# DECONSTRUCTING RAPID REVIEWS: AN EXPLORATION OF KNOWLEDGE, TRAITS AND ATTITUDES

SHANNON E. KELLY

Thesis submitted to the Faculty of Graduate and Postdoctoral Studies in partial fulfilment of the requirements for the M.Sc. degree in Epidemiology

School of Epidemiology, Public Health and Preventive Medicine

Faculty of Medicine

University of Ottawa

"*The evolutionary race is not in fact won by the perfect, but by the good-enough*."
~Carl Zimmer

# ABSTRACT

'Rapid review' is an accelerated evidence synthesis approach that has emerged to meet the needs of knowledge users in healthcare settings who require timely input to support evidence-informed policy and practice questions. Although use of rapid reviews continues to expand, there is a paucity of research on this topic. This thesis addresses three identified knowledge gaps: 1) To address the lack of an established definition for rapid reviews, a modified Delphi process was used to pursue expert consensus on the defining characteristics of rapid reviews and an operational definition; 2) To further our understanding of the prevalent opinions and perceptions towards rapid reviews, a Q methodology was used to characterize the viewpoints of research producers and knowledge users; and, 3) To extend our knowledge on the characteristics, conduct and reporting quality of rapid reviews, compliance with currently accepted checklists (AMSTAR, PRISMA) was explored in a sample of recent rapid reviews.

# CONTRIBUTION OF THE AUTHORS

Three manuscripts have been prepared for publication as part of this thesis project. All manuscripts are co-authored by the student, and her co-supervisors, Dr. Tammy J. Clifford and Dr. David Moher. The student is the first author of all papers, having been primarily responsible for data collection, analysis and writing of the manuscripts. Drs. Clifford and Moher provided valuable feedback throughout the process and reviewed each manuscript in detail prior to submission.

# ACKNOWLEDGEMENTS

Dr. Tammy Clifford. Thank you for providing guidance, insight and support at every stage of this long process. I'm grateful for your mentorship and the motivational pep talks you so often delivered. You gave me a chance when I needed one most and let me go when I needed to go - I will be forever grateful for that.

Dr. David Moher. Thank you for all of the valuable advice and input you provided throughout this project. I am proud to have had the opportunity to work with you and look forward to collaborating in the future.

...and to you both. Thank you for your patience on a study of rapid reviews that was anything BUT rapid!

Patrick. For picking up my slack. For always being there, unconditionally. For lighting the fire I needed to finish. I could not have done this without your support.

Erin. You were the catalyst needed to start this long journey and the best giver of support hugs EVER.

To the rest of my family. You constantly sent words of encouragement and helped in any way you could – thank you.

To CADTH. For generously funding the first two years of my research. You will always be a friend.

Leigh-Ann Topfer. Thank you for the help with my literature search, your encouraging words and for keeping things going way past the statute of limitations for search updates.

Dr. George Wells. Your thoughtful advice and continued support mean so much to me. I am honoured to have you as a colleague, friend and mentor. I look forward to many more chai tea lattes together.

To all of the individuals who graciously donated their time and minds to this project. I hope someday I can reciprocate.

At the end, thanks to you, reader. If you are reading this line after the others, you at least read one page of my thesis. Thank you.

## ETHICAL CLEARANCE

This project was granted ethics approval by The Ottawa Hospital Research Ethics Board May 25, 2012 under protocol #20120143-01H through Dr. David Moher. The original letter of approval is in Appendix A of this report.

# TABLE OF CONTENTS

ABSTRACT ..... III

CONTRIBUTION OF THE AUTHORS ..... IV

ACKNOWLEDGEMENTS ..... V

ETHICAL CLEARANCE ..... VI

TABLE OF CONTENTS ..... VII

List of Tables ..... ix
List of Figures ..... ix

1. INTRODUCTION ..... 1

1.1 Rationale ..... 1
1.2 Objectives ..... 3
1.3 Significance of the proposed study ..... 4
1.4 Chapter summary ..... 5
1.5 References ..... 7

2. BACKGROUND ..... 9

2.1 Evidence-informed decision-making ..... 9
2.2 Challenges in evidence production ..... 12
2.3 Accelerating evidence synthesis: Rapid reviews ..... 15
2.4 Interest in rapid reviews ..... 17
2.5 Common themes ..... 19
2.5.1 Definition ..... 19
2.5.2 Nomenclature ..... 23
2.5.3 Production timelines ..... 24
2.5.4 Methods ..... 26
2.5.5 Approach ..... 31
2.5.6 Validity ..... 35
2.5.7 Attitudes and perception ..... 37
2.6 Overview ..... 40
2.7 References ..... 41

3. REPORTING AND CONDUCT IN 'RAPID REVIEWS' ..... 47

4. DEFINING 'RAPID REVIEWS' – AN EDELPHI CONSENSUS APPROACH ..... 112

5. EXPLORING ATTITUDES AND PERCEPTIONS ..... 147

6. DISCUSSION ..... 186

6.1 Research Summary ..... 186
6.2 Discussion ..... 186

6.3 Research Contribution ..... 191
6.3.1 Meetings and Workshops ..... 192
6.3.2 Publications ..... 194
6.4 Future Research Directions ..... 194
6.5 Strengths and Limitations ..... 197
6.6 Conclusions ..... 199
6.7 References ..... 200

7. APPENDICES ..... 202

APPENDIX A. RESEARCH ETHICS BOARD APPROVAL ..... 203

APPENDIX B. ADDITIONAL CONTENT – CHAPTER 3 ..... 204

Supplement 7-1. INAHTA Scan Questionnaire Results ..... 204
Supplement 7-2. Data Extracted for Rapid Review Samples ..... 210

APPENDIX C. ADDITIONAL CONTENT – CHAPTER 4 ..... 213

Supplement 7-3. Round 1 Online Questionnaire and Summary of results ..... 213
Supplement 7-4. Round 2 Questionnaire ..... 228
Supplement 7-5. Sample Round 3 Questionnaire ..... 234
Supplement 7-6. Invitation email sent to potential experts ..... 240
Supplement 7-7. Email sent to expert panel for Round 2 ..... 242
Supplement 7-8.Email sent to expert panel for Round 3 ..... 243

APPENDIX D. ADDITIONAL CONTENT – CHAPTER 5 ..... 245

Supplement 7-9. Invitation Letter ..... 245
Supplement 7-10. Thank You Reply to Participants ..... 246
Supplement 7-11. Online Materials – Introductory Page ..... 247
Supplement 7-12. Online Materials – Q Sort Table Set-up ..... 248
Supplement 7-13. Online Materials – Ancillary Questions ..... 248
Supplement 7-14. Q-sort correlation matrices ..... 251
Supplement 7-15. Factor loadings ..... 252
Supplement 7-16. Factor scores ..... 254
Supplement 7-17. Descending Array of Factor Differences ..... 261
Supplement 7-18. Statements not linked to any factor ..... 266
Supplement 7-19. Defining Statements for Each Factor ..... 267
Supplement 7-20. Open-text comments related to factor choices by Q sort ..... 269

# LIST OF TABLES

Table 2-1. Proposed INAHTA rapid review definition ..... 22
Table 2-2. Typology of rapid reviews proposed by Moher et al. ..... 32
Table 3-1. Characteristics of the Included Rapid Reviews. ..... 63
Table 3-3. Comparison of compliance to AMSTAR reporting guidelines. ..... 69
Table 3-3. Comparison of compliance to PRISMA reporting guidelines ..... 73
Table 4-1. Profile of the Expert Panel. ..... 128
Table 4-2. Proposed and final statements describing rapid review characteristics. ..... 131
Table 4-3. Summary of rapid review defining characteristics, based on expert opinion. ..... 135
Table 5-1. Profile of the producers and knowledge users. ..... 161
Table 5-2. Factor arrays ..... 164
Table 5-3. Q Factor characteristics ..... 165
Table 5-4. Statements showing agreement and disagreement across factors ..... 170

# LIST OF FIGURES

Figure 2-1. Steps in conducting a systematic review ..... 13
Figure 2-2. Rapid reviews on the evidence synthesis continuum ..... 21
Figure 2-3. Star chart depicting minimum and maximum time to completion, in weeks, for studies of rapid review samples found in the literature. ..... 26
Figure 2-4. Dimensions of standard systematic reviews that may be altered in rapid reviews ..... 29
Figure 2-5. The top-down evidence hierarchy approach employed by some rapid reviews ..... 33
Figure 3-1. Eligibility criteria for rapid review selection ..... 56
Figure 3-2. PRISMA flow diagram of rapid review sample selection ..... 62
Figure 3-3. Star chart depicting proportions of rapid reviews adequately reporting AMSTAR items ..... 67
Figure 3-4. Star chart depicting proportions of rapid reviews adequately reporting AMSTAR checklist items, by publication status. ..... 70
Figure 3-5. Star chart depicting proportions of rapid reviews meeting PRISMA reporting guidelines by item. ..... 72
Figure 3-6. Star chart depicting proportions of rapid reviews adequately reporting PRISMA items, by publication status). ..... 74
Figure 4-1. Flow Chart of the Modified Delphi Process. ..... 123
Figure 4-2. Box plot comparing time to completion for systematic reviews with rapid reviews, based on expert opinion. ..... 134
Figure 5-1. Steps in Q Methodology ..... 155
Figure 5-2. Fixed distribution for the Q-set ..... 162

# 1. INTRODUCTION

Health care decision-makers are under constant pressure to make timely, evidence-informed policy or practice decisions. These decision-makers, also called knowledge users, often rely on the rigour and comprehensiveness of systematic reviews or health technology assessments (HTA) to inform these processes. Although highly valued, there is a tension between evidence producers and users as the time required to complete a full systematic review of the literature often exceeds the time that end-users have to evaluate or incorporate evidence into their decision processes. The consequence is that decision-makers needs are often not met, decisions are made in the absence of evidence that would be provided from an evidence synthesis, and there may be impacts in political, social, or economic settings or to patients as a result. Additionally, this conflict may result in a decision being made with 'less-than-best' evidence, or no evidence at all (1). Rapid reviews have become increasingly popular as evidence producers struggle to balance the requirements of the decision-making process with the need for high quality, inclusive evidence summaries (2, 3).

## 1.1 Rationale

Despite a recent increase in research on rapid reviews, a paucity of knowledge in specific content areas exists (4-8). Rapid reviews have no established definition and there is no commonly accepted or validated methodology (9). Numerous approaches to rapid review have been cited in the literature, some a simple list of citations related to a research question and others resembling more comprehensive systematic reviews (4, 10). This range of approaches makes it difficult to differentiate rapid reviews from more fulsome or comprehensive systematic reviews or other evidence synthesis products. Decision-makers

using rapid reviews face a conundrum. They must decide whether it is acceptable to trade-off the timely receipt of evidence with the risk that altering evidence synthesis methods could introduce bias or yield incomplete information that could lead to erroneous decisions (11). This trade-off is often an explicit choice to employ less-rigorous methodological approaches at one or more review stages in order to expedite processes, with acceptance that study quality or validity could be influenced by these choices. Limitations or biases that may be introduced through the streamlining of systematic review processes are understudied, and it is unclear if or how these biases impact results. We know that decision-making must proceed without delay, and therefore, the trade-off is often use of 'good enough' evidence when it is not possible to wait for strong or 'best' evidence (12). The problem is that there may be no straightforward answer to what counts as good evidence.

Although opinions about rapid reviews abound, no formal study of these perceptions exists in the literature. Little is known about how evidence producers or knowledge users view or value rapid reviews and questions about appropriateness and validity continue to accompany statements reflecting the stigma that they are 'quick and dirty' systematic reviews. These views, coupled with challenges of producing dependable results with methods that are less time and resource intensive, have led to a call for additional primary research in this area (13).

There is a need to explore these issues in further detail to advance our knowledge on rapid reviews. While all of these matters cannot be addressed comprehensively in a single study, a better understanding of rapid reviews will benefit both evidence producers and knowledge

users, and ultimately provide further insight into the spectrum of common themes and issues associated with accelerating evidence synthesis processes.

## 1.2 Objectives

This thesis investigated the characteristics of rapid reviews and worked toward achieving an accepted definition of rapid reviews, and explored the perceptions and attitudes that both evidence producers and knowledge users (decision and policy makers at all levels) hold towards rapid reviews.

We identified the defining characteristics of rapid reviews using two discrete methods. First, by way of an iterative, consensus-based survey which examined what an expert panel of stakeholders felt were the essential traits of a rapid review. Following that, we evaluated how researchers structure, conduct and report rapid reviews to meet the needs of decision-makers using a cross-sectional review of journal-published and unpublished (grey literature) rapid reviews. Results from both studies were compared with the end goal of using the findings to inform and shape a comprehensive definition for rapid reviews.

In addition, this project also explored the individual attitudes that both evidence producers and knowledge users hold towards rapid reviews. Our goal of achieving a better overall understanding of how individuals value this form of evidence and identifying positive and negative attitudes may lead to improved uptake or knowledge transfer for rapid reviews.

To accomplish these objectives, the following questions were addressed:

1. What characteristics do evidence producers and knowledge users consider essential to defining rapid reviews?

2. What are the defining characteristics of published and unpublished rapid reviews identified in the literature?

3. What subjective opinions do evidence producers and knowledge users hold about rapid reviews?

4. How similar are the rapid review characteristics found in the published or grey literature when compared with those that an expert panel identifies. Is there a disconnect?

### 1.3 Significance of the proposed study

Producers and users of rapid reviews may have different views on what constitutes a rapid review. Opinions may also differ on the value of this form of evidence in evidence-informed decision-making processes. As a result, individual stakeholders may have a different understanding about the limitations or benefits rapid reviews can deliver. It is crucial to gain a better grasp on these issues so that evidence producers can continue to support health care decision-making, and so that policy-makers have the information they need to be confident in their use of evidence while accepting a comfortable level of risk. A clear, transparent, and sufficiently detailed definition of rapid reviews is necessary to solidify the placement of rapid reviews in the evidence continuum. Once defined, healthcare decision-makers will be better able to judge how much value to place on the evidence contained in a rapid review and research producers will be better able to communicate how this approach differs from other evidence synthesis methods.

## 1.4 Chapter summary

This thesis is structured into six chapters and has been formatted as a manuscript-based thesis.

The following is an overview of each chapter:

***Chapter One***

The current chapter, Chapter one, provides a rationale for the research project, describes the overall objectives and summarizes the chapter structure.

***Chapter Two***

Chapter two presents a background for the current research project based on a literature review of published articles on rapid reviews. Previous work in the area is described in context with common themes related to rapid reviews, and key knowledge gaps are described.

***Chapter Three***

Chapter three presents a manuscript based on the results of a detailed cross-sectional review of published and unpublished rapid review samples. A detailed evaluation of their study characteristics and compliance to PRISMA[1] and AMSTAR[2] checklists is presented.

***Chapter Four***

Chapter four presents a manuscript describing the results from a modified Delphi consensus study of experts knowledgeable in rapid reviews conducted to explore the defining characteristics of rapid reviews.

[1] Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA Statement.
[2] A Measurement Tool to Assess Systematic Reviews.

### *Chapter Five*

Chapter five presents a manuscript reporting a Q methodology study of research producer and knowledge user attitudes and opinions towards rapid reviews.

### *Chapter Six*

Chapter six provides an overall summary of the findings for each research project and summarizes the research contribution of this thesis. The results of the individual studies are presented in context with each other and the pivotal literature. Suggestions for future research are also described.

## 1.5 References


1. Hailey, D. M. The influence of technology assessments by advisory bodies on health policy and practice. Health Policy. 1993 Oct;25(3):243-54.

2. Ganann, R., Ciliska, D., Thomas, H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci. 2010;5:56.

3. Hailey, D, Corabian, P, Harstall, C, Schneider, W. The use and impact of rapid health technology assessments. Int J Technol Assess Health Care. 2000;16:651 - 6.

4. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E. AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

5. Khangura, S., Polisena, J., Clifford, T. J., Farrah, K., Kamel, C. Rapid review: an emerging approach to evidence synthesis in health technology assessment. Int J Technol Assess Health Care. 2014 Jan;30(1):20-7.

6. Moher, D. Do we need a rapid review reporting guideline? Is PRISMA-P helpful when generating a RR protocol? Available at: https://www.cadth.ca/sites/default/files/events/David-Moher_Publishing-Rapid-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet] February 2015.

7. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

8. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet]February 2015.

9. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. Int J Technol Assess Health Care. 2008 Spring;24(2):133-9.

10. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

11. Hailey, D. A preliminary survey on the influence of rapid health technology assessments. Int J Technol Assess Health Care. 2009 Jul;25(3):415-8.

12. Nutley S, Powell A, Davies H. What counts as good evidence? Research Unit for Research Utilization, University of St. Andrews. 2013. Available at: http://www.alliance4usefulevidence.org/assets/What-Counts-as-Good-Evidence-WEB.pdf. 2013.

13. Chalmers, I., Bracken, M. B., Djulbegovic, B., Garattini, S., Grant, J., Gulmezoglu, A. M., Howells, D. W., Ioannidis, J. P., Oliver, S. How to increase value and reduce waste when research priorities are set. Lancet. 2014 Jan 11;383(9912):156-65.

# 2. BACKGROUND

## 2.1 Evidence-informed decision-making

Evidence-informed decision-making is "the process of distilling and disseminating the best available evidence from research, context and experience, and using that evidence to inform and improve practice and policy" (1). Research evidence is just one of many important information sources feeding into these processes. Decision and policy-makers, commonly referred to as knowledge users, may be patients, allied health professionals, clinicians, healthcare managers, or local, regional or federal government payers or regulators, or those who inform them. At all levels, these knowledge users rely on evidence producers to take often unmanageable amounts of information on a particular topic or policy question and synthesize it into a functional summary based on a research question. In order to effectively support the knowledge users who rely on this evidence, producers must turn out evidence that is reliable, valid, up-to-date, relevant to their policy needs, comprehensive, and timely. They must also report this evidence in a format that is both useful and understandable by the end-user while still allowing for reproducibility and scientific credibility. For the last 20 to 30 years, knowledge users have relied on health technology assessments (HTA) and systematic reviews as the standard to synthesize and report research findings in health care settings (2, 3). The Canadian Agency for Drugs and Technologies in Health (CADTH, formerly CCOHTA) has been carrying out HTA for federal, provincial and territorial knowledge-users for 26 years. The United States Office of Technology Assessment (USOTA) carried out similar activities in health care, along with environmental other scientific assessments, between 1972 and 1995 before it was closed, paving the way for a diverse group of state, academic and private organizations to continue HTA work in the US.

The rationale for using systematic reviews as evidence sources, alone or as part of broader HTAs, is well-documented (2, 4). They offer comprehensive and structured approaches to evidence synthesis with explicit, repeatable methods and transparent processes for reporting research findings in a way that limits bias. Supporting evidence-informed decision-making processes requires financial resources, trained and experienced researchers, and structured, validated approaches. This requirement led to the original formation and international spread of organizations and agencies dedicated to production of systematic reviews and HTAs including, the Cochrane (1992) and Campbell Collaborations (1999), the Agency for Healthcare Research & Quality (AHRQ, 1989), the National Institute for Health and Care Excellence (NICE, 1999), the Center for Evidence-Based Medicine (CEBM, 1995), the International Network of Agencies for Health Technology Assessment (INAHTA, 1993)(5), and the European Network for Health Technology Assessment (EUnetHTA, 2005), along with many others too numerous to mention. CADTH was established in 1989 to assess medical devices, but has developed into a broker of evidence for the Canadian context on best practices, health-care systems and health technologies, including drugs, diagnostic tests and medical, dental and surgical devices (6). Together, these and other groups set standards for evidence synthesis, and themselves collect and summarize research evidence to provide knowledge users with the 'best' information they can use to inform their processes. These standards have been documented in The Cochrane Handbook (7), the AHRQ Methods Guide for Effectiveness and Comparative Effectiveness Reviews (8), the Campbell Systematic Reviews Policies and Guidelines Manual (9), the EUnetHTA Core Model (10), and the Joanna Briggs Institute Reviewers Manual (11).

A number of factors may influence the uptake or use of research evidence in a decision- or policy-making environment. Certain barriers, possibly representing fundamental differences in ideology between evidence producers and the knowledge users, can form a disconnect between research and policy (12). Tension based on differing fundamental values may arise from differences in the understanding of knowledge (colloquial versus (vs.) scientific), the relevance of the knowledge (policy vs. theory), the criteria for validity of that knowledge (anything reasonable vs. proven empirically), and the format of that knowledge (short and to-the-point vs. thorough reporting of all findings). Arguably, one of the most fundamental tensions between policy and research is the time frame for the production of knowledge (12-14). While knowledge users require timely or 'on time' evidence to inform their processes, evidence producers rely on rigid, systematic procedures with theoretical underpinning that producing the best evidence 'takes as long as it takes' to get to the truth.

Research that is not produced in a timely fashion may be too late to support the needs of knowledge users (15, 16). On the other hand, decision-makers must often make decisions in an emergent or urgent way. This may result in important decisions or changes to policy being made without evidence from a validated form of knowledge synthesis which can impact political, economic, or social facets of our healthcare landscape, and ultimately, the health and safety of individuals. It may also necessitate the use of 'less than best' evidence for decisions, including opinion, single studies, or unsystematic literature reviews. Timely receipt of evidence is an essential facilitator to increase uptake (17); however, extensive and lengthy processes required to produce high-quality evidence are well-documented. Pai et al. (2004) documented the complex, process-heavy steps required to carry out a systematic review (Figure 2-1) and illustrate why the process of synthesizing evidence is often time- and

resource-intensive (18). Decision-makers may not always desire or need the precise effect estimate that is produced by a lengthy evidence synthesis; In fact, they may only require evidence to inform their clinical or policy questions that is better than what they could produce on their own (19).

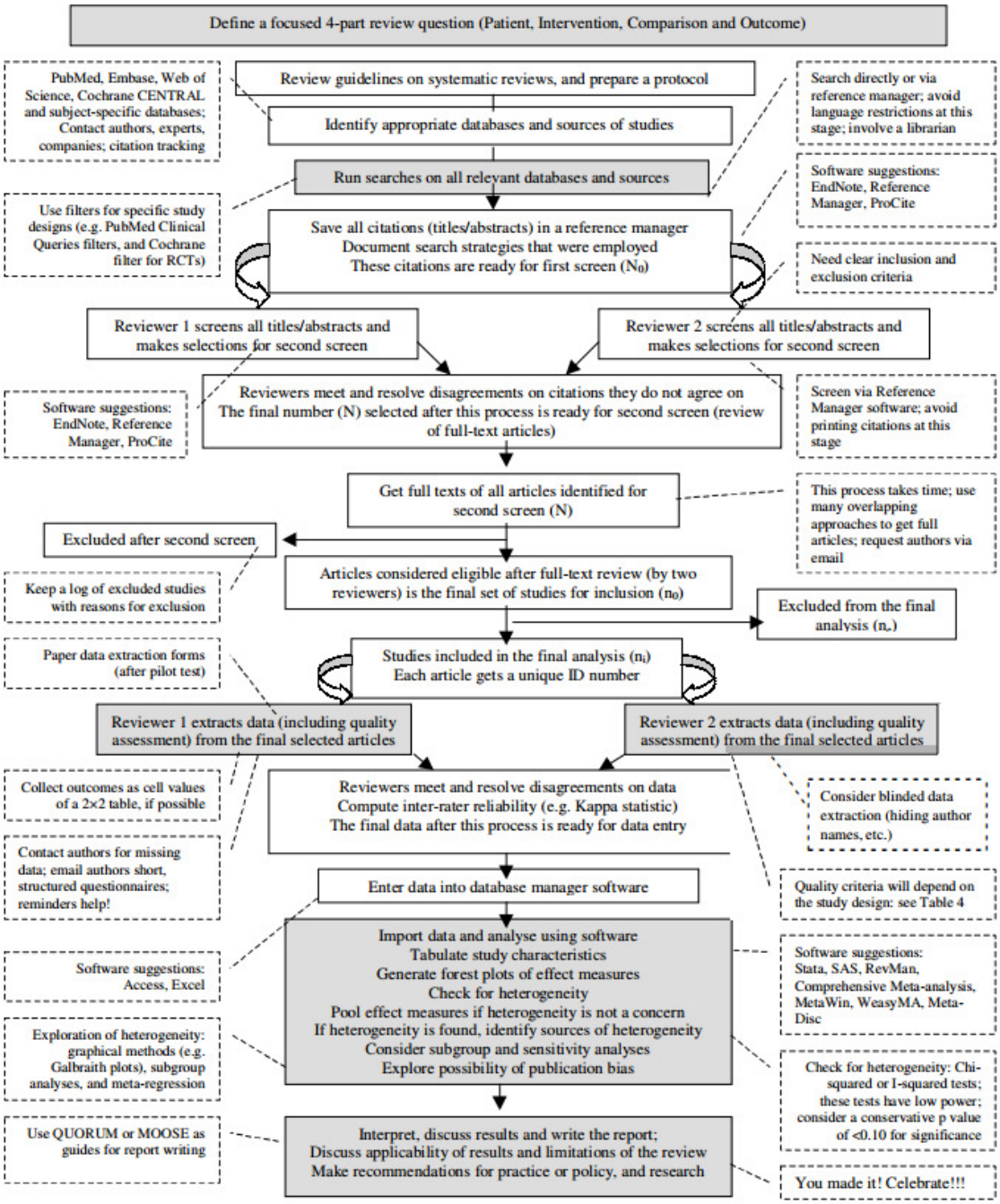
## 2.2 Challenges in evidence production

Theoretically, evidence producers and knowledge users aim to balance the two sides in a contract; one expecting research results in a timeframe negotiated *a priori*, and the other expecting a realistic schedule allowing for the appropriate collation of evidence. In reality, there is tension between producers and users of evidence as the time required to conduct a comprehensive assessment of evidence often conflicts with fast moving and constantly evolving landscape of healthcare decision-making.

Timeliness is a true challenge for evidence producers, and they have been criticized for turnaround times that have been measured in years, rather than weeks or months (12, 20). Studies have documented time to completion for a complex HTA to be anywhere from one to four years (20, 21). In three surveys of 45 HTA agencies conducted for INAHTA, Merlin et al. (2014) reported that the median timeframe for completion for an HTA was 9 months [interquartile range (IQR) 3 to >12 months], with most agencies producing two to four reports per year (22). Systematic reviews, which have less responsibility for reporting comprehensively on the legal, economic, social or ethical implications of their subject matter, may take less time; however, still result in timelines of anywhere from 6 months to more than two years (23). Sampson et al. (2008) reviewed a cohort of 156 systematic reviews published between 1995 and 2008 for time from final search to publication (24). Results

showed an overall median time of 61 weeks (IQR 33-87) and authors concluded that systematic reviews can be both produced and published faster. The Cochrane Collaboration,

***Figure 2-1***. *Steps in conducting a systematic review*




Source: Pai et al. 2004 (18)

has been criticized for its average 23 month timeline from protocol to publication (25), yet lauded for consistency and high quality. Even without the added time of the publication process accounted for, systematic reviews often make it to the desk of the knowledge user too late (26). Evidence syntheses are most useful when they are up-to-date, but evidence is dynamic and research has suggested that many systematic reviews are out-of-date by the time they are published (27). This can not only be unhelpful to knowledge users, it can also be detrimental. Pattanittum et al. (2012) reviewed methods and studies identifying out-of-date systematic reviews and noted that many Cochrane and non-Cochrane evidence producers do not update their systematic reviews regularly (within 2 to 5 years) and that there are no standard approaches as to when and how to update an evidence synthesis (27, 28). Although further assessment of these issues is warranted, there is no evidence to suggest that out-of-date can be equated with an incorrect conclusion or decision as this would be dependent on the characteristics and outcomes available in newer studies compared those previously obtainable.

Systematic reviews may have a lengthy time to completion for a variety of reasons, dependent on the complexity of the research questions, the volume of literature returned, the processes of the reviewing organization, the requirements for quantitative synthesis (via meta- or network meta-analysis) and the financial and human resources available to carry out the review (6, 29). Indeed, the concept of appropriate time for evidence production is relative; regardless of actual time to completion, any evidence synthesis not produced in time to meet the needs of the end-user cannot be considered timely. Commissioners of HTA have requested improvement, citing a need for evidence that answers their research questions rapidly, efficiently and adequately (30). While systematic reviews and HTAs are still the

evidence benchmark employed to support health-care decision-making, the urgency of some decisions necessitates a more immediate response.

## 2.3 Accelerating evidence synthesis: Rapid reviews

Rapid review is an approach to evidence synthesis with no commonly accepted or validated methodology. A 2008 Delphi study on preferences and priorities in HTA showed that rapid reviews held the number two and four positions (of 22 products explored) in both categories when INAHTA members were queried about the types of products and services a new HTA agency in Spain could offer (31). Over 95% of INAHTA respondents showed interest in rapid reviews as a key product or service for Spain and this type of product was associated with innovation in HTA products in a healthcare assessment setting. Rapid reviews are being produced and used with increasing frequency in an expanding array of domains including public health, health systems research, guidelines and health economics. Recent years have seen an increase in formal studies on rapid reviews, yet a paucity of knowledge still exists (22, 23, 30, 32-42). A review by Ganann et al. (2010) found that nomenclature, methodological approaches and timelines in published rapid reviews are inconsistent, under reported and unclear. Studies published since 2010 have supported these suppositions.

A detailed review of the literature shows that several themes are commonly associated with rapid reviews. There is no commonly accepted definition for rapid reviews and there are varied opinions across various stakeholders about what even constitutes a rapid review, or if a single definition is even appropriate. The term ‘rapid review’ is used interchangeably to describe a heterogeneous group of synthesis products ranging from summary lists of bibliographic evidence to what outwardly appear to be comprehensive systematic reviews

indistinguishable from what is considered the gold standard for the method. Nomenclature also fluctuates in the literature; Rapid reviews may be described using a variety of terms, for example ‘rapid’, ‘accelerated’, ‘emerging’, ‘map’, ‘summary’, ‘HTA’ or ‘brief’(30, 35, 43). The approaches used to expedite the evidence synthesis process also differ and do not necessarily align with any particular nomenclature or methodological concession. Often, these reviews are not indexed in bibliographic databases and a detailed grey literature search is required to locate them (1).

Systematic and explicit methods for knowledge synthesis exist to maintain rigour, enable replication and aim to reduce bias that may be introduced at any stage. In theory, each and every methodological component in a systematic review may be tailored in some way, or omitted to produce an evidence synthesis faster. In doing so, we risk introducing bias which may, in turn impact the validity of the results. It is unclear whether there are preferred ways to tailor methods to make the process rapid and what the overall impact is to the conclusions, or even the precision of effect estimates (35). Similarly, other components may be eliminated from the review process altogether (e.g., external peer review, meta-analysis). When methods are accelerated, the approach is often reported inconsistently, buried on agency websites, or not reported at all (30, 33, 35). No guidelines for the conduct or reporting of rapid reviews exist and experts disagree on whether such guidance is even appropriate or helpful to evidence producers and users (40, 42, 44). There is also no guidance on the ‘tipping point’ when tailoring methods may cause a review to transition from being systematic to unsystematic, a notable issue that has yet to be resolved (45).

Through our study of systematic reviews and other evidence synthesis processes, we understand that tailoring these explicit processes may impact the validity of the results or the conclusions that may be made based on these findings. No comprehensive study has assessed the impact of these concessions on the findings of a rapid review and compared it to those of a more traditional systematic review. There are some who maintain that a rapid review can, in fact, be a systematic review, and others who disagree wholeheartedly. Rapid reviews have their place as standalone evidence syntheses; however, a rapid review may also be part of a phased process, where the focus is to guide and scope future research syntheses. It is unclear whether rapid reviews are a unique methodology, a systematic appraisal of secondary research, an adaptation of a systematic review that maintains rigour wherever possible, or possibly, all of the above (23, 30, 32-35, 38, 39, 41, 42, 46).

## 2.4 Interest in rapid reviews

Rapid reviews are being requested by a variety of knowledge users, including but not limited to health ministries, parliaments, public and private sector regulators and payers (34, 35). Internationally, organizations large and small are following the lead of early rapid review producers like the Australian Safety and Efficacy Register of New Interventional Procedures - Surgical (ASERNIP-S), the Alberta Heritage Foundation for Medical Research, and the Canadian Agency for Drugs and Technologies in Health (CADTH) (32). In 2008, a survey of International Network of Agencies for Health Technology Assessment (INAHTA) members revealed that at least eighteen of the twenty-three agencies who responded were producing rapid reviews for stakeholders (33). This led to the recent establishment of an INAHTA Community of Practice for rapid reviews, managed by CADTH, to promote and enable continuous knowledge exchange and learning amongst members (47). A more recent

inventory by Polisena et al. (2015) found 29 international rapid review programs from government, academia, research institutions and not-for-profit organizations (41). Even the Cochrane Collaboration has recognized that offering high-quality, abbreviated and accelerated review products may better meet the needs of a certain portion of their clientele better than their traditional systematic review products. They launched the for-profit *Cochrane Response* program on an interim basis in 2012 in collaboration with the Knowledge Synthesis Group at the Ottawa Hospital Research Institute (OHRI)(37).

