The barriers and facilitators to implementing screening in emergency departments: a qualitative evidence synthesis (QES) protocol exploring the experiences of healthcare workers [version 2; peer review: 1 approved, 1 approved with reservations]

Previously titled: The barriers and facilitators to screening in emergency departments: a qualitative evidence synthesis (QES) protocol

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Abstract

Background: Screening in the emergency department (ED) can identify individuals in need of targeted assessment and early intervention in the hospital or community setting. Time pressures, inadequate resources, poor integration of screening tools into clinical workflow and lack of staff training are barriers to successfully implementing screening in the ED. Tailored implementation processes and education programmes were identified as facilitators. The aim of this QES is to synthesise evidence pertaining to the barriers and facilitators to implementing screening in the ED. This review will focus on the experience of healthcare workers (HCWs) who are involved in this process.

Methods: A comprehensive literature search will be completed in Scopus, CINAHL, Medline, Embase, Pubmed and Cochrane library. Grey literature sources will be searched and include Open Grey, Google Scholar, Lensus Irish Health Repository, Science.Gov and Embase Grey Literature. Qualitative or mixed methods studies that include qualitative data on the experiences of HCWs will be included.
“Best fit” framework synthesis will be utilised to produce a context specific conceptual model to describe and explain how these barriers and facilitators may impact on implementation. An a priori framework of themes, formed from the existing evidence base, will inform the ultimate thematic analysis and assist in the organisation and interpretation of search results, ensuring the QES is built upon current findings. CASP will be utilised to quality appraise articles and GRADE CERQual will assess confidence in the QES findings. The screening, quality appraisal, data extraction and assessment of confidence in findings will be completed by two reviewers independently and in duplicate. Contingencies for conflict management during these processes will be outlined.

Conclusions: This synthesis, will offer a new conceptual model for describing healthcare workers’ experience of the barriers and facilitators that impact on the implementation of screening tools in the ED.

Registration: PROSPERO CRD42020188712 05/07/20

Keywords
Barriers and Facilitators, Emergency Care Settings, Screening, Screening Tools, Qualitative Evidence Synthesis, Stakeholder Experience, “Best Fit” Framework Synthesis
Introduction

The problem of ED crowding is well recognised and includes significant negative consequences, including adverse patient outcomes and staffs’ inability to adhere to evidence-based treatment (Morley et al., 2018). Older adults (over 65) with complex and chronic conditions have emerged as drivers of ED crowding; however, chronic illnesses and complexities among diverse adult populations have also posed a problem (Morley et al., 2018). Identification of these complex patients, adults and those classified as older adults, who are at increased risk of adverse outcomes such as ED re-presentation, functional decline and unplanned hospitalisation may offer one solution to tackle the problem of ED crowding (Kirk et al., 2016). Successful implementation of screening tools in ED settings would make it possible to identify those most at risk and target interventions for this vulnerable group (Kirk et al., 2016).

Screening is difficult to define succinctly as its implementation and processes are often context and population dependent (Weiner et al., 2019). In clinical practice generally, screening tools (with high sensitivity) are implemented to safely ‘rule-out’ those at low risk of a subsequent (adverse) outcome (Galvin et al., 2017). Screening within the ED can assist staff in identifying frailty and frailty risk, sepsis risk, functional decline and risk of adverse outcomes and falls risk among adults. This can assist staff in identifying those most in need of referral and specialized intervention. However, in a busy ED environment the implementation of screening can be problematic (Asomaning & Loftus, 2014). These tools vary in complexity, time needed to complete and resources required to administer. Successful implementation is dependent on pre-implementation adaptation and testing and staff education (McCusker et al., 2007). In the ED, uptake is likely impacted by competing interests and priorities and ease of use in the busy ED environment. It is essential to identify barriers and facilitators to the implementation of screening tools to ensure adequate uptake among staff and ensure systematic screening (Kirk et al., 2016).

In addition, screening tools are often integrated within care bundles, pathways and protocols and this must be taken into account when considering barriers and facilitators for implementation.

A lack of resources, poor adaptation of tools to local guidance and structure and a lack of distinction between screening and assessment tools have been cited in the literature as significant barriers to the utilization of screening tools in the ED (McCusker et al., 2007). Implementation of new practices within the ED have also proved to be problematic due to perceived irrelevance of screening in such a critical environment, time pressures, practice demands and a high level of stress and unpredictability (Asomaning & Loftus, 2014; Creswick et al., 2009; Tavender et al., 2014). The emphasis of flow culture within the ED also presents as a barrier, with staff resisting screening tools that do not support the flow of patients (Kirk & Nilsen, 2016).

Local culture has a significant impact upon professionals’ roles, responsibilities and identity, actions and sense making and provides different ways to perceive barriers and facilitators linked to new screening tools (Kirk et al., 2016). According to Kirk et al. (2016), it is vital to understand the local culture before any implementation strategy linked to screening tools is planned. In addition, researchers must understand how new tools make sense in a cultural context before planning any strategies (Kirk et al., 2016). Research demonstrates that multiple factors impact upon the screening process, many of which need to be explored at a local level to ensure optimal implementation. A number of primary research studies have been conducted to explore barriers and facilitators to screening in the ED. However, no study has attempted to synthesise the findings from these individual studies. A broader and updated perspective inclusive of organisational, professional and patient associated barriers and facilitators is warranted, justifying this broader review methodology inclusive of adult screening and multiple screening methods in the ED. The current evidence pertaining to this area is informed by healthcare worker experience predominantly which warrants a synthesis of their experience. A synthesis of the findings of all applicable studies will offer potentially broader application and generalizability of findings. Therefore, this review will explore qualitative evidence that pertains to healthcare workers (HCWs) experience of barriers and facilitators to implementing screening tools in the ED.

Methods

Protocol design

“Best Fit” framework synthesis (BFFS) produces context specific conceptual models which assist in explaining or describing the health behaviours or decision-making of patients or other groups using a pragmatic and transparent process (Dixon-Woods, 2011). In addition, this process can assist in generating programme theories relating to intervention effectiveness (Carroll et al., 2013). This method involves the creation of an a priori framework upon which thematic synthesis of primary research can be based. The framework is created utilising current models, theories and concepts that pertain to...
the topic under exploration; this framework is then utilised to inform the thematic synthesis of primary research studies identified during the review process (Carroll et al., 2013). This approach is often dependent on whether the framework is built upon emergent, established, refined or tentative theory and requires thoughtful consideration (Brunton et al., 2020). This interpretive methodology is deemed to be advantageous as it is reproducible, based on the current evidence base and, therefore, directly applicable to those who wish to inform practice or policy. This allows the reviewer to build upon existing models, from a potentially different but relevant population, and interrogate the testability, internal logic and fit within the evidence base (Carroll et al. 2011; Kelly et al., 2010).

