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# Scoping review of review methodologies used for guiding evidence-based practice in critical care: a protocol

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## ABSTRACT

**Introduction** A literature review provides a synthesis on a selection of papers about a specific topic. This is used by health practitioners in critical care as in other specialities when making clinical practice decisions. The task of knowledge transfer through the review process of scientific papers involves a variety of methodologies with differing expectations on the quality and rigour that is applied. Exploration on the types of review methodologies selected by the authors of critical care literature may reveal the extent that choice of methodology has on how papers are selected and appraised may influence evidence-based practice recommendations. This scoping review aims to systematically map the breadth of current literature with the objective of identifying the types of review methodologies used by interdisciplinary authors synthesising the literature in adult critical care.

**Methods and analysis** Arksey and O'Malley's approach in conducting a scoping review will be followed and use of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Review guidelines in the reporting of findings. Papers with diverse review methodologies will be identified by searching four electronic databases (CINAHL/EBSCO, MEDLINE/PubMed, Scopus and Embase). Grey literature will be excluded due to the clinical nature of the review question. Search results will be reviewed independently by two researchers based on title and abstract followed by full-text papers that meet inclusion criteria. Characteristics of review methodologies will be collected and analysed using a tool developed by the interdisciplinary research team.

**Ethics and dissemination** This scoping review will provide an overview of the types of review methodologies most often undertaken with the interdisciplinary research team synthesising the quality of critical care literature. Scrutiny will be applied to the review methodologies selected, the challenges faced and current trends in the transfer of knowledge towards evidence-based practice. The results will be disseminated by publication through a peer-reviewed journal and by presentation as a part of conference proceedings. Ethics approval is not applicable for this scoping review.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

⇒ As a scoping review aims to explore and map the full breadth of a topic, the search strategy and inclusion criteria are designed to capture all published review literature in critical care, regardless of discipline.
⇒ The scoping review will be conducted rigorously and with transparent methods throughout the research process, as the authors follow this preset protocol.
⇒ Because of limited resources for translation, papers published in languages other than English will be excluded.
⇒ Given the clinical nature of the review topic, this review will not report on grey literature.

## INTRODUCTION

Since the introduction of evidence-based practice, the importance placed on sourcing reliable information to guide clinical decision-making has increased. Knowledge production within critical care continues to increase but the practice of critical care can become fragmented,[1 2] creating challenges for effective knowledge translation and implementation. Increasingly, critical care practitioners have used literature reviews to promote evidence-based practice because an effective and well-conducted review provides a strong foundation for effective knowledge translation.[3] A literature review can address research questions with a power that no single study has by integrating findings and perspectives from a plethora of empirical findings.[4 5] The purpose of a literature review is to analyse and synthesise research that has been undertaken in a particular area and identify the current evidence about the research questions being posed.[6] A literature review generally involves identifying one or more questions, which are then answered using a comprehensive and systematic approach.[4]

Over the past two decades, there has been a proliferation of review types, with a corresponding explosion of terms used to describe them.[3 7] Aveyard and Bradbury-Jones refer to this as the 'proliferation era',[6] but caution that this can be somewhat of a double-edged sword, because although researchers now have far more review methods at their disposal, this may impact the quality and rigour of literature reviews. Failure to conduct a high-quality literature review has led to criticism of the literature review as methodology, including studies that are repetitive, not grounded in theory, methodologically weak and fail to expand knowledge beyond a single setting and, importantly, contribution to knowledge is superficial.[8 9]

## BACKGROUND

Evidence drawn from a single study when making practice decisions can be misleading. On the other hand, evidence syntheses report on the data of outcomes measured from a variety of studies conducted on the same topic. Practice decisions based on a summation of these findings are more reliable. The adoption of evidence-based practice across health disciplines has resulted in a collection of different types of reviews. If one searches for a definition, a review is defined as a *'view, look at or look over again'* (https://www.dictionary.com/browse/review). Not all reviews of scientific papers are the same.[3] Some of the most common review types include narrative reviews, systematic reviews, scoping reviews and meta-analyses. Variations in the methodology distinguish one review type from another. It is important to understand the variations in the types of reviews undertaken used in the synthesis of evidence.

A persistent challenge faced by critical care professionals is remaining informed about contemporary critical care practices because of the speed and rate of knowledge generation, the wide scope of practice, the urgency of interventions and diverse teams that care for the critically ill patient. Defining critical illness and critical care has also been problematic. While it seems concepts and care of patients with serious illness may appear obvious, a lack of consensus around what constitutes critical care and critical illness creates obstacles to knowledge translation and implementation, clinical research and policy.[10] In this scoping review, we will use the definition of critical illness and critical care developed by Kayambankadzanja *et al*[10] who define critical illness and critical care as '*the state of ill health with vital organ dysfunction, a high risk of imminent death if care is not provided and the potential for reversibility*'.