In Canada, rapid reviews are being produced at the national, provincial, regional and local - levels. In addition to the successful pan-Canadian 'Rapid Response' program run by CADTH (48), the Canadian Institutes of Health Research (CIHR)-funded Drug Safety and Effectiveness Network (DSEN) now funds a collaborative evidence synthesis team (the Methods and Applications Group for Indirect Comparisons, or MAGIC) offering rapid review and rapid network meta-analysis services to federal agencies and other provincial knowledge users. Provincial programs have been established by Health Quality Ontario, the Ontario Drug Policy Research Network (ODPRN) and the Nova Scotia Health Research Foundation to serve constituent organizations. Hospital-based or academic programs such as those found at the Technology Assessment Unit (TAU) of the McGill University Health Centre, the McMaster University Health Forum and the Ottawa Hospital Research Institute Knowledge Synthesis program supplement larger-scale programs with a more regional, local or institutional focus.

Interest in this type of product from knowledge users is also growing. In 2006, CADTH produced approximately 155 rapid response reports for a variety of Canadian stakeholders. In

2008-9, the number more than doubled to 409 reports across 5 different rapid product offerings (48). The program continues to develop and grow while maintaining a yearly report production level over 300; an indication that health-care decision-makers are both interested in, and consuming this type of report (49).

Interest in accelerated products and methods can also be gauged by recent symposium and conference activities focused on rapid reviews. In 2013, at the International Cochrane Colloquium in Quebec City, Canada, a meeting was held to establish an informal network of organizations and researchers interested in rapid reviews. Over 40 international attendees shared and participated in a discussion on methods, reporting, and research priorities. In February 2015, CADTH held a Rapid Review Summit in Vancouver, BC intended to be a forum for rapid review producers, health care decision-makers and providers. The intent was to share knowledge and experiences in the context of successes, challenges, advancing the science and prioritizing future research agendas (37, 40, 43, 44).

## 2.5 Common themes

### *2.5.1 Definition*

It is generally understood that rapid reviews employ tailored methods to expedite traditional systematic review processes with the goal of shortening delivery time frames or adapting to limited production resources (35). There is currently no definition that explicitly details what a rapid review is and further, what distinguishes it from similar evidence synthesis products. In a sample of international rapid review products, Watt *et al*. (2008) noted that all of the 36 included rapid reviews were poorly defined. This sentiment is repeated in much of research on rapid reviews that has followed (22, 23, 30, 35, 39).

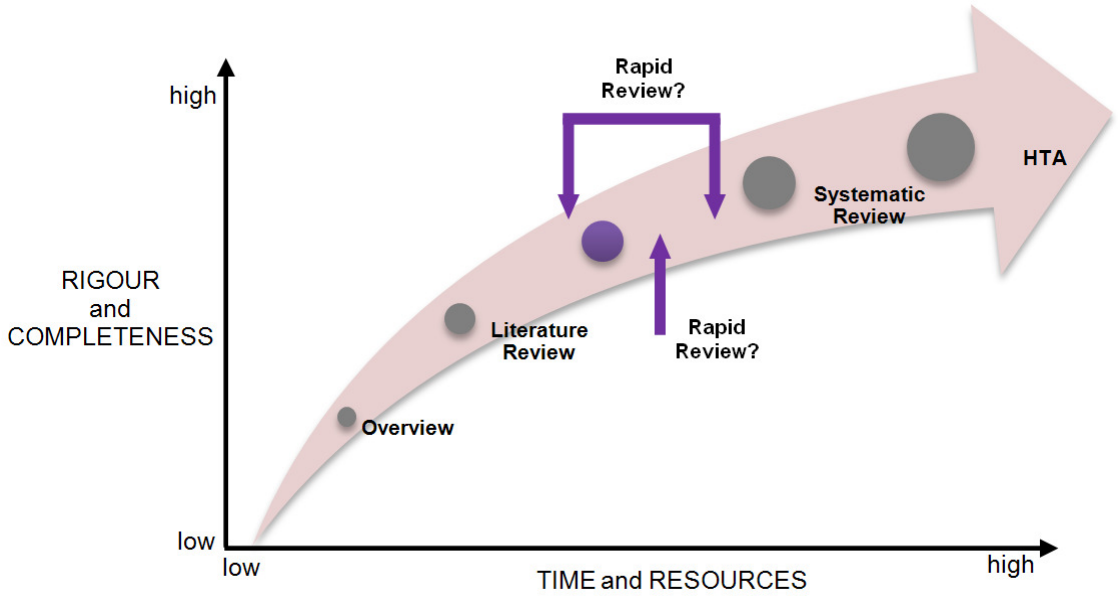
Attempts to define rapid reviews using targeted searches of sample products have been carried out with a goal of summarizing methodology, scope, and other key features. Although a better understanding of these accelerated reviews may have been achieved, no one group to date has produced an explicit definition of rapid reviews based on these results. Ganaan *et al*. (2010) describe rapid reviews as a method to "streamline traditional systematic review methods in order to synthesize evidence in a shorter timeframe" (35). Khangura et al. (2012) noted the lack of a definition for rapid reviews and went on the further characterize rapid reviews in a similar manner to Ganaan, adding that they are produced in a shorter timeline in order to meet the emergent needs of decision-makers in a healthcare setting (23). A comprehensive analysis of 46 full rapid reviews and three extractable summaries of rapid reviews by Harker et al. in 2012 was unable to elucidate a clear or final definition for what actually constitutes a rapid review. Authors noted in their conclusions that coming up with such a definition may be difficult due to the heterogeneous mix of nomenclature and methods used. Authors also noted that there was no literature describing how a rapid review differs from a systematic review in any meaningful way (30). Abrami et al. use the term 'brief review' to describe rapid reviews as they assert that both time and scope should be emphasized in the definition (50).

The only other illustrative feature associated with rapid review comes with the acknowledgement that rapid review is, in fact, a set of varied approaches. This deviates from the initial thinking that a single approach could be captured and distinguished from other evidence synthesis methods. Rapid reviews have been conceptualized as a 'spectrum' of products, but there is little clarity on whether a rapid review abstractly represents multiple

points on that spectrum, or if there is overlap with other evidence synthesis products (Figure 2-2) (30, 37, 39).

A recent brief (2014) by the McMaster University Health Forum describes a rapid review as a "comprehensive systematic review that has been conducted in a condensed timeline". They distinguish this approach from what they refer to as 'rapid synthesis' which fundamentally differs from a rapid review in terms of timeline and type of included studies, however, no further detail is provided (51).

***Figure 2-2**. Rapid reviews on the evidence synthesis continuum*




*Adapted from the HLWIKI International (http://hlwiki.slais.ubc.ca/index.php/Rapid_reviews)

Late in 2014, the INAHTA Quality Assurance Group published a study which aimed to define HTA products based on a survey and consultation with their 57 public sector agencies (response rate 79%) (22). Following a thorough investigation of member products, they

proposed three product definitions, including one for rapid reviews (Table 2-1). This definition allows for the variation that inherently accompanies descriptions of rapid reviews through its categorization of traits using the headings 'always', often' and 'optionally'; However, it also limits the scope of rapid reviews so much, that the universal applicability of the definition should be questioned, especially outside of HTA agencies. The 'always' category limits rapid reviews to evaluations of safety or effectiveness, inadequately describes any systematic components, and leaves critical appraisal optional. Although there has been no test of applicability to-date, this definition directly excludes rapid review products produced by some of their membership HTA agencies, and so further revision is underway (47).

***Table 2-1.*** *Proposed INAHTA rapid review definition*

| **A Rapid Review will:** |
|---|
| *Always*<br>• describe the characteristics and current use of the technology; and,<br>• evaluate safety and effectiveness issues. |
| *Often*<br>• conduct a review of only high level evidence or of recent evidence and may restrict the literature search to one or two databases. |
| *Optionally*<br>• critically appraise the quality of the evidence base; or,<br>• provide information on costs/financial impact. |

Extracted from a publication by Merlin, 2014 (22)

It seems that philosophically, there is a collective understanding that rapid reviews: 1) synthesize evidence in a expedited manner, usually referenced relatively against the timeline of a systematic review; 2) aim to meet the needs of knowledge users in healthcare settings; and, 3) employ varying approaches to synthesize the available evidence. In reality, there is no concrete descriptor of this approach that has been validated or delineated in the literature.

This may be further complicated by the fact that individual evidence producers may have their own internal definition of the products they yield, which may or may not be congruent across organizations or agencies, and may, even at a very basic level, differ in concept (22). This is a large factor in the currently muddled understanding of rapid reviews, and directly impacts research outcomes on this topic. If research is to advance, it seems necessary to at least very practically understand the nature of the reviews we seek to describe, appraise and possibly even standardize. It is clear that an unambiguous and adequately detailed definition of rapid reviews is necessary to solidify the placement of rapid reviews on the evidence continuum. Once defined, healthcare decision-makers will be better able to gauge how much merit to place on the evidence presented in a rapid review. A definition is also required before researchers can proceed with further study into the epidemiology of rapid reviews.

### *2.5.2 Nomenclature*

A lack of definition that explains or identifies the nature or essential qualities of a rapid review is further complicated by the language used to describe these products, which varies widely and is inconsistent at best (35, 43). The vernacular used to report or publish rapid reviews is diverse, making it difficult to identify them in the literature (35). Although there is still variation, more consistent terminology is used to describe systematic reviews, yet the terminology is often misused. Terms used to identify rapid review publications in journals, or to 'name' accelerated evidence syntheses products produced by agencies and organizations also differ considerably (35). These product names may describe what the product is used for (e.g., practice, policy, information), refer to rapidity, speed or time in some manner (e.g., accelerated, rapid, brief), or indicate a truncation of methods, scope or reporting in relation to other synthesis methods (e.g., systematic review or HTA - mini, overview, summary, review,

update, mapping, brief) (43). On the other end of the spectrum, there may be no indication at all from nomenclature used that an accelerated review has been conducted (e.g., systematic review update, health technology assessment, tiered business case). Coupled with this, two different rapid review products may use similar nomenclature, but have very different approaches, aims, or end-users. Interpretation of the language used to label rapid review products may also have different meanings to the evidence producers and the stakeholders who make use of them in policy and practice (23, 30, 35).

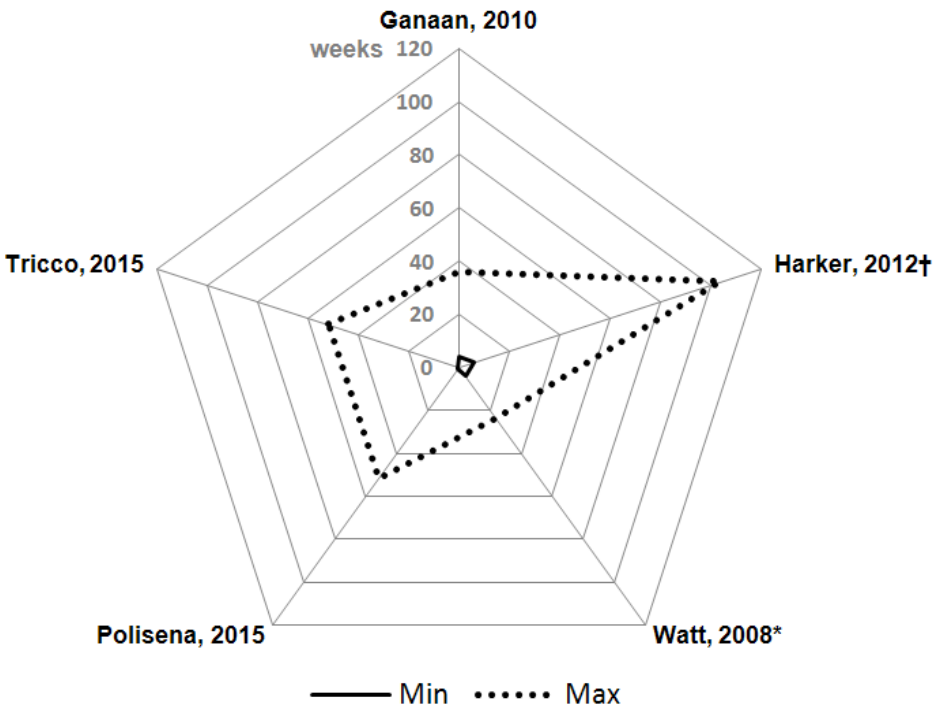
### *2.5.3 Production timelines*

Time is a fundamental element in rapid reviews. In fact, it may be the *only* variable that ties differing approaches together other than the common demand to inform health care knowledge users. While we have a reasonable understanding of the production timelines necessary for systematic reviews and HTAs, they too, vary. Similar dialogue on rapid review timelines is hampered by a number of factors. What is 'rapid' about an accelerated review of evidence is ultimately relative and tied to a baseline production timeframe for systematic reviews and HTAs that can be anywhere from 6 months to 4 years (12, 20). Additionally, rapid reviews are difficult to identify strictly using shorter production timelines as a distinguishing characteristic because their reporting on these factors is historically poor (35, 52). Time to completion has been estimated in previous work on rapid reviews using the time from the last search date to the publication date, which also may need to be approximated and may be biased by publishing lag time. Harker et al. (2012) estimated the length of time to completion in a sample of 49 rapid reviews by calculating the time between the last search date and the approximate (or specific) review publication date. Using this method, a large proportion of the reviews (51%) were estimated to have taken 7 to 12 months, with only 22%

of the samples estimated to have taken under 6 months, and 36% taking 12-24 months (30). Hartling et al. (2015) characterized the timeframe for production of rapid reviews in a sample of 36 rapid reviews following a detailed review of methods and interviews with the organizations producing them. Time to completion for some rapid reviews in this sample was as short as 5 minutes (a computer algorithm) and as long as 4 to 8 months in some products (38). Although it is implied that rapid reviews are produced faster than a full systematic review, a literature review of studies reporting on this variable found that authors are in agreement that this information is often missing or unclear (30, 35). It is unfair, however, to expect time to completion to be reported in rapid reviews as it is uncommon for other evidence products to report this information.

There has been suggestion anywhere from 8 weeks to 6 months is appropriate and pragmatic maximum timeline for a review to be considered 'rapid' (35, 42), but this may be an arbitrary cap. A review of the literature showed that minimum and maximum times to completion for rapid review samples, when reported, varied extensively (Figure 2-3). A scoping review of rapid review samples by Tricco et al. (2015, in press) found examples of rapid reviews carried out in one week or less (43), while Harker et al. (2012) noted similar examples that took 24 months. In the same study one outlier that identified as a rapid review was completed in 42 months (30). One study excluded sample rapid reviews that were completed in less than one month or more than six months, but this may be a flawed approach to summarizing rapid review timelines as this method is likely not reflective of the actual variety of products produced.

***Figure 2-3.*** *Star chart depicting minimum and maximum time to completion, in weeks, for studies of rapid review samples found in the literature (30, 33, 35, 41, 43).*




**Review eligibility criteria excluded samples with timelines identified longer than 6 months.*
*†Review minimum timeline estimated at 6 weeks as publication reported only "<3 months". One outlier were reported 42 months to completion and was not included in this chart.*

### *2.5.4 Methods*

Conduct and process is delineated clearly for systematic reviews through guidelines advocated by the Cochrane Collaborations, and many other organizations (7, 9). Arguably, the gold standard for the systematic assessment of health care evidence is the Cochrane review. It is generally understood that rapid reviews accelerate, abbreviate or tailor these methods in some manner, and at the very least, aim to search comprehensively to address a research question. Although every procedure in a systematic review has been put in place with the goal of minimizing bias, all of the methodological components may be altered, or omitted, in a rapid review to accelerate the process. These concessions are not without risk,

although some aspects of the systematic review process have not been studied in detail to determine the impact of methodological concessions. Methodological quality is a requirement for well-founded interpretation and application of the review findings so it is essential to assess the conduct of rapid reviews carefully (53). It is important to note that quality of conduct can be tied to credibility and reputation for the evidence producer, but production of a quality product does not equal rigour and should not be confused with deviation in results or inferences from the truth (54).

Rapid reviews vary greatly in the methods utilized and in the descriptions provided for those methods (55). There are sometimes differences in rapid review products produced by a single organization. CADTH, for example, offers five different rapid response products to their stakeholders, with a focus on being both 'fast and flexible' (48). All vary in method based on the time and rigour negotiated with the end user following careful consultation. Flexibility is achieved by making adjustments to the explicit methodological components of a systematic review process based on careful consideration and consultation with the knowledge user. There is a notion that 'one size does not fit all' with rapid review methodology (which applies to other factors like reporting and timeline too), which is closely tied to the policy or practice needs of the individual knowledge user.

Previous methodological reviews have found that there are many different strategies employed to expedite the review process while trying to maintain rigour and curtail bias (30, 33, 35). It is common to narrow the search strategy by limiting or omitting key components. This may be accomplished by eliminating peer review of a search strategy, limiting the number of databases (possibly by date, language or study type) or limiting or omitting grey

literature or hand searching, among others. Screening or eligibility assessment, data extraction and quality assessment processes are also commonly modified. While the Cochrane Handbook (7) supports the use of two independent review authors, in a rapid review one reviewer may carry out these processes with or without checking by a second reviewer (30, 34, 35). Some rapid reviews exclude key review methods altogether, including quality/validity assessment or peer review. The breadth and depth of the review scope or the number of research questions may be narrowed to expedite the evidence synthesis or the scope may also be limited to a specific geographic context or setting (35). Quantitative synthesis (meta-analysis) may be limited or not done at all. Hartling et al. (2015) recently summarized the dimensions of systematic reviews that may be altered in rapid products (Figure 2-4); however, the impact of tailoring or simplifying the individual processes on the results of the report or their uptake has not been formally assessed in some of these dimensions (e.g., peer review, Grading of Recommendations Assessment, Development and Evaluation (GRADE) (38).

A search of the literature shows that the potential bias introduced through the streamlining of systematic review processes are understudied (35). No study to date has evaluated the methodological quality of rapid reviews using validated quality assessment tools such as Sack's Instrument (56) or AMSTAR (53, 57). Additionally, poor reporting makes it difficult to study rapid review quality, validity and risk of bias variables. Harker et al. (30) reported that that less than half of the rapid reviews they examined reported assessments of study quality, but this may speak to reporting rather than conduct. Previous assessments of rapid review samples have shown that disclaimers or limitations sections are utilized to

***Figure 2-4.*** *Dimensions of standard systematic reviews that may be altered in rapid reviews (38)*

| Dimension | |
|---|---|
| Scope | Limit the type of questions (e.g., efficacy only, new technology only, single technology only) |
| | Limit number of questions |
| | Limit number of studies that can be included |
| Comprehensiveness | Limit search strategy (e.g., number of databases, grey literature, date, setting, language) |
| | Limit study types included (e.g., existing systematic reviews only, RCTs only) |
| | Limit textual analysis (e.g., no full-text review, limit number of extraction items) |
| Rigor/Quality control | Eliminate dual study selection |
| | Eliminate dual data extraction |
| | Limit or eliminate internal or external review of final product (e.g., peer review) |
| Synthesis | Limit or eliminate risk of bias/ quality assessment of individual studies |
| | Limit or eliminate either quantitative or qualitative analysis |
| | Limit or eliminate strength/quality of evidence assessments (e.g., using GRADE) |
| Conclusions | Simplify or eliminate any conclusive statements about the direction of the evidence |

communicate and acknowledge bias or risk that may be introduced through the streamlining of methods. This provides the end user with a way to fully consider the evidence in context with concessions made in the review process. Unfortunately, less than 50% of samples qualified their results with any sort of provision for the knowledge user about limitations, and often the included studies were the focus of the disclaimer, not the rapid review itself (30). No study has elucidated the extent to which a rapid review reports a specific context for an end-user or discloses this context through a limitations or discussion section, which limit applicability outside the related jurisdiction.

There is still considerable debate over whether a standard methodology for rapid reviews should be delineated. Agencies and organizations new to rapid reviews want guidelines from those experienced with rapid review production to facilitate their processes without 'reinventing the wheel'; however, others opposed support the idea that a standardized methodology would impact the ability of their organizations to be tailored to the needs of their end-users (44). The reality is that rapid reviews must be timely, flexible to the needs of

the end-user and accurate. Previous work suggests that improvement in reporting and transparency of methods would better serve evidence producers and knowledge users. No evidence-based reporting guidelines currently exist for rapid reviews. Recently, researchers have started to explore the idea that a rapid review reporting guideline through extension of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement would help to clarify methods and be valuable to both evidence producers and users going forward (40).

Registration or publication of rapid review protocols (e.g., PROSPERO) would also allow for better assessment of reporting bias, limit post hoc modifications and possibly serve to reduce duplication and minimize research waste across organizations. It is unclear whether rapid review producers also modify their protocol development processes in order to get evidence to the end-user faster. Protocols for rapid reviews have not been extensively studied and often go unpublished (43). Polisena et al. note that that over 96% of the agencies answering their questionnaire include protocol development in their rapid response processes, however, few publish or post the protocols. No evidence-based protocol reporting guidelines have been developed for rapid reviews to-date, and similar guidelines for systematic reviews, the PRISMA for Protocols (PRISMA-P), were published early in 2015 (58). Coupled with poor reporting, lack of a protocol makes it difficult to assess the impacts to validity and limits our capacity to differentiate rapid reviews from other evidence synthesis products.

### *2.5.5 Approach*

The fundamental approach to evidence synthesis in a rapid review can be differentiated from its methodology. Rapid reviews have recently been described by a variety of different approaches, or sub-types, used to answer research questions posed by knowledge users (23, 33, 35). Similar differences in approach can be seen with systematic reviews (review of secondary studies versus review of primary studies) although there is innately less variability. All rapid approaches studied to date aim to comprehensively search the literature in an attempt to answer a research question, however, the fundamental management of the search and handling of the results are often dissimilar and may not actually be comprehensive at all.

It is possible to categorize rapid review approaches based on key features or common premise. The range of approaches is represented well by the Rapid Response Service offered by CADTH which has been replicated and adapted by many other agencies following its inception a decade ago (59). CADTH offers Canadian healthcare decision-makers five different rapid response products: 1) Reference List, 2) Summary of Abstracts, 3) Summary with Critical Appraisals, 4) Peer-Reviewed Summary with Critical Appraisals, and 5) Systematic Review and Meta-Analysis. The first three rapid review products are offered to end-users in as fast as a day and usually not longer than 4 months. The other two products are more comprehensive, as their names suggest and take longer to produce, but not as long as a full HTA report. Although other agencies many not offer the full range of rapid review products that CADTH offers, their products generally fit within the categories of their approaches. Reporting for the CADTH products generally becomes more comprehensive as the approach becomes more thorough; however, scope and size of the research base can

impact the actual length and volume of the results presented. A similar structure is reported by Hartling et al. (38). Moher et al. (2015) have also suggested a typology of rapid review products based on a study of rapid review samples (40). Even though the nomenclature used may differ for some approaches, the typology follows a similar pattern to the CADTH product base, starting at one end with succinct brief or mapping reviews at one extreme, and comprehensive systematic reviews at the other (adapted below in Table 2-2). Further refinement to this typology, specifically the order of the approaches, may be warranted as it could be suggested, for example, that V is more comprehensive than VI as it includes primary studies.

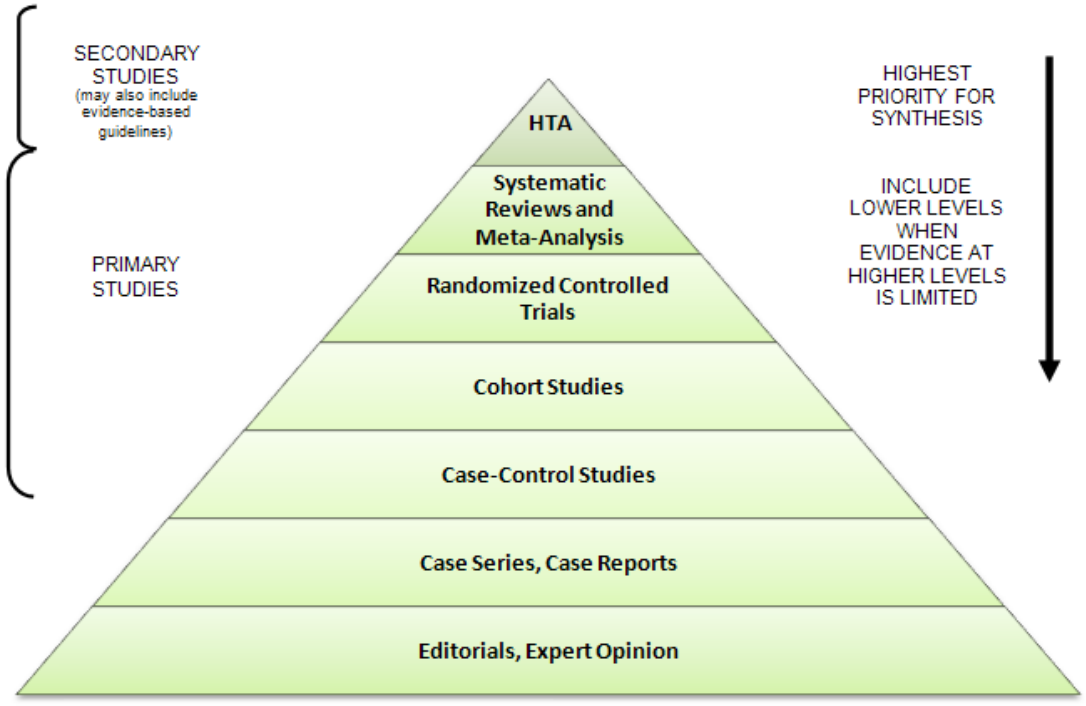
One facet of approach also captured by the range of sub-types, is the type of evidence or studies that are considered. An additional way to differentiate rapid review approaches is to categorize them based on whether they provide a synthesis of primary or secondary studies, or both. Further, some rapid reviews follow a top-down hierarchical or ladder study inclusion approach which aligns with the traditional hierarchy of evidence (Figure 2-5). CADTH and other HTA producers use this technique in their rapid review approaches to guide what

***Table 2-2.*** *Typology of rapid reviews proposed by Moher et al. (2015)**

| **Number** | **i.** | **ii.** | **iii.** | **iv.** | **v.** | **vi.** | **vii.** |
|---|---|---|---|---|---|---|---|
| **Approach** | Evidence Brief (Snapshot) | Rapid Evidence Map (Scoping) | Rapid Evidence Map | Rapid Review | | | Traditional SR done quickly |
| **Evidence Considered** | | SR, HTA or CPG ± primary studies | SR, HTA or CPG | Primary studies only | SR, HTA or CPG + primary studies | SR, HTA or CPG | Shortened timeframe only |

SR=systematic review, HTA=health technology assessment, CPG=clinical practice guideline.
*Adapted from a presentation made at the 2015 CADTH Rapid Review Summit, Vancouver, BC (40)

***Figure 2-5.*** *The top-down evidence hierarchy approach employed by some rapid reviews.*




evidence is considered for the end-user, starting with high-quality HTAs or previous evidence syntheses (60). Table 2-2 shows that Moher et al. also capture this feature. Producers may start out looking for secondary studies, and move on to primary studies only when there is a lack of evidence at higher levels. This too may dictate how search date ranges are limited (i.e., "if we search back five years and there are no high-quality studies, we will search back 10 years" or if existing syntheses are 'dated' and have not been updated to include important new primary studies) or serve to expand language limitations. This also suggests some flexibility within each approach, which may be a key feature of rapid reviews that distinguishes them from the rigid and formal approach taken in systematic reviews or HTAs. Negotiation or consultation with the end-user may also play into which approach

taken, as both producers and users agree on a 'contract' stipulating how and when the rapid review will be carried out and reported.

Approach may also be flexible based on what the topic of the research question is or on the needs of the specific policy or practice decision on which it is based. For example, a rapid review may incorporate evidence from non-randomized studies only when there are research questions on safety. Although Merlin et al. (22) imply in their definition that rapid reviews always evaluate safety and effectiveness together, when in practice, healthcare knowledge users may have a good understanding of the benefit of an intervention, but producers must carefully work with each knowledge user to figure out which approach meets their needs, using which evidence base. Many different types of questions can be answered by rapid reviews, and each type of question may dictate a different approach. No study to-date has described how rapid review approaches vary by practice or policy area. Flexible approaches may be applied when undertaking rapid reviews of public health, service delivery, professional practice, health economics or even the strength of prognostic factors. Watt et al. found that rapid reviews were more likely to exclude studies of lower quality, and may include different types of evidence more subjectively and may include more readily available articles (33). Refining approach based on the individual need of the end-user and the decision at hand may increase the impact and reduce research waste, but it may also impact validity or limit the external generalizability of the reviews to other knowledge users or settings.

Approaches may vary by organization, be flexible and be based on the availability or need for high-quality primary or secondary studies, tied to the needs of the end user. There are opposing views over whether some approaches (e.g., a reference list or map) are actually true

rapid reviews, but little research to refute claims of what constitutes a rapid review and what does not.

### *2.5.6 Validity*

Although various typologies of synthesis methods in HTA have been proposed, few published comparisons of rapid reviews to full systematic reviews products exist (33, 52, 61, 62). To fully understand the impact of tailoring methods to expedite accepted systematic review methods, there is agreement that further research is required (43). It is unclear whether there are impacts to the validity or precision of results and existing studies that have attempted to explore these issues have been limited by small sample size and the heterogeneous, unclear or inconsistent methods of the rapid reviews included which limited comparisons and conclusions.

In 2008, the Australian Safety and Efficacy Register of New Interventional Procedures - Surgery (ASERNIP-S), explored differences between systematic reviews and rapid reviews by comparing a small sample of rapid INAHTA member products to full syntheses on the same topics. Seven rapid reviews considering four subject areas (drug-eluting stents, lung volume reduction surgery, living donor transplantation and hip resurfacing) were compared to four full systematic reviews (33, 52). In the examples explored, obvious differences were found. The number of outcomes included and the type and volume of studies included differed, and in some cases the full systematic reviews included more fulsome investigations into safety by including nonrandomized evidence. The largest difference reported by the study authors comparing full and rapid reviews on drug eluting stents was that was the inclusion of a full economic evaluation in the full review; economics were only briefly

touched on in the rapid review. Similarities were also found in both the rapid and full products, including that both reported limited capacity to evaluate safety outcomes due to the inherent limitations of the trials included, a broader problem encountered by many systematic reviews and HTAs. In two cases, both the rapid and full reviews reported the lack of evidence for the indication being studied, although the systematic reviews were more likely to cover other issues such as ethics, in-depth. Results showed that although there were many differences between all of the rapid and full reviews, overall conclusions did not differ between products. No details were provided on precision of the estimates. Poor reporting of the methodology within each rapid review limited their capacity to determine reasons for the differences. The authors concluded that generally the rapid review scope was narrower, and that a lack of any exclusive, validated methodology may compromise their appropriateness for evaluating health technologies in certain circumstances. This is a key finding, and one that deserves further attention by researchers studying rapid reviews, evidence producers and knowledge users as we struggle to balance the tension between traditional systematic review methodologists who ultimately desire the 'truth' in the findings of an evidence synthesis, and the needs of the end-user who may desire evidence that is 'good (or truthful) enough' to feed into their decision and policy processes.

A single comparison of findings from a rapid review and a full systematic review on the medicinal use of potato-derived products for skin burns conducted in parallel was published in a letter to the editor by Van de Velde et al. (2010) (62). Authors checked for consistency in the conclusions and noted that the full systematic review included five clinical trials, and one specifically on burn wounds. The rapid review included three clinical trials on burn wounds, and notably, two trials not included in the systematic review. The conclusions of the

reviews differed, with the systematic review concluding that there was no beneficial effect of the potato wound bandages and the rapid review concluding that there was. The rapid review authors asserted that they found the true association. The authors published the comparison as an important flag that because systematic reviews are the accepted standard, which means they are more often read and cited, and therefore, likely have higher impact on practice and policy. No critical appraisal was completed by the authors of the study, but it is important to note that we cannot assume that all systematic reviews are, in fact, systematic. This could mean that a high-quality rapid review may produce better or less flawed results than a poorly conducted systematic review, but there is little evidence to support at what point a systematic review becomes 'unsystematic'. Proper publication or registration of protocols and transparent reporting may be a way to better this situation, by allowing end-users to make these judgements themselves.