In addition, BFFS is well suited to improvement work as an activity rich in theories, where behavioural, social, organisational and implementation theories and frameworks might all be considered relevant (Booth & Carroll, 2015). Two separate sets of inclusion criteria, searches and study selections must be established, one to identify models, theories and frameworks and one for populating the systematic review of primary qualitative research studies (Carroll et al., 2013) (Table 1). Both searches are conducted simultaneously but independently. At the framework synthesis stage, the two “strands” then join together. This process will be reviewed and supported by an independent reviewer and any conflicts will be reviewed by the wider review team.

Identification of relevant models or theories
Initially, a framework of *a priori* themes needs to be created. This will be achieved by employing the BeHEMoth strategy to identify relevant models and theories (Booth et al., 2013) (Table 2). CINAHL, MEDILINE, PsycINFO and PubMed will be interrogated using a combination of free text and database thesaurus/subject terms for the behaviour of interest and health context with terms for models and theories. Reviews, regression models or integrative models will be excluded by using database filters. Results will be dual screened (title and abstract) and the full text of potentially relevant publications will be retrieved and checked for relevance. Additional relevant citations may be sourced in the reference lists of all papers satisfying the inclusion criteria. Reporting of the search strategies will be represented on PRISMA flowcharts (Moher et al., 2009). The *a priori* framework will be formed through secondary thematic analysis of findings from studies identified through the systematic search and screening process. The Braun & Clarke (2006) framework will be utilised. This form of inductive analysis is grounded in the data, interpretive and consistent with the process for the “best-fit” methodology. In addition, it more accurately reflects the data assisting in the identification of differences and similarities between models or theories and name them as themes (Carroll et al., 2013). Definitions, based on the elements of the original papers, will support these themes (Carroll et al., 2013). This process will then form “concepts”.

Inclusion and exclusion criteria primary research studies
To ensure the relevance and specificity of included articles, the formulation of inclusion and exclusion criteria was completed collaboratively by LB, PM and RG and is reflected in Table 3. Studies which explore the experience of HCWs (e.g. doctors, nurses, midwives, allied health professional,

<table>
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<tr>
<th>Table 1. Inclusion criteria.</th>
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<tr>
<td><strong>Inclusion criteria</strong></td>
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<tr>
<td>Setting/population</td>
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<tr>
<td>Phenomenon of interest</td>
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<td>Design, evaluation or research</td>
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<th>Table 2. BeHEMoth strategy.</th>
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<tr>
<td><strong>Strategy</strong></td>
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<tr>
<td>Be - Behaviour of Interest</td>
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<td>H - Health Context</td>
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<tr>
<td>E - Exclusions</td>
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<tr>
<td>MoTH - Models or Theories</td>
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Table 3. Detailed inclusion and exclusion criteria.

<table>
<thead>
<tr>
<th>Criteria for selection</th>
<th>Included</th>
<th>Excluded</th>
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<tbody>
<tr>
<td>Types of article</td>
<td>Primary research as publication</td>
<td>Descriptive articles, literature reviews, systematic reviews, QES and integrative reviews</td>
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<tr>
<td>Types of studies</td>
<td>Qualitative studies utilising qualitative methods of data collection and analysis</td>
<td>Quantitative research</td>
</tr>
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<td></td>
<td>Mixed method studies that include qualitative component utilising qualitative methods of data collection and analysis</td>
<td>Qualitative components of studies that do not have distinct qualitative methods of data collection and analysis</td>
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<td></td>
<td>• Studies which pertain to paediatric screening or screening for domestic violence.</td>
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<td>• Studies which describe screening for mental health disorders or suicide risk.</td>
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<td>• Studies which pertain to triage screening or categorisation.</td>
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<td>Types of participants</td>
<td>Health care workers:</td>
<td>Informal carers/family members</td>
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<tr>
<td></td>
<td>Professionals (e.g. doctors, nurses, midwives, allied health professionals, pharmacists)</td>
<td>Health care staff who do not have direct patient contact (e.g. laboratory staff)</td>
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<tr>
<td>Types of settings</td>
<td>Emergency departments, acute assessment units (MAU, SAU, AAU)</td>
<td>General wards</td>
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<td></td>
<td>Non-workplace setting</td>
<td>Non-workplace setting</td>
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<tr>
<td>Types of outcomes</td>
<td>Barriers and facilitators to screening/assessment/triage of adults &gt;18yrs</td>
<td>(e.g. falls, functional decline, sepsis, frailty risk, pressure ulcer development, likelihood of readmission.</td>
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<tr>
<td></td>
<td>• Risk of adverse outcomes</td>
<td></td>
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<tr>
<td></td>
<td>• Risk of functional decline</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Potential trauma/injury or readmission</td>
<td></td>
</tr>
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</table>

AAU, acute assessment unit; MAU, medical assessment unit; QES, qualitative evidence synthesis; SAU, surgical assessment unit.

pharmacists) in ED settings (e.g. EDs and acute assessment units) which pertain to the barriers and facilitators of screening and the implementation of screening are suitable for inclusion in the review. Internationally, the ED screening and referral process varied with the inclusion of acute assessment units that were integrated into ED’s in some areas or part of the screening/referral process. Therefore, to ensure that all possible relevant publications were included, acute assessment units were included in both the inclusion/exclusion criteria and search strategy. The focus of this synthesis is on routine screening for physical illness and functional decline, with regards to the other types of screening that were excluded e.g. Screening for Domestic Violence, these did not appear to be routinely used and were quite case specific. To add, triage screening is a requirement in most ED’s and is consistent across most populations, our review pertains to those types of screening that have varying levels of uptake and require effective implementation and integration to ensure usage, therefore this type of screening was also excluded. As highlighted above, for the specific search for primary research studies, qualitative or mixed-methods will be eligible for inclusion. Studies must have used qualitative data collection (e.g. semi-structured interviews, observation) and analyses methods (e.g. thematic analysis, grounded theory). Peer reviewed journal articles or non-peer reviewed items including unpublished research articles and theses may be included. Grey literature sources including guidelines, reports and theses are also deemed suitable for inclusion and sourcing of these materials will be included in the search strategy. Quantitative studies and literature reviews are not deemed eligible for inclusion. Studies that pertain to the assessment/screening of adults (>18 years) will only be considered. Included studies must explicitly discuss factors that can impact on screening or the implementation of screening within the ED. If qualitative results can clearly be extracted from quantitative results, mixed-method/multiple-method studies can be included.