The importance of evidence-based practice and its role in advancing knowledge and improving the quality and safety of care is well established.[11 12] Despite this important aim and efforts to facilitate the translation of evidence into practice, evidence is not always used due to barriers to implementing research findings.[13] Numerous examples in the literature confirm that this lag in translation causes significant economic, health, social and knowledge burdens and negatively impacts patient safety and outcomes.[14–16] It is inherently important that critical care remains contemporary and evidence based; otherwise, patient safety will be negatively impacted. In recent years, researchers have undertaken literature reviews on various elements of critical care practice. They have become an important source of consolidated evidence on specific topics, a method of informing guidelines or to review methodologies, such as systematic reviews or meta-analyses.

Acknowledging the role and increase in the use of literature review in critical care and our own confusion and uncertainty about the different types of reviews used and the types of topics explored, we questioned how literature reviews contribute to knowledge and evidence-based practice in the critical care setting. We envisage that, by undertaking this scoping review, new knowledge will be gained on current trends from a critical care multidisciplinary perspective. This knowledge and information could be used by critical care practitioners and researchers from a variety of health disciplines to inform their practice and future research agendas.

## RESEARCH AIMS AND OBJECTIVES

This scoping review aims to systematically map the breadth of current literature with the objective of identifying the types of review methodologies used by interdisciplinary authors when synthesising the literature in adult critical care.

## METHODS

A scoping review was selected as an appropriate research methodology to provide an overview of evidence, concepts or studies used to investigate a particular area of interest.[17] Scoping reviews do not use structured questions because they look to explore the breadth of research available on a research topic guided by the question, *'What are the characteristics of review methodologies used to synthesise scientific papers in critical care literature for guiding interdisciplinary evidence-based critical care practice?'* The scoping review will follow modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Review (PRISMA-ScR) guidelines.[18] The scoping review began by selecting a team of healthcare professionals consisting of two nursing academics, a pharmacist, a physiotherapist, a speech pathologist, an occupational therapist, a medical physician and a dietitian. The search for the scoping review will be initiated in November 2023 and is expected to be completed by December 2023. Screening, extraction and write up will occur between March and November 2024. Sources of information will be considered for inclusion within a multidisciplinary context to focus on the exchange of knowledge, advancing research and practice across health disciplines in the field of critical care. Each team member brings different perspectives to answering the review question. The mnemonic SALSA (search, appraisal, synthesis and analysis) are

suggested as the framework to examine the main review types.[3] In a scoping review, studies with diverse methodologies are included and analysed to collate the current knowledge base to develop best practice processes and identify knowledge gaps.[19] Scoping reviews are helpful for a comprehensive and broad analysis of literature when exploring an underexamined area of research.[20] A structured framework is followed to ensure transparency in the methodological and analytical decisions undertaken throughout the review. The framework includes six steps: (1) identifying a question; (2) identifying relevant studies; (3) study selection; (4) data charting and collating; (5) summarising and (6) reporting the results.[20]

## Step 1: identifying a question

After conducting an initial review of critical care literature and exploring methodologies used for the synthesis of literature regarding adults, the following research questions were identified.

1. What review methodology selection in critical care literature was used?
2. What topics and concepts were explored?
3. What assessment tools were used in individual reviews?
4. What frameworks were used for the synthesis of literature?
5. What were the types and levels of quality appraisal reported within the reviews?

## Step 2: identifying relevant studies

### Search strategy

A search of Scopus formed the initial search strategy to identify papers of interest in addressing the review topic. The text words contained within the titles and abstracts of relevant peer-reviewed published literature and the index terms used to describe the articles will be used to develop a full search strategy. The final search strategy will be implemented in four electronic databases: CINAHL/EBSCO, MEDLINE/PubMed, Scopus and Embase. These databases were selected to be comprehensive and cover a broad range of disciplines within the critical care context for peer-reviewed publications since 1 January 2018. Any relevant journals that were not indexed in these databases will be searched manually. A final search of the literature will include the screening of reference lists from papers previously selected for full-text review. The search strategy (shown in online supplemental appendix 1), including all identified keywords and index terms, will be adapted for each included database.