### *2.5.7 Attitudes and perception*

Opposing views about the content, quality and validity of rapid reviews exist, but remain colloquial. Rapid reviews are often viewed as inferior because they are not systematic reviews (19). Others assert that rapid reviews narrowly benefit policy makers who require answers to efficacy or effectiveness questions, and that it is inappropriate to consider safety or cost-effectiveness outcomes using a rapid review (52). Some have stated that rapid reviews are merely intermediary steps in a broader evidence review process meant to 'hold over' decision-makers until a full systematic review can be completed (35). In opposition, some perceive rapid reviews as a necessary step preceding a systematic review that can inform stakeholders on the state of the evidence, the direction and magnitude of the effect estimates under consideration, and ultimately, as an informed source of whether a more

comprehensive review should be carried out at all (19). Further to this, there is a perception that the risk of missing pertinent information by limiting retrieval methods may be high when rapid reviews are commissioned to inform funding decisions or those where there may be legal implication (32, 34), but little evidence to support the notion that rapid reviews 'miss' evidence. These views, added to existing knowledge gaps, have led some health services researchers to question the true value of rapid reviews, and ultimately their place in decision-making.

Although opinions about rapid reviews abound, no formal study of these perceptions exists in the literature. No research to date has attempted to capture research producer viewpoints about generating and authoring accelerated evidence summaries. Similarly, no organized study to date has measured policy-makers' opinions on rapid reviews, or likewise, how they feel about basing decisions on this form of evidence. A 2002 systematic review captured health policy-makers perceptions of their own use of evidence emphasized that decision-makers need timely, relevant and high quality evidence, but made no ties to specific study types or accelerated reviews (11). Knowledge-users, however, seem to be aware that they cannot always receive what they want, but hope that methods to protect against bias are employed whenever possible. The study also noted that in the opinion of knowledge users, use of evidence is facilitated by timely research.

Although difficult to delineate, the study of attitude and opinion is necessary from the perspective of users and producers. Cross (2005) states that attitude and opinion help to form cognitive relationships, which in turn may influence actions or conduct. Positive opinion on a topic like rapid reviews could lead a researcher or healthcare decision-maker to approach this

subject in a positive manner. A comprehensive understanding of beliefs towards rapid reviews will further inform both evidence producers and researchers on how to continue to support the needs of decision-makers.

There seems to be a stigma attached to rapid reviews that they are "quick and dirty" systematic reviews. Authors with expertise critiquing rapid review samples noted in their conclusions that rapid reviews should not be viewed as inherently inferior to systematic reviews, and that an exploration further into their validity should be explored more before any judgements are made. Health care decision-making is a complex process that continues to evolve, and with tens of thousands of health products coming to market each year, there is a need to balance 'good enough' evidence with the realities of the often burdensome challenge of evaluating and assessing these products (63). The reality is that a full HTA cannot be carried out for each of these products, and so there must be some concession on what evidence is used to feed into these processes. The world of health technology assessment is also changing and with that, comes adjustments to the processes that feed into health product market entry, launch and ultimately coverage decisions. There is more emphasis now on post-marketing surveillance of approved health products, which may mean that new products or technologies are launched with less rigorous evidence but are followed-up more closely by regulators as evidence develops using continued sequential assessments (63). It would appear that there is a role for rapid reviews in these processes and that knowledge users are keen to amend traditional evidence assessment routes when efficiency and timeliness can be achieved.

## 2.6 Overview

A key message in the literature on rapid reviews is the value of a systematic approach that has been tailored to expedite production time lines, yet there is little evidence to support a turning point when a systematic review becomes 'less systematic' or even 'unsystematic'. We accept that tailoring methods may increase the risk of bias being introduced, but have yet to qualify this notion with a prospective study contextualized to rapid reviews (8, 64, 65). Appropriateness is a reoccurring theme in the rapid review literature, and it seems that there is little consensus on when it may be appropriate to conduct a rapid review, and when it is not. Published literature highlights the lack of an accepted definition, the broad array of methods and approaches employed to accelerate evidence synthesis processes, and the general paucity of knowledge surrounding rapid reviews. Given the interest from healthcare decision-makers, more research is needed before conclusions about validity, value and suitability for the decision-making process can be answered. Until then, policy-makers using rapid reviews face a conundrum. They must decide whether it is acceptable to trade-off the timely receipt of evidence with the risk that altering methods could introduce bias or yield incomplete information that could lead to erroneous decisions.

## 2.7 References


1. A Model for Evidence-Informed Decision-Making in Public Health [Fact Sheet]. McMaster University. National Collaborating Centre for Methods and Tools. 2012. Available at: http://www.nccmt.ca/pubs/FactSheet_EIDM_EN_WEB.pdf.

2. Banta, David. The development of health technology assessment. Health Policy. 2003;63(2):121-32.

3. Lavis, J., Davies, H., Oxman, A., Denis, J. L., Golden-Biddle, K., Ferlie, E. Towards systematic reviews that inform health care management and policy-making. J Health Serv Res Policy. 2005 Jul;10 Suppl 1:35-48.

4. Mulrow, C. D. Rationale for systematic reviews. BMJ. 1994 Sep 3;309(6954):597-9.

5. Lehoux, P., Tailliez, S., Denis, J. L., Hivon, M. Redefining health technology assessment in Canada: diversification of products and contextualization of findings. Int J Technol Assess Health Care. 2004;20(3):325-36.

6. Hailey, David, Babidge, Wendy, Cameron, Alun, Davignon, Lise-Ann. HTA Agencies and Decision Makers. An INAHTA Guidance Document. 2010.

7. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]: The Cochrane Collaboration; 2011. Available from www.cochrane-handbook.org.

8. Methods Guide for Effectiveness and Comparative Effectiveness Reviews. AHRQ Publication No. 10(14)-EHC063-EF. Rockville, MD: Agency for Healthcare Research and Quality. January 2014. Chapters available at: www.effectivehealthcare.ahrq.gov.

9. The Campbell Collaboration. Campbell Systematic Reviews: Policies and Guidelines. Campbell Systematic Reviews 2014: Supplement 1. DOI: 10.4073/csrs.2014.1.

10. European Network for Health Technology Assessment. The EUnetHTA Core Model. Available at: http://meka.thl.fi/htacore/Default.aspx. [Internet]. EUnetHTA2015.

11. Joanna Briggs Institute Reviewers' Manual: 2014 edition. The University of Adelaide. Available at: http://www.joannabriggs.org/assets/docs/sumari/ReviewersManual-2014.pdf.

12. Garrido, Marcial Velasco. Health technology assessment and health policy-making in Europe: current status, challenges and potential: WHO Regional Office Europe; 2008.

13. Lavis, John, Davies, Huw, Oxman, Andy, Denis, Jean-Louis, Golden-Biddle, Karen, Ferlie, Ewan. Towards systematic reviews that inform health care management and

policy-making. Journal of Health Services Research & Policy. 2005;10(suppl 1):35-48.

14. Thomas, James, Newman, Mark, Oliver, Sandy. Rapid evidence assessments of research to inform social policy: taking stock and moving forward. Evidence & Policy: A Journal of Research, Debate and Practice. 2013 //;9(1):5-27.

15. Dobbins, M., Jack, S., Thomas, H., Kothari, A. Public health decision-makers' informational needs and preferences for receiving research evidence. Worldviews Evid Based Nurs. 2007;4(3):156-63.

16. Innvaer, S., Vist, G., Trommald, M., Oxman, A. Health policy-makers' perceptions of their use of evidence: a systematic review. J Health Serv Res Policy. 2002 Oct;7(4):239-44.

17. Wallace, J., Byrne, C., Clarke, M. Making evidence more wanted: a systematic review of facilitators to enhance the uptake of evidence from systematic reviews and meta-analyses. Int J Evid Based Healthc. 2012 Dec;10(4):338-46.

18. Pai, M., McCulloch, M., Gorman, J. D., Pai, N., Enanoria, W., Kennedy, G., Tharyan, P., Colford, J. M., Jr. Systematic reviews and meta-analyses: an illustrated, step-by-step guide. Natl Med J India. 2004 Mar-Apr;17(2):86-95.

19. Brassey, J. All That Glitters Is Not Gold — Are Systematic Reviews Fool's Gold? Available at: https://www.youtube.com/watch?v=G--M46UDLmE&feature=youtu.be. CADTH Lecture Series. [Internet]: Canadian Agency for Drugs and Technologies in Health; May 2015.

20. Menon, D., Stafinski, T. Health technology assessment in Canada: 20 years strong? Value Health. 2009 Jun;12 Suppl 2:S14-9.

21. Carlsson, P. Health technology assessment and priority setting for health policy in Sweden. Int J Technol Assess Health Care. 2004 Winter;20(1):44-54.

22. Merlin, Tracy, Tamblyn, David, Ellery, Benjamin. What's in a name? Developing definitons for common health technology assessment product types of the International Network of Agencies for Health technology Assessment (INAHTA). International Journal of Technology Assessment in Health Care. 2014;30(04):430-7.

23. Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., Moher, D. Evidence summaries: the evolution of a rapid review approach. Syst Rev. 2012;1:10.

24. Sampson, M, Shojania, KG, Garritty, C, Horsley, T, Ocampo, M, Moher, D. Systematic reviews can be produced and published faster. J Clin Epidemiol. 2008;61:531 - 6.

25. Brassey, J. Anarchism, punk and EBM. Evidence Live Oxford, UK. 2013.

26. Yuan, Y., Hunt, R. H. Systematic reviews: the good, the bad, and the ugly. Am J Gastroenterol. 2009 May;104(5):1086-92.

27. Pattanittum, P., Laopaiboon, M., Moher, D., Lumbiganon, P., Ngamjarus, C. A comparison of statistical methods for identifying out-of-date systematic reviews. PLoS One. 2012;7(11):e48894.

28. Moher, D., Tsertsvadze, A., Tricco, A. C., Eccles, M., Grimshaw, J., Sampson, M., Barrowman, N. When and how to update systematic reviews. Cochrane Database Syst Rev. 2008(1):Mr000023.

29. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. IntJ TechnolAssessHealth Care. 2008;24(2):133-9.

30. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

31. Andradas, E., Blasco, J. A., Valentin, B., Lopez-Pedraza, M. J., Gracia, F. J. Defining products for a new health technology assessment agency in Madrid, Spain: a survey of decision makers. Int J Technol Assess Health Care. 2008 Winter;24(1):60-9.

32. Hailey, D, Corabian, P, Harstall, C, Schneider, W. The use and impact of rapid health technology assessments. Int J Technol Assess Health Care. 2000;16:651 - 6.

33. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. Int J Technol Assess Health Care. 2008 Spring;24(2):133-9.

34. Hailey, D. A preliminary survey on the influence of rapid health technology assessments. Int J Technol Assess Health Care. 2009 Jul;25(3):415-8.

35. Ganann, R., Ciliska, D., Thomas, H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci. 2010;5:56.

36. Featherstone, R. M., Dryden, D. M., Foisy, M., Guise, J. M., Mitchell, M. D., Paynter, R. A., Robinson, K. A., Umscheid, C. A., Hartling, L. Advancing knowledge of rapid reviews: an analysis of results, conclusions and recommendations from published review articles examining rapid reviews. Syst Rev. 2015;4(1):50.

37. Garrity, C. Information Sharing Session on Rapid Review Initiatives. Available at: https://www.cadth.ca/sites/default/files/events/Chantelle-Garrity_RR-Initiatives_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet] February 2015.

38. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E. AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

39. Khangura, S., Polisena, J., Clifford, T. J., Farrah, K., Kamel, C. Rapid review: an emerging approach to evidence synthesis in health technology assessment. Int J Technol Assess Health Care. 2014 Jan;30(1):20-7.

40. Moher, D. Do we need a rapid review reporting guideline? Is PRISMA-P helpful when generating a RR protocol? Available at: https://www.cadth.ca/sites/default/files/events/David-Moher_Publishing-Rapid-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

41. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

42. Schunemann, H. J., Moja, L. Reviews: Rapid! Rapid! Rapid! ...and systematic. Syst Rev. 2015;4:4.

43. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet] February 2015.

44. Coates, V. Keynote Address: Rapid Reviews and Their Impact on Future Directions for Health Technology Assessment. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet] February 2015.

45. Hammersley, M. Systematic or unsystematic, is that the question. Some reflections on the science, art and politics of reviewing research evidence Talk given to the Public Health Evidence Steering Group of the Health Development Agency. 2002.

46. Gough, D., Thomas, J., Oliver, S. Clarifying differences between review designs and methods. Syst Rev. 2012;1:28.

47. Clifford, T. J. Personal Communication. 2015.

48. Kamel, C. Mann, J. Rapid Evidence reviews: The CADTH Experience [Poster]. International Cochrane Colloquium, Quebec City, Quebec, Canada. [Internet]2013.

49. Griffin, Krystle. Project Manager (CADTH). HTIS/Rapid Response Product Summary - Personal Communication Email. 2011 Mar 3.

50. Abrami, Philip C., Borokhovski, Eugene, Bernard, Robert M., Wade, C. Anne, Tamim, Rana, Persson, Tonje, Bethel, Edward Clement, Hanz, Katherine, Surkes, Michael A. Issues in conducting and disseminating brief reviews of evidence. Evidence & Policy: A Journal of Research, Debate and Practice. 2010 //;6(3):371-89.

51. Wilson MG, Lavis JN, Gauvin FP. . Issue Brief: Developing a 'Rapid-response' Program for Health System Decision-Makers in Canada. Hamilton, Canada: McMaster Health Forum, 7 March 2014. .

52. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg. 2008 Nov;78(11):1037-40.

53. Shea, B. J., Hamel, C., Wells, G. A., Bouter, L. M., Kristjansson, E., Grimshaw, J., Henry, D. A., Boers, M. AMSTAR is a reliable and valid measurement tool to assess the methodological quality of systematic reviews. J Clin Epidemiol. 2009 Oct;62(10):1013-20.

54. Turner, L., Boutron, I., Hrobjartsson, A., Altman, D. G., Moher, D. The evolution of assessing bias in Cochrane systematic reviews of interventions: celebrating methodological contributions of the Cochrane Collaboration. Syst Rev. 2013;2:79.

55. Tools, McMaster University: National Collaborating Centre for Methods and. Methods: Synthesis 1. Rapid reviews: Methods and implications. [factsheet]. Hamilton, ON. Available at: http://www.nccmt.ca/pubs/Methods_Synthesis1.pdf.

56. Sacks, H. S., Berrier, J., Reitman, D., Ancona-Berk, V. A., Chalmers, T. C. Meta-analyses of randomized controlled trials. N Engl J Med. 1987 Feb 19;316(8):450-5.

57. Shea, B. J., Grimshaw, J. M., Wells, G. A., Boers, M., Andersson, N., Hamel, C., Porter, A. C., Tugwell, P., Moher, D., Bouter, L. M. Development of AMSTAR: a measurement tool to assess the methodological quality of systematic reviews. BMC Med Res Methodol. 2007;7:10.

58. Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., Group, Prisma- P. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015;349:g7647.

59. Canadian Agency for Drugs and Technologies in Health (CADTH) website. Rapid Response Services page. 2015; Available from: https://www.cadth.ca/rapid-response-service.

60. Booth, Andrew, Papaioannou, Diana, Sutton, Anthea. Systematic approaches to a successful literature review. London: Sage Publications Ltd.; 2012.

61. Maddern, G. Rapid reviews or full health technology assessments - What are the needs in decision making? Health Technol Assess Int Meeting 2008 Montreal Canada. 2008;5:Abstract.

62. Van de Velde, S., De Buck, E., Dieltjens, T., Aertgeerts, B. Medicinal use of potato-derived products: conclusions of a rapid versus full systematic review. Phytother Res. 2011 May;25(5):787-8.

63. O'Rourke, Brian. From Evidence to Practice: The Evolution of HTA in Canada, HTAi 2011,Bilbao, Spain. Available at: http://www.htai2011.org/documentos/Brian%20O%27Rourke_Ter.pdf.

64. Buscemi, N., Hartling, L., Vandermeer, B., Tjosvold, L., Klassen, T. P. Single data extraction generated more errors than double data extraction in systematic reviews. J Clin Epidemiol. 2006 Jul;59(7):697-703.

65. McAuley, L., Pham, B., Tugwell, P., Moher, D. Does the inclusion of grey literature influence estimates of intervention effectiveness reported in meta-analyses? Lancet. 2000 Oct 7;356(9237):1228-31.

# 3. REPORTING AND CONDUCT IN 'RAPID REVIEWS'

The following is a manuscript prepared for publication based on a literature review of rapid review samples. The objective of this study was to describe rapid review characteristics and explore compliance with published reporting and conduct checklists.

Appendices which directly supplement the main manuscript have been included at the end of this chapter. Additional supporting documentation for this study is provided in Appendix B, including:

a) INAHTA survey questionnaire and summary of responses; and,

b) Detailed list of data extracted for each rapid review sample

This manuscript was co-authored by the student, her co-supervisors, Dr. Tammy Clifford and Dr. David Moher, with additional assistance from a medical information scientist, Leigh-Ann Topfer. The student is the first author of this paper, having been responsible for study conception, design and implementation and writing of the manuscript. Drs. Clifford and Moher provided valuable feedback throughout the process and Leigh-Ann Topfer assisted with the literature search, updates and screening of the initial sample of rapid reviews. Ms. Topfer preferred to be acknowledged in this manuscript over being a named author.

**Quality of conduct and reporting in rapid reviews: An exploration of compliance with PRISMA and AMSTAR guidelines**

Shannon E Kelly[1,2*], David Moher[1,3], Tammy J Clifford[1,4]

[1]School of Epidemiology, Public Health and Preventive Medicine, University of Ottawa, Canada.

[2]Cardiovascular Research Methods Centre, University of Ottawa Heart Institute, Ottawa, Canada.

[3]Ottawa Hospital Research Institute, Ottawa, Canada

[4]Canadian Agency for Drugs and Technologies in Health, Ottawa, Canada

*Correspondence to Shannon Kelly

Abbreviated title: Quality of conduct and reporting in rapid reviews

Word count (text only): 7,389

This manuscript includes (3) tables and (6) figures.

## Abstract

**Background:** Rapid reviews are an accelerated evidence synthesis approach intended to meet the timely needs of decision-makers in healthcare settings. Quality of conduct and reporting has been described in the rapid review literature; however, no formal assessment has been carried out using available instruments. The objective of this study was to explore compliance with conduct and reporting guidelines in rapid reviews published or posted online during 2013 and 2014.

**Methods:** We performed a comprehensive literature search for rapid reviews using multiple bibliographic databases (e.g., PubMed, MEDLINE, EMBASE, the Cochrane Library) through December 31, 2014. Grey literature was searched thoroughly, and health technology assessment agencies were surveyed to identify additional rapid review products. Candidate reviews were assessed for inclusion using pre-specified eligibility criteria. Detailed data was collected from the included reviews on study and reporting characteristics and variables significant to rapid reviews (e.g., nomenclature, definition). We evaluated the quality of conduct and reporting of included rapid reviews using the AMSTAR (A Measurement Tool to Assess Systematic Reviews) and PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) checklists. Compliance with each checklist item was examined and the sum of adequately reported items was used to describe overall compliance. Rapid reviews were stratified to explore differences in compliance related to publication status. The association between compliance and time to completion or length of publication was explored through univariate regression.

**Results:** Sixty-six rapid reviews were included. There were heterogeneous nomenclature, research questions, and approaches to rapid reviews. Compliance with AMSTAR and

PRISMA checklists was poor. Published rapid reviews were compliant with individual PRISMA items more often than unpublished reviews, but no difference was seen in AMSTAR item compliance overall. There was evidence of an association between length of publication and time to completion and the number of adequately reported PRISMA or AMSTAR items.

**Conclusion:** Transparency and inadequate reporting are significant limitations of rapid reviews. Scientific editors, authors and producing agencies should ensure that the reporting of conduct and findings is accurate and complete. Further research may be warranted to explore reporting and conduct guidelines specific to rapid reviews and how these guidelines may be applied across the spectrum of rapid review approaches.

**Keywords**

rapid review, decision-making, methodology, conduct, quality, evidence synthesis, accelerated methods, reporting, research transparency, time factors

## INTRODUCTION

Healthcare decision-makers at all levels are under constant pressure to make timely evidence-informed policy or practice decisions. Although highly valued, the time needed to complete a full systematic review of the literature often exceeds the time that end-users have to evaluate evidence or incorporate it into their processes. Rapid reviews are an accelerated evidence synthesis approach specifically intended to meet the needs of knowledge users in healthcare settings (1, 2). Ideally, to minimize potential sources of bias, a rapid review should follow frameworks for systematic review conduct, such as those published by the Cochrane Collaboration, as closely as time will allow. However, in order to pragmatically achieve timely delivery of evidence, certain concessions are often made in these processes. Attempts have been made to describe and assess rapid reviews through selection and careful appraisal of exemplar samples (1, 3-6). The characteristics of rapid reviews, and the limitations of these products, have been described in previous work (1, 6, 7). Heterogeneity of rapid review approaches and poor reporting of methods or processes have been consistently observed, making evaluation of these evidence products difficult.(6) This, in turn, makes it difficult for decision-makers to quantify any bias that may have been introduced or to judge how much value to place on the evidence contained in a rapid review.

Rapid reviews are created by a variety of producers worldwide, including individuals, independent research groups, and organizations and agencies which offer rapid evidence services to their stakeholders. Until recently, most rapid review products have not been unpublished and the majority are not indexed in health-related bibliographic databases

(e.g., MEDLINE, CINAHL). The diverse nomenclature used to describe these approaches also makes it difficult to identify rapid reviews using traditional search methods. This is complicated further by the lack of an accepted or validated definition for rapid reviews, which results in the term 'rapid review' having different meanings to the assortment of stakeholders who produce or use them (2, 8).

There are currently no guidelines or accepted rules for the reporting or conduct of rapid reviews. The PRISMA (Preferred Reporting Items of Systematic reviews and Meta-Analyses) Statement and the AMSTAR (A Measurement Tool to Assess Systematic Reviews) checklist are reliable and practical instruments designed to help end-users discriminate between systematic reviews with a focus on quality of reporting and conduct (9, 10). Both have become widely accepted by publishing agencies and evidence producers since 2011. Given the aim of rapid reviews to optimize to the extent possible a systematic process while synthesizing evidence and balancing the timely requirements of health care decision-making, it is feasible that these tools could also be applied to rapid reviews. No studies to date have applied validated reporting or conduct instruments such as PRISMA or AMSTAR to rapid reviews with the goal of assessing the quality of conduct and reporting, although previous work has suggested this task may be helpful to improve reporting transparency (4).

Given the above, and the importance of rapid reviews to decision-makers, this study was carried out to explore the general study characteristics of these research products. We also aimed to evaluate the quality of both process and reporting in both journal-published and unpublished (grey literature) rapid evidence synthesis products through measurement

of compliance with the PRISMA and AMSTAR checklists. Secondary aims were to explore whether the time to completion or the length of the report influenced instrument compliance.

## METHODS

The strategy for locating rapid reviews and assessing the quality of their conduct and reporting involved three fundamental steps. First, a protocol was developed in August 2011 in consultation with methodological experts in knowledge synthesis, HTA and evidence-based decision-making. Second, a broad and comprehensive literature search was carried out to identify published and unpublished samples of rapid reviews produced internationally since 2005. Third, an in-depth examination of the characteristics of the included rapid reviews was conducted. We examined the quality of reporting and process for both published and unpublished rapid reviews using validated tools (AMSTAR and PRISMA) and compared the results to identify areas for improvement. In addition, we explored a variety of common themes identified in previously published work in the area of accelerated evidence synthesis.

### Information Sources

Comprehensive literature searches were conducted with the assistance of an experienced medical information specialist knowledgeable in evidence synthesis and rapid reviews. Search strategies were peer reviewed (11) and used both controlled vocabulary (e.g. National Library of Medicine's MeSH terms) and keywords. Between October 25 and 31, 2011 we searched PubMed, MEDLINE (Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1948 to Present;), EMBASE (Ovid, 1980 to 2011 Week 42), the Cochrane library, York Centre for Reviews

and Dissemination (CRD) Database of Abstracts of Reviews of Effects (DARE), NHS Economic Evaluation Database (EED) and HTA, Web of Science, National Library of Medicine Gateway, and CINAHL (EBSCOHost). The Medline search strategy is presented in the Supplemental Appendix to this article. Search updates were carried out monthly in PubMed until December 31, 2014.

A thorough grey literature search was conducted using CADTH's *Grey matters: A search tool for evidence-based medicine* (https://www.cadth.ca/resources/finding-evidence/grey-matters-practical-search-tool-evidence-based-medicine) to identify rapid reviews not formally published in peer-reviewed journals and rapid reviews produced by organizations and agencies whose products are not indexed in the bibliographic databases searched. The grey literature search was augmented by a general internet search (Google/Google Scholar) to identify web-based reports. The searches were supplemented by reviewing the bibliographies of key papers and conference proceedings, citation mapping and hand searching of HTA agencies known to deliver rapid review services. The searches were large in scope and intentionally unrestricted in order to capture the wide variety of published and unpublished products falling under the global term of 'rapid review'.

*Scan of HTA Agency Rapid Reviews*

In order to more comprehensively identify rapid review producers, we supplemented the formal literature search with an email scan of International Network of Agencies for Health Technology Assessment (INAHTA) agencies circulated in November 2011. Each organization was asked:

1. Does your agency currently undertake rapid review?
    a. If NO, does your agency have plans to produce rapid reviews in the future?
    b. If YES, what type of rapid review products does your agency produce?
2. What timeframes do you offer for your rapid review products?
3. Are your rapid reviews publicly available on your website? If so, can you please forward the URL/address?

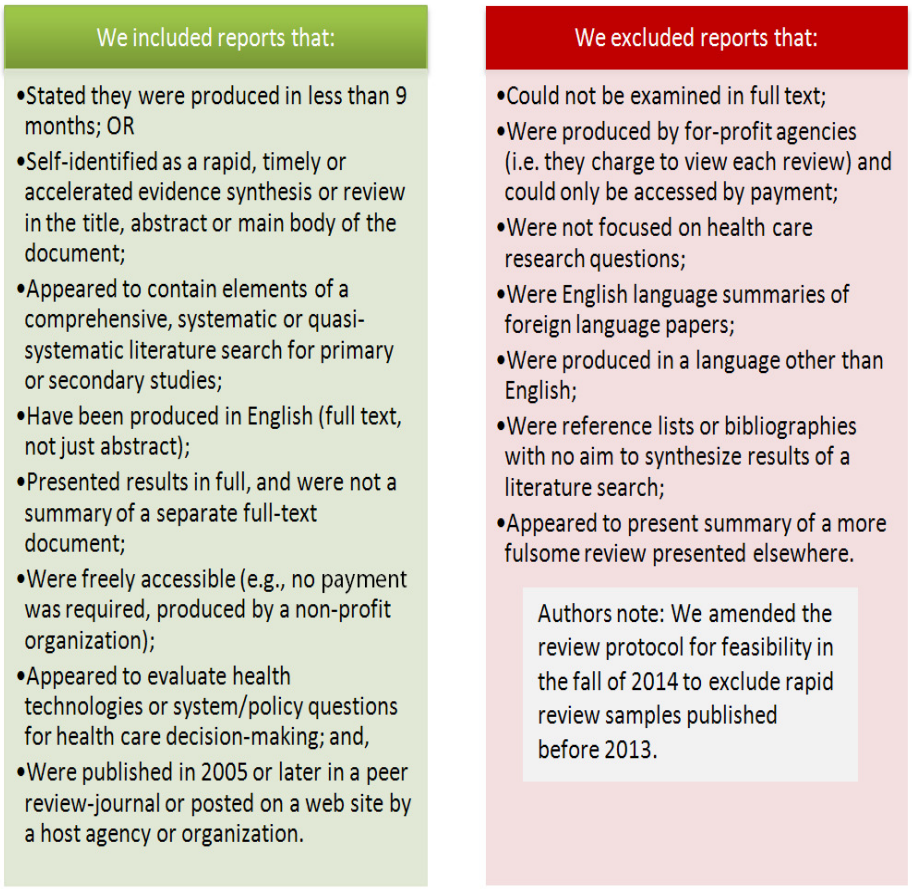
**Screening and selection**

Broad eligibility criteria were piloted on a sample of 100 database records following the literature search. These criteria were revised to improve specificity and then applied to each title and abstract identified by one reviewer (LAT) in a standardized manner. A second review author (SK) screened a random sample (10%) of excluded records. Any uncertainties were resolved by discussion and consensus with a third review author (TC or DM). Any candidate rapid review passing the initial selection criteria with a definite or unclear status, along with all potential samples identified in the grey literature search were obtained in full text format. One reviewer (SK) applied the eligibility criteria and made a final decision for inclusion.

**Eligibility criteria**

Due to the diversity of methodologies, production timelines and nomenclature used in previous rapid review research (1-3) we followed inclusive selection criteria to identify candidate studies (Figure 3-1).

***Figure 3-1.*** *Eligibility criteria for rapid review selection.*




Rapid reviews were included regardless of publication status. The protocol was revised prior to data extraction to limit the eligibility of rapid reviews to those produced between January 1, 2013 and December 31, 2014. This revision was necessary in order to obtain a manageable sample of rapid reviews and to ensure that the samples collected reflected current practice given the continuous evolution of rapid review approaches between 2005 and 2014. We included all journal-published rapid reviews meeting the eligibility criteria in the specified timeframe, and an equivalent number of agency-produced samples located in the grey literature. Hereafter, journal-published rapid reviews are referred to as 'published' while those located in the grey literature are referred to as 'unpublished' rapid reviews. Where organizations produced multiple rapid reviews in a single year, a

random selection of two samples from all available 2013 or 2014 rapid reviews was made for inclusion. No more than two samples from a single organization were included.

**Data abstraction**

A single reviewer (SK) abstracted data into a Microsoft Excel 2007 spreadsheet standardized for the project. Five samples were used to pilot the form and revisions were made before global extraction. Data was collected from included rapid reviews for study characteristics [e.g., primary author or agency, country, date posted or published, date submitted/accepted (if applicable), number of authors, eligibility and selection criteria, type of research questions, purpose, type of decision under consideration, number of outcomes, funding, use of supplemental appendices], methodological processes [approach, use of protocol/protocol elements reported, number of reviewers screening/extracting/performing assessment of research quality, search date, number of bibliographic databases searched, date /language or geographical filters applied to search or screening, additional search methods employed (e.g., grey literature, hand searching, trial registries, citation mapping) instruments used for quality assessment, use of GRADE, types of study included, use of internal or external peer-review], author-reported limitations or disclaimers, rapid review definitions and nomenclature, length of report (in pages) and time frames for completion where reported. We also assessed if findings were framed in context with any reported decision-making need.

In the case where unpublished rapid review methods were not reported or a source document was referenced, agency and organization websites were checked for additional clarification of process. Details on methods or approach were extracted from additional

source documents if described in such a way that no variation in process was expected and the process for all rapid review products was standardized and clear. Data were not used if the associated documentation stated that that the method was used 'sometimes' or that methods were report-specific.

**Data synthesis and quality appraisal**

Data were extracted for published and unpublished rapid reviews separately and then aggregated into a single table for evaluation. Variables were synthesized narratively and summarized using descriptive statistics (frequencies, proportions and percentages) and category groupings (e.g., number of authors, length in pages).

Two dimensions of rapid review reporting and methodological conduct were explored. First, we applied the A Measurement Tool to Assess Systematic Reviews (AMSTAR) checklist, an 11-item measurement tool validated to critically appraise the methodological quality of systematic reviews using currently understood knowledge on bias potentially introduced through conduct in evidence synthesis. We used the AMSTAR checklist to evaluate each included review to examine the overall, and by-item, quality of conduct. Response options for each domain were 'yes', 'no', 'can't answer' and 'not applicable' and domains that were partially answered were recorded by noting which item was answered adequately. We counted each sufficiently reported domain (answer = 'yes') and summed responses based on a maximum possible count of 11.

Next we evaluated the reporting quality of the rapid review samples using the PRISMA Statement. The PRISMA Statement is a 27-item (and 4-item flow diagram) measure of

overall reporting strength for evidence syntheses reporting randomized controlled trials (RCT). We chose this instrument as it is widely accepted as a scientific standard for reporting of secondary studies of RCTs that can also be applied to other types of research, including healthcare interventions. Response options for each item were 'yes', 'no' and 'not applicable' and we recorded items that were partially answered (e.g., for item 5 if use of a protocol was mentioned but no registration number was provided). Each included study was evaluated individually and we counted each sufficiently reported item (answer = 'yes') and summed responses based on a maximum possible count of 27.