Search strategy primary and grey literature
In collaboration with a medical librarian, a systematic search strategy for six databases Scopus, CINAHL, Medline, Embase, Pubmed and Cochrane will be formulated. Grey literature
sources will also be included and are Open Grey, Google Scholar, Lenus Irish Health Repository, Science.gov and Embase Grey Literature sources. A multistep approach will be used to source primary literature. This will include keyword searching of electronic databases, using medical subject headings (MeSH) and specific database headings to further identify search terms, using truncation to broaden the search and ensuring all appropriate key words are used (Booth, 2016). Literature published in journals between 2009 and 2020 will be included. These dates were chosen to ensure the most up to date salient literature is sourced given the changes in healthcare and technology in recent years. In addition, our scoping search indicated that there are a number of contemporary studies related to screening processes in the ED. Therefore, we are focusing our search on sources published in the last 10 years to reflect the contemporary approach to screening in the ED. Certain terms will be truncated to ensure all spellings are captured. Specific database features will be utilised to enhance the search strategy e.g. refining the search using CINAHL, search queries and adjacency searching in Cochrane. A scoping search will be conducted to refine the search methods, identity all possible key terms, inform the formation of MeSH terms and ensure truncated terms are inclusive of all possible applicable terms/spellings are captured. For example, the terms screening and assessment are not interchangeable, however, a scoping search of the literature suggested that a search for both screening and assessment tools was warranted to ensure that all suitable publications were included in the search results. Please see Table 4 for sample Medline search string that may require refinement as the search strategy progresses. The Boolean terms of AND, OR and NOT will be utilised to expand or specify the search as required. The search string below was formed after refinement of a scoping search where initial searches utilising AND yielded large numbers of results with a limited number of relevant results. The use of OR to provide more relevant results as indicated has been the most successful search string to date but this will require further testing and adaptation. Any changes will be indicated in the QES. The methodological filter was added in consultation with the medical librarian as a sensitive and specific filter and is a search filter resource provided under library guides under their systematic review search filters (https://dal.ca.libguides.com/systematicreviews/searchfilters).

Screening search results
All references will be imported into Rayyan (Ouzzani et al., 2016) and duplicates removed. LB and a second independent reviewer (PM) will screen titles and abstracts independently and in duplicate. Where conflicts emerge LB and PM will resolve these in a consensus meeting, RG will assist in decision-making should conflicts fail to be resolved. Full texts of the articles that remain will be retrieved for screening by LB and PM against the pre-defined inclusion/exclusion criteria. Full texts will also be screened independently and in duplicate. If required, authors will be contacted for further clarification and information. Similarly, any conflicts will be discussed and RG can assist with decision-making if conflicts cannot be resolved. This independent dual screening process will make up part of the rigorous quality appraisal process where each article will be appraised using CASP and confidence in synthesized findings will be assessed using GRADE CERQual.

Quality appraisal and data extraction
The quality of all included studies will be assessed using the Critical Appraisal Skills Programme (CASP, 2018). Noyes et al. (2019) offered guidance on the critical aspects of the appraisal process from the Cochrane Qualitative and Implementation Methods Group. They advised that appraisal should include clarity with regards to research aims and questions, congruence between the research design and methodology and the research aim and question, rigor of case and/or participant identification, sampling and data collection to answer the research question and appropriate application of the methods, which includes research reflexivity and richness/conceptualisation of the depth of findings. The appraisal will be carried out independently and in duplicate by RG and LB. Data for analysis will be extracted by either verbatim quotation from study participants or findings reported by authors that are clearly supported by study data. A link to the data extraction table is included below. Google forms will be utilised and contain a section pertaining to the aim, background, setting, population and type of screening being explored. This will offer implementation

<table>
<thead>
<tr>
<th>OR</th>
<th>Screen* OR Screening Too* OR Screening Instru* OR Screening Mea* Assessment* OR Assessment Tools OR Assessment method OR Assessment Strategy OR Clinical Assessment OR Clinical Assessment Tools*</th>
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<tr>
<td>OR</td>
<td>Emergency department* OR Emergency room OR Emergency Ser* OR Emergency Care* OR Emergency Medi* Accident and emergency OR Accident &amp; emergency OR a&amp;e OR a &amp; e qualitative OR experience* OR perception* OR perspective* OR case stud* OR interview* OR focus group* OR mixed methods OR participant observation OR transcript* OR ethnograph* OR phenomenon* OR grounded theor* OR grounded-theor* OR purposive sample OR lived experience* OR narrative* OR life experience* OR life stor* OR action research OR observational method OR thematic analysis OR narrative analysis OR field stud* OR field-notes OR video-recording</td>
</tr>
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</table>

Table 4. Sample Medline search string.
and contextual details. These data will be coded against the a priori concepts. Therefore, new themes are generated from evidence that was not already captured by this framework. These new themes will be based on reviewer’s interpretation of the evidence and comparison across studies. Dual checking for consistency of extraction across studies and coding of results data for all papers against the a priori concepts derived from the relevant conceptual model will also be undertaken by LB and PM. New themes for evidence or findings that cannot not be accommodated will be analysed using the Braun & Clarke (2006) thematic analysis framework. Following quality appraisal, data from low quality studies will also be extracted as, although they be of lower quality, they may still contribute data to the formation of themes where first and second order constructs from other more credible sources may enhance confidence in these thematic findings along with the evidence from these lower quality studies.

Link to Data Extraction Google Form


Synthesis and conceptual model
The final list of concepts will be synthesized with reference to the extracted data from the included studies, to construct a new evidence based conceptual model regarding the barriers and facilitators to screening in the emergency department (Carroll et al., 2013). Data extraction will be facilitated within Google forms, where the a priori framework will be represented in individual categories. Themes and representative quotations from the primary research studies and grey literature sources will be categorised along with the a priori foundational themes. Firstly, a simple list of defined themes, underpinned by the evidence from the included studies, and any new themes generated by the thematic analysis of any primary research that falls outside of the a priori framework will form a conceptual framework. Relationships between individual concepts will then be explored with reference to the evidence; this will then lead to a clustering of concepts and the creation of a new conceptual model describing and reflecting the behaviour of interest, representing the foundational model and theory in conjunction with the themes and concepts extracted from the primary data (Carroll et al., 2013).

Purposive sampling of included studies
A QES aims for a greater variation of concepts through analysis and synthesis versus an exhaustive sample that avoids bias (Ames et al., 2017). Therefore, larger study numbers can negatively impact on the quality of analysis and synthesis in a QES (Ames et al., 2017). In addition, data saturation may be associated with the stage when the inclusion of further evidence provides little in terms of further themes, insights, perspectives or information in a qualitative research synthesis (Suri, 2011). Therefore, if larger numbers of studies are deemed suitable for inclusion after screening, a purposive sample from eligible studies may be taken after extraction of the relevant data. This can be undertaken collaboratively by three review team members, PM, LB and RG. If required, maximum variation sampling will be undertaken with the aim of achieving the broadest possible variation within the included studies (Suri, 2011). The sampling criteria and purposive sampling frame will then be formulated based on the results of the screening and data extraction. The ultimate goal is to ensure that rich data is captured and, consequently, that review objectives and aims are met. Employing maximum variation sampling can assist research syntheses in identifying essential and variable features of a phenomenon, as experienced by diverse stakeholders among varied contexts a QES (Suri, 2011).

