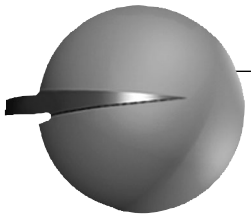

Original Article

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# The Development and Use of Evidence Summaries for Point of Care Information Systems: A Streamlined Rapid Review Approach

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**Keywords**
evidence summaries, evidence-based health care, point of care, rapid review, critical appraisal, rapid review, framework, systematic review, knowledge translation, evidence retrieval system

## ABSTRACT

**Background:** A systematic review of evidence is the research method which underpins the traditional approach to evidence-based health care. As systematic reviews follow a rigorous methodology, they can take a substantial amount of time to complete ranging in duration from 6 months to 2 years. Rapid reviews have been proposed as a method to provide summaries of the literature in a more timely fashion.

**Aim:** The aim of this paper is to outline our experience of developing evidence summaries in the context of a point of care resource as a contribution to the emerging field of rapid review methodologies.

**Methods:** Evidence summaries are defined as a synopsis that summarizes existing international evidence on healthcare interventions or activities. These summaries are based on structured searches of the literature and selected evidence-based healthcare databases. Following the search, all studies are assessed for internal validity using an abridged set of critical appraisal tools. Once developed, they undergo three levels of peer review by internal and external experts.

**Results:** As of November 2014, there are 2458 evidence summaries that have been created across a range of conditions to inform evidence-based healthcare practices. In addition, there is ongoing development of various new evidence summaries on a wide range of topics. Approximately 60–70 new evidence summaries are published every month, covering research in various medical specialty areas. All summaries are updated annually.

**Linking Evidence to Action:** Systematic reviews, although the ideal type of research to inform practice, often do not meet the needs of users at the point of care. This article describes the development framework for the creation of evidence summaries, a type of rapid review. Although evidence summaries may result in a less rigorous process of development, they can be useful for improving practice at the point of care.

## INTRODUCTION

Evidence-based practice has been defined as the "conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients" (Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996), and has largely gained acceptance internationally (Pearson, Wiechula, Court, & Lockwood, 2007). The systematic review of evidence is the research method which underpins the traditional approach to evidence-based health care. A systematic review extends beyond the subjective, narrative reporting characteristics of a traditional literature review by employing procedures to rigorously extract data from studies that have been included following assessment of their quality, and to synthesize, or combine, that data where appropriate (Munn, 2013; Munn, Tufanaru, & Aromataris, 2014).

As systematic reviews follow a rigorous methodology, they can take a substantial amount of time to complete, ranging in duration from 6 months to 2 years (Ganann, Ciliska, & Thomas, 2010; Khangura, Konnyu, Cushman, Grimshaw, & Moher, 2012). A further limitation is that the format of systematic review reports has been found to discourage the uptake of their results in practice due to their large and complex nature (Khangura et al., 2012; Rosenbaum et al., 2011). These factors have led to the development of the rapid review methodology (Grant & Booth, 2009). Rapid reviews have been proposed as a method to provide summaries of the literature in a more

timely fashion. There is currently no uniform methodology for conducting a rapid review, and apart from some notable exceptions, there is a lack of literature detailing their development methods (Ganann et al., 2010; Grant & Booth, 2009; Harker & Kleijnen, 2012; Khangura et al., 2012). Although the gold standard to inform clinical practice is a full systematic review, rapid reviews have been shown to "provide adequate advice on which to base clinical and policy decisions" (Watt et al., 2008, p. 1037).

Across health care, there are still acknowledged gaps in the translation or uptake of research evidence into clinical practice (Lang, Wyer, & Haynes, 2007; Pearson, Jordan, & Munn, 2012). This occurs due to the barriers that exist in clinical practice to the use of evidence, which are both numerous and variable, and occur at a number of different levels (National Institute of Clinical Studies, 2006; Pearson, Field, & Jordan, 2007). Many strategies have been trialed to address this evidence-practice gap, such as clinical information support and evidence retrieval systems. Clinical decision support systems are a known way of facilitating the transfer of evidence into practice (DiCenso, Bayley, & Haynes, 2009; Lang et al., 2007), as they integrate summarized evidence with the patient's medical record to provide recommendations specific to that patient's characteristics. These systems show great potential, and many are currently in development, although one limitation is that they require an electronic medical record (DiCenso et al., 2009; Lang et al., 2007). If these systems are not available, the next best thing to provide a clinician wanting to practice evidence-based health care is access to clinically relevant, regularly updated, preappraised summaries of the evidence (DiCenso et al., 2009; Lang et al., 2007; Scott et al., 2007).These summaries are often available in online evidence retrieval systems, which have been shown to improve the ability of clinicians to access evidence in responding to clinical problems (Westbrook, Coiera, & Gosling, 2005). The recent emergence of evidence summaries is in part a response to the lack of availability of easily accessible information in the right format on specific treatment options for a particular condition for end-users including patients and clinicians.