### Eligibility criteria

The eligibility criteria for inclusion in the scoping review are based on the population, concept and context (PCC). Sources reporting on adult studies (18 years of age and over or as defined within the paper) receiving critical care intervention will be considered for inclusion if they align with one of the review methodologies listed in table 1. Sources will be considered for inclusion within the context of evidence-based practice in intensive care units (ICUs) and in critical care settings. The selection of these fields is based on each of the researchers' areas of expertise, and any literature review of critical care within one of these fields will be considered for inclusion.

Sources based in the context of critical care and ICUs will be considered for inclusion. Critical care is delivered to people experiencing life-threatening injury or illness as medical care, including specialised treatment, usually in ICUs. Sources will be excluded based on the context of prehospital literature or prehospital research settings. Peer-reviewed published literature will be included with grey literature excluded due to the clinical nature of the research question. Scoping reviews, systematic reviews

**Table 1** Eligibility criteria mapped to the PCC

| | Inclusion | Exclusion |
|---|---|---|
| **Population** | Adults>=18 years of age or as defined by the information source. | Children or adolescents<18 years of age. Non-human subjects. NICU. |
| **Concept** | **Included methodologies**<br>► Umbrella reviews.<br>► Integrative reviews.<br>► Narrative reviews.<br>► Systematic reviews.<br>► Meta-analysis reviews.<br>► Cochrane reviews.<br>► Scoping reviews.<br>► Realist reviews. | Protocol papers, any review type not listed in the inclusion criteria and any non-review publication.<br>► Reviews that were a part of a research study or informed a research study that is, A scoping review and Delphi study. |
| **Context** | ICUs and critical care settings. | Prehospital setting. |
| **Type of source** | All included sources will be peer reviewed, full-text literature sources or primary sources of evidence, published in English.<br>Published between 1 Jan 2018 and 31 Dec 2023. | Grey literature (does not contribute to the clinical nature of the review question). Abstracts, posters, opinion, dissertation, discussion, letter to editors or magazine articles. |

ICUs, intensive care units; NICU, neonatal intensive care unit; PCC, population, concept and context.

and meta-analyses (top of the hierarchy of evidence and, hence, inform guidelines and clinical practice), literature reviews, narrative reviews and publications summarising literature that meet the inclusion criteria will be considered for inclusion. Following the advent of evidence-based practice and the proliferation of review papers, only reviews published from 2018 onwards will be included. The absence of translation services will mean that papers not published in the English language will be excluded.

### Step 3: study selection

All citations identified in the search will be imported to Endnote 20.1 (Clarivate Analytics). Duplicate citations will be removed before being uploaded to a web-based bibliographic manager (Rayyan) for independent screening of titles, abstracts and full-text review according to the inclusion criteria.[21] Titles and abstracts will be reviewed independently and concurrently for potential inclusion by at least two researchers. Potentially relevant sources will be retrieved in full-text form and imported to Rayyan. Full-text sources will be independently reviewed by two or more researchers against the inclusion criteria. Reasons for exclusion (PCC) will be recorded and reported in the scoping review. Any disagreement between the two researchers at the full-text stage will be resolved through discussion by the inclusion of a third reviewer. The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a PRISMA-ScR flow diagram (see figure 1).

### Step 4: data charting and collating

The data extracted will include the type of review, inclusion criteria and topic area, as per the data extraction tool shown in online supplemental appendix 2. This includes the review details, inclusion and exclusion criteria, details of the methods and results. A pilot of the data extraction instrument will be conducted. Feedback from the multidisciplinary research team will inform if modifications are required. Modifications made to the final data extra