Confidence in QES findings
The Grading of Recommendations Assessment, Development and Evaluation (GRADE) Confidence in Evidence from Reviews of Qualitative Research (CERQual) approach will be used to enhance transparency and confidence in reporting of QES findings. Its use is evidence-based and there are extensive resources to support reviewers in using this approach. GRADE CERQual supports the use of QES findings in decision-making, guideline and protocol development and to inform further research (Houghton et al., 2017). Four components are assessed during the GRADE CERQual process: Methodological Limitations, Coherence, Relevance and Adequacy.

The methodological limitations component will be satisfied using the CASP appraisal tool. This approach also assesses the coherence and relevance of individual review findings and in this case will indicate how major themes and sub-themes reported are grounded in the data included from primary studies and is applicable to the overall review aim (McGrath, 2019). The quantity and richness of the data supporting the review findings will also be assessed using this approach to ensure adequacy. Therefore, at this stage the contribution of lower quality papers, to the formation of themes, will be assessed in conjunction with that of more credible findings from higher quality studies. This will result in the assessment of overall confidence in review findings, taking into account the studies which informed each finding and their strengths and weaknesses. The GRADE CERQual process will be undertaken by LB and PM and reviewed by RG, and areas of concern will be pin-pointed for each component (Table 5). RG will check individual review findings for adequacy, relevance and coherence. Each phase will be discussed by the reviewers and conflict resolution will be attained through discussion and consensus.

CERQual summary of findings tables will be populated for each review finding and will include the specific review finding under scrutiny, the assessment rating (very low, low, moderate or high confidence), rationale for this assessment and the number of studies that contributed to this review finding or theme (Colvin et al., 2018; Glenton et al., 2018). The applicable QES objective and the perspective taken in the synthesis will also be included in the table to give context to the analysis of each individual finding/theme. All findings are recommended to start off with high confidence and are rated down if there is any concern re CERQual components (Lewin et al., 2015). The
Reviewers will remain mindful of possible interactions across components and look iteratively to make a final assessment (Lewin et al., 2015).

**Reflexivity**

For the purposes of this synthesis, the findings will be considered in the context of research team members’ views and experiences (Larkin et al., 2019). LB, PM, RG and SMT have backgrounds in health science and health services research. The authors have operated within the Irish and other healthcare contexts, one in allied health (RG) and three in nursing and midwifery (LB, PM, SMT). All four of these authors have experience pertaining to qualitative evidence synthesis, with one author having particular expertise pertaining to QES (PM). RG has expertise pertaining to screening in the ED. In relation to analysis, the lead researcher conducting the analysis (LB) also has expertise pertaining to screening in the ED but works outside of the ED as a nurse researcher. Two authors have expertise and experience in ED clinical assessment, development of screening protocols and change management within the ED (DR, MOC). As reflected in this protocol, authors will discuss, examine and consider the significance of their beliefs, attitudes and preconceptions surrounding the research question and methodology during each stage of analysis (Larkin et al., 2019). At regular intervals throughout the process, team members will meet to discuss the review process and findings in relation to their contextual significance and changes will be made by consensus to ensure that individual bias will not impact on the process. Strict adherence to the methodological process outlined will limit bias along with this approach to reflexivity.

**Dissemination of QES findings**

Findings will be submitted to a peer-reviewed journal for publication. Dissemination of results among stakeholders and members of the research project team will be via oral presentation. Relevant international academic conferences in the areas of emergency and acute care and the care of older people will also be targeted. Dissemination of research findings to local and national health service management will be achieved through online platforms, video conferencing and targeted dissemination to key stakeholders via e-mail where appropriate.

**Review status**

Database searching for primary research studies is ongoing in conjunction with searching to formulate the *a priori* framework.

**Data availability**

Underlying data

No underlying data are associated with this article.

**Reporting guidelines**


Data are available under the terms of the Creative Commons Attribution 4.0 International license (CC-BY 4.0).


Open Peer Review

Current Peer Review Status:  

Version 2

Reviewer Report 15 March 2021

https://doi.org/10.21956/hrbopenres.14314.r28887

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Patrick Cotter  
1 Emergency Department, Cork University Hospital, Cork, Ireland  
2 School of Nursing & Midwifery, University College Cork, Cork, Ireland

Thank you to the authors for their detailed reply to the comments on the first version of this paper. This proposal is much clearer in all aspects except for the search strategy.

In terms of the search strategy, the proposal would benefit from a little more clarity. While it is stated that the search strategy is not yet finalised and that a scoping search is ongoing, the final search, from 2009 - 2020, doesn't quite make sense especially when the authors state that the search will cover the previous 10 years. If the search is being proposed working back from 2021 might be more appropriate. The sample search string in table 4 should be examined again prior to indexing in consultation with the team's medical librarian.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Emergency, Advanced Nursing Practice.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Reviewer Report 09 March 2021

https://doi.org/10.21956/hrbopenres.14314.r28886

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Andreas Xyrichis
Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, Kings College London, London, UK

Thank you for revising this work, and outlining the changes made so clearly. My main concerns with this revision centre on the search:

1. I am not sure I understand the point of searching both PubMed and Medline.

2. It is stated that the search will be limited to sources published in the last 10 years, but the timeframe given is for 11 years (2009-2020). Also, why not 2021?

3. The reason for applying a time limit on the search is not clear; what exactly happened in 2009 for it to be a cut-off point. If there is no strong rational, then I suggest the limit is removed and the authors screen all their results.

4. It is stated that "initial searches utilising AND yielded large numbers of results with a limited number of relevant results." This is confusing, since AND is subtractive - using AND increases the specificity of the search, thereby reducing the number of results.

5. Table 4: Combining across these sets with OR is incorrect; the search will retrieve papers either about Emergency Departments or screening tools - you actually want papers about both EDs AND screening tools.

6. Table 4: The search includes many redundant terms. For example, in the first group ‘facilitators*’ is included twice. Also, the truncation does not look to be at the right place. See where the same word is repeated in the search for clues on how to streamline the search.

Before the protocol is indexed, I suggest an information specialist is consulted and the search finalised.

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Evidence synthesis methodologies.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.
Patrick Cotter
1 Emergency Department, Cork University Hospital, Cork, Ireland
2 School of Nursing & Midwifery, University College Cork, Cork, Ireland

This article reports on a protocol to synthesise evidence pertaining to the barriers and facilitators to implementing screening tools in the Emergency Department (ED).