The Joanna Briggs Institute (JBI) has a well-established reputation as an independent provider in the area of evidence-based health care and knowledge translation (Science for action-based, 2012; Munn & Jordan, 2011; Pearson, Wiechula, Court, & Lockwood, 2007; Pearson et al., 2007). As one of the leaders in evidence synthesis methods and online evidence retrieval systems, the JBI has a background in the development of methods and methodology for rapid reviews and evidence summaries (Campbell et al., 2014; Munn, Kavanagh, Lockwood, Pearson, & Wood, 2013). Other organizations and groups have created their own methods for rapid reviews or evidence summaries (Butler, Deaton, Hodgkinson, Holmes, & Marshall, 2005; Harker & Kleijnen, 2012; Khangura et al., 2012). This paper outlines our experience of developing evidence summaries in the context of a point of care resource as a contribution to the emerging field of rapid review methodologies.

## METHODS

### Development of Summaries

Evidence summaries are defined as synopses that summarize existing international evidence on healthcare interventions or activities, and as with systematic reviews, standardization of methods is a significant marker of quality and reliability. All summaries developed by the Joanna Briggs Institute follow the same methods (Figure 1; Munn et al., 2013). These summaries are based on structured searches of the literature and selected evidence-based healthcare databases. At a minimum, the following electronic databases are searched using a range of keywords and subject headings appropriate to the specific topic:

- The JBI Database of Systematic Reviews
- The Cochrane Library (Including CENTRAL and the Database of Systematic Reviews)
- The Database of Abstracts of Reviews of Effects (DARE)
- Medline
- CINAHL

Summaries are ideally based on multiple systematic reviews; the search process is based on the JBI levels of evidence that preferences systematic reviews over single studies (Figure 2), ensuring that the "best available" evidence is incorporated in each summary (The Joanna Briggs Institute, 2014). When no systematic reviews are located, lower levels of evidence (prefering high level experimental and epidemiological research) are included.

Following the search, all studies are assessed for internal validity using an abridged set of critical appraisal tools (Table 1). The questions included in these tools are based on the critical appraisal tools used when conducting a JBI systematic review.

Once developed, they undergo three levels of peer review, first internally by other staff members, then by an international Corresponding Reference Group of healthcare professionals before being approved and signed off by a multidisciplinary Expert Reference Group. Clinician input and participation via reference groups with the development process ensures the highest priority practice areas are targeted first and that clinical relevance is established. Summaries are updated annually to ensure they reflect current evidence.

The current methods used for evidence summaries have evolved since they were first developed in the early 2000s.

Originally, there was only a minimal structure to the evidence summary with a question followed by two to three pages of free text. The evidence summaries are available in both HTML and PDF formats. Based on user feedback, to improve the transparency of methods, accessibility of evidence, readability, and usability of the summaries, the structure below was adopted and is currently in use (Figure 3). Methods