Overall compliance with PRISMA and AMSTAR were calculated as an overall sum of adequately met items for each rapid review, a mean or median numbers of items reported adequately across all included rapid reviews (overall and by domain), and then stratified by publication status for exploratory analysis.

We explored the potential confounding effect of journal word limits (represented by length in pages) and the impact of time to completion on the number of PRISMA or AMSTAR items adequately reported or met. We carried out univariate regression in Microsoft Office Excel 2007 using the 'Real Statistics' data add-in (www.real-statistics.com). Extracted data on the length of the publication (in pages, excluding references and appendices) and reported times to completion for all included studies were used. Rapid reviews were stratified by publication status for additional analyses and documented the proportion of adequately reported PRISMA and AMSTAR checklist items.

## RESULTS

### Selection of rapid review samples

Fourteen HTA agencies responded to the INAHTA scan, and their external web sites were searched for relevant rapid review products following the comprehensive search for published and unpublished reports. Figure 3-2 shows a flow diagram of studies included using guidance from the PRISMA Statement (12). The literature search yielded 5,478 titles and abstracts after deduplication across databases. In total, 1,008 articles were potentially relevant and their full-text was reviewed. Few rapid review samples in the published literature were located prior to 2011; however, samples of unpublished rapid reviews were plentiful. Following full text review, 66 rapid reviews produced between 2013 to 2014 fulfilled our eligibility criteria and were included (13-78). Thirty-three were journal-published (13-45) and 33 were unpublished (46-78) rapid reviews (Full list in the supplemental appendix). The thirty-three published rapid reviews were reported in 43 published articles including companion studies (79-87) for one included rapid review that was published in a journal as a series of 10 articles (20). We considered these publications a single rapid review as they reported results by intervention from a single literature search. Thirty-one unpublished rapid reviews were located on the websites of their producing agency or organization. Two unpublished rapid reviews (73, 77) were located through contact with primary authors following expert input.

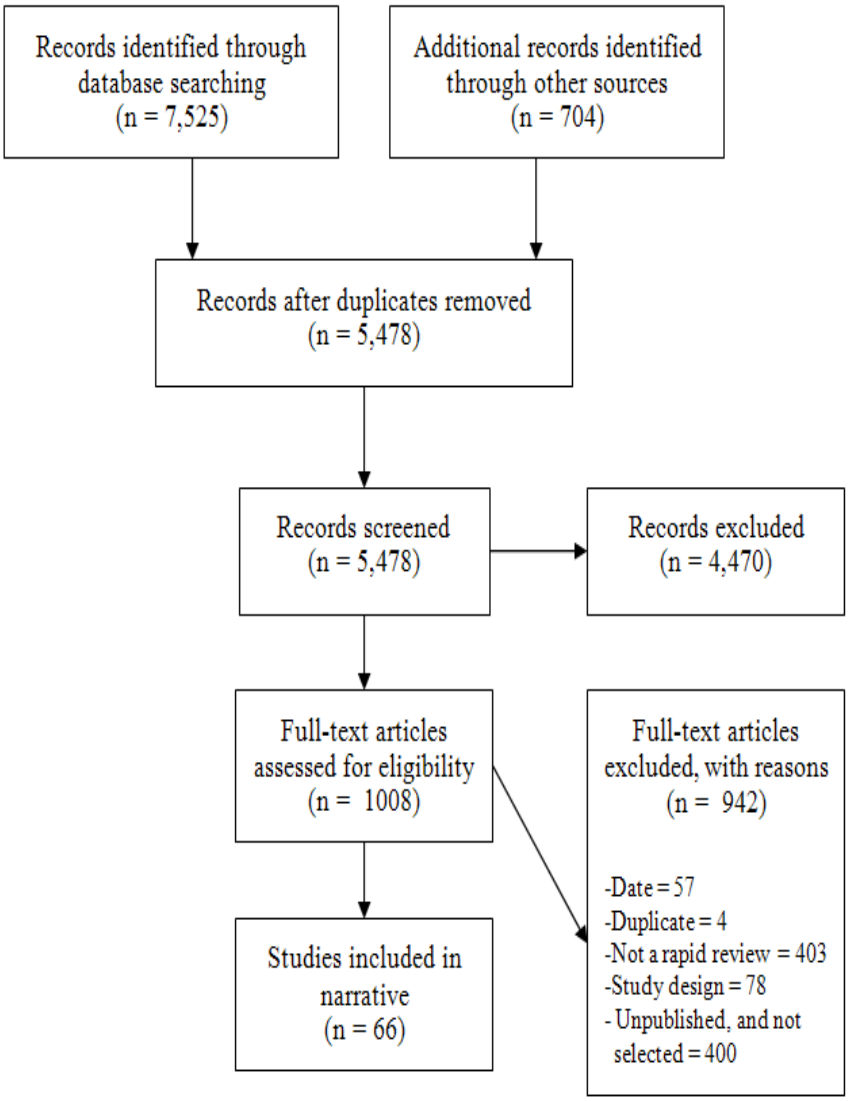
### Characteristics of Rapid Reviews

Table 3-1 summarizes characteristics of the included rapid reviews. Detailed characteristics could not be reported and explored fully in this study and are reported

elsewhere[3]. Sixty-six rapid reviews were included. Thirty three were published in 25 unique journals and the remaining 33 were produced by 31 unique evidence producers, including HTA agencies, academic research groups, or international, national or local agencies. The number of rapid reviews published in peer-reviewed journals significantly increased between 2013 and 2014. All published rapid reviews, and a majority (88%) of the included unpublished samples self-identified as a rapid review somewhere in the title, abstract, or body of the report. Unpublished studies that did not self-identify as a rapid review were categorized or labelled as a rapid review by their associated agency or organization website through a product description or additional source documentation. The most common countries of production were Canada, USA, the United Kingdom and Australia. The number of authors varied greatly among the included rapid reviews. Single authorship (a single named individual or attribution to the producing agency only with no individual listing of authors) was found only in the unpublished rapid review samples.

[3] Note: The rapid review characteristics presented in this study are free from selective reporting. The surplus of study and methodological characteristics could not be adequately addressed in a single manuscript and will be explored in a supplemental manuscript separate to this student thesis. A detailed list of data variables extracted is provided in the Appendix B.

***Figure 3-2.*** *PRISMA flow diagram of rapid review sample selection*




Nomenclature used to describe the accelerated or timely evidence synthesis process varied greatly amongst the included studies. The terms 'rapid review' (36%), 'rapid systematic review' (15%) or 'rapid evidence assessment' (15%) were most common. Over 60% of the research questions were aimed at the clinical efficacy or effectiveness of an intervention. Health economics, cost questions and those related to health care systems or service delivery were also frequent. Few samples addressed questions related to diagnostic or screening tests. A large proportion (88%) of the included studies

***Table 3-1.*** *Characteristics of the Included Rapid Reviews (n=66).*

| Characteristic | Published (n=33) | Unpublished (n=33) | All (n=66) |
|---|---|---|---|
| *Year of Production, n (%)* | | | |
| 2013 | 8 (24) | 11 (33)[¥] | 19 (29) |
| 2014 | 25 (76) | 22 (67)[¥] | 47 (71) |
| *Number of Authors, n (%)* | | | |
| 1 | 0 (0) | 3 (9) | 3 (5) |
| 2-4 | 14 (42) | 11 (33) | 25 (38) |
| 5-8 | 13 (39) | 5 (15) | 18 (27) |
| >8 | 6 (18) | 5 (15) | 11 (17) |
| Not reported | 0 (0) | 9 (12) | 9 (14) |
| *Self-identifies as a rapid review, n (%)* | | | |
| Yes | 33 (100) | 29 (88) | 62 (94) |
| No | 0 (0) | 4 (12) | 4 (6) |
| *Country, n (%)* | | | |
| Canada | 5 (15) | 13(39) | 18 (27) |
| USA | 4 (12) | 3 (9) | 7 (11) |
| United Kingdom | 11 (33) | 8 (24) | 19 (29) |
| Australia | 4 (12) | 5 (15) | 9 (14) |
| Netherlands | 6 (18) | 0 (0) | 6 (9) |
| Korea | 1 (3) | 0 (0) | 1 (2) |
| Switzerland | 0 (0) | 1 (3) | 1 (2) |
| Scotland | 0 (0) | 1 (3) | 1 (2) |
| Malaysia | 0 (0) | 1 (3) | 1 (2) |
| Various | 2 (6) | 1 (3) | 3 (5) |
| *Rapid Review Definition, n (%)* | | | |
| Cited | 20 (60) | 10 (30) | 30 (46) |
| Own | 0 (0) | 6 (18) | 6 (9) |
| Not reported | 13 (40) | 17 (52) | 30 (46) |
| *Nomenclature, n (%)*[§] | | | |
| Rapid review | 14 (15) | 10 (30) | 24 (36) |
| Rapid systematic review | 9 (12) | 1 (3) | 10 (15) |
| Rapid evidence assessment | 6 (18) | 4 (12) | 10 (15) |
| Rapid evidence synthesis | 2 (6) | 1 (3) | 3 (5) |
| Rapid synthesis | 0 (0) | 1 (3) | 1 (2) |
| Rapid review of systematic reviews | 1 (3) | 1 (3) | 2 (3) |
| Systematic rapid evidence assessment | 1 (3) | 0 (0) | 1 (2) |
| Evidence-based analysis | 0 (0) | 1 (3) | 1 (2) |
| Rapid response | 0 (0) | 2 (6) | 2 (3) |
| Rapid evidence report/review | 0 (0) | 6 (18) | 6 (9) |
| Evidence briefing | 0 (0) | 1 (3) | 1 (2) |
| Evidence Map | 0 (0) | 1 (3) | 1 (2) |
| Rapid Advice Guideline | 0 (0) | 1 (3) | 1 (2) |
| Systematic rapid evidence review | 0 (0) | 1 (3) | 1 (2) |
| None used | 0 (0) | 1 (3) | 1 (2) |
| *Research Question*, n (%)* | | | |
| Clinical Efficacy | 18 (55) | 22 (67) | 40 (61) |

| Characteristic | Published (n=33) | Unpublished (n=33) | All (n=66) |
|---|---|---|---|
| Clinical Effectiveness | 16 (48) | 25 (76) | 41 (62) |
| Safety | 13 (30) | 15 (45) | 28 (42) |
| Diagnostic/Screening Test | 2 (6) | 1 (3) | 3 (5) |
| Health Economics/Cost | 4 (12) | 14 (42) | 18 (27) |
| Guidelines | 1 (3) | 7 (21) | 8 (12) |
| Public Health | 6 (18) | 5 (15) | 11 (17) |
| Health Systems | 9 (27) | 11 (33) | 20 (30) |
| Health Policy | 5 (15) | 3 (9) | 8 (12) |
| Service Delivery | 9 (27) | 12 (36) | 21 (32) |
| Other† | 5 (15) | 5 (15) | 10 (15) |
| *Synthesis Method, n (%)* | | | |
| Narrative | 31 (94) | 27 (82) | 58 (88) |
| Meta-Analysis | 2 (6) | 2 (6) | 4 (6) |
| Indirect Comparison | 0 (0) | 1 (3) | 3 (5) |
| Economic Evaluation | 0 (0) ± | 0 (0) | 0 (0) |
| None (no studies located) | 0 (0) | 3 (9) | 3 (5) |
| *Length of Publication, Number of Pages[a], n (%)* | | | |
| 1-5 | 5 (15) | 3 (9) | 8 (12) |
| 6-10 | 17 (52) | 6 (18) | 23 (35) |
| 11-15 | 9 (27)** | 3 (9) | 12 (18) |
| 16-20 | 2 (6) | 5 (15) | 7 (11) |
| 20-50 | 0 (0) | 10 (30) | 10 (15) |
| >50 | 0 (0) | 6 (18) | 6 (9) |
| *Length of Publication, mean (SD)* | 8.8 (4.03) | 22.8 (27.2) | 18.7 (21.7) |

RR= rapid review; SD=standard deviation

¥ Proportion matched by year and limited in number by those published, proportion does not reflect the actual number of unpublished rapid reviews.

§for unpublished refers to the terminology used to describe the methodology employed, not the product name assigned by the organization. Some publication identifi9ed by multiple names, but this data reflects the most commonly used term in the publication.

*multiple research questions per rapid review.

†quality indicators, epidemiological associations, health care study methodology, patient experience.

*a* without references or appendices, including figures. One unpublished report was a webpage only and was counted as 5 pages approximated to its content. Results sum the number and percentage of rapid reviews in each page range.

± A single study in the published group did a narrative of economic evaluations, other simply analysed costs reported. No study did a de novo economic evaluation.

**mean across 10 included multiple publications for the same RR used.

narratively summarized results. Twelve (18, 19, 27, 30, 33-35, 51, 65, 75, 77, 83) studies considered meta-analysis, but data was insufficient for pooling which necessitated a narrative summary of results. Four (18, 27, 65, 75) rapid reviews conducted meta-analysis and a single review conducted an indirect treatment comparison (77). None of the included studies reported mentioned PRISMA or AMSTAR guidelines in their report, although one study did report using PRISMA-P guidelines for their protocol (77).

Included rapid reviews had a mean length in pages of 18.7 [standard deviation (SD) = 21.7] without considering references and appendices. Twelve percent (n=3) of the journals publishing the included rapid reviews required PRISMA in their instructions to authors. We were unable to ascertain if any of the agencies or groups producing unpublished rapid reviews endorsed PRISMA or AMSTAR use.

**Length of time taken to complete a rapid review**

Although 98% of our included samples used language describing rapid, accelerated or timely conduct and reporting of an evidence synthesis, very few reported how long it took to carry out the review. Three of the published rapid reviews (13, 30, 34) reported time to completion of 6 weeks (n=2) or 8 weeks (n=1). Eight of the unpublished rapid reviews reported actual time to completion (48, 49, 59-61, 67, 71, 78) of between 3 and 18 weeks (mean 9.9, SD 4.8).

In published samples that did not report time to completion, we estimated duration in weeks through use of the date of the literature search and calculated the number of days before the review was submitted to a journal. In 21 samples that reported both a date for the literature search and for journal submission, the mean time to completion was 36.3 weeks (SD 25.8).

**Methodological quality of rapid reviews: Compliance with the AMSTAR checklist**

Figure 3-3 shows the proportion of rapid reviews (n=66) that adequately met the individual AMSTAR checklist domains. Overall, compliance with the 11 items was poor. The median number of AMSTAR domains fulfilled was 4 [interquartile range (IQR) =

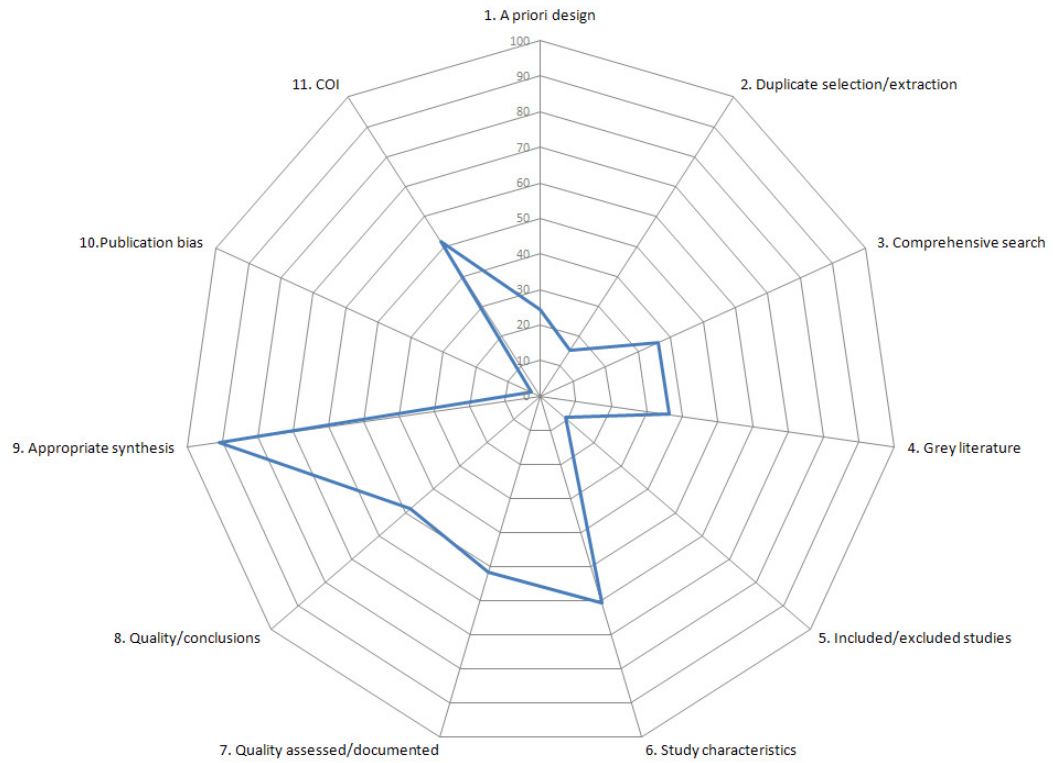
2.5 to 6.0] out of the maximum possible 11 items. Domains were adequately met 39% of the time, on average, in the 66 included rapid review samples.

Items that were better reported than others were the appropriateness of the methods used to combine the findings of studies (item 9, 91%), the aggregated study characteristics (item 6, 61%), assessment and documentation of study quality (item 7, 52%), appropriately forming conclusions based on the quality of the included studies (item 8, 48%), and listing study sources of funding (item 11, 52%). Compliance was extremely poor for the inclusion of a priori design of the research question(s) and inclusion criteria (item 1, 24%), duplicate study selection and extraction (item 2, 15%), use of the publication status as an inclusion criterion (item 4, 36%) and providing a list of included and excluded studies (item 5, 9%). Further exploration of item 2 (duplicate study selection and extraction) showed that 23% of rapid reviews limited either study selection or data extraction to a single reviewer (with or without checking by a second reviewer) and only partially met this domain. Seventy-four percent of rapid reviews partially met item 5 by providing references for included studies but not excluded studies. Only 2 rapid reviews (59, 60) reported any formal assessment of publication bias, and none presented any graphical aids (e.g., funnel plot) to support their evaluation.

**Variables associated with AMSTAR Reporting**

Exploratory univariate regression for AMSTAR could not be carried out for any variable as the data for the 66 included rapid review samples did not satisfy the normality assumption according to a Shapiro-Wilk test. Square root and logarithmic data transformations were attempted, but did not normalize the distribution.

***Figure 3-3.*** *Star chart depicting proportions of rapid reviews adequately reporting AMSTAR items (n=66).*




COI=conflict of interest

The smaller set of 11 rapid reviews reporting time to completion was normally distributed according to a Shapiro-Wilk test. Results of the exploratory regression on this variable showed that longer time to completion was significantly associated with an increase in the number of AMSTAR domains met [regression coefficient 1.7, 95% confidence interval (CI): 0.2 to 3.2].

**Reporting of rapid reviews stratified by publication status: Compliance with the AMSTAR checklist**

The mean number of AMSTAR domains adequately met for published rapid reviews was 4.2 (SD 2.2) out of the maximum possible of 11 and 4.3 when unpublished (SD 2.5).

Table 3-2 reports the proportion of published and unpublished rapid reviews meeting individual AMSTAR domain specifications (answer = 'yes'). A higher proportion of unpublished rapid reviews provided an a priori design (item 1) and searched for reports regardless of their publication type (grey literature, item 4) when compared to published reviews, although none of the 66 included rapid reviews reported this more than one third of the time. Higher proportions of published rapid reviews met the AMSTAR requirements for appropriately combining the findings of studies (item 9) and for declaring sources of support through conflict of interest statements (item 11). Poor reporting of excluded studies led to extremely low number of 'yes' responses for item 5 in all rapid reviews, and similar proportions of rapid reviews met AMSTAR domain requirements for the reporting of literature searches (Figure 3-4). Many rapid reviews received 'partial' responses for this domain as two or more databases were searched in a large proportion of rapid reviews; however, they did not employ supplementary strategies or methods were so restricted (e.g., searched only 2 years of literature) that the strategy could not be considered comprehensive to fulfill this domain requirement.

***Table 3-2.*** *Comparison of compliance to conduct standards outlined by AMSTAR*

| Item | Published (n=33) (%) | Unpublished (n=33) (%) |
|---|---|---|
| 1. Was an 'a priori' design provided? | 15.2 | 33.3 |
| 2. Was there duplicate study selection and data extraction? | 21.2 | 9.1 |
| 3. Was a comprehensive literature search performed? | 42.4 | 30.3 |
| 4. Was the status of publication (i.e. grey literature) used as an inclusion criterion? | 24.2 | 48.5 |
| 5. Was a list of studies (included and excluded) provided? | 3.0 | 15.2 |
| 6. Were the characteristics of the included studies provided? | 48.5 | 72.7 |
| 7. Was the scientific quality of the included studies assessed and documented? | 54.5 | 48.5 |
| 8. Was the scientific quality of the included studies used appropriately in formulating conclusions? | 51.5 | 45.5 |

| Item | Published (n=33) (%) | Unpublished (n=33) (%) |
|---|---|---|
| 9. Were the methods used to combine the findings of studies appropriate? | 100 | 81.8 |
| 10. Was the likelihood of publication bias assessed? | 0 | 6.1 |
| 11. Was the conflict of interest included? | 69.7 | 33.3 |

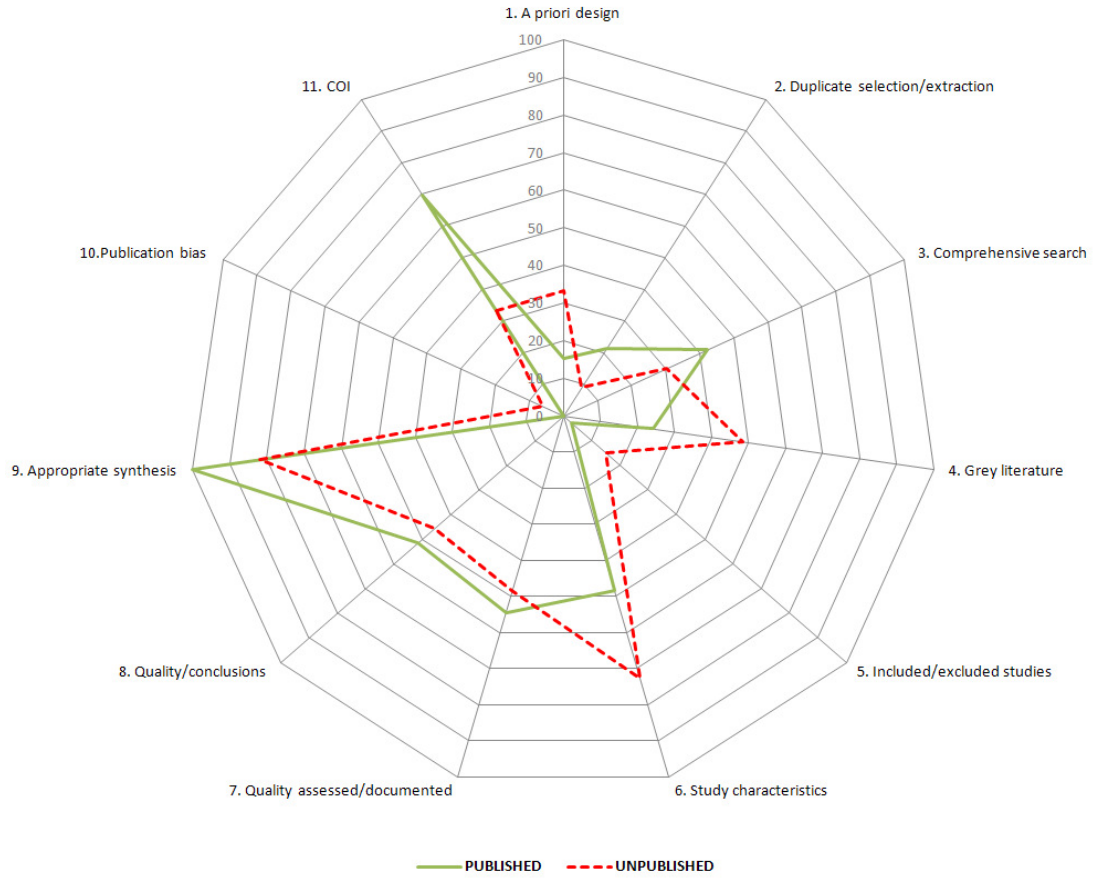
*Variables associated with AMSTAR reporting, stratified by publication status*

Results from a univariate regression on the length of publication (in pages) showed no association with number of overall AMSTAR items fulfilled when published rapid reviews were analysed. Data for the unpublished rapid review samples were normalized using a square root transformation prior to analysis. Regression coefficients showed a significant association [regression coefficient 6.2 (95% CI 2.99 to 9.43)] between length of report and the total number of AMSTAR items met. The sample size of rapid reviews reporting time to completion (n=11) was insufficient for regression analyses.

**Reporting of rapid reviews: Compliance with the PRISMA Statement**

The mean number of adequately reported PRISMA items was 13.2 (SD 6.0) out of the maximum possible 27. Items were adequately reported 49% of the time on average in the 66 included rapid review samples. Figure 3-5 shows the proportion of rapid reviews that adequately reported the individual PRISMA checklist items. Individual items that were reported well in a large proportion of rapid reviews were: describing all information sources in the search (item 7, 81%), presenting the main results of the review in a synthesis of results (item 21, 88%), summarizing the main findings with relevance to key groups (item 24, 74%) providing general interpretation and context for the results of the

***Figure 3-4.*** *Star chart depicting proportions of rapid reviews adequately reporting AMSTAR checklist items, by publication status (n = 66, n = 33 published, n = 33 unpublished).*




COI=conflict of interest

review in the conclusions (item 26, 89%). Other items were very poorly reported, such as indicating if a protocol exists or is registered (item 5, 6%), describing the process of data collection (item 10, 30%), and discussing the study limitations at the study/outcome and review level (item 25, 40%). Less than 50% of rapid reviews described the methods used for assessing risk of bias in individual studies (item 12, 44%) or presented data on the risk of bias in each study (item 19, 48%).

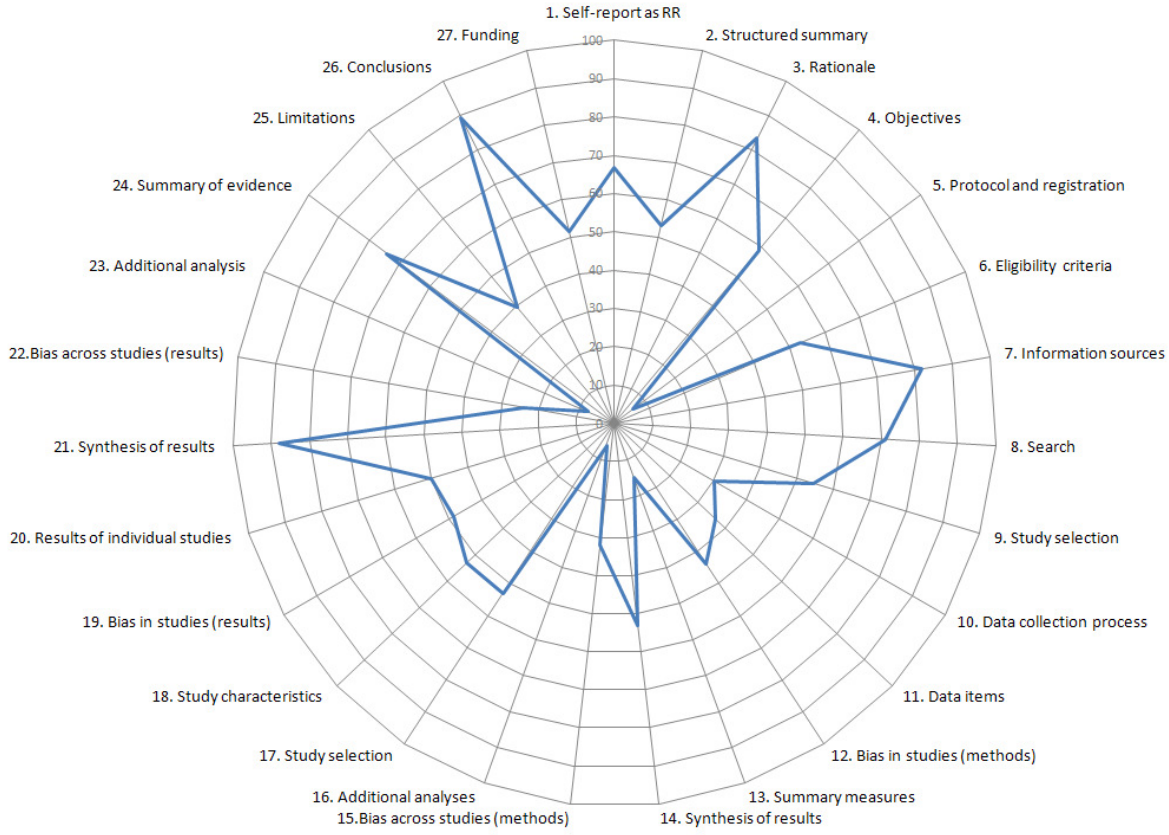
Due to the narrative description of results in most of the included rapid review samples, items 16 (additional analyses – methods, 6%) and 23 (additional analyses – results, 8%) were often given responses of 'not applicable' in the rapid review samples. Summary measures (item 13) were also poorly reported in a large proportion of included studies. Of the 14 rapid reviews who stated their intention to carry out meta-analyses in their methods, only 4 (29%) reported the effect measure that would be considered in their analyses. Three included unpublished rapid reviews were "empty", meaning that no candidate studies met the eligibility requirements.

Total number of PRISMA items reported by rapid review were used in a subsequent exploratory regression as the data were normally distributed according to a Shapiro-Wilk test (with some negative skewness and kurtosis).

**Variables associated with PRISMA Reporting**

Exploratory regression analyses were carried out for the total number of PRISMA items adequately reported using report length and time to completion as variables. Length of the primary publication in pages (without appendices or references) was associated with an increase of 1.45 PRISMA items adequately reported (95% CI: 0.6 to 2.3). A smaller set of rapid reviews (n=11) reporting time to completion did not find a significant correlation between the number of weeks required to complete a rapid review and the number of PRISMA checklist items adequately reported [regression co-efficient 0.23 (95% CI: -0.27 to 0.72)].