**Background, Rationale and Objectives**

In the introduction the authors give a background to their proposed Qualitative Evidence Synthesis (QES) with the specific context of ED crowding. They focus on older adults in ED highlighting the complexity of this patient group. Screening this client group in ED, according to the authors, would help minimise adverse outcomes and ensure effective and efficient streaming of patients to appropriate resources. It must be noted that no other patient group was mentioned in the background creating the expectation that this review would focus on older adults in ED. The authors proceed to identify some of the significant barriers to the successful implementation of screening in ED. Included as a barrier to the utilisation of screening tools in ED was the ‘lack of distinction between screening and assessment tools’. The authors highlight that a broader view is justified inclusive of organisational, professional, and patient associated barriers and facilitators. These are important assertions by the authors when considering the search strategy and inclusion criteria for the review. The authors identify that the review will explore qualitative evidence pertaining to stakeholders' perspectives, perceptions and experiences of barriers and facilitators to implementing screening tools. While this statement appears to be the aim of the review it is not as specific as what is stated in the abstract (to synthesise the qualitative evidence). The aim of the review appears unclear impacting assessing the appropriateness of the methodological part of the article.

**Study Design and Methods**

Much detail is given on the methods proposed to conduct the review and these all appear to be in line with the chosen methodology. While justification for using the Best Fit Framework Synthesis was given by the authors some balance could have been achieved by reasons for excluding other forms of synthesis. This method is well described in the article with detail on inclusion and exclusion criteria, search strategy, study selection, quality appraisal and data extraction and synthesis. However, there are some inconsistencies within the methods.

**Inclusion Criteria**

Firstly, the inclusion criteria include both ED and acute assessment units (Table 1). It is not clear why acute assessment units would be included in a synthesis in relation to ED. However, in the BeHEMoth strategy (Table 2) the H-Health context is stated as Emergency Department. When sample search strategy is examined only terms related to ED are used, not acute assessment.

In the background the authors made a point of identifying the need to examine this issue from the perspectives of a number of stakeholders, however, only healthcare professionals are mentioned in the inclusion criteria. It is not clear why this population only would be included. Again, a clear question/aim generated from the outset would assist in this regard.

In the inclusion and exclusion of primary research studies section informs that only studies pertaining to the assessment/screening adults will be included. This does not correspond to Table 1 and introduces confusion as to why studies on assessment, which was previously identified as
different to screening, would be included. The detailed inclusion and exclusion criteria create further confusion. It is not clear why studies pertaining to domestic violence, mental health disorders, suicide risk or triage were excluded. In terms of participants, health care workers have been included but the term ‘professionals’ is somewhat misleading and should be replaced with a list of those professions who would be included. The exclusion of informal carers/family members (or any mention of patients) appears contrary to what is stated at the end of the introduction “(T)his review will explore qualitative evidence that pertains to stakeholders' perspectives, perceptions and experiences of barriers and facilitators to implementing screening tools in the ED”.

**Search Strategy**
The search strategy and sources are described. Interestingly, the authors have written this in the past tense suggesting that this search may have already taken place.

Terms for both screening and assessment have been included in the search strategy. These are not interchangeable terms and while screening may identify problems or issues it does not assess them.

**Reflexivity**
In this section of the article the authors discuss reflexivity in relation to four authors but six are listed on the paper. Reflexivity in relation to 2 other authors listed on the paper was not mentioned. The authors recognise that they have significant experience in relation to the subject area and state that they “will discuss and examine and consider the significance of their beliefs, attitudes and preconceptions”. However, beyond discussion and examination the authors do not specify how they will manage these throughout the review process.

**Conclusion**
The area of concern for the authors is worthy of investigation and an evidence synthesis would be useful. However, a lack of clarity from the background (giving the impression that the review will focus on older adults) and the unbounded question or aim impacts on the ability to make a judgement on the appropriateness of the design and methods. While the chosen method is well described, clarity on what is being examined (e.g. through PICO, SPICE etc) would have helped justify many of the fundamental elements of this protocol. This would have help clarify the inclusion criteria and search strategy ensuring only appropriate literature (studies, frameworks and policy documents) would retrieved and included in the synthesis.

**Is the rationale for, and objectives of, the study clearly described?**
Partly

**Is the study design appropriate for the research question?**
Partly

**Are sufficient details of the methods provided to allow replication by others?**
Partly

**Are the datasets clearly presented in a useable and accessible format?**
Not applicable
**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Emergency, Advanced Nursing Practice.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Author Response 05 Nov 2020

Louise Barry, University of Limerick, Castletroy, Ireland

Dear Dr Cotter, many thanks for reviewing this protocol.

**Background, Rationale and Objectives**

1. In the introduction the authors give a background to their proposed Qualitative Evidence Synthesis (QES) with the specific context of ED crowding. They focus on older adults in ED highlighting the complexity of this patient group. Screening this client group in ED, according to the authors, would help minimise adverse outcomes and ensure effective and efficient streaming of patients to appropriate resources. It must be noted that no other patient group was mentioned in the background creating the expectation that this review would focus on older adults in ED. The authors proceed to identify some of the significant barriers to the successful implementation of screening in ED. Included as a barrier to the utilisation of screening tools in ED was the 'lack of distinction between screening and assessment tools'. The authors highlight that a broader view is justified inclusive of organisational, professional, and patient associated barriers and facilitators. These are important assertions by the authors when considering the search strategy and inclusion criteria for the review. The authors identify that the review will explore qualitative evidence pertaining to stakeholders’ perspectives, perceptions and experiences of barriers and facilitators to implementing screening tools. While this statement appears to be the aim of the review it is not as specific as what is stated in the abstract (to synthesise the qualitative evidence). The aim of the review appears unclear impacting assessing the appropriateness of the methodological part of the article.

**Reply**

- Further clarification will be provided with regards to the population being focused on and further reference to the evidence that informs the need for this review will be added. Please see introduction Paragraph 1, Sentence 3. Adults and older people specified.
- As illustrated, this review has a broader aim with regards to screening in the ED and this focus will be emphasised further. The aim of the review will also be added to the abstract. See page 3 lines 4 and 5, Pg 3 Conclusions Section and Pg 4 Paragraph 3 Sentences 6, 7 and 8.
- With regards to the barriers and facilitators referenced, the background information referenced organisational, professional and patient associated barriers identified by those involved in the screening process i.e. healthcare workers. The current evidence pertaining to this area is informed by healthcare worker experience predominantly which warrants a synthesis of their experience to inform practice in this area. Please
see Pg 4 Paragraph 3 for further clarification of our rationale.

- To rationalise the methodological approach, the aim of the review is added to the background section of the abstract Pg 3, sentences 4 and 5 and Pg 4, Sentences 4-8.

**Inclusion Criteria**

1. Firstly, the inclusion criteria include both ED and acute assessment units (Table 1). It is not clear why acute assessment units would be included in a synthesis in relation to ED. However, in the BeHEMoth strategy (Table 2) the H-Health context is stated as Emergency Department. When sample search strategy is examined only terms related to ED are used, not acute assessment. Internationally, the screening process appears to be inclusive of acute assessment units which were in the background the authors made a point of identifying the need to examine this issue from the perspectives of a number of stakeholders, however, only healthcare professionals are mentioned in the inclusion criteria. It is not clear why this population only would be included. Again, a clear question/aim generated from the outset would assist in this regard.