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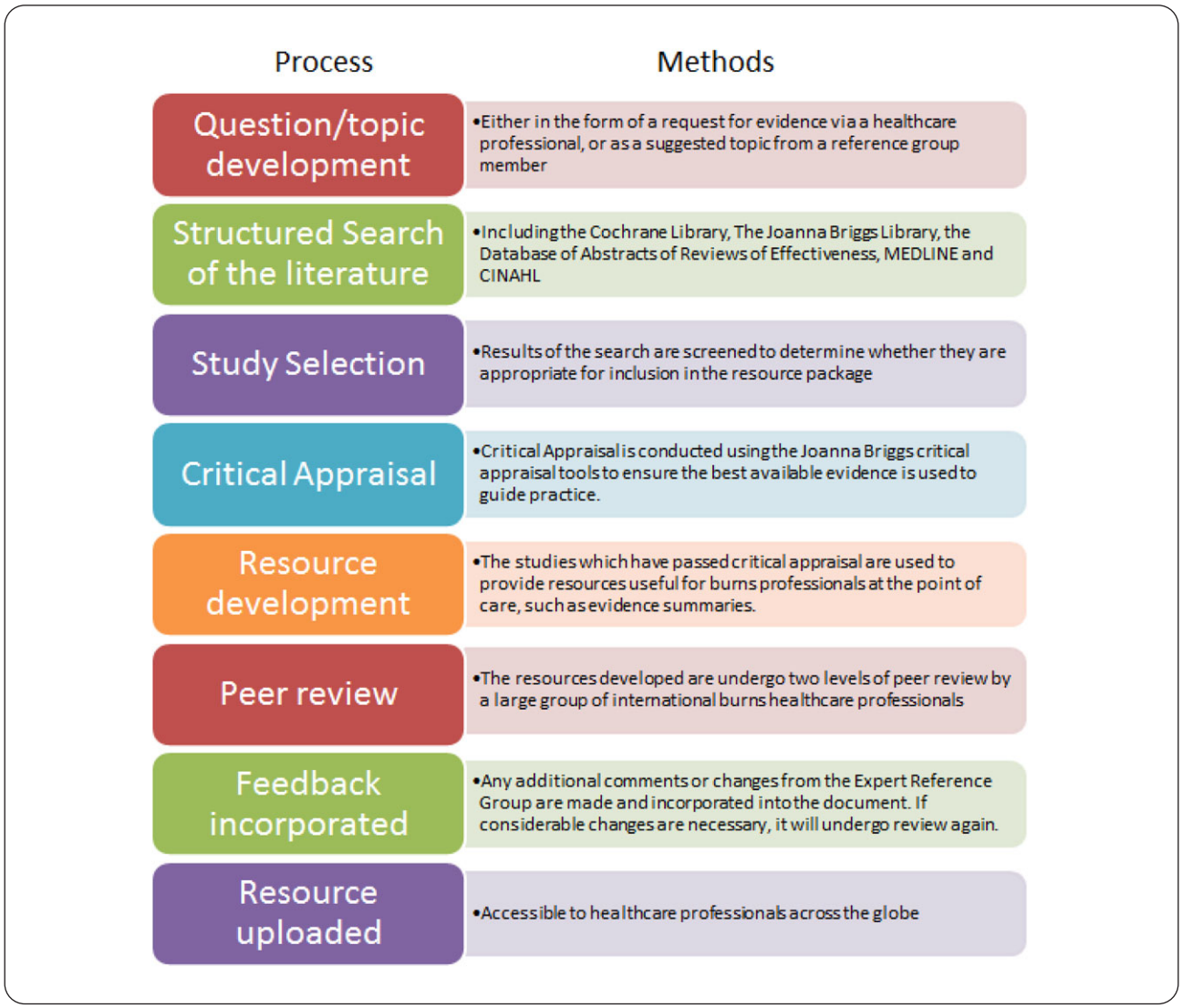


**Figure 1.** The development process.

used to develop the summary are not included in the current format, as it has been shown that policy makers prefer short, clear summaries, with key messages positioned at the beginning of the document (Rosenbaum et al., 2011). However, in the future the methods information may be incorporated into the summaries as an appendix.

- Title: Based on the PICO (Patient or Population, Intervention, Comparison, Outcome) structure for clarity and consistency across titles in the evidence summary range.
- Question: A clearly structured clinical question that highlights how the evidence relates to a specific clinical practice problem.
- Clinical Bottom Line: Provides a short background to the topic before summarizing the most important findings from relevant research.
- Characteristics of the Evidence: A description of the studies identified and included in the systematic review.
- Recommendations for Practice: Best practice recommendations with an assigned JBI Grade of Recommendation.
- References: Vancouver referencing is the preferred referencing method. JBI levels of evidence are assigned to each reference.

## RESULTS

The evidence summaries are assigned to particular healthcare specialties and are available as a database via a subscription to JBI@Ovid (Vardell & Malloy, 2013). As of November 2014, there are 2458 evidence summaries that have been created across a range of conditions for evidence-based healthcare