***Figure 3-5.*** *Star chart depicting proportions of rapid reviews meeting PRISMA reporting guidelines by item (n=66).*




**Reporting of rapid reviews stratified by publication status: Compliance with the PRISMA Statement**

The mean number of adequately reported PRISMA items for published rapid reviews was 14.5 (SD 4.7) out of the maximum possible 27 and 11.7 when unpublished (SD 6.8). Items were adequately reported 53% of the time, on average, in the 33 included published rapid review samples, and 44% of the time in unpublished samples. Table 3-3 shows the results of a comparison of total number rapid reviews adequately reporting PRISMA items, stratified by publication status. PRISMA items are better reported in published rapid reviews for 5 categories: Identifying the report as a rapid or accelerated evidence

synthesis (a slight modification to the item for the purposes of this review) in the title (item 1), use of a structured abstract (without protocol registration number considered)

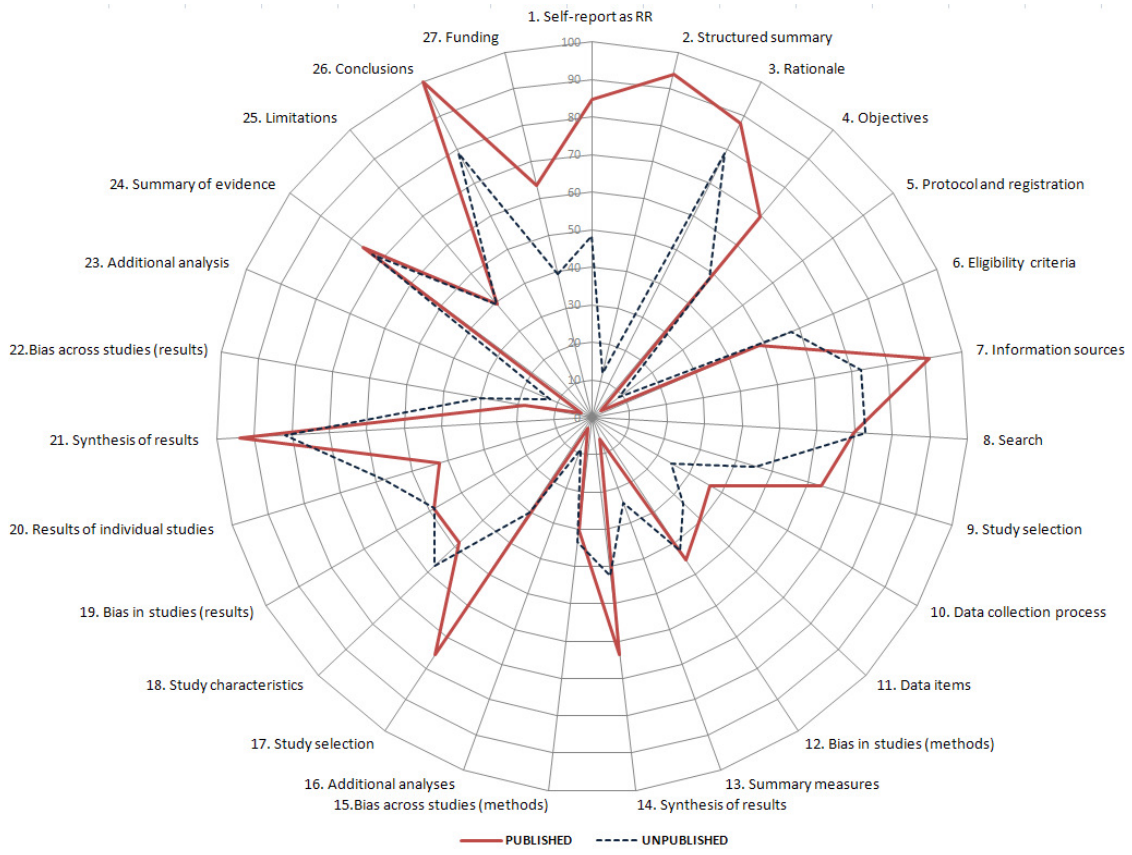
***Table 3-3.*** *Comparison of compliance to PRISMA reporting guidelines*

| PRISMA Item | Published (n=33) (%) | Unpublished (n=33) (%) |
|---|---|---|
| *Title* | | |
| 1. Self-reports as a rapid review | 84.85 | 48.48 |
| *Abstract* | | |
| 2. Structured summary | 93.94 | 12.12 |
| *Introduction* | | |
| 3. Rationale | 87.88 | 78.79 |
| 4. Objectives | 69.70 | 48.48 |
| *Methods* | | |
| 5. Protocol and registration | 3.03 | 9.09 |
| 6. Eligibility criteria | 48.48 | 57.58 |
| 7. Information sources | 90.91 | 72.73 |
| 8. Search | 69.70 | 72.73 |
| 9. Study selection | 63.64 | 45.45 |
| 10. Data collection process | 36.36 | 24.24 |
| 11. Data items | 39.39 | 33.33 |
| 12. ROB in individual studies | 45.45 | 42.42 |
| 13. Summary measures | 25.00* | 50.00* |
| 14. Synthesis of results | 63.64 | 42.42 |
| 15. ROB across studies | 30.30 | 33.33 |
| 16. Additional analyses | 3.03 | 9.09 |
| *Results* | | |
| 17. Study selection | 75.76 | 30.30 |
| 18. Study characteristics | 48.48 | 57.58 |
| 19. ROB within studies | 48.48 | 48.48 |
| 20. Results of individual studies | 42.42 | 57.58 |
| 21. Synthesis of results | 93.94 | 81.82 |
| 22. ROB across studies | 18.18 | 30.30 |
| 23. Additional analysis | 3.03 | 12.12 |
| *Discussion* | | |
| 24. Summary of evidence | 75.76 | 72.73 |
| 25. Limitations | 39.39 | 39.39 |
| 26. Conclusions | 100.0 | 78.79 |
| *Funding* | | |
| 27. Funding | 64.64 | 39.39 |

(item 2), stating the selection process for inclusion of studies (item 9), providing a general interpretation of results in the form of conclusions (item 26) and declaring

sources of funding for the rapid review (item 27). Published rapid reviews more often described information sources, syntheses of results, results of the study selection process and synthesis of results (Figure 3-6). Unpublished rapid reviews were more likely to clearly state eligibility criteria (item 6) for article selection and present a full electronic search strategy (item 8) and study characteristics (item 18). Rapid reviews reported study rationale, risk of bias methods and results, synthesis of results and summaries of evidence equally, regardless of publication status.

***Figure 3-6.*** *Star chart depicting proportions of rapid reviews adequately reporting PRISMA items, by publication status (n = 66, n = 33 published, n = 33 unpublished).*



*Variables associated with PRISMA reporting, stratified by publication status*

Number of PRISMA items adequately reported were analysed in a subsequent exploratory regression stratified by publication status as the data were normally distributed according to a Shapiro-Wilk test. Separate univariate regression analyses were carried out for the PRISMA item compliance using length of report and time to completion as variables, stratified by publication status. Results for the published rapid review samples showed that length of the primary publication was associated with a significant increase in PRISMA items adequately reported (regression coefficient 0.4, 95% CI: 0.1-0.6). Length of publication in the unpublished samples was associated with a larger increase in adequately reported PRISMA items (regression coefficient 2.5, 95% CI: 1.3-3.6).

## DISCUSSION

Our study provides a comprehensive assessment of the design and reporting characteristics of a large, recent cohort of rapid reviews. A detailed examination of baseline characteristics showed a heterogeneous mix of nomenclature, research questions and approaches to rapid reviews from a relatively small number of countries. The rapid review samples showed poor compliance with both the PRISMA and AMSTAR checklists. Only selected items in both instruments were adequately addressed by any rapid review. Stratification by publication status revealed that a higher proportion of published rapid reviews adequately complied with PRISMA guidelines compared to the unpublished samples. There was no difference in the number of AMSTAR domains met when publication status was considered. There was evidence of an association between

length of publication (PRISMA) and time to completion (AMSTAR) on total number of items reported or met in this cohort of rapid reviews. This relationship with length of report was reciprocated when the rapid reviews were stratified by publication status. To our knowledge this is the first study to explore the compliance of rapid reviews with the PRISMA and AMSTAR instruments, or any other standardized tool that captures adequacy of reporting and conduct. No other publications have aimed to study published rapid reviews or make comparisons taking publication status into consideration.

This research follows previous studies examining the transparency of process and quality of reporting in rapid reviews without the use of standardized tools or instruments. In line with the results of previous work, many of the identified studies did not report methods in sufficient detail (1, 3, 5), a problem not unique to rapid reviews (88). Although there were differences in the number of PRISMA and AMSTAR items met when published and unpublished reviews were considered separately, the limited details reported in the rapid reviews prevented a comprehensive evaluation in some domains, notably literature search, quality assessment, screening, selection and extraction, all of which are important contributors to the reproducibility and evaluation of a review. Any or all of these components may be tailored or even omitted as part of the streamlining processes designed to expedite systematic review completion times (3), so were unable to ascertain whether the reporting omissions were attributable to the rapid review approach or simply poor reporting (89). Evaluations of reporting characteristics in systematic reviews and meta-analyses have noted similar shortcomings as were found in this study, especially in non-Cochrane reviews (89-91).

Research protocols are a key feature of systematic reviews, and their absence leaves rapid reviews open to selective reporting of results or conclusions and facilitates post hoc modifications of approach (92). Our findings show that few rapid review authors are reporting use of protocols in their publications and even fewer are registering or publishing them. This is reflected in the poor compliance with related items in both the PRISMA and AMSTAR checklists. Our results conflict with a recent report by Polisena et al. (2015) who reported a cross-sectional review of processes and methods based on a survey of 29 international rapid review programs (4). Their results showed that 96.6% (n=28) of the agencies queried incorporated protocol development into their rapid review process. Many of the rapid reviews included in this study were produced by the agencies and organizations in the Polisena survey. There are a number of reasons that authors or organizations may choose not register their rapid review protocols, including the belief that systems like PROSPERO are for systematic reviews only, which emphasizes the viewpoint that a rapid review is not a systematic review (7). Authors of rapid reviews may use a more condensed version of a protocol to ensure a timely start to the review process, but we were unable to assess this in our samples. Rapid reviews also show variety in the types of study questions they answer, including public health, health services and systems questions. Applicability of PROSPERO or Preferred Reporting Items for Systematic Review and Meta-Analysis for protocols (PRISMA-P) guidance outside of the realm of therapeutic efficacy may be questioned (93), although they may still provide useful guidance to authors of rapid reviews (94).

It is concerning that the reporting of limitations specific to the conduct of the rapid review was consistently poor given the inherent methodological tailoring which

motivates the approach; however, this finding is consistent with previous work. Ganaan et al. (2010) also found that very few rapid reviews discussed potential limitations, or any potential bias that may have been introduced due to methodological concessions (1). Some rapid reviews in this study reported limitations, but a large proportion highlighted issues related to the quality of the included studies rather than weaknesses in approach or conduct. Disclaimers were used, most often in unpublished reports, to highlight caveats to end-users; however, most focused on the currency of the review, or vaguely referenced that the review could not be considered comprehensive. It is particularly important for rapid reviews to have a comprehensive limitations section to enable the end-user to judge the validity of the methods employed, the studies included, and ultimately how applicable the findings of the review may be for their own purposes.

Less than half of rapid reviews reported a structured summary or abstract. When the rapid review samples were stratified by their publication status, results changed significantly. We found that almost all journal-published samples reported structured abstracts, as is usually required by the journal, while few unpublished samples did. Many of the unpublished rapid reviews did use executive summaries to highlight key findings; however, most were either too lengthy to provide the reader with the intended brief overview of the report and did not summarize methods in any capacity. This may be attributable to the different aim of unpublished rapid reviews, which may be presented to end-users alongside additional support documentation (e.g. research summary document). It is probable that these rapid reviews are not aimed at being a standalone product like a journal article (95). Still, the Organization for Economic Co-operation and Development (OECD) and others still highlight the need for key messages over and beyond the

executive summary as they often cannot read detailed the findings from HTA products and must have critical messages communicated for better knowledge translation and uptake (95, 96).

Although closely related, it is important to keep the concepts of reporting and conduct separate when considering these findings. The low number of items completely met and large proportion of domains of partially met for AMSTAR may be attributable to more stringent or rigid assessment requirements (when compared to items in PRISMA). For example, the use of single reviewers to screen literature or extract data resulted in low number of AMSTAR items adequately meeting related domains. It is possible that a more granular AMSTAR assessment criterion would capture the methodological tailoring intrinsic to rapid reviews in a way that is more descriptive to the end-user. Further detail on the individual methods tailored in a rapid review, if captured by AMSTAR, would allow for more careful consideration of what is acceptable or not and where bias, if any, was likely to be introduced. It may be useful to have sub domains for item 1 where the use of a protocol would be kept separate from the description of eligibility criteria or the PICO, item 2 (duplicate study selection and data extraction) or item 5 (list of included and excluded studies). While not aimed at rapid reviews, a modification to the AMSTAR checklist in the form of R(revised)-AMSTAR has been proposed and validated (97), but was not developed or endorsed by the AMSTAR research group. R-AMSTAR considers 3 to 4 more detailed criteria per original AMSTAR item, which in principle may be more applicable to assessment of rapid reviews. This tool was later assessed to have poor measurement properties compared to the original instrument in a sample of systematic

reviews, so further research or revision may be required before investigation of its use can be considered (97, 98).

Regression models were used to explore the influence of article length and completion time on the number of PRISMA and AMSTAR items adequately reported or met. Longer manuscript length was associated with higher compliance with PRISMA guidelines while AMSTAR compliance increased with time to completion. No previous studies have assessed rapid reviews using these methods, so there is little evidence to aid with interpretation of the significance of this result. Findings suggest reporting quality is compromised when not enough space is provided for a fulsome description. Results from a study on the reporting of meta-analyses of surgical interventions had similar findings (90), and demonstrates that this is not a problem specific to rapid reviews alone.

The term 'rapid review' implies that time is a significant factor in the conduct and reporting of this evidence synthesis approach. The influence of time was significant in our regression and rapid reviews with longer time to completion (in weeks) showed a higher proportion of PRISMA and AMSTAR items adequately reported or met. Harker et al. (2012) examined a sample of rapid reviews and estimated time taken to complete based on the last search date and date published (3). Their results showed a significant association between length of time taken and the number of rapid review methodologies that reported clearly and closely adhered to recommended systematic review guidelines from Cochrane or the York Centre for Reviews and Dissemination (CRD). This empirical evidence may actually conflict with the stance of researchers and knowledge users on this topic. In a recent study on research producer and health care decision-maker opinions and

attitudes towards rapid reviews, Kelly et al. (2015, under review) noted there is a salient viewpoint amongst this mixed group of evidence producers and knowledge users that reduced review time is not necessarily associated with a lower quality of review and they asserted that quality can be maintained even when rigour is reduced. Additionally, our analyses did not take into account the spectrum of rapid review approaches that may also be associated with time to completion in a more general sense. It may be more sensible to study the influence of time on the quality of conduct and reporting in rapid reviews when taking the spectrum of rapid review approaches into account at the same time, as the variation in review type (from an evidence brief or map to a fully comprehensive report that resembles a systematic review in almost all facets) surely has an influence on these factors as well. Data were insufficient to explore these factors though multiple regression, but this may be a valuable research objective going forward.

*Strengths and Limitations*

The strengths of this research include a protocol-driven design, a complete and far ranging search, and a detailed exploration of the features and traits that make rapid reviews unique.

Limitations of this study may influence the interpretation and applicability of our findings. Due to the diversity of approaches, timelines and nomenclature employed by rapid review producers, it was difficult to apply a standardized selection criteria and some subjectivity by the reviewers may have influenced inclusion of candidate rapid reviews. Similarly, the noted heterogeneity of terminology may have led to some rapid reviews being missed. Although we limited the rapid reviews we retrieved to a cross-section of

samples from 2013 and 2014, we believe we captured a comprehensive representation of reviews in both the published and grey literature. The addition of the INAHTA scan also supplemented our search and identified smaller organizations producing rapid reviews that helped add to our unpublished samples. Additionally, when the protocol was amended to restrict the date of publication for the included rapid reviews to 2013 and 2014, some rapid review producers were omitted from the sample, having not published rapid reviews within our eligibility timeline. This necessitated the inclusion of two rapid review samples each from two HTA producers (CADTH, Health Quality Ontario).

In this study we explored two influential variables and their association with the PRISMA and AMSTAR checklists through univariate regression. Further exploration of other influential variables is warranted including: the inclusion of primary or secondary studies (or both), type of research questions, purpose or type of rapid review approach, or journal factors such as PRISMA endorsement or impact factor. In addition, looking at the total aggregate number of items adequately reported or met for both instruments as absolute measures of compliance is a weakness. These summary totals have limited utility to end-users, as there is currently no accepted cut-off denoting low, moderate or high quality of conduct or reporting based on these totals. We have described individual domain compliance in an effort to make results more practical and to facilitate interpretation in the context of rapid reviews. These instruments were designed for use with systematic reviews and meta-analyses of therapeutic interventions and it could be argued that measuring our sample rapid reviews involving a variety of research question types on the same scale is unfair. However, there are limited studies comparing the methods of rapid reviews to those of more fulsome systematic reviews (5, 99-101).

Instruments like PRISMA or AMSTAR enable comparisons of rapid reviews in a standardized manner to each other. This could be extended to allow for comparisons against other evidence synthesis products. These tools provide evidence producers with a concise, consistent way to ensure that reviews are transparently and adequately reported to end-users, which enables decision-makers to assess findings they receive with confidence, especially when they must do so urgently when decisions cannot wait.

We included three 'empty' rapid reviews, where no studies of interest were eligible for inclusion. There is no clear-cut way to assess these reviews, and although some have suggested these studies should be excluded, we elected to include them (102). Although AMSTAR and PRISMA compliance was low in these samples, these empty reviews are valuable to end-users as they highlight knowledge gaps, communicate topics to reduce duplication, and indicate that state of evidence at a certain point of time, which is often the primary objective of a rapid review (103). Care should be taken to prevent publication bias (104). The authors of the empty rapid reviews samples in this study still provided conclusions based on a non-systematic evidence base, but often failed to highlight these shortcomings to the end-user. In many of the other included rapid reviews, eligibility criteria was expanded to consider more evidence when no studies of a certain type were located, an iterative process that is common in both systematic and rapid reviews (2, 9). Without a protocol that is posted or registered, it is difficult to assess whether these modifications were appropriate, even when the processes are well-described.

*Conclusions and recommendations for future research*

Rapid review products vary greatly and it is complicated and onerous to compare and contrast the numerous approaches used. Standardized reporting and conduct checklists such as AMSTAR and PRISMA provide a useful way to compare and contrast rapid reviews across a number of key domains. This assessment of 66 rapid reviews shows that conduct and reporting are often inadequate and unclear. This is a significant limitation attributable to rapid reviews, although this problem is not unique to this approach. Poor descriptions of research activities result in research that is not replicable and end-users are unable to sufficiently assess potential for bias in the reports. Arguably, clear and complete descriptions of conduct and transparent reporting of research activities are more important in rapid reviews as they inherently tailor gold standard review methodology. Editorial insistence may help to encourage compliance in published reports; however, scientific editors, authors and producing agencies all have a responsibility to ensure that the reporting of conduct and findings in the research products they produce or publish is appropriate and complete. Our results show that future research may be warranted to define reporting or conduct guidelines specific to rapid reviews, although it is unclear whether these guidelines are necessary or desired by the evidence producers and users, and whether these types of products would be applicable across the spectrum of rapid review approaches.

**Acknowledgements**

We would like to acknowledge Leigh-Ann Topfer for her assistance with the literature search, updates, and for helping with the initial screening of rapid review samples. We

would also like to thank the Canadian Agency for Drugs and Technologies in Health for their support on this work and all INAHTA survey respondents for taking the time to respond.

**References**

1. Ganann, R., Ciliska, D., Thomas, H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci. 2010;5:56.

2. Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., Moher, D. Evidence summaries: the evolution of a rapid review approach. Syst Rev. 2012;1:10.

3. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

4. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

5. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. Int J Technol Assess Health Care. 2008 Spring;24(2):133-9.

6. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E. AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

7. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet]February 2015.

8. Schunemann, H. J., Moja, L. Reviews: Rapid! Rapid! Rapid! ...and systematic. Syst Rev. 2015;4:4.

9. Moher, D, Liberati, A, Tetzlaff, J, Altman, DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6:e1000097.

10. Shea, B. J., Hamel, C., Wells, G. A., Bouter, L. M., Kristjansson, E., Grimshaw, J., Henry, D. A., Boers, M. AMSTAR is a reliable and valid measurement tool to assess the methodological quality of systematic reviews. J Clin Epidemiol. 2009 Oct;62(10):1013-20.

11. Sampson M, McGowan J, Lefebvre C, Moher D, Grimshaw J. PRESS: Peer Review of Electronic Search Strategies. Ottawa: Canadian Agency for Drugs and Technologies in Health; 2008.

12. Liberati, A, Altman, DG, Tetzlaff, J, Mulrow, C, Gotzsche, PC, Ioannidis, JP, Clarke, M, Devereaux, PJ, Kleijnen, J, Moher, D. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. PLoS Med. 2009;6:e1000100.

13. Banbury, A., Roots, A., Nancarrow, S. Rapid review of applications of e-health and remote monitoring for rural residents. Aust J Rural Health. 2014 Oct;22(5):211-22.

14. Beall, R. F., Baskerville, N., Golfam, M., Saeed, S., Little, J. Modes of delivery in preventive intervention studies: a rapid review. Eur J Clin Invest. 2014 Jul;44(7):688-96.

15. Brunton, G., Paraskeva, N., Caird, J., Bird, K. S., Kavanagh, J., Kwan, I., Stansfield, C., Rumsey, N., Thomas, J. Psychosocial predictors, assessment, and outcomes of cosmetic procedures: a systematic rapid evidence assessment. Aesthetic Plast Surg. 2014 Oct;38(5):1030-40.

16. Bungay, H., Vella-Burrows, T. The effects of participating in creative activities on the health and well-being of children and young people: a rapid review of the literature. Perspect Public Health. 2013 Jan;133(1):44-52.

17. Chaiyachati, K. H., Ogbuoji, O., Price, M., Suthar, A. B., Negussie, E. K., Barnighausen, T. Interventions to improve adherence to antiretroviral therapy: a rapid systematic review. Aids. 2014 Mar;28 Suppl 2:S187-204.

18. Cooper, C. L., Hind, D., Duncan, R., Walters, S., Lartey, A., Lee, E., Bradburn, M. A rapid review indicated higher recruitment rates in treatment trials than in prevention trials. J Clin Epidemiol. 2015 Mar;68(3):347-54.

19. Costello, R. B., Lentino, C. V., Boyd, C. C., O'Connell, M. L., Crawford, C. C., Sprengel, M. L., Deuster, P. A. The effectiveness of melatonin for promoting healthy sleep: a rapid evidence assessment of the literature. Nutr J. 2014;13:106.

20. Delgado, R., York, A., Lee, C., Crawford, C., Buckenmaier, C., 3rd, Schoomaker, E., Crawford, P. Assessing the quality, efficacy, and effectiveness of the current evidence base of active self-care complementary and integrative medicine therapies for the management of chronic pain: a rapid evidence assessment of the literature. Pain Med. 2014 Apr;15 Suppl 1:S9-20.

21. Dennis, S. M., Harris, M., Lloyd, J., Powell Davies, G., Faruqi, N., Zwar, N. Do people with existing chronic conditions benefit from telephone coaching? A rapid review. Aust Health Rev. 2013 Jun;37(3):381-8.

22. Dorresteijn, P. M., Ipenburg, N. A., Murphy, K. J., Smit, M., van Vulpen, J. K., Wegner, I., Stegeman, I., Grolman, W. Rapid Systematic Review of Normal Audiometry Results as a Predictor for Benign Paroxysmal Positional Vertigo. Otolaryngol Head Neck Surg. 2014 Mar 18;150(6):919-24.

23. Garrett, B., Taverner, T., Masinde, W., Gromala, D., Shaw, C., Negraeff, M. A rapid evidence assessment of immersive virtual reality as an adjunct therapy in acute pain management in clinical practice. Clin J Pain. 2014 Dec;30(12):1089-98.

24. Hithersay, R., Strydom, A., Moulster, G., Buszewicz, M. Carer-led health interventions to monitor, promote and improve the health of adults with intellectual disabilities in the community: a systematic review. Res Dev Disabil. 2014 Apr;35(4):887-907.

25. Jarrett, N., Scott, I., Addington-Hall, J., Amir, Z., Brearley, S., Hodges, L., Richardson, A., Sharpe, M., Stamataki, Z., Stark, D., Siller, C., Ziegler, L., Foster, C. Informing future research priorities into the psychological and social problems faced by cancer survivors: a rapid review and synthesis of the literature. Eur J Oncol Nurs. 2013 Oct;17(5):510-20.

26. Khorsan, R., Crawford, C., Ives, J. A., Walter, A. R., Jonas, W. B. The effect of omega-3 fatty acids on biomarkers of inflammation: a rapid evidence assessment of the literature. Mil Med. 2014 Nov;179(11 Suppl):2-60.

27. Kim, D. G., Choi, Y. Y., An, J. Y., Kwon, I. G., Cho, I., Kim, Y. M., Bae, J. M., Song, M. G., Noh, S. H. Comparing the short-term outcomes of totally intracorporeal gastroduodenostomy with extracorporeal gastroduodenostomy after laparoscopic distal gastrectomy for gastric cancer: a single surgeon's experience and a rapid systematic review with meta-analysis. Surg Endosc. 2013 Sep;27(9):3153-61.

28. Lal, S., Adair, C. E. E-mental health: a rapid review of the literature. Psychiatr Serv. 2014 Jan 1;65(1):24-32.

29. Loveday, H. P., Wilson, J. A., Kerr, K., Pitchers, R., Walker, J. T., Browne, J. Association between healthcare water systems and Pseudomonas aeruginosa infections: a rapid systematic review. J Hosp Infect. 2014 Jan;86(1):7-15.

30. Luckett, T., Phillips, J., Agar, M., Virdun, C., Green, A., Davidson, P. M. Elements of effective palliative care models: a rapid review. BMC Health Serv Res. 2014;14:136.

31. McLean, S. L., Blenkinsopp, A., Bennett, M. I. Using haloperidol as an antiemetic in palliative care: informing practice through evidence from cancer treatment and postoperative contexts. J Pain Palliat Care Pharmacother. 2013 Jun;27(2):132-5.

32. Menear, M., Briand, C. Implementing a continuum of evidence-based psychosocial interventions for people with severe mental illness: part 1-review of major initiatives and implementation strategies. Can J Psychiatry. 2014 Apr;59(4):178-86.

33. Moe-Byrne, T., Chambers, D., Harden, M., McDaid, C. Behaviour change interventions to promote prescribing of generic drugs: a rapid evidence synthesis and systematic review. BMJ Open. 2014;4(5):e004623.

34. Ndumbe-Eyoh, S., Moffatt, H. Intersectoral action for health equity: a rapid systematic review. BMC Public Health. 2013;13:1056.

35. Paton, F., Chambers, D., Wilson, P., Eastwood, A., Craig, D., Fox, D., Jayne, D., McGinnes, E. Effectiveness and implementation of enhanced recovery after surgery programmes: a rapid evidence synthesis. BMJ Open. 2014;4(7):e005015.

36. Reinink, H., Wegner, I., Stegeman, I., Grolman, W. Rapid systematic review of repeated application of the epley maneuver for treating posterior BPPV. Otolaryngol Head Neck Surg. 2014 Sep;151(3):399-406.

37. Saeed, S., Golfam, M., Beall, R. F., Ashbury, F. D., Palmer, L. J., Little, J. Effectiveness of individual-focused interventions to prevent chronic disease. Eur J Clin Invest. 2014 Sep;44(9):883-91.

38. Treanor, C. J., Donnelly, M. The late effects of cancer and cancer treatment: a rapid review. J Community Support Oncol. 2014 Apr;12(4):137-48.

39. Trivedy, C. R., Cooke, M. W. Unscheduled return visits (URV) in adults to the emergency department (ED): a rapid evidence assessment policy review. Emerg Med J. 2013 Oct 28.

40. van der Scheer-Horst, E. S., van Benthem, P. P., Bruintjes, T. D., van Leeuwen, R. B., van der Zaag-Loonen, H. J. The efficacy of vestibular rehabilitation in patients with benign paroxysmal positional vertigo: a rapid review. Otolaryngol Head Neck Surg. 2014 Nov;151(5):740-5.

41. van der Veen, E. L., van Hulst, R. A., de Ru, J. A. Hyperbaric Oxygen Therapy in Acute Acoustic Trauma: A Rapid Systematic Review. Otolaryngol Head Neck Surg. 2014 Mar 19;151(1):42-5.

42. van Duijn, J. G., Isfordink, L. M., Nij Bijvank, J. A., Stapper, C. W., van Vuren, A. J., Wegner, I., Kortekaas, M. F., Grolman, W. Rapid Systematic Review of the Epley Maneuver for Treating Posterior Canal Benign Paroxysmal Positional Vertigo. Otolaryngol Head Neck Surg. 2014 Mar 31;150(6):925-32.

43. Wegner, I., Niesten, M. E., van Werkhoven, C. H., Grolman, W. Rapid Systematic Review of the Epley Maneuver versus Vestibular Rehabilitation for Benign Paroxysmal Positional Vertigo. Otolaryngol Head Neck Surg. 2014 May 20;151(2):201-7.

44. Wolfenden, L., Carruthers, J., Wyse, R., Yoong, S. Translation of tobacco control programs in schools: findings from a rapid review of systematic reviews of implementation and dissemination interventions. Health Promot J Austr. 2014 Aug;25(2):136-8.

45. Zeno, S. A., Purvis, D., Crawford, C., Lee, C., Lisman, P., Deuster, P. A. Warm-ups for military fitness testing: rapid evidence assessment of the literature. Med Sci Sports Exerc. 2013 Jul;45(7):1369-76.

46. Self-care support for people with COPD. [Internet] UK. York University, Centre for Reviews and Dissemination/National Institute for Health Research 2014. Available from: https://www.york.ac.uk/media/crd/COPD%20self%20care.pdf.

47. Lead Exposures Among Recreational Shooters. [Internet] Ontario, Canada. Public Health Ontario2014. Available from: http://www.publichealthontario.ca/en/BrowseByTopic/EnvironmentalandOccupationalHealth/Pages/Lead-Exposures-Among-Recreational-Shooters.aspx#.VT_FLdJVhBc.

48. (ASERNIP-S), Australian Safety and Efficacy Register of New Interventional Procedures - Surgical. Online programs for weight loss. Brisbane. ASERNIP-S2013. Available from: http://www.health.qld.gov.au/healthpact/docs/briefs/WP176.pdf.

49. (CCSA), Canadian Centre on Substance Abuse. Universal, Family-based Substance Abuse Prevention for Youth. [Internet]. CCSA2014. Available from: http://www.ccsa.ca/Resource%20Library/CCSA-Universal-Family-based-Prevention-Youth-Rapid-Review-2014-en.pdf.

50. (WHO), World Health Organization. Personal Protective Equipment in the context of filovirus disease outbreak response. [Internet]. World Health Organization (WHO)2014. Available from: http://www.who.int/csr/resources/publications/ebola/ppe-guideline/en/.

51. Baidoobonso, S. Effect of supportive interventions on informal caregivers of people at the end of life: A rapid review. Health Quality Ontario2014. Available from: http://www.hqontario.ca/Portals/0/Documents/eds/rapid-reviews/eol-supportive-interventions-1411-en.pdf.

52. Burrowes, N Body image – a rapid evidence assessment of the literature. London, England. United Kingdom Government Equalities Office and the Department for Culture, Media & Sport2013. Available from: https://www.gov.uk/government/publications/body-confidence-a-rapid-evidence-assessment-of-the-literature.

53. CADTH. Sofosbuvir for the Treatment of Patients with Genotype 4 Hepatitis C: A Review of the Clinical Efficacy, Cost-effectiveness, and Guidelines. [Internet]. CADTH2014. Available from: https://www.cadth.ca/sofosbuvir-treatment-patients-genotype-4-hepatitis-c-review-clinical-efficacy-cost-effectiveness-and.

54. Center, Evidence-based Synthesis Program (ESP). Evidence Map of Yoga for High-Impact Conditions Affecting Veterans. [Internet] Washington, USA: Department of Veterans Affairs, Veterans Health Administration, Quality Enhancement Research Initiative, Health Services Research and Development Service; 2014; Available from: http://www.hsrd.research.va.gov/publications/esp/yoga.pdf.

55. D'Eath, M, Barry, MM, Sixsmith, J. A rapid evidence review of health advocacy for communicable diseases. [Internet] Ireland. Health Promotion Research Centre, University of Ireland Galway2014. Available from: http://ecdc.europa.eu/en/publications/Publications/Health-advocacy-technical-report-January-2014.pdf.

56. Group, Scottish Health Technologies. Transcathetyer aortic valve implantation (TAVI) for severe symptomatic aortic stenosis in adults who are not eligible for surgery. [Internet] Scotland. Scottish Health Technologies Group2014. Available from: http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/shtg_-_evidence_notes/evidence_note_51.aspx.

57. Gurgacz, SL, Lambert, R, Vogan, A, R, Cooter, K, Mutimer, G, Maddern. ASERNIP-S report no. 81 - Breast prosthesis implantation for reconstructive and cosmetic surgery: A rapid review. Adelaide, South Australia. Australian Safety and Efficacy Register of New Interventional Procedures-Surgical (ASERNIP-S)2013. Available from: http://www.surgeons.org/media/20844776/rpt_2014-02-04_rr_breast_implantation__2_.pdf.

58. Hirji, MM, Wilson, MG, Yacoub, K, Bhuiya, A. Identifying Suicide Prevention interventions. [Internet]. McMaster Health Forum, McMaster University, Canada. 2014. Available from: http://www.mcmasterhealthforum.org/docs/default-source/Product-Documents/rapid-responses/identifying-suicide-prevention-interventions.pdf?sfvrsn=2.

59. Hiscock, H, Perera, P, McLean, K, Roberts, G. Variation in paediatric clinical practice: An Evidence Check review brokered by the Sax Institute (www.saxinstitute.org.au) for NSW Kids and Families. November 2014.

Available from: http://www.saxinstitute.org.au/wp-content/uploads/Report_Variation-in-paediatric-clinical-practice.pdf.