**Reply**

- Internationally, the ED screening and referral process varied with the inclusion of acute assessment units that were integrated into ED's in some areas or part of the screening/referral process. Therefore, to ensure that all possible relevant publications were included, acute assessment units were included in both the inclusion/exclusion criteria and search strategy. Please see Pg 6, paragraph 2, sentence 1, 2, and 3 for clarification.

“Studies which explore the experience of HCWs (e.g. doctors, nurses, midwives, allied health professional, pharmacists) in ED settings (e.g. EDs and acute assessment units) which pertain to the barriers and facilitators of screening and implementation of screening are suitable for inclusion in the review. Internationally, the ED screening and referral process varied with the inclusion of acute assessment units that were integrated into ED's in some areas or part of the screening/referral process. Therefore, to ensure that all possible relevant publications were included, acute assessment units were included in both the inclusion/exclusion criteria and search strategy”

- This decision (Inclusion/Exclusion criteria) was made collaboratively by the research team with reference to the relevant evidence. This will be made more distinct to inform the rationale for our methodological processes. For the BeHEMoth strategy, and among other searches the term Emergency Department was truncated and acute assessment units were included in this broadened search term/stemming. Please see Pg 6, Paragraph 2, Sentence 4.

“To ensure the relevance and specificity of included articles, the formulation of inclusion and exclusion criteria was completed collaboratively by LB, PM and RG and is reflected in Table 3”

- Pg 9 Please see Search Strategy Paragraph for further Clarification

“A scoping search will be conducted to refine the search methods and identity all possible key terms and inform the formation of MeSH terms and ensure truncated terms are inclusive of all
possible applicable terms/spellings are captured. Please see Table 4 for sample Medline search string that may require refinement as the search strategy progresses. The Boolean terms of AND, OR and NOT will be utilised to expand or specify the search as required. The search string below was formed after refinement of a scoping search where initial searches utilising AND yielded large numbers of results with a limited number of relevant results. The use of OR to provide more relevant results as indicated has been the most successful search string to date but this will require further testing and adaptation. Any changes will be indicated in the QES. The methodological filter was added in consultation with the medical librarian as a sensitive and specific filter and is a search filter resource provided under library guides under their systematic review search filters (https://dal.ca.libguides.com/systematicreviews/searchfilters).

- The current evidence pertaining to this area is informed by healthcare worker experience predominantly which warrants a synthesis of their experience to inform practice in this area with rigorous findings. For this QES, our focus pertains to the screening process and implementation of screening, the need to consult with healthcare workers specifically due to this focus was outlined but this will be made more explicit to ensure clarity. This focus on healthcare workers is emphasised in the articles aim, background and methodology as highlighted in the first section. We accept that this was not clear in the first manuscript and have made revisions to address this.
- Please see further clarity of the rationale for our review focus. Pg, 4, Paragraph 3, Sentences 4-10, Background/Introduction of the Abstract.

**Search Strategy**

The search strategy and sources are described. Interestingly, the authors have written this in the past tense suggesting that this search may have already taken place. Terms for both screening and assessment have been included in the search strategy. These are not interchangeable terms and while screening may identify problems or issues it does not assess them.

**Reply**

- A scoping search was conducted to identify the terminology utilised internationally to refine the search strategy. The search was ongoing at the time of publication but the protocol will be amended to reflect the future tense. Certainly, the terms screening and assessment are not interchangeable, however, a scoping search of the literature suggested that a search for both screening and assessment tools was warranted to ensure that all suitable publications were included in the search results. For example, some assessment strategies/protocols were inclusive of a screening process but depending on the sensitivity of the search, or the keywords associated with the publication, it may not have been found without a search that was inclusive of both. Please see Pg 8/9 Search Strategy In the inclusion and exclusion of primary research studies section informs that only studies pertaining to the assessment/screening adults will be included. This does not correspond to Table 1 and introduces confusion as to why studies on assessment, which was previously identified as different to screening, would be included. The detailed inclusion and exclusion criteria create further confusion. It is not clear why studies pertaining to domestic violence, mental...
health disorders, suicide risk or triage were excluded. In terms of participants, health care workers have been included but the term ‘professionals’ is somewhat misleading and should be replaced with a list of those professions who would be included. The exclusion of informal carers/family members (or any mention of patients) appears contrary to what is stated at the end of the introduction “(T)his review will explore qualitative evidence that pertains to stakeholders’ perspectives, perceptions and experiences of barriers and facilitators to implementing screening tools in the ED”.

Reply

As detailed in section 3, pertaining to the inclusion of assessment and screening, this was done to ensure that all possible publications that pertained to screening were included. See page 6, sentence 3.

“Internationally, the ED screening and referral process varied with the inclusion of acute assessment units that were integrated into ED’s in some areas or part of the screening/referral process. Therefore, to ensure that all possible relevant publications were included, acute assessment units were included in both the inclusion/exclusion criteria and search strategy”

With regards to clarity for exclusion with regards to different types of screening. Triage screening is a requirement in the ED and is consistent across all populations, our review pertains to those types of screening that have varying levels of uptake and require effective implementation and integration to ensure use. Our aim is to identify the barriers and facilitators to the implementation of this screening. Certainly, it could be argued that triage related barriers and facilitators could be applicable but due to the requirement for it to be completed in EDs this impacted on the evidence as the barriers and facilitators pertained to usage mainly and not implementation. See page 7, sentence 1.

“To add, triage screening is a requirement in the ED and is consistent across all populations, our review pertains to those types of screening that have varying levels of uptake and require effective implementation and integration to ensure usage, therefore this type of screening was also excluded”

With regards to the other types of screening that were excluded, these did not appear to be routinely used and were quite case specific. Additionally, the barriers and facilitators pertaining to this type of screening centred around ethics, behaviours and legislation and were quiet distinct from that of screening for physical illness and functional decline which were also undertaken more routinely. The research team concluded that our focus should centre around the latter for the purposes of this review. Our focus is on screening for physical illness and functional decline and this will be made more explicit, the exploration of healthcare workers experience as distinct from stakeholders will also be added. Please see Pg 5, 6 Sentence 5 and 6.

“The focus of this synthesis is on routine screening for physical illness and functional decline, with regards to the other types of screening that were excluded e.g. Screening for Domestic Violence, these did not appear to be routinely used and were quite case specific”
Reflexivity

- In this section of the article the authors discuss reflexivity in relation to four authors but six are listed on the paper. Reflexivity in relation to 2 other authors listed on the paper was not mentioned. The authors recognise that they have significant experience in relation to the subject area and state that they “will discuss and examine and consider the significance of their beliefs, attitudes and preconceptions”. However, beyond discussion and examination the authors do not specify how they will manage these throughout the review process.