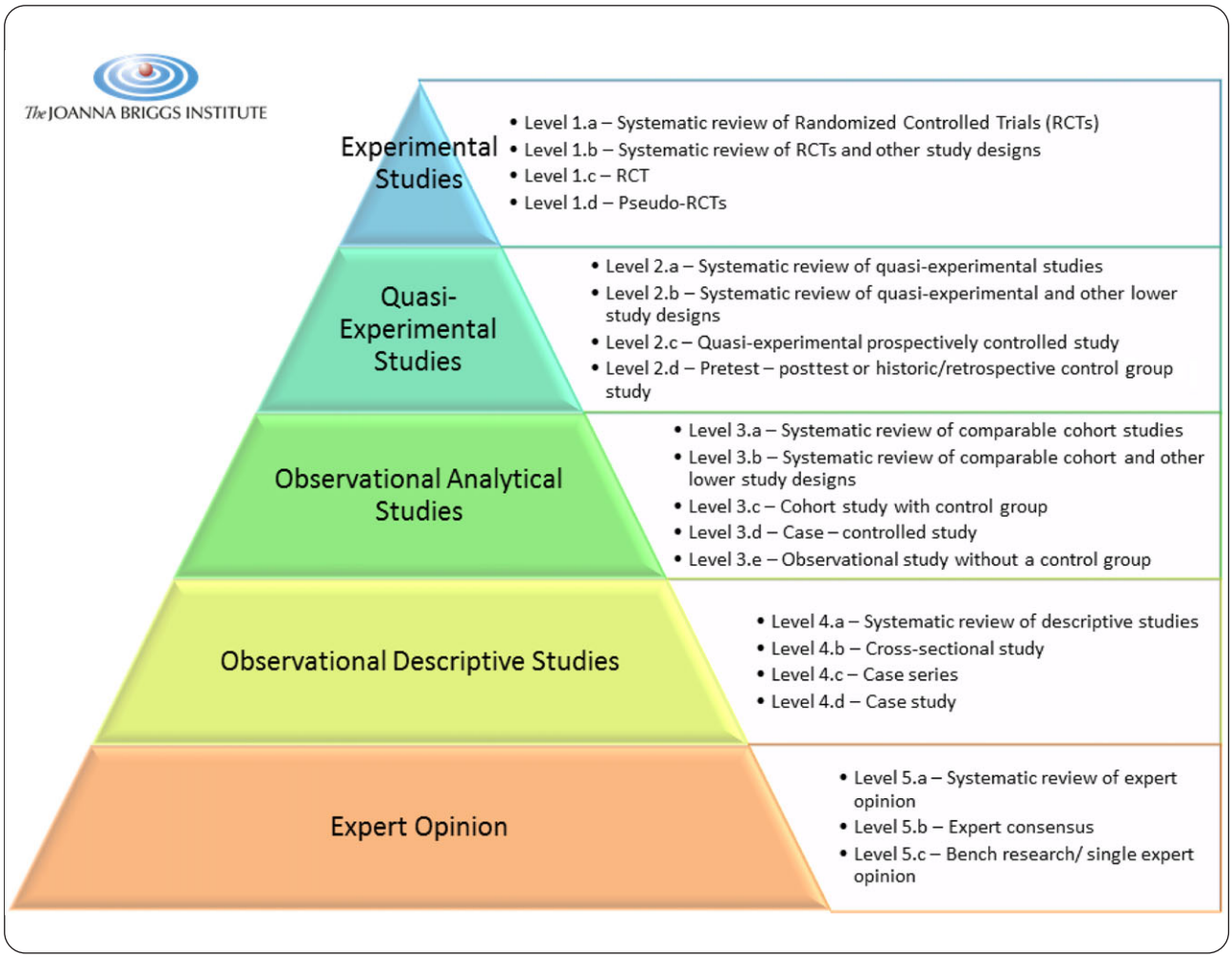


**Figure 2.** The Joanna Briggs institute levels of evidence for effectiveness (The Joanna Briggs institute, 2014).

practices. In addition, there is ongoing development of various new evidence summaries on a wide range of topics. Most summaries focus on effectiveness of interventions for certain conditions, but there are others that are more policy or management oriented. These evidence summaries assist with policy and practice-level decisions around assessment, prevention, and management. Every month, approximately 10–12 clinical inquiries are sent to JBI regarding summaries, and new summaries are developed based on topics suggested by experts in the field or from the public. Some of the evidence summaries developed based on the clinical inquiries by JBI members and clinical experts are at times used in their respective research work. At times, JBI is engaged by external funding agencies to develop new evidence summaries in a particular area of clinical interest involving appropriate consultation processes and engagement with the stakeholders which are then added to the database of summaries. These summaries are used to inform practice and policy-making decisions. Where relevant, these summaries are used as a basis to develop clinical audit criteria.