60. Institute, ECRI. Automated Technologies for Patient Room Disinfection and Decontamination of Biosafety Level 4 Infectious Agents, Including Ebola Virus. [Internet]. ECRI Institute. 2014. Available from: https://www.ecri.org/components/Hotline/Pages/14374.aspx?tab=2.

61. Institute of Health Economics. Total prosthetic replacement of the temporomandibular joint: a rapid evidence assessment and economic analysis. Edmonton, Alberta. Institute of Health Economics2013. Available from: http://www.ihe.ca/publications/total-prosthetic-replacement-of-the-temporomandibular-joint-a-rapid-evidence-assessment-and-economic-analysis.

62. Lapczak, N, Hertz, S. Review of evidence on effective postpartum smoking relapse prevention interventions. [Internet]. Region of Peel, Canada. 2014. Available from: http://www.peelregion.ca/health/library/pdf/rapid-review-smoking-relapse-prevention.pdf.

63. Leof, A, Gerrity, M, Thielke, A, King, V. Sofosbuvir for the Treatment of Hepatitis C and Evaluation of the 2014 American Association for the Study of Liver Diseases Treatment Guidelines. [Internet] USA. Oregon Health and Safety University - Centre for Evidence-based Policy2014. Available from: http://www.ohsu.edu/xd/research/centers-institutes/evidence-based-policy-center/med/upload/Sofosbuvir_for_HepatitisC_FINAL_5_19_2014.pdf.

64. Masso, M, Thompson, C. Rapid Review of the Nurse Practitioner Literature. [Internet] New South Wales. Government of New South Wales, Australia. 2014. Available from: http://www.health.nsw.gov.au/nursing/practice/Publications/nurse-practitioner-review.pdf.

65. Miani, C, Ball, S, Pitchforth, E, Exley, J, King, S , Roland, M, Fuld, J , Nolte, E. Organisational interventions to reduce length of stay in hospital: a rapid evidence assessment. [Internet]. RAND Corporation for the National Institute for Health Research2014. Available from: http://www.journalslibrary.nihr.ac.uk/hsdr/volume-2/issue-52#abstract.

66. NA, Lannin, J, Morarty, K, Laver. Segmented Rehabilitation: A Rapid Review. Melbourne, Australia. Departments of Occupational Therapy, La Trobe University and Alfred Health for The Institute for Safety, Compensation and Recovery Research (ISCRR)2013 Contract No.: ISCRR Research Report # 022.029-R1C. Available from: https://www.tac.vic.gov.au/__data/assets/pdf_file/0016/125404/Segmented-rehabilitation-for-people-after-ABI.pdf.

67. Navarro, P, Bornstein, S, O'Loughlin, J. Strategies for Health promotion: Healthy Dietary Habits. [Internet] Canada. Newfoundland & Labrador Centre for Applied Health Research (NLCAHR), Contextualized Health Research Synthesis Program (CHRSP).2014. Available from: http://www.nlcahr.mun.ca/CHRSP/RER_HEALTH_PROMOTIONS.pdf.

68. Network, Ontario HIV Treatment. What is the effectiveness of supervised injections? [Internet]. Ontario HIV Treatment Network. 2014. Available from: http://www.ohtn.on.ca/Pages/Knowledge-Exchange/Rapid-Responses/Documents/RR83-Supervised-Injection-Effectiveness.pdf.

69. Ontario, Health Quality. Vitamin B12 and cognitive function: An Evidence-Based Analysis [Internet]. 2013. Available from: http://www.hqontario.ca/Portals/0/Documents/eds/ohtas/eba-vitamin-b12-cognitive-function-131125-en.pdf.

70. Parry, R, Seymour, J, Whittaker, B, Bird, I , Cox, C. Rapid evidence review: Pathways focused on the dying phase in end of life care and their key components. United Kingdom. British Department of Health, Sue Ryder Care Centre for the Study of Supportive Palliative and End of Life Care UoN;2013. Available from: http://socialwelfare.bl.uk/subject-areas/services-activity/health-services/departmentofhealth/rapid13.aspx.

71. Stansfield, C, Rumse, N, Thomas, J. Psychosocial predictors, assessment and outcomes of cosmetic interventions: a systematic rapid evidence review. London. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.2013. Available from: http://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=Ge_RehINz8Q%3D.

72. Syful Azlie Md Fuzi. Ecological Disinfectant (Product name redacted for agency posting). Putrajaya, Malaysia. Health Technology Assessment Section (MaHTAS),Medical Development Division, Ministry of Health Malaysia.2013. Available from: http://www.moh.gov.my/index.php/database_stores/store_view_page/30/211.

73. The Knowledge Synthesis (KS) Group, KS Canada, Ottawa Methods Centre, Ottawa Hospital Research Institute. Do Outcomes Vary Among Different Curricula or Models of Delivery for Pre-licensure Nursing Education? A Rapid Review. Ottawa. 2013. Available on request.

74. The Knowledge Synthesis Group and Cochrane Collaborators, Ottawa Methods Centre, Ottawa Hospital Research Institute. Effects of Performing Complex Pediatric Intracavitary (IC) Surgical Procedures in Specialized versus Non-specialized Centers in High Risk Children: Cochrane Response Rapid Review. Ottawa, Ontario, Canada: The Cochrane Collaboration; 2013; Available from: http://innovations.cochrane.org/sites/innovations.cochrane.org/files/CHA-RR%20Evidence%20Summary-Final%2024May2013.pdf.

75. Turner, J, Preston, L, Booth, A, O'Keeffe, C, Campbell, F, Jesurasa, A, Cooper, K, Goyder, E. What evidence is there for a relationship between organizational features and patient outcomes in congenital heart disease services? A rapid review. [Internet]. School for Health and Related Research (ScHARR), University of Sheffield. 2014. Available from: http://www.nets.nihr.ac.uk/__data/assets/pdf_file/0017/118511/HSDR_WR1_13-05-12.pdf.

76. Ubido, J, Scott-Samuel, A. An evaluation of the cost effectiveness of monitored dosage systems (MDS) as an aid to maintaining independence in taking medication. Liverpool Public Health Observatory2014. Available from: https://www.liv.ac.uk/media/livacuk/instituteofpsychology/publichealthobservatory/LPHO,monitored,dosage,system_,final.pdf.

77. Unit, Rapid Review. Comparative safety and effectiveness of inhaled long-acting agents (corticosteroids, beta agonists) for chronic obstructive pulmonary disease (COPD): A rapid review and network meta-analysis. Toronto. Ontario Drug Policy Research Network (ODPRN), St. Michaels Hospital. 2014. Available from: Available on request.

78. Wales, Public Health. Primary Care in Wales: Rapid review of models and policy. [Internet] Wales. Public Health Wales2014. Available from: http://www.wales.nhs.uk/sitesplus/documents/888/Primary%20care%20models%20and%20policies-%20rapid%20review%20SUMMARY%20July%202014%20FINAL.PDF.

79. Crawford, Cindy, Lee, Courtney, Bingham, John, Active Self-Care Therapies for Pain Working, Group. Sensory Art Therapies for the Self-Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S66-S75.

80. Crawford, Cindy, Lee, Courtney, Buckenmaier, Chester, Schoomaker, Eric, Petri, Richard, Jonas, Wayne, Active Self-Care Therapies for Pain Working, Group. The Current State of the Science for Active Self-Care Complementary and Integrative Medicine Therapies in the Management of Chronic Pain Symptoms: Lessons Learned, Directions for the Future. Pain Medicine. 2014;15:S104-S13.

81. Crawford, Cindy, Lee, Courtney, Freilich, Daniel, Active Self-Care Therapies for Pain Working, Group. Effectiveness of Active Self-Care Complementary and Integrative Medicine Therapies: Options for the Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S86-S95.

82. Crawford, Cindy, Lee, Courtney, May, Todd, Active Self-Care Therapies for Pain Working, Group. Physically Oriented Therapies for the Self-Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S54-S65.

83. Delgado, Roxana, York, Alexandra, Lee, Courtney, Crawford, Cindy, Buckenmaier, Chester, Schoomaker, Eric, Crawford, Paul, Active Self-Care Therapies for Pain Working, Group. Assessing the Quality, Efficacy, and

Effectiveness of the Current Evidence Base of Active Self-Care Complementary and Integrative Medicine Therapies for the Management of Chronic Pain: A Rapid Evidence Assessment of the Literature. Pain Medicine. 2014;15:S9-S20.

84. Lee, Courtney, Crawford, Cindy, Hickey, Anita, Active Self-Care Therapies for Pain Working, Group. Mind–Body Therapies for the Self-Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S21-S39.

85. Lee, Courtney, Crawford, Cindy, Schoomaker, Eric, Active Self-Care Therapies for Pain Working, Group. Movement Therapies for the Self-Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S40-S53.

86. Lee, Courtney, Crawford, Cindy, Swann, Steven, Active Self-Care Therapies for Pain Working, Group. Multimodal, Integrative Therapies for the Self-Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S76-S85.

87. Lee, Courtney, Crawford, Cindy, Teo, Lynn, Spevak, Christopher, Active Self-Care Therapies for Pain Working, Group. An Analysis of the Various Chronic Pain Conditions Captured in a Systematic Review of Active Self-Care Complementary and Integrative Medicine Therapies for the Management of Chronic Pain Symptoms. Pain Medicine. 2014;15:S96-S103.

88. Glasziou, P., Altman, D. G., Bossuyt, P., Boutron, I., Clarke, M., Julious, S., Michie, S., Moher, D., Wager, E. Reducing waste from incomplete or unusable reports of biomedical research. Lancet. 2014 Jan 18;383(9913):267-76.

89. Windsor, B., Popovich, I., Jordan, V., Showell, M., Shea, B., Farquhar, C. Methodological quality of systematic reviews in subfertility: a comparison of Cochrane and non-Cochrane systematic reviews in assisted reproductive technologies. Hum Reprod. 2012 Dec;27(12):3460-6.

90. Adie, S., Ma, D., Harris, I. A., Naylor, J. M., Craig, J. C. Quality of conduct and reporting of meta-analyses of surgical interventions. Ann Surg. 2015 Apr;261(4):685-94.

91. Papageorgiou, S. N., Papadopoulos, M. A., Athanasiou, A. E. Reporting characteristics of meta-analyses in orthodontics: methodological assessment and statistical recommendations. Eur J Orthod. 2014 Feb;36(1):74-85.

92. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]: The Cochrane Collaboration; 2011. Available from www.cochrane-handbook.org.

93. Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., Group, Prisma- P. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015;349:g7647.

94. Moher, D. Do we need a rapid review reporting guideline? Is PRISMA-P helpful when generating a RR protocol? Available at: https://www.cadth.ca/sites/default/files/events/David-Moher_Publishing-Rapid-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

95. Development, Organization for Economic Co-operation and. The OECD Health Project - Health Technology and Decision Making. Available at: http://www.ppge.ufrgs.br/giacomo/arquivos/eco02072/oecd-2005.pdf. 2005.

96. Martens, Patricia J., Roos, Noralou P. When Health Services Researchers and Policy Makers Interact: Tales from the Tectonic Plates. Healthcare Policy. 2005;1(1):72-84.

97. Kung, J., Chiappelli, F., Cajulis, O. O., Avezova, R., Kossan, G., Chew, L., Maida, C. A. From Systematic Reviews to Clinical Recommendations for Evidence-Based Health Care: Validation of Revised Assessment of Multiple Systematic Reviews (R-AMSTAR) for Grading of Clinical Relevance. Open Dent J. 2010;4:84-91.

98. Pieper, D., Buechter, R. B., Li, L., Prediger, B., Eikermann, M. Systematic review found AMSTAR, but not R(evised)-AMSTAR, to have good measurement properties. J Clin Epidemiol. 2015 May;68(5):574-83.

99. Maddern, G. Rapid reviews or full health technology assessments - What are the needs in decision making? Health Technol Asses Int Meeting 2008 Montreal Canada. 2008;5:Abstract.

100. Van de Velde, S., De Buck, E., Dieltjens, T., Aertgeerts, B. Medicinal use of potato-derived products: conclusions of a rapid versus full systematic review. Phytother Res. 2011 May;25(5):787-8.

101. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg. 2008 Nov;78(11):1037-40.

102. Whitlock, Evelyn P, Lin, Jennifer S, Chou, Roger, Shekelle, Paul, Robinson, Karen A. Using existing systematic reviews in complex systematic reviews. Annals of internal medicine. 2008;148(10):776-82.

103. Lang, A., Edwards, N., Fleiszer, A. Empty systematic reviews: hidden perils and lessons learned. J Clin Epidemiol. 2007 Jun;60(6):595-7.

104. Tricco, Andrea C, Moher, David, Chen, Maggie H, Daniel, Raymond. Factors predicting completion and time to publication of Cochrane reviews. Open Medicine. 2009. 3(4);e210-21

## SUPPLEMENTAL MANUSCRIPT APPENDIX – CHAPTER 3

## SEARCH STRATEGY

### MeSH and Keywords

| **Concept 1 AND** | **Concept 2** | OR |
|---|---|---|
| **MeSH** | | |
| Review literature as topic[mh] | Decision making[mh] OR decisionmaking[tiab] OR "decision maker*"[tiab] | |
| Meta-analysis as topic[mh] | Decision making, organizational[mh] | |
| Technology assessment, biomedical[mh] | Decision support techniques[mh] | |
| Technology assessment, biomedical/methods | Health policy[mh] | |
| Technology assessment, biomedical/organization & administration | Public policy[mh] | |
| Technology assessment, biomedical/standards | Policy making[mh] OR policy making[tiab] OR policymaking[tiab] | |
| Evidence based practice[mh] | Information dissemination[mh] | |
| Evidence based medicine[mh] | | |
| | Time factors[mh] | |
| **Non-MeSH** | | |
| HTA[ti] OR HTAs[ti] | Rapid[tiab] Scoping[tiab] | "rapid review"[tiab] OR "rapid reviews"[tiab] |
| "technology assessment"[ti] | Expedit*[tiab] | "scoping review"[tiab] OR "scoping reviews"[tiab] |
| | Accelerate*[tiab] | "knowledge synthesis"[tiab] |
| | Express[tiab] | (knowledge[mh] OR knowledge[ti]) AND (synthesis[ti] OR syntheses[ti] OR summary[ti] OR summaries[ti]) |
| | "Fast-track"[tiab] OR Fast[tiab] | |
| | Quick[tiab] | |
| | Turnaround[tiab] | |
| | Quick[ti] | |
| | Timeline*[ti] | |
| | Speedy[ti] | |
| | "on demand"[ti] | |

**MEDLINE** (Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1948 to Present; searched Oct 25, 2011)

| | | |
|---|---|---|
| 1 | rapid review*.mp. | 121 |
| 2 | scoping review*.mp. | 93 |
| 3 | expedited review*.mp. | 40 |
| 4 | accelerated review*.mp. | 7 |
| 5 | exp "Review Literature as Topic"/ or systematic review.mp. | 32758 |
| 6 | (rapid or faster or accelerate*).ti. | 81318 |
| 7 | 5 and 6 | 109 |
| 8 | knowledge synthesis.mp. | 53 |
| 9 | knowledge syntheses.mp. | 7 |
| 10 | *Knowledge/ | 2531 |
| 11 | knowledge.ti. | 31409 |
| 12 | 10 or 11 | 32663 |
| 13 | (synthes* or summar*).ti. | 222597 |
| 14 | 12 and 13 | 141 |
| 15 | exp Technology Assessment, Biomedical/ | 8548 |
| 16 | exp Policy Making/ | 16205 |
| 17 | exp Decision Making/ | 101899 |
| 18 | 16 or 17 | 116769 |
| 19 | 15 and 18 | 631 |
| 20 | exp "Review Literature as Topic"/ | 5929 |
| 21 | exp Meta-Analysis as Topic/ | 11941 |
| 22 | exp Technology Assessment, Biomedical/ | 8548 |
| 23 | exp Comparative Effectiveness Research/ | 568 |
| 24 | exp Evidence-Based Practice/ | 48686 |
| 25 | exp Evidence-Based Medicine/ | 44873 |
| 26 | (HTA or HTAs or technology assessment* or comparative effectiveness).ti. | 2678 |
| 27 | 20 or 21 or 22 or 23 or 24 or 25 or 26 | 72765 |
| 28 | exp Decision Making/ | 101899 |
| 29 | exp Decision Making, Organizational/ | 10035 |
| 30 | decisionmaking.mp. | 429 |
| 31 | decision making.mp. | 103731 |
| 32 | decision maker*.mp. | 5692 |
| 33 | decisionmaker*.mp. | 172 |
| 34 | exp Decision Support Techniques/ | 50653 |
| 35 | exp Health Policy/ | 70887 |

| | | |
|---|---|---|
| 36 | exp Public Policy/ | 96740 |
| 37 | exp Policy Making/ | 16205 |
| 38 | (policy making or policymaking or policy maker* or policymaker*).mp. | 22946 |
| 39 | exp Information Dissemination/ | 7648 |
| 40 | 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 | 310710 |
| 41 | 27 and 40 | 10999 |
| 42 | rapid.mp. | 404022 |
| 43 | scoping.mp. | 275 |
| 44 | expedit*.mp. | 9354 |
| 45 | rapid update.mp. | 7 |
| 46 | express.mp. | 123471 |
| 47 | fast-track*.mp. | 1705 |
| 48 | (fast or faster or fasttrack*).mp. | 222850 |
| 49 | (quick or quicker).mp. | 28931 |
| 50 | speedy.mp. | 843 |
| 51 | turnaround.mp. | 2154 |
| 52 | timeline*.mp. | 3277 |
| 53 | on demand.mp. | 3390 |
| 54 | (rigor or rigourous or rigour or rigourous).mp. | 4444 |
| 55 | accelerate*.mp. | 94672 |
| 56 | exp Time Factors/ | 914949 |
| 57 | 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 | 1697106 |
| 58 | 41 and 57 | 653 |
| 59 | 1 or 2 or 3 or 4 or 7 or 8 or 9 or 14 or 19 or 58 | 1772 |

## INCLUDED AND EXCLUDED STUDY LISTS

### Included Unpublished (Grey Literature) Rapid Reviews (n=33)


1. Self-care support for people with COPD. [Internet] UK. York University, Centre for Reviews and Dissemination/National Institute for Health Research 2014. Available from: https://www.york.ac.uk/media/crd/COPD%20self%20care.pdf.

2. Lead Exposures Among Recreational Shooters. [Internet] Ontario, Canada. Public Health Ontario2014. Available from: http://www.publichealthontario.ca/en/BrowseByTopic/EnvironmentalandOccupationalHealth/Pages/Lead-Exposures-Among-Recreational-Shooters.aspx#.VT_FLdJVhBc.

3. Australian Safety and Efficacy Register of New Interventional Procedures - Surgical (ASERNIP-S). Online programs for weight loss. Brisbane. ASERNIP-S2013. Available from: http://www.health.qld.gov.au/healthpact/docs/briefs/WP176.pdf.

4. Canadian Centre on Substance Abuse (CCSA). Universal, Family-based Substance Abuse Prevention for Youth. [Internet]. CCSA2014. Available from: http://www.ccsa.ca/Resource%20Library/CCSA-Universal-Family-based-Prevention-Youth-Rapid-Review-2014-en.pdf.

5. World Health Organization (WHO). Personal Protective Equipment in the context of filovirus disease outbreak response. [Internet]. World Health Organization (WHO)2014. Available from: http://www.who.int/csr/resources/publications/ebola/ppe-guideline/en/.

6. S Baidoobonso. Effect of supportive interventions on informal caregivers of people at the end of life: A rapid review. Health Quality Ontario2014. Available from: http://www.hqontario.ca/Portals/0/Documents/eds/rapid-reviews/eol-supportive-interventions-1411-en.pdf.

7. N Burrowes. Body image – a rapid evidence assessment of the literature. London, England. United Kingdom Government Equalities Office and the Department for Culture, Media & Sport2013. Available from: https://www.gov.uk/government/publications/body-confidence-a-rapid-evidence-assessment-of-the-literature.

8. CADTH. Sofosbuvir for the Treatment of Patients with Genotype 4 Hepatitis C: A Review of the Clinical Efficacy, Cost-effectiveness, and Guidelines. [Internet]. CADTH2014. Available from: https://www.cadth.ca/sofosbuvir-treatment-patients-genotype-4-hepatitis-c-review-clinical-efficacy-cost-effectiveness-and.

9. Evidence-based Synthesis Program (ESP) Center. Evidence Map of Yoga for High-Impact Conditions Affecting Veterans. [Internet] Washington, USA: Department of Veterans Affairs, Veterans Health Administration, Quality

Enhancement Research Initiative, Health Services Research and Development Service; 2014; Available from: http://www.hsrd.research.va.gov/publications/esp/yoga.pdf.

10. M D'Eath, MM Barry, J Sixsmith. A rapid evidence review of health advocacy for communicable diseases. [Internet] Ireland. Health Promotion Research Centre, University of Ireland Galway2014. Available from: http://ecdc.europa.eu/en/publications/Publications/Health-advocacy-technical-report-January-2014.pdf.

11. Scottish Health Technologies Group. Transcathetyer aortic valve implantation (TAVI) for severe symptomatic aortic stenosis in adults who are not eligible for surgery. [Internet] Scotland. Scottish Health Technologies Group2014. Available from: http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/shtg_-_evidence_notes/evidence_note_51.aspx.

12. SL Gurgacz, R Lambert, A Vogan, Cooter R, Mutimer K, Maddern G. ASERNIP-S report no. 81 - Breast prosthesis implantation for reconstructive and cosmetic surgery: A rapid review. Adelaide, South Australia. Australian Safety and Efficacy Register of New Interventional Procedures-Surgical (ASERNIP-S)2013. Available from: http://www.surgeons.org/media/20844776/rpt_2014-02-04_rr_breast_implantation__2_.pdf.

13. MM Hirji, MG Wilson, K Yacoub, A Bhuiya. Identifying Suicide Prevention interventions. [Internet]. McMaster Health Forum, McMaster University, Canada2014. Available from: http://www.mcmasterhealthforum.org/docs/default-source/Product-Documents/rapid-responses/identifying-suicide-prevention-interventions.pdf?sfvrsn=2.

14. H Hiscock, P Perera, K McLean, G Roberts. Variation in paediatric clinical practice: An Evidence Check review brokered by the Sax Institute (www.saxinstitute.org.au) for NSW Kids and Families. November 2014. Available from: http://www.saxinstitute.org.au/wp-content/uploads/Report_Variation-in-paediatric-clinical-practice.pdf.

15. ECRI Institute. Automated Technologies for Patient Room Disinfection and Decontamination of Biosafety Level 4 Infectious Agents, Including Ebola Virus. [Internet]. ECRI Institute2014. Available from: https://www.ecri.org/components/Hotline/Pages/14374.aspx?tab=2.

16. Institute of Health Economics. Total prosthetic replacement of the temporomandibular joint: a rapid evidence assessment and economic analysis. Edmonton, Alberta. Institute of Health Economics2013. Available from: http://www.ihe.ca/publications/total-prosthetic-replacement-of-the-temporomandibular-joint-a-rapid-evidence-assessment-and-economic-analysis.

17. N Lapczak, S Hertz. Review of evidence on efective postpartum smoking relapse prevention interventions. [Internet]. Region of Peel, Canada2014. Available from: http://www.peelregion.ca/health/library/pdf/rapid-review-smoking-relapse-prevention.pdf.

18. A Leof, M Thielke, A Gerrity, V King. Sofosbuvir for the Treatment of Hepatitis C and Evaluation of the 2014 American Association for the Study of Liver Diseases Treatment Guidelines. [Internet] USA. Oregon Health and Safety University - Centre for Evidence-based Policy2014. Available from: http://www.ohsu.edu/xd/research/centers-institutes/evidence-based-policy-center/med/upload/Sofosbuvir_for_HepatitisC_FINAL_5_19_2014.pdf.

19. M Masso, C Thompson. Rapid Review of the Nurse Practitioner Literature. [Internet] New South Wales. Government of New South Wales, Australia2014. Available from: http://www.health.nsw.gov.au/nursing/practice/Publications/nurse-practitioner-review.pdf.

20. C Miani, S Ball, E Pitchforth, J Exley, S King, M Roland, J Fuld, E Nolte. Organisational interventions to reduce length of stay in hospital: a rapid evidence assessment. [Internet]. RAND Corporation for the National Institute for Health Research2014. Available from: http://www.journalslibrary.nihr.ac.uk/hsdr/volume-2/issue-52#abstract.

21. Lannin NA, Morarty J, Laver K. Segmented Rehabilitation: A Rapid Review. Melbourne, Australia. Departments of Occupational Therapy, La Trobe University and Alfred Health for The Institute for Safety, Compensation and Recovery Research (ISCRR)2013 Contract No.: ISCRR Research Report # 022.029-R1C. Available from: https://www.tac.vic.gov.au/__data/assets/pdf_file/0016/125404/Segmented-rehabilitation-for-people-after-ABI.pdf.

22. P Navarro, S Bornstein, J O'Loughlin. Strategies for Health promotion: Healthy Dietary Habits. [Internet] Canada. Newfoundland & Labrador Centre for Applied Health Research (NLCAHR), Contextualized Health Research Synthesis Program (CHRSP).2014. Available from: http://www.nlcahr.mun.ca/CHRSP/RER_HEALTH_PROMOTIONS.pdf.

23. Ontario HIV Treatment Network. What is the effectiveness of supervised injections? [Internet]. Ontario HIV Treatment Network2014. Available from: http://www.ohtn.on.ca/Pages/Knowledge-Exchange/Rapid-Responses/Documents/RR83-Supervised-Injection-Effectiveness.pdf.

24. Health Quality Ontario. Vitamin B12 and cognitive function: An Evidence-Based Analysis [Internet]. 2013. Available from: http://www.hqontario.ca/Portals/0/Documents/eds/ohtas/eba-vitamin-b12-cognitive-function-131125-en.pdf.

25. R Parry, J Seymour, B Whittaker, I Bird, C Cox. Rapid evidence review: Pathways focused on the dying phase in end of life care and their key components. United Kingdom. British Department of Health, Sue Ryder Care Centre for the Study of Supportive Palliative and End of Life Care UoN;2013. Available from: http://socialwelfare.bl.uk/subject-areas/services-activity/health-services/departmentofhealth/rapid13.aspx.

26. C Stansfield, N Rumse, J Thomas. Psychosocial predictors, assessment and outcomes of cosmetic interventions: a systematic rapid evidence review. London. EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.2013. Available from: http://eppi.ioe.ac.uk/cms/LinkClick.aspx?fileticket=Ge_RehINz8Q%3D.

27. Syful Azlie Md Fuzi. Ecological Disinfectant (Product name redacted for agency posting). Putrajaya, Malaysia. Health Technology Assessment Section (MaHTAS),Medical Development Division, Ministry of Health Malaysia.2013. Available from: http://www.moh.gov.my/index.php/database_stores/store_view_page/30/211.

28. KS Canada The Knowledge Synthesis (KS) Group, Ottawa Methods Centre, Ottawa Hospital Research Institute. Do Outcomes Vary Among Different Curricula or Models of Delivery for Pre-licensure Nursing Education? A Rapid Review. Ottawa. 2013. Available from: Available on request.

29. Ottawa Methods Centre The Knowledge Synthesis Group and Cochrane Collaborators, Ottawa Hospital Research Institute. Effects of Performing Complex Pediatric Intracavitary (IC) Surgical Procedures in Specialized versus Non-specialized Centers in High Risk Children: Cochrane Response Rapid Review. Ottawa, Ontario, Canada: The Cochrane Collaboration; 2013; Available from: http://innovations.cochrane.org/sites/innovations.cochrane.org/files/CHA-RR%20Evidence%20Summary-Final%2024May2013.pdf.

30. J Turner, L Preston, A Booth, C O'Keeffe, F Campbell, A Jesurasa, K Cooper, E Goyder. What evidence is there for a relationship between organizational features and patient outcomes in congenital heart disease services? A rapid review. [Internet]. School for Health and Related Research (ScHARR), University of Sheffield.2014. Available from: http://www.nets.nihr.ac.uk/__data/assets/pdf_file/0017/118511/HSDR_WR1_13-05-12.pdf.

31. J Ubido, A Scott-Samuel. An evaluation of the cost effectiveness of monitored dosage systems (MDS) as an aid to maintaining independence in taking medication. Liverpool Public Health Observatory2014. Available from: https://www.liv.ac.uk/media/livacuk/instituteofpsychology/publichealthobservatory/LPHO,monitored,dosage,system_,final.pdf.

32. Rapid Review Unit. Comparative safety and effectiveness of inhaled long-acting agents (corticosteroids, beta agonists) for chronic obstructive pulmonary disease (COPD): A rapid review and network meta-analysis. Toronto. Ontario Drug Policy Research Network (ODPRN), St. Michaels Hospital2014. Available from: Available on request.

33. Public Health Wales. Primary Care in Wales: Rapid review of models and policy. [Internet] Wales. Public Health Wales2014. Available from: http://www.wales.nhs.uk/sitesplus/documents/888/Primary%20care%20models%20and%20policies-%20rapid%20review%20SUMMARY%20July%202014%20FINAL.PDF.

**Included journal-published studies (n = 33)**

1. Bungay H, Vella-Burrows T. The effects of participating in creative activities on the health and well-being of children and young people: a rapid review of the literature. Perspectives in public health. 2013 Jan;133(1):44-52.

2. Dennis SM, Harris M, Lloyd J, Powell Davies G, Faruqi N, Zwar N. Do people with existing chronic conditions benefit from telephone coaching? A rapid review. Australian health review : a publication of the Australian Hospital Association. 2013 Jun;37(3):381-8.

3. Jarrett N, Scott I, Addington-Hall J, Amir Z, Brearley S, Hodges L, et al. Informing future research priorities into the psychological and social problems faced by cancer survivors: a rapid review and synthesis of the literature. European journal of oncology nursing : the official journal of European Oncology Nursing Society. 2013 Oct;17(5):510-20.

4. Kim DG, Choi YY, An JY, Kwon IG, Cho I, Kim YM, et al. Comparing the short-term outcomes of totally intracorporeal gastroduodenostomy with extracorporeal gastroduodenostomy after laparoscopic distal gastrectomy for gastric cancer: a single surgeon's experience and a rapid systematic review with meta-analysis. Surgical endoscopy. 2013 Sep;27(9):3153-61.

5. McLean SL, Blenkinsopp A, Bennett MI. Using haloperidol as an antiemetic in palliative care: informing practice through evidence from cancer treatment and postoperative contexts. Journal of pain & palliative care pharmacotherapy. 2013 Jun;27(2):132-5.

6. Ndumbe-Eyoh S, Moffatt H. Intersectoral action for health equity: a rapid systematic review. BMC Public Health. 2013;13:1056.

7. Trivedy CR, Cooke MW. Unscheduled return visits (URV) in adults to the emergency department (ED): a rapid evidence assessment policy review. Emergency medicine journal : EMJ. 2013 Oct 28.

8. Zeno SA, Purvis D, Crawford C, Lee C, Lisman P, Deuster PA. Warm-ups for military fitness testing: rapid evidence assessment of the literature. Medicine and science in sports and exercise. 2013 Jul;45(7):1369-76.

9. Banbury A, Roots A, Nancarrow S. Rapid review of applications of e-health and remote monitoring for rural residents. The Australian journal of rural health. 2014 Oct;22(5):211-22.

10. Beall RF, Baskerville N, Golfam M, Saeed S, Little J. Modes of delivery in preventive intervention studies: a rapid review. European journal of clinical investigation. 2014 Jul;44(7):688-96.

11. Brunton G, Paraskeva N, Caird J, Bird KS, Kavanagh J, Kwan I, et al. Psychosocial predictors, assessment, and outcomes of cosmetic procedures: a systematic rapid evidence assessment. Aesthetic plastic surgery. 2014 Oct;38(5):1030-40.

12. Chaiyachati KH, Ogbuoji O, Price M, Suthar AB, Negussie EK, Barnighausen T. Interventions to improve adherence to antiretroviral therapy: a rapid systematic review. AIDS (London, England). 2014 Mar;28 Suppl 2:S187-204.

13. Costello RB, Lentino CV, Boyd CC, O'Connell ML, Crawford CC, Sprengel ML, et al. The effectiveness of melatonin for promoting healthy sleep: a rapid evidence assessment of the literature. Nutrition journal. 2014;13:106.

14. Delgado R, York A, Lee C, Crawford C, Buckenmaier C, 3rd, Schoomaker E, et al. Assessing the quality, efficacy, and effectiveness of the current evidence base of active self-care complementary and integrative medicine therapies for the management of chronic pain: a rapid evidence assessment of the literature. Pain medicine (Malden, Mass). 2014 Apr;15 Suppl 1:S9-20.