Reply

Further detail on maintaining reflexivity within the research group will be added. This will pertain to collaboration between team members on the analysis and synthesis of data in particular. Team members will discuss findings in relation to their contextual significance and changes will be made by consensus to ensure that their own beliefs, attitudes and preconceptions do not impact on QES findings. Strict adherence to the methodological process will limit bias along with this approach to reflexivity and this will be reviewed by the research group continuously.

- Please see addition to Pg 12 Reflexivity paragraph sentence 8 and Pg 13 Sentence 1 and 2.

Conclusion

- The area of concern for the authors is worthy of investigation and an evidence synthesis would be useful. However, a lack of clarity from the background (giving the impression that the review will focus on older adults) and the unbounded question or aim impacts on the ability to make a judgement on the appropriateness of the design and methods. While the chosen method is well described, clarity on what is being examined (e.g. through PICO, SPICE etc) would have helped justify many of the fundamental elements of this protocol. This would have help clarify the inclusion criteria and search strategy ensuring only appropriate literature (studies, frameworks and policy documents) would retrieved and included in the synthesis.

Reply

- Clarification with regards to the focus of the review will be included in the background of the article. Table 3 gives further clarity with regards to the exclusion/inclusion criteria, type of publications/population etc but this detail can be added to the paragraph that this references to add some further information.
- Further clarity with regards to the focus of the review is in the Background aspect of the Abstract, Pg 4 Paragraph 1 and 3 and Pg 6, Inclusion and Exclusion Criteria, Sentence 1 and 2. Further clarity with regards to the search strategy has been added on Pg 8 and 9, Sentence 10-15

Competing Interests: No competing interests were disclosed.
Andreas Xyrichis
Florence Nightingale Faculty of Nursing, Midwifery and Palliative Care, Kings College London, London, UK

This is an interesting QES protocol on factors influencing the implementation of screening tools in emergency departments. It is generally well-reported. Please see below some notes for your consideration:

Title: It is not clear from the title if the focus is on experiences or perceptions, or both. Given this is a QES it would make sense for this to be identified. I am also not sure about using 'barriers and facilitators', since often a factor/issue can act as either depending on context. The title is somewhat ambiguous since the focus of the review looks not on 'screening' in general, but rather implementation of screening tools.

Abstract: This should include the 'grey literature sources' to be searched. Any search limits (or lack of) should be noted (i.e. date, language). I presume the screening, quality appraisal and data extraction will be completed by at least two reviewers independently and in duplicate; in which case this should also be noted. Conclusions should focus on the intentions of the review, rather than prophesying what 'will' be achieved.

Introduction: This would be strengthened by giving the reader a sense of the strength of existing evidence. What kind of methodologies have been used? What is the quality level of the cited literature? A clarification/definition of what the authors consider as a screening tool would be helpful.

Methods: The section explaining the search strategy is written in past tense; if the search has already been completed in all databases then this should be noted; otherwise the paragraph should be written in future tense.

The justification for limiting the search to 2009 is unclear; why 2009 and not 2008 or 2010? How is a paper published on 31 December 2008 out of date compared to a paper published the very next day? The choice of year seems arbitrary and should be justified.

The search string is problematic: first, there is no use of Boolean operator AND; second, there seems to be a methodological filter tagged in the end which has not been discussed (who developed this and how has it been tested?). Please clarify.

On Screening, it is not clear if full text articles will also be screened independently (as they should).

It is not clear if low-quality papers will be retained or excluded following quality assessment, and how these will be handled. This should be made clear.
A pre-determined data extraction table should be included here. Given the focus on implementation, contextual details of the studies should also be extracted and the authors might want to consult an implementation framework such as the CFIR.

Also, while excluding non-English language articles is common this is rather problematic for qualitative questions that rely so heavily on context. The authors may want to consider using a 'light' translation of any papers not published in English, but which are deemed highly relevant. See for example methods in reference 1.

Good luck with your interesting study.

**References**

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**Is the rationale for, and objectives of, the study clearly described?**  
Yes

**Is the study design appropriate for the research question?**  
Yes

**Are sufficient details of the methods provided to allow replication by others?**  
Partly

**Are the datasets clearly presented in a useable and accessible format?**  
Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Evidence synthesis methodologies.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

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**Author Response 04 Nov 2020**

**Louise Barry,** University of Limerick, Castletroy, Ireland

Dr Xyrichi, many thanks for reviewing this qualitative evidence synthesis protocol. Please find a summary of your critique and our responses to same. All changes are tracked in the updated manuscript and the amendments are identified by line and page number.

- **Title:** It is not clear from the title if the focus is on experiences or perceptions, or both. Given this is a QES it would make sense for this to be identified. I am also not sure about using 'barriers and facilitators', since often a factor/issue can act as either depending on context. The title is somewhat ambiguous since the focus of the review
looks not on 'screening' in general, but rather implementation of screening tools.

We acknowledge the ambiguity of the title based on the reviewer’s comment. To this end, we have amended the title. The title has been changed from: The barriers and facilitators to screening in emergency departments: a qualitative evidence synthesis (QES) protocol to “The barriers and facilitators to implementing screening in emergency departments: a qualitative evidence synthesis (QES) protocol exploring the experiences of healthcare workers” See page 1, Line No 1. QES Title.

- **Abstract:** This should include the 'grey literature sources' to be searched. Any search limits (or lack of) should be noted (i.e. date, language). I presume the screening, quality appraisal and data extraction will be completed by at least two reviewers independently and in duplicate; in which case this should also be noted. Conclusions should focus on the intentions of the review, rather than prophesying what 'will' be achieved.

The abstract has been edited to include these pointers. See revised abstract lines:

“Grey literature sources that will be searched and include Open Grey, Google Scholar, Lenus Irish Health Repository, Science. Gov and Embase Grey Literature” See page 3, Line No 7.

“The screening, quality appraisal, data extraction and assessment in confidence in findings will be completed by two reviewers independently and in duplicate. Contingencies for conflict management during these processes will also be outlined” See page 3, Line No 12 and 13

Sentence reorganized to focus on the intentions of the review.

“This synthesis, will offer a new conceptual model for describing healthcare workers' experience of the barriers and facilitators that impact on the implementation of screening tools in the ED” See Page 3, Line number 14.

This line has been removed from the conclusion section of the abstract to maintain focus on the intentions of the review.

“The results of this review will inform practice and aid the development and implementation of change strategies to support the implementation of screening tools in the ED” See page 3, Line number 15 removed.

- **Introduction:** This could be strengthened by giving the reader a sense of the strength of existing evidence. What kind of methodologies have been used? What is the quality level of the cited literature? A clarification/definition of what the authors consider as a screening tool would be helpful.

The introduction section has been updated and expanded to take account of the reviewer suggestions.

These sentences were added to expand upon the definition of screening tools and enhance
the discussion around screening in the ED.

Screening is difficult to define succinctly as its implementation and processes are often context and population dependent (Weiner et al, 2019). In clinical practice generally, screening tools (with high sensitivity) are implemented to safely ‘rule-out’ those at low risk of a subsequent (adverse) outcome (Galvin et al, 2017).