Approximately 60–70 new evidence summaries are published every month, covering research in various healthcare specialty areas. As the evidence summaries are updated annually, recently published literature is identified and included, ensuring the evidence summaries always reflects the best available evidence and are up-to-date. With the annual update, clinicians can use this information to make informed decisions about patient care particularly in cases where new treatments or interventions of proven benefit are identified.

## DISCUSSION

As with all rapid reviews, there is a balance between development time and rigor (Butler et al., 2005; Grant & Booth, 2009; Wyer & Rowe, 2007). It has been shown that the more rapid reviews adhere to systematic review methodology, the longer they take to complete. The actual time taken to develop rapid reviews or evidence summaries varies significantly in the literature (Harker & Kleijnen, 2012). Although some groups aim for a development period of 4–5 weeks, (Khangura et al., 2012) others such as NICE aim to take 13 weeks (National Institute



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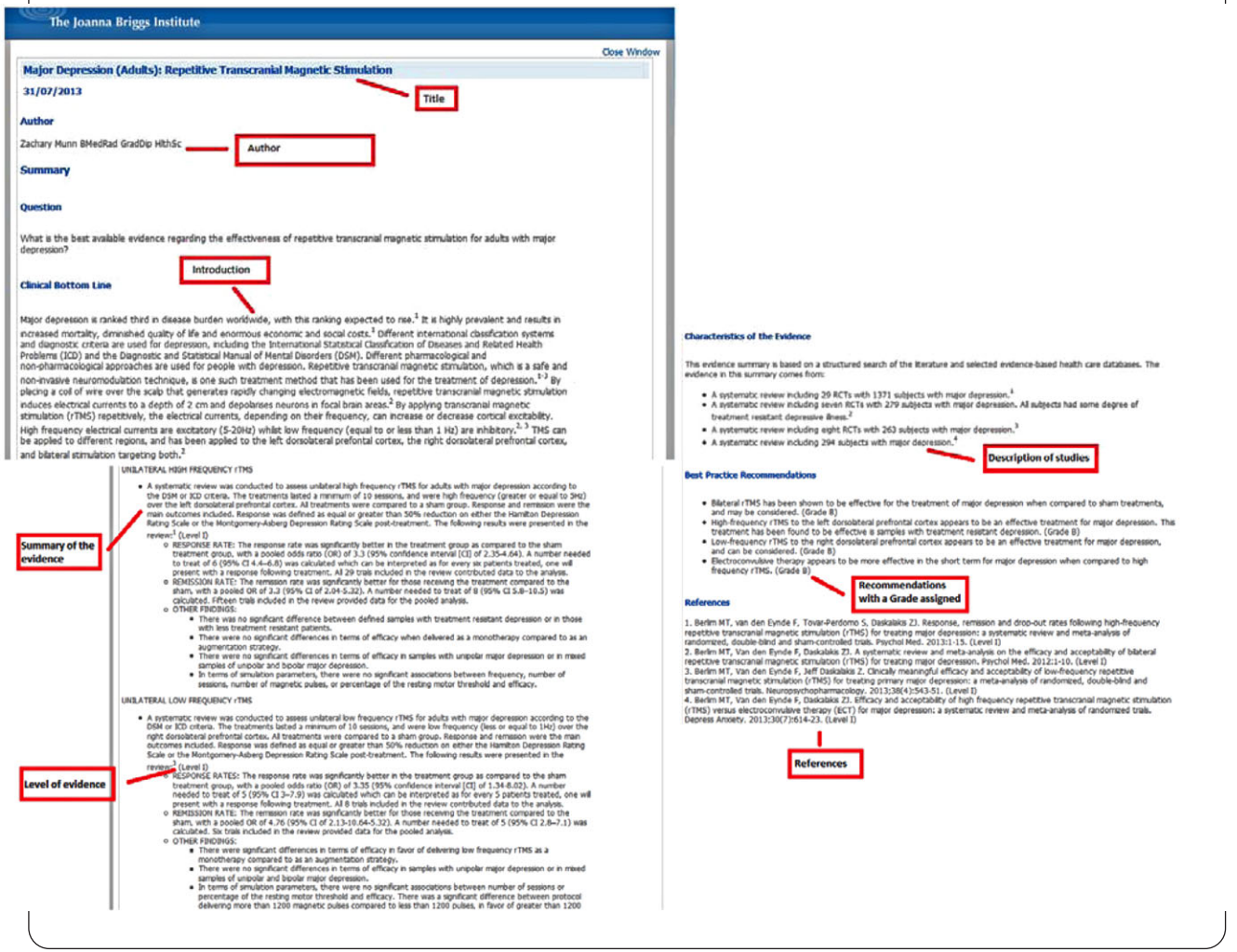