15. Dorresteijn PM, Ipenburg NA, Murphy KJ, Smit M, van Vulpen JK, Wegner I, et al. Rapid Systematic Review of Normal Audiometry Results as a Predictor for Benign Paroxysmal Positional Vertigo. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 Mar 18;150(6):919-24.

16. Garrett B, Taverner T, Masinde W, Gromala D, Shaw C, Negraeff M. A rapid evidence assessment of immersive virtual reality as an adjunct therapy in acute pain management in clinical practice. The Clinical journal of pain. 2014 Dec;30(12):1089-98.

17. Hithersay R, Strydom A, Moulster G, Buszewicz M. Carer-led health interventions to monitor, promote and improve the health of adults with intellectual disabilities in the community: a systematic review. Research in developmental disabilities. 2014 Apr;35(4):887-907.

18. Khorsan R, Crawford C, Ives JA, Walter AR, Jonas WB. The effect of omega-3 fatty acids on biomarkers of inflammation: a rapid evidence assessment of the literature. Military medicine. 2014 Nov;179(11 Suppl):2-60.

19. Lal S, Adair CE. E-mental health: a rapid review of the literature. Psychiatric services (Washington, DC). 2014 Jan 1;65(1):24-32.

20. Loveday HP, Wilson JA, Kerr K, Pitchers R, Walker JT, Browne J. Association between healthcare water systems and Pseudomonas aeruginosa infections: a rapid systematic review. The Journal of hospital infection. 2014 Jan;86(1):7-15.

21. Luckett T, Phillips J, Agar M, Virdun C, Green A, Davidson PM. Elements of effective palliative care models: a rapid review. BMC Health Serv Res. 2014;14:136.

22. Menear M, Briand C. Implementing a continuum of evidence-based psychosocial interventions for people with severe mental illness: part 1-review of major initiatives and implementation strategies. Canadian journal of psychiatry Revue canadienne de psychiatrie. 2014 Apr;59(4):178-86.

23. Moe-Byrne T, Chambers D, Harden M, McDaid C. Behaviour change interventions to promote prescribing of generic drugs: a rapid evidence synthesis and systematic review. BMJ open. 2014;4(5):e004623.

24. Paton F, Chambers D, Wilson P, Eastwood A, Craig D, Fox D, et al. Effectiveness and implementation of enhanced recovery after surgery programmes: a rapid evidence synthesis. BMJ open. 2014;4(7):e005015.

25. Reinink H, Wegner I, Stegeman I, Grolman W. Rapid systematic review of repeated application of the epley maneuver for treating posterior BPPV. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 Sep;151(3):399-406.

26. Saeed S, Golfam M, Beall RF, Ashbury FD, Palmer LJ, Little J. Effectiveness of individual-focused interventions to prevent chronic disease. European journal of clinical investigation. 2014 Sep;44(9):883-91.

27. Treanor CJ, Donnelly M. The late effects of cancer and cancer treatment: a rapid review. The Journal of community and supportive oncology. 2014 Apr;12(4):137-48.

28. van der Scheer-Horst ES, van Benthem PP, Bruintjes TD, van Leeuwen RB, van der Zaag-Loonen HJ. The efficacy of vestibular rehabilitation in patients with benign paroxysmal positional vertigo: a rapid review. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 Nov;151(5):740-5.

29. van der Veen EL, van Hulst RA, de Ru JA. Hyperbaric Oxygen Therapy in Acute Acoustic Trauma: A Rapid Systematic Review. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 Mar 19;151(1):42-5.

30. van Duijn JG, Isfordink LM, Nij Bijvank JA, Stapper CW, van Vuren AJ, Wegner I, et al. Rapid Systematic Review of the Epley Maneuver for Treating Posterior Canal Benign Paroxysmal Positional Vertigo. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 Mar 31;150(6):925-32.

31. Wegner I, Niesten ME, van Werkhoven CH, Grolman W. Rapid Systematic Review of the Epley Maneuver versus Vestibular Rehabilitation for Benign Paroxysmal Positional Vertigo. Otolaryngology--head and neck surgery : official journal of American Academy of Otolaryngology-Head and Neck Surgery. 2014 May 20;151(2):201-7.

32. Wolfenden L, Carruthers J, Wyse R, Yoong S. Translation of tobacco control programs in schools: findings from a rapid review of systematic reviews of implementation and dissemination interventions. Health promotion journal of Australia : official journal of Australian Association of Health Promotion Professionals. 2014 Aug;25(2):136-8.

33. Cooper CL, Hind D, Duncan R, Walters S, Lartey A, Lee E, et al. A rapid review indicated higher recruitment rates in treatment trials than in prevention trials. J Clin Epidemiol. 2015 Mar;68(3):347-54.

**Excluded journal-published studies (n = 77)**

1. Amyot R. [Rapid review of the events leading to the establishment of the Conseil Medical du Canada granting the federal license]. L'union medicale du Canada. 1960 May;89:633-5.

2. Attree P, French B, Milton B, Povall S, Whitehead M, Popay J. The experience of community engagement for individuals: a rapid review of evidence. Health Soc Care Community. 2011 May;19(3):250-60.

3. Baker A, Melcher D, Smith R. Rapid review. Cytopathology : official journal of the British Society for Clinical Cytology. 1996 Aug;7(4):294-5.

4. Bambra C, Joyce KE, Bellis MA, Greatley A, Greengross S, Hughes S, et al. Reducing health inequalities in priority public health conditions: using rapid review to develop proposals for evidence-based policy. J Public Health (Oxf). 2010 Dec;32(4):496-505.

5. Beiri A, Alani A, Ibrahim T, Taylor GJ. Trauma rapid review process: efficient out-patient fracture management. Annals of the Royal College of Surgeons of England. 2006 Jul;88(4):408-11.

6. Blackwell E, McKinney WM. A new system for rapid review of clinical studies and more efficient group teaching in ultrasound. Journal of clinical ultrasound : JCU. 1975 Mar;3(1):55-6.

7. Boycott N, Schneider J, McMurran M. Additional interventions to enhance the effectiveness of individual placement and support: a rapid evidence assessment. Rehabilitation research and practice. 2012;2012:382420.

8. Brearley SG, Stamataki Z, Addington-Hall J, Foster C, Hodges L, Jarrett N, et al. The physical and practical problems experienced by cancer survivors: a rapid review and synthesis of the literature. EurJ OncolNurs. 2011;15(3):204-12.

9. Bulgaresi P, Cariaggi MP, Troni GM, Ciatto S. Quality control of the autopap screening system employed as a primary screening device: rapid review of smears coded as no further review. Tumori. 2006 Jul-Aug;92(4):276-8.

10. Bury M, Newbould J, Taylor D. A rapid review of the current state of knowledge regarding lay-led self-management of chronic illness. Evidence review. London: National Institute for Health and Clinical Excellence (NICE); 2005.

11. Casadesus D. Surgical resection of rectal adenoma: a rapid review. World J Gastroenterol. 2009;15(31):3851-4.

12. Chrome P. Rapid review of medicine in old age. GM: Midlife & Beyond. 2007;40(2):92-.

13. Curson JA, Dell ME, Wilson RA, Bosworth DL, Baldauf B. Who does workforce planning well? Workforce review team rapid review summary. International journal of health care quality assurance. 2010;23(1):110-9.

14. Faraker CA. Rapid review. Cytopathology : official journal of the British Society for Clinical Cytology. 1998 Apr;9(2):71-6.

15. Faraker CA. Invited commentary--Rapid review: current practice. Cytopathology : official journal of the British Society for Clinical Cytology. 2001 Aug;12(4):249-50.

16. Faraker CA, Boxer ME. Rapid review (partial rescreening) of cervical cytology. Four years experience and quality assurance implications. Journal of clinical pathology. 1996 Jul;49(7):587-91.

17. Fitzpatrick-Lewis D, Ganann R, Krishnaratne S, Ciliska D, Kouyoumdjian F, Hwang SW. Effectiveness of interventions to improve the health and housing

status of homeless people: a rapid systematic review. BMC Public Health. 2011;11:638.

18. Fontanarosa PB, DeAngelis CD. Update on JAMA-EXPRESS: rapid review and publication. Jama. 2008 Dec 24;300(24):2920-1.

19. Foxcroft DR, Milne R. Orlistat for the treatment of obesity: rapid review and cost-effectiveness model. Obesity reviews : an official journal of the International Association for the Study of Obesity. 2000 Oct;1(2):121-6.

20. Frist S. Rapid review of cervical cytology. Journal of clinical pathology. 1997 Jan;50(1):87.

21. Geddes R, Frank J, Haw S. A rapid review of key strategies to improve the cognitive and social development of children in Scotland. Health Policy. 2011 Jun;101(1):20-8.

22. Golfam M, Beall R, Brehaut J, Saeed S, Relton C, Ashbury FD, et al. Comparing alternative design options for chronic disease prevention interventions. European journal of clinical investigation. 2015 Jan;45(1):87-99.

23. Greenwald JL, Burstein GR, Pincus J, Branson B. A rapid review of rapid HIV antibody tests. Current infectious disease reports. 2006 Mar;8(2):125-31.

24. Gush C, Borriello P. An overview of the UK Department of Health's Rapid Review Panel. The Journal of hospital infection. 2007 Jun;65 Suppl 2:27-9.

25. Henderson S, Stevens M, Walker T. Rapid review of liquid-based smears as a quality control measure. Diagnostic cytopathology. 2004 Sep;31(3):141-6.

26. Hildon Z, Neuburger J, Allwood D, van der Meulen J, Black N. Clinicians' and patients' views of metrics of change derived from patient reported outcome measures (PROMs) for comparing providers' performance of surgery. BMC Health Serv Res. 2012;12:171.

27. Hill R, Bagust A, Bakhai A, Dickson R, Dundar Y, Haycox A, et al. Coronary artery stents: a rapid systematic review and economic evaluation. Health Technol Assess. 2004 Sep;8(35):iii-iv, 1-242.

28. Jahangirian M, Eldabi T, Garg L, Jun GT, Naseer A, Patel B, et al. A rapid review method for extremely large corpora of literature: Applications to the domains of modelling, simulation, and management. International Journal of Information Management. 2011;31(3):234-43.

29. James A, McNamee D, Horton R. Rapid reviews in The Lancet--and beyond. Lancet. 2002;360(9327):102.

30. Kelley LS. What is in store for 2004? Rapid review will mean cutting edge information to you! Journal of gerontological nursing. 2003 Dec;29(12):5.

31. Kelly BJ, Perkins DA, Fuller JD, Parker SM. Shared care in mental illness: A rapid review to inform implementation. Int J MentHealth Syst. 2011;5(1):31.

32. Konnyu KJ, Kwok E, Skidmore B, Moher D. The effectiveness and safety of emergency department short stay units: a rapid review. Open Med. 2012;6(1):e10-6.

33. Lee BC, Lam SY, Walker T. Comparison of false negative rates between 100% rapid review and 10% random full rescreening as internal quality control methods in cervical cytology screening. Acta cytologica. 2009 May-Jun;53(3):271-6.

34. Manrique EJ, Souza NL, Tavares SB, Albuquerque ZB, Zeferino LC, Amaral RG. Analysis of the performance of 100% rapid review using an average time of 1 and 2 minutes according to the quality of cervical cytology specimens. Cytopathology : official journal of the British Society for Clinical Cytology. 2011 Jun;22(3):195-201.

35. McMurran M. Individual-level interventions for alcohol-related violence: a rapid evidence assessment. Criminal behaviour and mental health : CBMH. 2012 Feb;22(1):14-28.

36. Moyad MA. The use of complementary/preventive medicine to prevent prostate cancer recurrence/progression following definitive therapy. Part II--rapid review of dietary supplements. Current opinion in urology. 2003 Mar;13(2):147-51.

37. Moyad MA. Fad diets and obesity--Part III: a rapid review of some of the more popular low-carbohydrate diets. Urologic nursing. 2004 Oct;24(5):442-5.

38. Moyad MA. Vitamin D: a rapid review. Urologic nursing. 2008 Oct;28(5):343-9, 84; quiz 50.

39. Moyad MA. Vitamin D: a rapid review: the "ideal" vitamin D blood level. Dermatology Nursing. 2009;21(1).

40. Moyad MA. Vitamin D: a rapid review. Dermatology nursing / Dermatology Nurses' Association. 2009 Jan-Feb;21(1):25-30, 55.

41. Moyad MA. Heart health = urologic health and heart unhealthy = urologic unhealthy: rapid review of lifestyle changes and dietary supplements. UrolClin North Am. 2011;38(3):359-67.

42. Moyad MA, Merrick GS. Cholesterol, cholesterol-lowering agents/statins, and urologic disease: Part III--A rapid review of FDA-approved cholesterol-lowering agents. Urologic nursing. 2006 Aug;26(4):330-2.

43. O'Sullivan JP, Chapman PA, Jenkins L, Smith R. Variables involved in rapid review. Cytopathology : official journal of the British Society for Clinical Cytology. 1999 Apr;10(2):144-5.

44. Parker S, Fuller J. Are nurses well placed as care co-ordinators in primary care and what is needed to develop their role: a rapid review? Health Soc Care Community. 2015 Feb 9.

45. Revere D, Fuller S, Bugni PF, Martin GM. An information extraction and representation system for rapid review of the biomedical literature. Stud Health Technol Inform. 2004;107(Pt 2):788-92.

46. Secrist J. Osteoporosis. Part IV -- rapid review of drug therapies (A to Z) for preventing male osteoporosis/fractures. Urologic nursing. 2003 Apr;23(2):168-74.

47. Slater DN. Sensitivity of primary screening by rapid review: 'to act or not to act on the results, that is the question'. Cytopathology : official journal of the British Society for Clinical Cytology. 1998 Apr;9(2):77-83.

48. Stengel D, Ekkernkamp A, Dettori J, Hanson B, Sturmer KM, Siebert H. [A rapid review of the minimum quality problems using total knee arthroplasty as an example. Where do the magical threshold values come from?]. Unfallchirurg. 2004 Oct;107(10):967-88.

49. Sutton A, Grant MJ. Cost-effective ways of delivering enquiry services: a rapid review. Health Info Libr J. 2011;28(4):249-55.

50. Szmuda T, Sloniewski P, Waszak PM, Springer J, Szmuda M. Towards a new treatment paradigm for ruptured blood blister-like aneurysms of the internal carotid artery? A rapid systematic review. 2015 Mar 19.

51. Tarducci M. [Old and new themes (projected toward a more ample delay of international approaches) in evaluations of ocular damage in accident patients: rapid review of eminently practical nature]. Bollettino d'oculistica. 1960 Dec;39:903-22.

52. Tavares SB, Alves de Sousa NL, Manrique EJ, Pinheiro de Albuquerque ZB, Zeferino LC, Amaral RG. Improvement in the routine screening of cervical smears: A study using rapid prescreening and 100% rapid review as internal quality control methods. Cancer cytopathology. 2011 Dec 25;119(6):367-76.

53. Toomey E, Currie-Murphy L, Matthews J, Hurley DA. The effectiveness of physiotherapist-delivered group education and exercise interventions to promote self-management for people with osteoarthritis and chronic low back pain: A rapid review Part I. Manual therapy. 2015 Apr;20(2):265-86.

54. Van de Velde S, De Buck E, Dieltjens T, Aertgeerts B. Medicinal use of potato-derived products: conclusions of a rapid versus full systematic review. Phytotherapy research : PTR. 2011 May;25(5):787-8.

55. Wilson NJ, Molyneux AJ. Rapid review in cervical cytology: a retrospective review of cases detected on rapid review within a DGH cytology department and subsequent outcome. Cytopathology : official journal of the British Society for Clinical Cytology. 2004 Apr;15(2):93-6.

56. Zechmeister I, Schumacher I. The impact of health technology assessment reports on decision making in Austria. Int J Technol Assess Health Care. 2012 Jan;28(1):77-84.

57. Ziegler S, Luhmann D, Raspe H, Windeler J. [Rapid reviews for evidence-based decision support. (Restricting) requirements]. ZArztlFortbildQualitatssich. 2001;95(2):105-11.

# 4. DEFINING 'RAPID REVIEWS' – AN EDELPHI CONSENSUS APPROACH

The following is a manuscript prepared for publication, based on a modified Delphi study of experts in the field of evidence synthesis and rapid reviews. The objective of this study was to use a consensus-building method to work toward a functional definition of rapid reviews.

A copy of the letter from the Ottawa Hospital Research Ethics Board, approving this project, is provided in Appendix A.

Additional documentation for the modified Delphi study is provided in Appendix C as follows:

a) Email invitation sent to potential experts
b) Round 2 email to expert panel

In order to maintain the anonymity of research participants in this study, names of those who consented to the expert panel have not been included in the documentation.

The manuscript was co-authored by the student (SK), her co-supervisors, Dr Tammy Clifford and Dr David Moher. The student is the first author of this paper, having been responsible for survey conception and design, data collection and analyses, and writing of the manuscript. Drs Clifford and Moher provided valuable feedback throughout the study process and reviewed the manuscript for accuracy and content.

**Defining rapid reviews - An eDelphi consensus approach**

Shannon Kelly[1,2*], David Moher[1,3], Tammy J Clifford[1,4]

[1]School of Epidemiology, Public Health and Preventive Medicine, University of Ottawa, Ottawa, Canada

[2]Cardiovascular Research Methods Centre, University of Ottawa Heart Institute, Ottawa, Canada

[3]Ottawa Hospital Research Institute, Ottawa, Canada

[4]Canadian Agency for Drugs and Technologies in Health, Ottawa, Canada

*Correspondence to Shannon Kelly

Abbreviated title: *Defining Rapid Reviews*

Word count (text only): 6,277

This manuscript includes (3) tables and (2) figures.

## Abstract

**Background:** Rapid reviews are characterized as a type of accelerated systematic review with no commonly accepted or validated methodology or definition. This study aims to conduct a modified Delphi consensus survey to develop a comprehensive set of defining characteristics for rapid reviews that can be used as a functional definition going forward.

**Methods:** Panellists were identified using an iterative approach and represented key stakeholders with knowledge in rapid reviews and evidence synthesis. Expert panellists were asked to answer a 17-item survey addressing a variety of rapid review themes (e.g., timelines, comparisons to other evidence products, approach, tailoring conduct, reporting, and appropriateness). A thorough literature review was carried out to ensure that all potential topics were considered. Experts were asked to rate and comment on each survey item which led to the development of statements describing the characteristics of rapid reviews. Draft statements were circulated to experts for agreement in a second survey round and further revised in a third survey round. Consensus for a statement was reached if ≥70% of experts scored agreed and no significant issues were noted in the text comments.

**Results:** A panel of 66 experts (6 countries) comprising mainly independent or academic researchers, information scientists and methodologists participated. Consensus was reached on 10 of 11statements describing the characteristics or traits of rapid reviews. According to the expert panel, rapid reviews aim to meet the requirements and timelines of a decision-maker commissioning the review and should be conducted in less time than a systematic review (suggested median 9 weeks, interquartile range 5 to 13). They employ a variety of approaches to accelerate the evidence synthesis process, tailor the methods conventionally used to carry out a systematic review and employ the most rigorous methods that the delivery

time frame will allow. Consensus could not be reached on a statement describing quality assessment in the context of rapid reviews.

**Conclusions:** This Delphi study achieved consensus on 10 statements describing the defining characteristics of rapid reviews based on the opinion of a panel of experts knowledgeable in evidence synthesis and rapid reviews and highlights areas of disagreement. Findings emphasize the role of the decision-maker throughout the rapid review process and stress the importance of transparent reporting. These results are an essential contribution to our understanding of rapid reviews and help to further define the functional concept of rapid review that has been used to-date. Future research should explore the applicability of these findings across the various approaches, or types, of rapid reviews and to test effective use in practice.

**Keywords** Rapid reviews, definition, decision-making, methodology, Delphi, knowledge synthesis, time factors

## INTRODUCTION

Healthcare decision-makers aim to make timely, evidence-informed policy or practice decisions using the best possible research knowledge on a given subject. Evidence producers aspire to generate the highest quality research to inform these clinical or policy questions posed across a variety of disciplines using validated methods and transparent, rigourous process. The gold standard for evidence synthesis is the systematic review, which utilizes transparent, repeatable and rigorous methods to comprehensively answer research questions (1-3). It takes time to thoroughly search, extract, appraise and summarize evidence, and production times for systematic reviews reflect this [median 61 weeks, interquartile range (IQR) 33-87] (4-6). Healthcare decision-makers (also called knowledge-users) often require information in a shorter time period and may be compelled to take action before an evidence review is complete, diminishing the impact of the systematic review (7). Rapid reviews have been proposed as an alternative synthesis approach when there is an emergent need for evidence review in a shortened timeframe. Rapid reviews are characterized as a type of accelerated systematic review with no commonly accepted or validated methodology or definition (8-10). They have become increasingly popular as evidence producers struggle to balance the requirements of the decision-making process with the need for high quality, inclusive evidence summaries.

There is no shortage of research on rapid reviews, yet a paucity of knowledge in specific content areas exists. Terminology used to report or publish rapid reviews is relatively diverse, and research attempting to characterize rapid review methodologies has demonstrated a heterogeneous continuum of methods, often similarly grouped by nomenclature or label only (8, 9, 11-13). Additionally, producers and users of rapid reviews

may have different views on what constitutes a rapid review. Although standards exist for the methodological conduct and reporting of systematic reviews and other types of evidence syntheses (14, 15), there is no comparable gauge for rapid reviews. It is generally accepted that rapid reviews employ tailored methods to expedite accepted evidence synthesis processes with the goal of shortening delivery time frames or adapting to limited production resources. There is currently no accepted definition that explicitly characterizes what makes a rapid review distinct from other forms of evidence synthesis. Despite this, interest in this type of product is growing an indication that health-care decision-makers are both interested in, and consuming this type of report (16, 17).

The absence of an accepted rapid review definition is well-documented (8-10, 18). They have been conceptually described as a concept, method, or an approach but we have no meaningful way to answer the question 'what is a rapid review?'. While reduced production timeframes are considered a key feature of rapid reviews, a wide array of times to completion from 1 week to over 9 months or more has been described by previous work. Attempts to clarify or characterize common traits have been carried out by scoping the literature for methods descriptions or guidance for conduct or through the examination of minute details in samples of rapid reviews with a goal of summarizing key features (8, 9, 19, 20). Although a better understanding of these products was achieved through these efforts, the scarcity of research in this area combined with the inconsistency of methods, approach and reporting for rapid reviews has resulted in the consistent message that we currently have no established definition for a rapid review.

Frequent descriptors can be extracted from previous work and there has been some progression in the descriptions of rapid reviews in the literature since 2008. Watt et al. (2008) first described rapid reviews as a 'concept' that meets the imperatives of both knowledge users and evidence producers. While this provides a thoughtful way to group similar, timely evidence reviews, it offers no context to further delineate this grouping or distinguish it from other approaches. Ganaan et al. (2010) captured fundamental variables of timeliness and knowledge synthesis in their description of rapid reviews and linked rapid reviews to the tailoring of full systematic reviews by summarizing them as a method to "streamline traditional systematic review methods in order to synthesize evidence in a shorter timeframe" (8). Khangura et al. (2012) furthered this notion by characterizing rapid reviews as having an aim to inform the emergent needs of decision-makers in a healthcare setting (16). Abrami et al. use the term 'brief review' to describe what they consider to be rapid reviews as they exert that both time and scope should be emphasized in the definition (35). The only other descriptive feature associated with rapid review comes with the acknowledgement that rapid review is, in fact, a set of disparate approaches. This deviates from the initial thinking that a single approach could be captured in a definition and distinguished from other evidence synthesis methods. Harker et al. (2012) and others describe rapid reviews as a 'spectrum' of approaches not having a single definition while Polisena et al. (2015) describe rapid reviews definitions as fluid or flexible (21); However, there is little clarity on this concept, and insufficient detail on whether this range of reviews can be further delineated (9, 18, 22).

A 2014 survey of 57 International Network of Agencies for Health Technology Assessment (INAHTA) member agencies produced a definition of rapid reviews in context with other HTA products:

> "*A Rapid Review will always describe the characteristics and current use of the technology; and, evaluate safety and effectiveness issues. (It will) often conduct a review of only high level evidence or of recent evidence and may restrict the literature search to one or two databases. (It will) optionally critically appraise the quality of the evidence base; or, provide information on costs/financial impact.*" (23)

This somewhat strict definition accounts for the variation that often accompanies descriptions of rapid reviews through its categorization of traits using 'always', often' and 'optionally'; However, the description confines the types of research questions (safety and effectiveness) that rapid reviews should answer, which in turn limits the universal applicability of the definition outside of HTA agencies (and arguably within some of their own member agencies). It also limits the extent to which a rapid review may be considered 'systematic' by leaving discretionary options for single database literature searching and the omission of critical appraisal. It may be beneficial to explore whether rapid reviews can be more comprehensively defined using the themes that appear in the rapid review literature, such as the requirement to inform decision- or policy-makers, time to completion, conduct or approach as compared to other evidence synthesis products, the requirement for a structured literature review, or possibly even by the limited depth or focus that a rapid review may adopt. Further research is needed to capture a definition of rapid reviews that is more generalizable to a wider representation of evidence producers and knowledge users.

A clear, transparent, and sufficiently detailed definition of rapid reviews is necessary to solidify the placement of rapid reviews on the evidence continuum and to better inform healthcare decision-makers about the value and appropriateness of these products. A modified Delphi process was used to achieve consensus on the defining characteristics of rapid reviews, and to demonstrate how these products are distinct from other forms of evidence synthesis based on the opinion of experts in the field of evidence synthesis and rapid reviews.

## METHODS

We used a three-round modified Delphi method to discover what key stakeholders consider being the defining characteristics of rapid reviews (Figure 4-1). Ethical approval for this study was obtained through the Ottawa Hospital Research Ethics Board.

### The Delphi Process

The Delphi method is commonly used to obtain input from a group of experts in a structured, iterative manner (24, 25). Central to the method is anonymity between participants, the use of controlled feedback between successive survey rounds and statistical 'group response' measured graphically or numerically through measures of central tendency, dispersion and frequency distributions (26). The classical Delphi method has a number of predefined rounds, or may continue until a pre-specified level of consensus is achieved. The number of rounds required to reach stable consensus, and even what constitutes final consensus is a topic for debate in the literature (27); however, a minimum of two rounds is required and the number of rounds used should be selected pragmatically (28). Hsu et al. (2007) suggest that there is no agreement on what the criterion for consensus should be in a Delphi study, but

propose that the use of a percentage alone is inadequate. They advise the use of reliable alternatives in addition to any designated cut-off for agreement, such as “stability of subject responses in successive iterations” (29).

The electronic modified Delphi technique used in this study is comparable to the classic Delphi in terms of process (i.e., a series of rounds with selected experts) and objective (i.e., to arrive at consensus). The main modification to the traditional procedure occurred at the beginning the process with a questionnaire of pre-selected items carefully selected based on rapid review literature, in opposition to the classic Delphi use of an open-ended first round questionnaire where key concepts are outlined by the panel before refinement in subsequent rounds (27). We selected content topics and themes for the first round survey instrument from a review of rapid review literature. This adaptation was carried out in order to maximize the response rate in the first round, and to provide a solid foundation for this study based on previous research on rapid reviews. We pre-specified three survey rounds and targeted 70% for consensus on each statement describing rapid review characteristics, as suggested by Sumison (1998) and McKenna et al. (2002) (30) along with the absence of significant issues noted in the text comments. Two rounds were considered adequate to perform item generation, drafting of characteristics descriptors and obtaining initial agreement from the expert panel, with the goal of finalizing key rapid review characteristics in the third and final round. The number of rounds was limited intentionally so that experts were informed about the length of commitment to expect, limiting potential fatigue amongst participants and maximizing response rate.

## Setting

Online survey (first round) and e-mail communication (second and third rounds).

## Participants

We invited a purposive sample of 100[4] experts to participate in this study through an email invitation. The experts were identified through a detailed search of relevant literature, conference websites, key membership associations and by referral of content specialists. Experts targeted for participation were: (i) subject-matter experts or experienced researchers with knowledge of a variety of evidence synthesis methods and practical experience with rapid reviews, (ii) authors with publications relevant to rapid reviews, and (iii) delegates presenting pertinent work at recent conferences or symposia (Cochrane Colloquium, Health Technology Assessment international (HTAi), CADTH Symposium, Cochrane Canada Symposium).

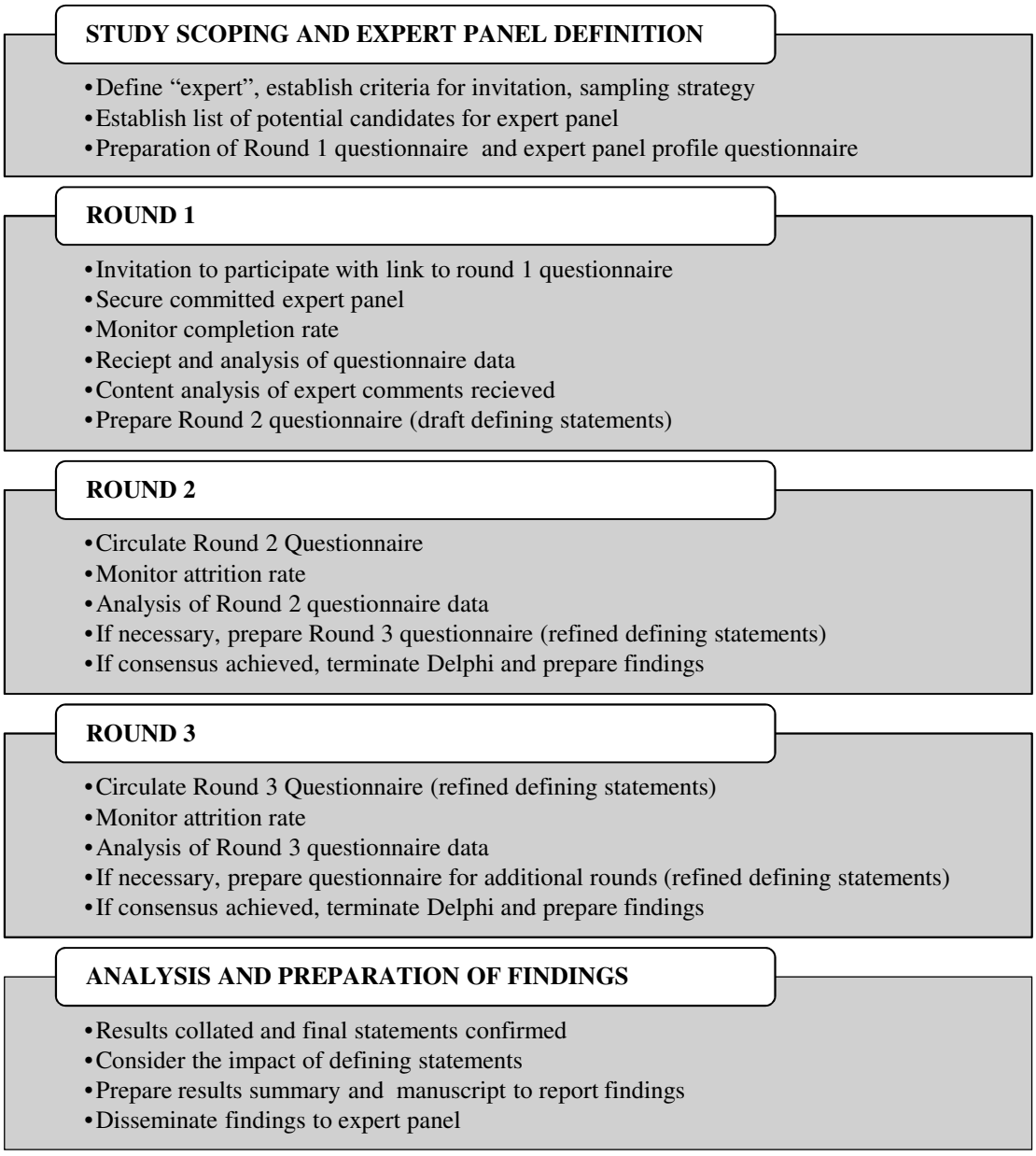
Standardized email invitations contained a letter asking experts to participate, a description of study objectives, methods, expected time commitment, consent information, and a link to the FluidSurveys (31) website hosting the first round of the Delphi study. Consenting participants were asked to refer individuals they considered suitable based on the objectives of the study, personal knowledge of rapid reviews and content expertise. Twenty additional experts were identified through participant snowball referrals.

[4] The sample of experts was not limited to a minimum or maximum number. The 100 experts initially contacted was the natural result of the sampling process we employed for this work, and not an arbitrary cap set by the investigators.