“These tools vary in complexity, time needed to complete and resources required to administer” Added in Page 4, Line 1 and 2.

“In the ED, uptake is likely impacted by competing interests and priorities and ease of use in the busy ED environment” Added in Page 4, Line 5.

The focus of this evidence synthesis is clarified further here. Primary research studies pertaining to this topic exist, however, this review will synthesise the findings from these individual studies. A rigorous appraisal of the quality of the evidence will also be undertaken as part of this process.

“A number of primary research studies have been conducted to explore barriers and facilitators to screening in the ED. However, no study has attempted to synthesise the findings from these individual studies. A broader and updated perspective inclusive of organisational, professional and patient associated barriers and facilitators is warranted, justifying this broader review methodology inclusive of adult screening and multiple screening methods in the ED. A synthesis of the findings of all applicable studies will offer potentially broader application and generalizability of findings. Therefore, this review will explore qualitative evidence that pertains to healthcare workers (HCWs) experience of barriers and facilitators to implementing screening tools in the ED” Added in Page 4, Lines 17-21

Methods: The section explaining the search strategy is written in past tense; if the search has already been completed in all databases then this should be noted; otherwise the paragraph should be written in future tense.

A scoping search was conducted to refine the search methods but the search was not completed at the point of manuscript submission. This has been amended in the revised manuscript and written in the future tense. Search Strategy, Primary and Grey Literature Section. Pg 8, Lines 1-15, Pg 9, Lines 1 and 2.

Pg 8, Lines, 11-15 and Pg 9, Lines 1 and 2. Clarification of search strategy and use of Boolean method.

The justification for limiting the search to 2009 is unclear; why 2009 and not 2008 or 2010? How is a paper published on 31 December 2008 out of date compared to a paper published the very next day? The choice of year seems arbitrary and should be justified.

We acknowledge that the choice of year is somewhat arbitrary and will acknowledge this in the limitations. Our scoping search indicated that there are a lot of contemporary studies...
related to screening processes in the ED. At the time of commencement of the review, we focused on papers published in the last 10 years to reflect the contemporary approach to screening in the ED. This has been clarified in the methods section under search strategy where this has been added.

“In addition, our scoping search indicated that there are a number of contemporary studies related to screening processes in the ED. Therefore, we are focusing our search on sources published in the last 10 years to reflect the contemporary approach to screening in the ED” Added in Pg 8 Lines 6-8

○ The search string is problematic: first, there is no use of Boolean operator AND; second, there seems to be a methodological filter tagged in the end which has not been discussed (who developed this and how has it been tested?). Please clarify.

Clarification of search strategy and use of Boolean operators included in the search strategy primary and grey literature section.

“A scoping search will be conducted to refine the search methods and identity all possible key terms and inform the formation of MeSH terms and ensure truncated terms are inclusive of all possible applicable terms/spellings are captured. Please see Table 4 for sample Medline search string that may require refinement as the search strategy progresses. The Boolean terms of AND, OR and NOT will be utilised to expand or specify the search as required. The search string below was formed after refinement of a scoping search where initial searches utilising AND yielded large numbers of results with a limited number of relevant results. The use of OR to provide more relevant results as indicated has been the most successful search string to date but this will require further testing and adaptation. Any changes will be indicated in the QES” Pg 8, Lines, 11-15. Pg 9 Line 1

Clarification of the methodological filter added here

“The methodological filter was added in consultation with the medical librarian as a sensitive and specific filter and is a search filter resource provided under library guides under their systematic review search filters (https://dal.ca.libguides.com/systematicreviews/searchfilters)” Pg 9, Lines 3 and 4

○ On Screening, it is not clear if full text articles will also be screened independently (as they should). It is not clear if low-quality papers will be retained or excluded following quality assessment, and how these will be handled. This should be made clear.

We accept the ambiguity in relation to study selection. We have clarified this in the revised manuscript and confirmed that all full-text articles will be independently dual screened. Pg 9, Sentence No 7, under section Screening Search Results

“Full texts will also be screened independently and in duplicate”

To illustrate the screening process further, more detail was added to Pg 9 sentences No 4
and 5 under section Screening Search Results. Words in bold added.

“LB and a second independent reviewer (PM) will screen titles and abstracts independently and in duplicate. Where conflicts emerge LB and PM will resolve these in a consensus meeting”

After sentence 10 on Pg 9 the following was also added to give more clarity.

“This independent dual screening process will make up part of the rigorous quality appraisal process where each article will be appraised using CASP and confidence in synthesized findings will be assessed using GRADE CERQual”

As is usual with qualitative evidence synthesis, after appraisal, data from low quality studies are also extracted as although they be of lower quality they still may contribute data to the formation of themes where first and second order constructs from other more credible sources may enhance confidence in these themes along with the evidence from lower quality studies. This was added under appraisal and data extraction Pg 10 Sentence Number 12.

“Following quality appraisal, data from low quality studies will also be extracted as, although they be of lower quality, they may still contribute data to the formation of themes where first and second order constructs from other more credible sources may enhance confidence in these thematic findings along with the evidence from these lower quality studies”

This was added under the confidence in QES findings section to specify the management of low quality studies. Pg 11, Sentences 14 and 15.

Therefore, at this stage the contribution of lower quality papers, to the formation of themes, will be assessed in conjunction with that of more credible findings from higher quality studies. This will result in the assessment of overall confidence in review findings, taking into account the studies which informed each finding and their strengths and weaknesses.

- A pre-determined data extraction table should be included here. Given the focus on implementation, contextual details of the studies should also be extracted and the authors might want to consult an implementation framework such as the CFIR.

A link to the data extraction table has been included. Google forms were utilised and contained a section pertaining to the aim, background, setting, population and type of screening being explored. This will offer implementation and contextual details.

This was added under the appraisal and data extraction section. Pg 10 Under Sentence No 12
https://docs.google.com/forms/d/1IA4jXyX6tBjjTgfSsGkrhLGj9rwL1yVjQ2uxY8rZCLo/viewform?edit_requested=true

Pg 10 Sentence 5 and 6, this was added “Google forms were utilised and contained a section pertaining to the aim, background, setting, population and type of screening being explored. This will offer implementation and contextual details”
Also, while excluding non-English language articles is common this is rather problematic for qualitative questions that rely so heavily on context. The authors may want to consider using a 'light' translation of any papers not published in English, but which are deemed highly relevant. See for example methods in reference.

This is a very helpful comment and we have amended our approach to study selection based on this feedback. To this end, we will include non-English articles if they meet our pre-specified inclusion criteria.

This aspect was removed from Pg 6 Sentence No 5 and Table 3 Exclusion and Inclusion Criteria.

“Non-English language studies are not deemed eligible for inclusion”

Competing Interests: No competing interests were disclosed.