, that are analyzed using trigger tools to detect adverse events.
- Intervention: The use of trigger tools to identify adverse events in these critical care settings.
- Comparator: Comparisons between different types of trigger tools or between records reviewed with and without the use of trigger tools, if applicable.
-Outcome: The effectiveness of trigger tools in detecting adverse events, challenges in their implementation, and strategies for improving their utilization.
- S Study Design: Observational studies, cohort studies, randomized controlled trials, and other relevant designs that assess the use of trigger tools in critical care settings.To evaluate the challenges and utilization of trigger tools in critical care settings.

Rationale Critical care settings, including ICU, PICU, NICU, HDU, and ER, require effective patient safety measures. Trigger tools are underutilized in these settings, and this review aims to identify the barriers and potential solutions for improving their use.

Condition being studied The condition studied is the application and effectiveness of trigger tools in detecting adverse events in critical care settings.

METHODS

Search strategy Search terms will include "trigger tools," "adverse event detection," "critical care," "ICU," "PICU," "NICU," "HDU," "ER," and their synonyms across databases like PubMed, Scopus, and Web of Science.

Participant or population Critically ill patients in settings such as ICU, PICU, NICU, HDU, and ER.

Intervention The intervention is the use of trigger tools for detecting adverse events in critical care settings.

Comparator If applicable, comparisons will be made between different types of trigger tools or with settings that do not use trigger tools.

Study designs to be included The review will include observational studies, randomized controlled trials, and other relevant designs.

Eligibility criteria Studies must focus on the use of trigger tools in critical care settings. Exclude studies that do not specifically address critical care or trigger tools.

Information sources Databases: PubMed, Scopus, Web of Science. References of studies included.

Main outcome(s) 1. Detection Rate of Adverse Events (AEs): The effectiveness of trigger tools in identifying AEs in critical care settings, measured by the number of AEs detected per 100 patient records or another relevant metric.
2. Accuracy of Trigger Tools: Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of the trigger tools in detecting true AEs.
3. Implementation Challenges: Identification of barriers to the successful implementation of trigger tools in critical care settings, such as staff training, technology integration, and workflow disruptions.
4. Impact on Patient Outcomes: Analysis of how the use of trigger tools influences overall patient safety outcomes, such as reduction in harm rates or improvement in response times to AEs.
5. Technology integration and tends.

Additional outcome(s)
The additional outcomes may include:
- Cost-Effectiveness: Evaluation of the cost implications of implementing trigger tools in critical care, considering both the initial setup and ongoing maintenance costs versus the potential savings from harm reduction.
- Staff Perception and Usability metrics.
- Adoption Rates.
- Comparative Effectiveness: If applicable.

Data management Microsoft office Excel will be used to collect the data. References will be handled by Endnote. If needed, Matlab may be used for statistical operations and graphs.

Quality assessment / Risk of bias analysis The quality and risk of bias of the included studies will be assessed using the JBI Critical Appraisal Checklists (available at: https://jbi.global/critical-appraisal-tools). These standardized tools will be applied to evaluate the methodological quality of each study, and the findings will be incorporated into the data synthesis.

Strategy of data synthesis Data will be synthesized using narrative synthesis and, where applicable, meta-analysis.

Subgroup analysis Subgroup analysis may be performed based on patient population (e.g., pediatric vs. adult), type of critical care setting, or type of trigger tool used.

Sensitivity analysis
1. Excluding studies with a high risk of bias to determine if their inclusion significantly affects the overall results.
2. Analyzing the impact of different study designs or varying levels of methodological quality on the main outcomes.
3. Testing the effect of excluding unpublished studies or studies with missing data to ensure that the conclusions remain consistent.

Language restriction English.

Country(ies) involved Saudi Arabia (Dr Sulaiman Alhabib Medical Group).

Keywords "Trigger tools"; "Critical care"; "Adverse event detection"; "Systematic review".

Dissemination plans The aim is for the systematic review to be published in a peer-reviewed journal and presented at relevant conferences.

Contributions of each author
Author 1 - Mohammed As'ad - Drafted the protocol. Design the review methodology. Will lead the data extraction and analysis. Will be responsible for writing the manuscript and coordinating the review process.
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Author 2 - Nawarh Faran -Will conduct the second independent review of the search results. Will assist with data extraction and quality assessment. Will review the methodology and results sections of the manuscript.
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Author 3 - Awad Al Omari - Will provide expert guidance on the methodology and review process. Will review the search strategy and contribute to the data synthesis. Will assist in resolving any discrepancies during the review process and advise on the interpretation of findings.
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