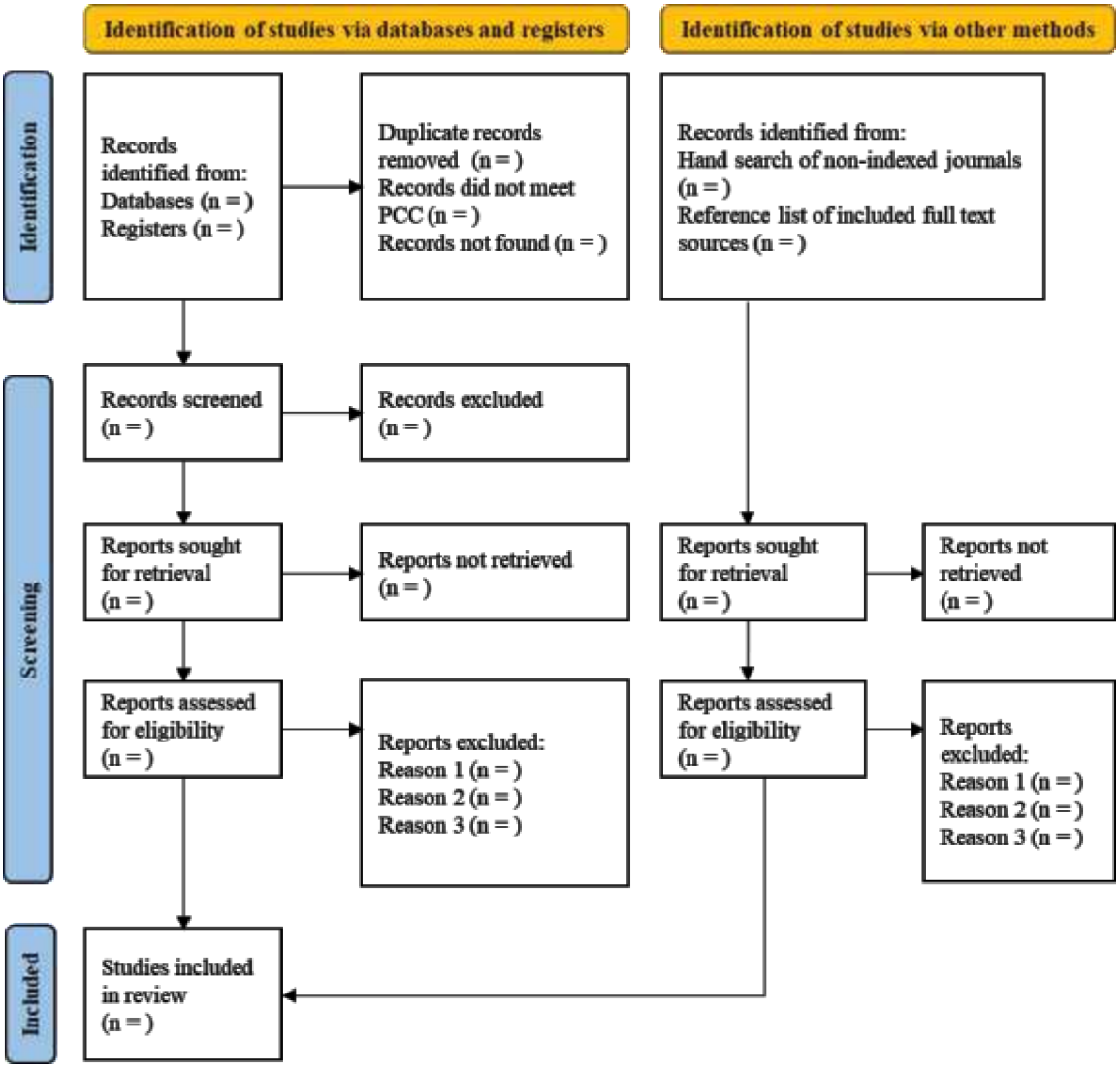


**Figure 1** Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram for the scoping review process (to be filled in final scoping review).

extraction instrument will be incorporated across the scoping review. Data will be extracted from included sources by at least one independent reviewer using the data extraction instrument developed by the research team. The data extraction will be reviewed by the other researchers to ensure the accurate representation of the included sources. Where required, the authors of papers will be contacted to obtain missing or additional data. As outlined by Cochrane training,[22] data extractors should have a basic understanding of the topic, knowledge of study design and analysis statistics, and it is recommended that more than one person extract data. This aims to minimise errors and potential bias. Relevant researchers in the team will review and extract data from sources that are relevant to their topic and area of expertise. Where the two reviewing researchers cannot reach consensus through discussion, the conflict will be resolved via adjudication with an objective third reviewer.

### Step 5: Summarising and (Step 6) reporting results

Following the aims and six-step framework outlined in this scoping review protocol, all data from included sources will be charted and summarised to be presented in tables and by narrative summary. Given the diverse range of literature review methodologies, those put forward by Farukh and Sajjad,[3] will guide the identification of methodology types.

### Patient and public involvement statement

Patient and public involvement was not necessary for the purpose of our scoping review.

### Ethics and dissemination

The proposed scoping review is intended to scope the breadth and map sources reporting the methodology of contemporary critical care literature reviews. Outcomes will be discussed in relation to the research question. In view of the expansion in the types of reviews undertaken in critical care literature, we believe that it is timely to examine and place scrutiny on review methodologies that inform clinical practice. We are not aware of a similar published scoping review with the same objective. A potential benefit of embarking on such a project may also identify the areas of practice where further research is needed. Since data will only be collected from existing publications of studies already in the public domain, the proposed scoping review does not require a separate ethics application. All datasets, technical appendix and search strategies will be made available on completion of the scoping review. Findings from the review will be disseminated in a scientific journal and a part of proceedings as a conference presentation. Ethics approval is not applicable for this scoping review.