**Figure 3.** Evidence summary excerpt.



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**Table 1.** Quality Appraisal Criteria for JBI Evidence Summaries

| |
|---|
| Systematic Reviews |
| Is the review question clearly and explicitly stated? |
| Was the search strategy appropriate? |
| Were the inclusion criteria appropriate for the review question? |
| Were the criteria for appraising studies appropriate? |
| Was critical appraisal by two or more independent reviewers? |
| Were there methods used to minimize error in data extraction? |
| Were the methods used to combine studies appropriate? |
| Quantitative Evidence |
| Was there appropriate randomization? |
| Was allocation concealed? |
| Was blinding to allocation maintained? |
| Was incompleteness of data addressed? |
| Were outcomes reported accurately? |
| Qualitative Evidence |
| Was the research design appropriate for the research? |
| Was the recruitment strategy appropriate for the research? |
| Were data collected in a way that addressed the research issue? |
| Has the relationship between researcher and participants been considered? |
| Was the data analysis sufficiently rigorous? |

for Health Care and Excellence, 2013). Our approach aims for a rapid development cycle (e.g., within a week).

Evidence summaries are offered as part of a clinical information resource for clinicians (Facchiano & Snyder, 2012). As we offer a clinical information resource designed to be used at the point of care, we frequently receive requests from healthcare professionals asking for a summary of the literature on a certain topic, a service we provide freely to subscribers. In this way our evidence summaries are akin to rapid evidence assessments which are a quick, clean decision support tool (Butler et al., 2005). The need for clarity and transparency in methods is all the more important given the rapidity of development, and necessitates a robust internal and external peer review process. Clinicians require and expect a fast turnaround on the evidence requested to assist them in their daily work, in order for the evidence to be both timely and relevant to current health care practices.

As they are rapidly developed summaries, there is a risk of bias compared to systematic reviews which follow a more rigorous methodology (Harker & Kleijnen, 2012). A limitation is in the way the search is performed. Although they are based on a structured search across a number of databases, it is not as exhaustive as the search recommended to be undertaken during systematic reviews. Additional limitations include the use of only one researcher screening, selecting, appraising, and extracting data. Although all authors are experienced in review methodology, there is a possibility of human error when only one researcher is involved as compared to two or more. In addition, procedures to meta-analyze data are beyond the scope of this form of rapid review. Despite these limitations, the strength of these evidence summaries is that they are not solely based on a single review but include evidence from multiple sources (Schriger, 2000).

We are aware that our methods are distinct in the focus on immediacy of response, and focus on day-to-day clinical practice information needs for best practice (Ganann et al., 2010). We are constantly reviewing the format of our evidence summaries to ensure we are continually improving. As such we have created our own recommendations matrix for forming recommendations that has been informed by the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) approach (Goldet & Howick, 2013) but also taking into consideration the JBI FAME[c4] approach to evidence-based health care, which addresses the feasibility, appropriateness, meaningfulness, and effectiveness of clinical practices (Pearson et al., 2005; The Joanna Briggs Institute, 2014). As there is no universally accepted method for rapid reviews and evidence summaries, it is important that authors of these reviews continuously evaluate the methods utilized for rigor, transparency, and relevance to clinical practice (Ganann et al., 2010). Further research may be warranted to compare evidence summaries with full reviews and systematic reviews in terms of understanding, time spent reading and user satisfaction. This will lead to improvements in the development and the use of evidence summaries.

## CONCLUSIONS

It is imperative that health professionals have access to evidence at the point of care. This evidence needs to be in a format that is simple to digest and can provide guidance for practice. Systematic reviews, although the ideal research type to inform practice, do not meet all the needs of users at the point of care. This article describes the development framework for the creation of evidence summaries, a type of rapid review which has been designed explicitly with the needs of the user in mind. **WVN**

## LINKING EVIDENCE TO ACTION

- Systematic reviews, although ideal to inform practice, can take a significant amount of time to produce.



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- Results and findings of systematic reviews are not always in the format preferred by clinicians.
- Rapid reviews and evidence summaries are streamlined approaches to reviewing the evidence. However, this streamlined or rapid approach can result in a less rigorous process of development.
- Evidence summaries in particular can be useful for improving practice at the point of care.

## Author information

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