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**Appendix 1: Search strategy (**a full search strategy for at least one electronic database**)**

| Line | Preliminary Medline (Ovid) search Strategy (executed 20.10.2023) | No. |
|---|---|---|
| 1 | TI ( (MH "Critical Care+") OR (MH "Critical Care Outcomes") OR (MH "Critical Care Nursing") OR (MH "Critical Pathways") OR (MH "Intensive Care Units") ) OR TI ( "critical care" OR Intensive Care Units/ OR Burn Units/ OR Coronary Care Units/ OR Recovery Room/ OR Respiratory Care Units/ OR Critical Care/ OR Early Goal Directed Therapy/ OR Critical Care Nursing/ OR Critical Illness/ OR Respiration, Artificial/ OR Ventilators, Mechanical/ ) OR TI ( "critical illness" OR "ICU" OR (((intensive or critical) adj3 (care or unit* or illness*)) or ICU or ITU or SICU or GICU or critical* ill* or (mechanical* adj4 ventilat*) or (intensive therapy adj (unit* or ward* or department*))).mp. ) | 46,840 |
| 2 | AB ( (MH "Critical Care+") OR (MH "Critical Care Outcomes") OR (MH "Critical Care Nursing") OR (MH "Critical Pathways") OR (MH "Intensive Care Units") ) OR AB ( "critical care" OR Intensive Care Units/ OR Burn Units/ OR Coronary Care Units/ OR Recovery Room/ OR Respiratory Care Units/ OR Critical Care/ OR Early Goal-Directed Therapy/ OR Critical Care Nursing/ OR Critical Illness/ OR Respiration, Artificial/ OR Ventilators, Mechanical/ ) OR AB ( "critical illness" OR "ICU" OR (((intensive or critical) adj3 (care or unit* or illness*)) or ICU or ITU or SICU or GICU or critical* ill* or (mechanical* adj4 ventilat*) or (intensive therapy adj (unit* or ward* or department*))).mp. ) | 107,725 |
| 3 | 1 OR 2 | 110,270 |
| 4 | TI ( "integrative" OR "narrative" OR "systematic" OR "meta" OR "scoping" OR "realist" OR "Cochrane" OR "Cochrane review") | 425,537 |
| 5 | AB ( "integrative" OR "narrative" OR "systematic" OR "meta" OR "scoping" OR "realist" OR "Cochrane" OR "Cochrane review") | 744,506 |
| 6 | (MM "Systematic Reviews as Topic") OR (MH "Meta-Analysis as Topic") OR (MM "Review Literature as Topic") | 27,353 |
| 7 | 4 OR 5 OR 6 | 845,319 |
| **8** | (MH "Child+") OR (MH "Adolescent") OR (MH "Infant+") OR "child" OR "adolescent" OR "paed+" OR "paediatric" | 4,328,324 |
| 9 | 3 AND 7 | 8,394 |
| 10 | (9 NOT 8) (Limit: 2018 - current) | 6,764 |

**Appendix 2: Data extraction instrument**

| **Review details** | |
|---|---|
| Review title: | Review type identified in title: ☐ No ☐ Yes: |
| Review objective/s questions/s: | |
| Author, year | |
| Country | |
| Participants | |
| Review type/method (Research question 1) | |
| Journal | ☐ Q1 ☐ Q2 ☐ Q3 ☐ Q4 Journal: |
| **Inclusion/Exclusion Criteria** | |
| **Population:** Adults | |
| **Concept:** Topic/Field | |
| **Context:** Critical care/ ICU | |
| **Type of evidence source:** Literature reviews | |
| **Details/Results extracted from source of evidence** | |
| How many studies included in final review and from what databases. | Number: Databases: |
| Topic of review. (Research question 2) | ☐ Intensive care units ☐ Critical care Topic: |
| Prospectively registered. | ☐ No ☐ Yes: |
| Bias or Assessment tool/s used. (Research question 3) | ☐ No ☐ Yes: |
| Frameworks used to synthesize literature. (Research question 4) | ☐ No ☐ Yes: |
| Types and levels of quality appraisal used. (Research question 5) | ☐ No ☐ Yes: |
| Recommendations for further research | |
| Gaps in literature identified | |