**Consensus**

An a priori level of 70% agreement was set for the agreement on the defining characteristics, which had to be accompanied by stability in the free-text comments (29).

***Figure 4-1.*** *Flow Chart of the Modified Delphi Process.*



**Questionnaire development**

Content topics and themes for the survey instrument were selected from a review of the literature on rapid reviews. The web-based questionnaire for the first round was developed and designed explicitly for this study using FluidSurveys[5] as the platform (32). The first round survey consisted of 17 broad questions addressing a variety of rapid review themes aimed at soliciting opinion and open comments from the expert panel based on their knowledge and experience with rapid reviews. The goal of this survey was to solicit rankings and free-text comments on a comprehensive set of questions with the goal of eventually prioritizing those most characteristic of a rapid review.

Nine individuals representative of a cross-section of the expert population piloted the questionnaire and checked the accompanying instructions on two separate occasions. The questionnaire was completed and checked for face and content validity, clarity, feasibility, and to ensure that the practical elements of design were appropriate. Feedback from pilot testing on two separate occasions resulted in refinement of the survey tool and modifications to the wording of questions and instructions. The first round of the web-based survey was circulated by email invitation in July 2013 and consenting experts were asked to respond to the survey within four weeks.

**First round: generating themes on rapid reviews**

For our purposes, defining characteristics are defined as 'one of a number of essential features by which a rapid reviews can be recognized' (33). Specific themes addressed in the survey were: (i) time lines for conduct, and how rapid reviews and traditional systematic

[5] FluidSurveys is a secure, flexible, web-based survey tool that allows for complex survey questions and for participant response on a variety of web-accessible devices.

reviews may differ (ii) research questions and protocols (iii) tailoring or omitting specific methodological components of a systematic review for a rapid review approach, (iv) reporting, (v) appropriateness of rapid reviews in decision-making and, (vi) requirements for guidelines on conduct. Panellists were asked to rank the importance of specific methodological and reporting components on a 5 point Likert scale where '1' was 'very unimportant' and '5' was 'very important'. Subsequent questions addressed a variety of topics using categorical input options. A comment box was placed after each question, and at the end of the survey, to encourage free-text comments and to ensure all participants had sufficient opportunity to make their views known on the different themes explored, or to provide context for the answers provided.

A brief demographic questionnaire was also administered to gain a better understanding of perceived expertise in systematic reviews and rapids review, main institutional affiliation (by category) and job specialization. Fluid Surveys collected information on the respondents' country of origin by default. To maximize response rate, the initial survey invitation was followed by two reminder emails separated by two-week intervals. Individuals who had not responded to the survey and not declined consent were contacted by email one final time prior to closing the survey, and given a five-day grace period to submit their surveys.

We analysed responses from each round separately. Response and completion rates, along with expert attrition were monitored and recorded throughout the survey rounds.

**Second Round: development of draft defining characteristic statements**

Following the first round, survey responses were analysed quantitatively. We used frequency distributions to review categorical data and to summarize questions with ordinal response

scales. Text-responses from open-ended questions on the amount of time required to conduct a systematic review or a rapid review were standardized from days, weeks, months and years into weeks for analysis. An informal, yet structured content analysis of all free-text comments was carried out, specifically capturing word frequency and emergent themes using NVivo software (34). In order to condense data for the second round, major themes and concepts and those identified by Likert scale as being 'important' or 'very important' by 70% or more of the expert panel were extracted and selected for inclusion in draft characteristic statements and presentation in the second round survey. Themes were compiled and presented in the form of draft language statements proposed as the defining characteristics of rapid reviews along with a text summary from the first round that was agreed upon by all study authors.

A second round was administered in May 2014 to experts who responded to the initial round. The second round survey endeavored the panel to agree or disagree with the proposed draft language statements on rapid review characteristics using an agree/disagree format and invited them to comment or suggest wording changes using free text. A summary of responses and comments from the first round was also distributed to each expert to provide context for how the language statements were assembled. Respondents were asked to return the survey document by email within four weeks, and reminder emails were set-up at 10 day intervals.

**Third Round: characteristic statement refinement**

A third round was administered in August 2014 to experts who responded to both the first and second rounds. Responses from the second round were used to edit the provisional

statements on the defining characteristics of rapid reviews based on expert agreement and free-text comments received. Draft statements circulated in the previous round were restated for reference, and the refined statements were proposed for consideration. Experts received an individualized report showing the pooled anonymous group response (% who agreed) to each statement on rapid reviews and their own individual response from the second round (agree/disagree). Experts were given the opportunity to reconsider their own response in context of the group response using a standardized form with room for free-text comments.

## RESULTS

### Expert Panel Profile

A total of 66 experts consented to participate in the study (response rate 55%). Forty-two experts were sent the survey and all email reminders with no response. Three experts refused the initial survey invitation, six viewed the online questionnaire but did not complete any question, two contacted the first author directly to decline participation citing limited time to commit to the study and a single person responded that although they had experience with systematic reviews and rapid reviews, they felt that their current level of knowledge in the area was inadequate to be considered an expert for the purposes of our study.

A profile of the expert panel is provided in Table 4-1. Experts who consented to participate were predominantly from North America (77%) and the United Kingdom (15%). Respondents self-rated their expertise in systematic and rapid reviews on a scale from 0 (beginner) to 100 (expert). Respondents (now referred to as the *expert panel*) rated themselves as having a moderately-high to high level of expertise in both systematic reviews (median 79.0) and rapid reviews (median 75.5). Individuals on the expert panel have not

been identified in order to maintain the anonymity agreed upon as a condition of participation.

***Table 4-1.*** *Profile of the Expert Panel (n=66).*

| **Geographic Location** | **n (%)** |
|---|---|
| Canada | 43 (65.2) |
| United Kingdom | 10 (15.2) |
| USA | 7 (10.6) |
| Australia | 4 (6.1) |
| Spain | 1 (1.5) |
| New Zealand | 1 (1.5) |
| **Self-perceived expertise:*** | **median (IQR)** |
| Systematic reviews | 79.0 (20.0) |
| Rapid reviews | 75.5 (28.8) |
| **Primary Affiliation** | **n (%)** |
| University | 20 (30.3) |
| Non-Profit Private Organization (e.g., NGO, charity) | 10 (15.2) |
| Non-Profit Public Organization | 8 (12.1) |
| Research Institute | 7(10.6) |
| University Hospital | 6 (9.1) |
| Government | 4 (6.1) |
| Hospital | 4 (6.1) |
| For-profit private organization (e.g., industry) | 2 (3.0) |
| Other† | 2 (3.0) |
| No response | 3 (4.5) |
| **Respondents considered themselves first as:** | **n (%)** |
| Epidemiologists | 17 (25.8) |
| Independent Researcher | 11 (16.7) |
| Academic | 8 (12.1) |
| Information Scientist/Medical Librarian | 8 (12.1) |
| Clinician or Allied Health Professional | 2 (3.0) |
| Statistician | 2 (3.0) |
| Other§ | 17 (25.8) |
| No response | 1 (1.5) |

*Participants were asked to rate their perceived expertise in systematic and rapid reviews on a scale from 0 to 100, where 0 represented 'beginner' and 100 represented 'expert'.
†Other responses = research consultancy
§Other included: researcher (n=6), systematic review specialist/scientist (n=3), research support (n=2), health economist (n=1), librarian (n=1), HTA producer/specialist (n=3), public health physician (n=1),

**First Round**

Sixty-two of 66 expert panelists completed the first round survey in full (93.9% completion rate). Experts were diligent in qualifying the answers they provided through free text comments and were helpful in highlighting additional relevant topics not addressed in the first round questionnaire. They asserted that time to completion for both systematic and rapid reviews may be confounded by how the start (e.g., after topic refinement completed or following protocol approval) and finish (e.g., when the report is completed, when it is provided to the end-user, when published) of the review is defined. Similarly, the number of resources available can influence the time to completion for a review, and may be impacted by whether resources are paid or volunteer. The complexity or scope of the review was also noted as a potential impact on the time to completion. The variation and requirement for multiple rapid review approaches was also addressed, as experts asserted that variation in method is potentially tied to variation in time to completion. Certain respondents thought 'rapid review' was too broad of a term to capture all approaches under a single 'catch-all' phrase. Comments also asserted that accelerating time to completion to meet a decision-making need was the only justification for modifying systematic review methods.

Across a variety of different questions (e.g., optimal types of research questions, reporting, inclusion of internal or external peer-review), reviewers commented that the 'best' answer was the one that ultimately meets the needs of the decision-maker. There was a suggestion that some types of research questions may be too burdensome to answer using a rapid review approach (e.g., safety or harms, development of guidelines).

Experts were resolved that rapid reviews must have a protocol (or at minimum a document that outlines objectives and approach prior to the review) and that bibliographic databases must be searched when conducting a rapid review (e.g., versus a simple web-search using Google Scholar). Most comments received reflected a desire to maintain as much rigour as time will permit, and that tailoring of processes should be review-dependent and may impact the ability to claim that the review is systematic on completion.

Comments across all themes reflected the need to tailor approach, methods and reporting to the requirements of the decision-maker, in close consultation, when there is an emergent or urgent decision required.

**Second Round**

In the second round, 44 experts provided their agreement on 11 draft characteristic statements circulated (response rate = 66.7%, completion rate = 95.5%). Remaining experts did not provide feedback following three email reminders.

Table 4-2 lists the 11 draft statements reflecting conduct, reporting, and other key characteristics associated with rapid reviews in the opinion of the expert panel. Consensus and general stability in free-text comments was achieved for 9 of the 11 statements circulated. While experts statistically agreed (>70%) on the fundamental concepts in each of the nine statements, many comments suggested minor edits to the wording or language used. Full consensus was not achieved for 2 statements addressing risk of bias assessment and the idea of rapid reviews being a unique methodology. Comments reiterate the experts' distinctly opposing views in these areas rather than disagreement with the wording or language.

### Third Round

In the final round, 26 remaining experts rated each of the 11 draft statements a second time. Prior to circulation, edits were made to the phrasing of each statement based on feedback from the second round (Response rate 59.1%, Completion rate 100%). Consensus was achieved for 10 of the 11 characteristics in the final round including 8 which had expert consensus of 90% or higher (Table 4-2). No statistically significant increases in statement agreement between rounds two and three were observed.

***Table 4-2.*** *Proposed and final statements describing rapid review characteristics.*

| No. | Proposed (n=44) | Agreed (%) | Final (n=26) | Agreed (%) |
|---|---|---|---|---|
| 1. | Rapid reviews are conducted in considerably less time than a standard systematic review (In the median range of 9 weeks compared to a median of 35 weeks). | 85.7% | Rapid reviews are defined by the time taken to complete an evidence synthesis related to a defined research question(s) using the most systematic or rigorous methods as possible/time allows. Based on the experience of the panel, rapid reviews are conducted in less time, on average, than a systematic review (median 9 weeks compared to a median of 35 weeks). There is a spectrum of approaches used to produce rapid reviews and, in turn, variable times to completion. | 84.0% |
| 2. | Rapid reviews are useful in answering questions on the efficacy or effectiveness of health technologies or other interventions. They may be appropriate for other types of research questions, which are best considered in the context of the particular needs of the decision-maker. | 90.5% | Rapid reviews may be useful in answering specific questions on the efficacy or effectiveness of health technologies or other interventions. They may be appropriate for other types of research questions, which are best considered in the context of the particular needs of the decision-maker and the feasibility of answering those needs within a limited timeframe. | 100% |
| 3. | A protocol should be written prior to conducting a rapid review. Further research is required to define what content a rapid review protocol should contain and the most appropriate format. | 90.5% | A protocol should be written prior to conducting a rapid review. Irrespective of contents or design, the protocol should generally outline the approach, PICO, scope and aim to maximize transparency and reproducibility in the end product. | 100% |
| 4. | Structured electronic databases should be searched when conducting a rapid review and searching a minimum of two databases is suggested. The choice of individual databases and the requirement to search grey literature are specific to the topic and decision-making requirements and decisions on each should be tailored to the needs of the individual rapid review. | 76.2% | Structured electronic databases should be searched when conducting a rapid review; the decision on the number and type of databases to be searched and whether to search grey literature should be based on the topic of the individual rapid review and the need for decision-making. | 92.0% |

| No. | Proposed (n=44) | Agreed (%) | Final (n=26) | Agreed (%) |
|---|---|---|---|---|
| 5. | The number of reviewers who participate in literature screening and data abstraction varies. In order to maintain a systematic review process, two reviewers may participate in this process; however, to expedite or make the process more efficient, a single reviewer may carry out screening and data abstraction with tailored follow-up by a second reviewer for agreement and/or error checking. | 76.2% | The number of reviewers participating at any stage of a rapid review process may vary. It is important to balance rigour in conduct with and a pragmatic approach to the requirements of the rapid review. To streamline the effort, a single reviewer may carry out screening and data abstraction with a second reviewer checking for agreement, errors and/or inter-rater reliability, as appropriate. | 91.7% |
| 6. | The decision to conduct a risk of bias assessment on included studies should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required. | 66.7% | The decision to conduct quality assessment or critical appraisal on the studies included in a rapid review should be carefully weighed against the impact to rigour, the validity of the final product and timelines required. There may be select approaches to rapid reviews where it is not possible to evaluate the validity of included studies. | 44.0% |
| 7. | The decision to include external peer-review should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required. | 85.8% | Rapid reviews ideally have a peer review process incorporated into their approach. To meet the specific timelines of a rapid review, the process may be tailored. | 92.0% |
| 8. | Rapid reviews are conducted in the same way that a systematic review is conducted. Taking into account timelines, decision-making needs, and the topic under study, certain methodological components of a rapid review may be tailored in order to expedite the process. Regardless of how the review is conducted, methods should be explicitly stated and reporting should be transparent to the reader and reproducible. | 83.4% | There are a spectrum/continuum of approaches used to produce rapid reviews, all of which tailor accepted systematic review methods in some manner to expedite the review process. Where the condensed timeframe permits, some rapid reviews may approach levels of rigour comparable to that of a systematic review. Irrespective which shortcuts are made, or at which part of the rapid review process, the methods should always be explicitly stated, with the goal of maintaining transparency and enabling reproducibility. This will allow end-users to fully consider the evidence in context with concessions made in the review process. | 92.0% |
| 9. | Rapid reviews are a legitimate form of knowledge synthesis. It is reasonable to employ rapid reviews to inform policy and decision-making processes when there is the need for a timely evidence review. The decision to use a rapid review should be considered in the context of the decision at hand and balanced against any potential limitations involved in tailoring methods or expediting the review process. It is important to maintain an open and transparent dialogue between the rapid review requestor and the review team. | 97.3% | Rapid reviews are a legitimate form of knowledge synthesis. It is reasonable to employ rapid reviews to inform policy and decision-making processes when there is the need for a timely evidence review. The decision to use a rapid review should be considered in the context of the decision at hand and balanced against any potential risk involved in expediting the review process. It is important to maintain an open and transparent dialogue between the rapid review requestor and the review team. | 96.0% |

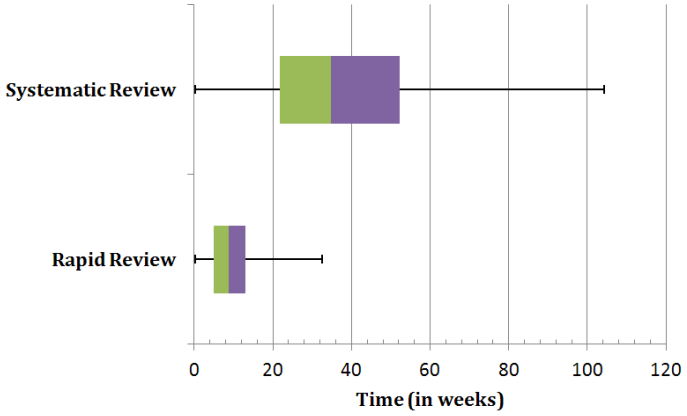
| No. | Proposed (n=44) | Agreed (%) | Final (n=26) | Agreed (%) |
|---|---|---|---|---|
| 10. | It is unclear if a unique methodology for rapid reviews should be developed. Further research in this area is warranted. | 66.7% | There is no consensus on rapid reviews being a unique knowledge synthesis product a variation of a systematic review in a condensed timeframe. There are a spectrum of approaches to rapid reviews being used and that there may be no one-size-fits-all methodology. There is still tension over whether additional research is warranted to better understand the ultimate impact of various workflow adaptations on the rapid review product. | 72.0% |
| 11. | Reporting length of rapid reviews may vary based on the individual requirements of the decision-maker commissioning the review and the audience for which the review is intended. | 92.9% | Rapid reviews may vary in length based on the level of detail needed to adequately answer the research question, the requirements of the decision-maker commissioning the review, the audience for which the review is intended, and the delivery time line. | 100% |

Experts agreed on nearly all of the key characteristics generated for rapid reviews, but contrasting opinions persisted on the subject of risk of bias assessment and these were reflected in the free-text comments received (Table 4-2, statement 6).

Consensus was reached on: 1) the utility and appropriateness of rapid reviews in answering a variety of research questions; 2) the requirement for a rapid review protocol outlining approach, PICO, objectives and scope at minimum; and 3) variable reporting length. These characteristics predominantly reflected the expert opinion that the approach to rapid reviews must be based on the particular needs of knowledge-users, the audience for which the rapid review is intended. Based on the experience of the expert panel, these must be a balanced with the feasibility of answering those needs in a particular timeline, while maximizing transparency and reproducibility. Additional statements with a high level of expert agreement represented a variety of concepts on rapid reviews. Experts agreed that, in their opinion, the time to completion of a rapid review is significantly less than that of a systematic review (median 9 weeks, IQR 5.0 to 13.0 compared to median 35 weeks, IQR

21.7 to 52.1)(Figure 4-2) and rapid reviews can be defined by the time taken to complete an evidence synthesis

***Figure 4-2.*** *Box plot comparing time to completion for systematic reviews with rapid reviews, based on expert opinion.*




related to a defined research question(s) using the most systematic or rigourous methods as time allows. Experts did not agree that rapid reviews are a unique knowledge synthesis method, but established that further research is required to better understand the impact of various workflow adaptations on the validity of the final rapid review product. A general summary of rapid review characteristics is provided in Table 4-3.

***Table 4-3.*** *Summary of rapid review defining characteristics, based on expert opinion.*

| | |
|---|---|
| **Rapid reviews….** | • Are conducted in less time than a systematic review |
| | • Use a spectrum of approaches to complete an evidence synthesis related to a defined research question(s) using the most systematic or rigourous methods as a limited time frame allows |
| | • Have a protocol describing objectives, scope, PICO and approach |
| | • Tailor the explicit, reproducible methods conventionally used in a systematic review in some manner to expedite the review process. |
| | • Transparently report methods and findings with a level of detail needed to adequately answer the research question, meet the requirements of the decision-maker commissioning the review, and inform the audience for which the review is intended, while meeting a delivery time line agreed upon in advance. |
| | • Should be considered in the context with the decision at hand when emergent or urgent decisions are required. |
| | • Choices to adapt workflow should be balanced against the yet undetermined impact to conclusions or validity of findings and this risk should be communicated to the end-user. |

## DISCUSSION

The aim of this project was to achieve a pragmatic, operational definition for rapid reviews that is useful to both evidence producers and users, and allows for differentiation of this approach (or spectrum of approaches) from other synthesis methods. Sixty-six experts from 6 different countries agreed to participate in this modified online Delphi study. An analysis of their profile shows that they are an experienced group of researchers with a high level of expertise and familiarity with rapid reviews. The panel of experts included prominent researchers in the area of evidence synthesis who had an adequate and appropriate background to contribute to the development of a definition for rapid reviews. This is the first study to our knowledge to explore this topic using the iterative input of experts to work towards a consensus definition. We used a three-round modified Delphi approach to query

the anonymous expert panel on what they considered to be the key characteristics of rapid reviews, or the essential features by which a rapid review can be recognized. Experts reached consensus on 10 of 11 final statements considered. Within this collection of statements, full consensus (100% agreement) was achieved for 3 statements and a very high level of consensus (≥90% agreement) was attained for 8 statements. None of the statements showed a significant change in agreement (p=> 0.05) between the second and third survey rounds, which is suggestive of stability in the expert sentiment (35). Results demonstrate that rapid reviews can be differentiated from systematic reviews or other evidence synthesis products using these key defining characteristics, although there may be overlap amongst the common traits.

In our study, experts agreed that a comprehensive definition of rapid reviews should consider multiple domains, including: (1) timeliness in relation to full systematic reviews; (2) an aim to meet the specific requirements of a decision-maker; (3) tailoring of the explicit and reproducible methods conventionally used to conduct systematic reviews in order to expedite the process; (4) flexibility of approach, process adapt and turnaround time; (5) the existence of risk to the overall validity of the process and findings that must be considered; and, (6) a goal to use the most rigorous and systematic methods that time will allow, and, (7) the essential requirement of transparency of process and completeness of reporting in all output from the rapid review. Experts also agreed on several essential methodological components that rapid reviews should aim to comply with, including the requirement for a protocol (describing at minimum scope, population, intervention, comparator and outcome, and the approach), a search of bibliographic databases, an internal or external peer review process, although no further detail on the content came out of this work. Although consensus was

achieved on 10 of 11 characteristic statements, experts did not agree on the statement describing assessment of the risk of bias within or across studies included in a rapid review, and attempts to clarify or revise statements focused on this domain were not successful.

This work follows that of other research groups who have attempted to extract or compile a definition of rapid reviews through different means, including comprehensive investigations of methods papers or sample rapid reviews (8-10, 18, 36). A fulsome analysis of 46 full rapid reviews and three extractable summaries of rapid reviews by Harker et al. in 2012 did not elucidate a clear or final definition for what actually constitutes a rapid review. Similar to previous empirical studies of rapid reviews by Watt et al.(19), Ganaan et al.(8), Harker et al.(9), and more recently Polisena et al.(21). and Hartling et al.(11), this consensus exercise found that experts agreed that, in their experience, rapid reviews can be defined by the time variables and referenced relatively against the timeline for a systematic review. Experts largely held the opinion that rapid reviews should be conducted in less than 3 months and acknowledged the need for variable approaches, which in turn, requires acknowledgement of variability in times to completion (Table 4-2, statement 1). The narrow spread of the interquartile range (IQR) suggested for rapid review turnaround time indicates less variability however, when compared to the IQR suggested for systematic reviews. The wide spread of the IQR for systematic review timeframes reiterates concerns previously stated in the literature about the inconsistency of timelines required to produce these types of structured syntheses. It is notable that the IQRs do not overlap across products, although there is considerable overlap in the first quartile. The makes it difficult to make anything more than a relative comparison between the rapid and systematic reviews. Experts felt strongly that the time component should be qualified with the aim to be as systematic or

rigourous as the time negotiated with the end-user will permit when answered a research question.

The expert panel stipulated (Table 4-2, statement 2, 100% agreement) that rapid reviews may be most useful for answering efficacy or effectiveness research questions, a thought mirrored in previous articles by Merlin and Hailey et al. (23, 36); However, results also showed that rapid reviews are potentially useful for any type of research question. There has been suggestion in the literature that extra caution should be heeded where legal implications must be considered (21) and that rapid reviews of existing guidelines are appropriate, but should not be considered to supply evidence to guidelines development processes (37) although experts in this study did not consistently raise those issues. The suitability of a rapid review to answer a particular research question should be mutually determined by both the evidence producer and the knowledge user commissioning the report, and suitability should be balanced with the user's context for the question and the ability of the evidence producer to adequately answer the question within the requested timeframe. This close consultation with the commissioner of the rapid review is important and has been suggested in previous reports (8, 10, 18). Burls et al. highlighted the requirement for a well-formulated question tied to clear and definite context from the decision-maker, which was echoed in many of the free-text comments from experts in the study (8). It can be inferred from this exercise that there may be research questions for which a rapid review is not appropriate or feasible; however, experts were clear that the impetus for these decisions should be made pragmatically and individually on a case-by-case basis.

There is no clear delineation as to when a systematic review becomes 'unsystematic', but if what makes a review systematic is the use of an explicit protocol that can be checked for accuracy, then indirectly, any review not adhering to a protocol is not systematic (38). Without a protocol we are unable to check whether a review did what it said it would do, nor can we truly assess whether arbitrary decisions were made that may bias findings (39). Statement 3 (Table A-2, 100% agreement) captures the expert panel's clear requirement for a protocol to be written prior to a rapid review. There was no consensus as to what should be included in a rapid review protocol, if specific guidelines for rapid review protocols are desired or needed or whether registration of these protocols is necessary or feasible. Comments from experts reflected a dual purpose for the rapid review protocol. First a protocol should be a type of contract between the evidence producer and the knowledge user which defines objectives and scope in a mutually agreeable manner with a goal of expectation setting. Second, the key objectives of the systematic review process must be upheld, including transparency and repeatability of procedure. In work analyzing over one hundred rapid reviews, Tricco et al. state that protocols were not mentioned in 98% of included samples (16). Polisena et al. explored the methods of HTA agency rapid review programs and conversely report that 96.6% of HTA agencies incorporate protocol development into their processes, yet only 51.7% of programs prepare protocols in conjunction with the requestor (21). It is clear that improved reporting, registration and/or publication of rapid review protocols, coupled with better coordination between researchers and decision-makers is necessary going forward to meet this important provision. Further research is required to determine if an extension of current reporting guidelines to rapid reviews would increase compliance (i.e., PRISMA-P) and whether there is value in this exercise.

Issues of methodological process were raised by the expert committee. A comprehensive search for all published and unpublished literature is a key feature of the systematic review process (40). The expert panel mirrored these sentiments and achieved consensus that not only is structured searching of electronic databases a key defining characteristic of rapid reviews, it is one that axiomatically differentiates rapid reviews from less rigid evidence products. This characteristic fails to distinguish rapid reviews from other rigorous evidence synthesis products (e.g., systematic reviews). The systematic ideal for eligibility assessment, data extraction and quality appraisal is two independent reviewers (1). Ganaan (8), Harker (9), Khangura (10), Polisena (21) and Hartling et al. (13) all report that rapid reviews commonly revert to a single reviewer for one or all of these steps in order to expedite a review or adapt to resource constraints. The expert panel agreed that a flexible number of reviewers at any stage of the review process is a defining characteristic of rapid reviews (Table A-2, statement 5, 91.7% agreement). When time permits, it is ideal to have a second review author check all or a portion of the work for errors, agreement or inter-rater reliability, but the panel acknowledged that this may be an acceptable place to concede if it is not feasible when negotiating delivery time. A large number of comments by the expert panel reflected requirement desire to accurately translate the potential risks limiting reviewer numbers to the end-user.

This study was unable to achieve consensus on quality assessment and whether use, omission or modification of these processes are a key defining feature of rapid reviews. Attempts to clarify the draft wording between the second and third rounds reduced agreement from 66.7% to 44%, and likewise, no fundamental topic agreement was noted in the expert comments. As per the Cochrane Handbook (1), assessment of the validity of the findings of

the included studies is a key characteristic of a systematic review. Experts held opposing views on this subject, which, at the most basic level, speaks to the very incongruous opinions on what even constitutes a rapid review altogether (8).

Experts broadly agreed that rapid reviews make use of a spectrum of approaches to complete an evidence synthesis related to one or more defined research questions using the most systematic and rigourous methods as a limited time frame will allow. There was also general agreement that rapid reviews tailor the clear, reproducible and well-documented methods typically used when carrying out a systematic review in some manner in order to expedite the review process. Additionally, experts established that any tailoring of process or approach should be done in a clear and transparent manner in consultation with the commissioning decision-maker, making clear the potential risk to the validity of the rapid review that has yet to be quantified in the literature (11, 16). This allows the end-user to fully consider the evidence from a rapid review in context with concessions or tradeoffs made during the review process.

The strength of this study is the use of a validated methodology aimed at explicitly reaching consensus on a definition of rapid reviews. We chose this technique over other consensus methods because of suitability for the topic, the systematic and rigorous nature of the method, low cost, capacity to overcome geographic limitations, and ability to ensure an anonymous, equal voice to all of the expert panelists. The bulk of respondents on the expert panel were from Canada, with smaller numbers from the United Kingdom and United States. The small number of experts from outside these countries limits the extent to which we can say that our findings are representative of the views of a truly international set of experts.

The manner of purposive sampling, combined with snowball referrals from experts contacted may have contributed to the potential imbalance in geographical representation on the panel (41). Despite several attempt to mitigate attrition, response rate for the second and third rounds of this survey were moderate and this may influence the validity of the final results (30).

**Strengths and Limitations**

It is important to note that the consensus definition of rapid reviews resulting from this work may not be the best definition or even a correct definition. It is, rather, a definition based on defining characteristics for rapid reviews that a group of experts considered appropriate. Other research producers or knowledge users may have different perspectives from this expert panel on what constitutes a rapid review, and may have much different thresholds on what is considered 'timely' evidence. It is important to note that the definition produced here does little to eliminate overlap with systematic review definitions, although we may not be able to differentiate these two closely related products in any further detail without exploring additional categorization of rapid reviews into specific 'sub-types' of approach (e.g., evidence map, rapid review, rapid systematic review).

**Conclusion**

This modified Delphi study achieved consensus on 10 statements describing characteristics of rapid reviews based on the opinion of a panel of experts knowledgeable in evidence synthesis methods and rapid reviews. In addition, it highlighted areas of disagreement, particularly where quality assessment was considered. According to the expert panel, rapid reviews aim to meet the requirements and timelines of a decision-maker commissioning the

review and should be conducted in less time than a systematic review. They employ a variety of approaches to accelerate the evidence synthesis process, tailor the methods conventionally used to carry out a systematic review and employ the most rigorous methods that the delivery time frame will allow. Our findings emphasize the role of the decision-maker in the rapid review process and stress the importance of transparent reporting. Future research should explore the applicability of these findings across the various approaches, or types, of rapid reviews and to test effective use in practice. These results are an essential contribution to our understanding of rapid reviews and help to further define the functional concept of rapid review that has been used to-date. Our findings may assist evidence producers and knowledge users with conveying information about rapid reviews, their approaches and results to colleagues, review commissioners, and other health care decision-makers.

**Acknowledgements**

The authors would like to thank all survey respondents and pilot testers for their participation in this study.

**References**

1. Cochrane Handbook for Systematic Reviews of Interventions Version 5.1.0 [updated March 2011]: The Cochrane Collaboration; 2011. Available from www.cochrane-handbook.org.
2. Popay, Jennie, Rogers, Anne, Williams, Gareth. Rationale and standards for the systematic review of qualitative literature in health services research. Qualitative health research. 1998;8(3):341-51.
3. Morton, Sally, Levit, Laura, Berg, Alfred, Eden, Jill. Finding What Works in Health Care:: Standards for Systematic Reviews: National Academies Press; 2011.
4. Schünemann, Holger J, Moja, Lorenzo. Reviews: Rapid! Rapid! Rapid!... and systematic. Syst Rev. 2015;4(1):4.

5. Bero, L., Busuttil, G., Farquhar, C., Koehlmoos, T. P., Moher, D., Nylenna, M., Smith, R., Tovey, D. Measuring the performance of the Cochrane library. Cochrane Database Syst Rev. 2012;12:Ed000048.

6. Pai, M., McCulloch, M., Gorman, J. D., Pai, N., Enanoria, W., Kennedy, G., Tharyan, P., Colford, J. M., Jr. Systematic reviews and meta-analyses: an illustrated, step-by-step guide. Natl Med J India. 2004 Mar-Apr;17(2):86-95.

7. Hailey, D. M. The influence of technology assessments by advisory bodies on health policy and practice. Health Policy. 1993;25(3):243-54.

8. Ganann, R, Ciliska, D, Thomas, H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci. 2010;5:56.

9. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

10. Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., Moher, D. Evidence summaries: the evolution of a rapid review approach. Syst Rev. 2012;1:10.

11. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E. AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

12. Featherstone, R. M., Dryden, D. M., Foisy, M., Guise, J. M., Mitchell, M. D., Paynter, R. A., Robinson, K. A., Umscheid, C. A., Hartling, L. Advancing knowledge of rapid reviews: an analysis of results, conclusions and recommendations from published review articles examining rapid reviews. Syst Rev. 2015;4(1):50.

13. Hartling, L., Chisholm, A., Thomson, D., Dryden, D. M. A descriptive analysis of overviews of reviews published between 2000 and 2011. PLoS One. 2012;7(11):e49667.

14. Moher, D, Liberati, A, Tetzlaff, J, Altman, DG. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. PLoS Med. 2009;6:e1000097.

15. Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., Stewart, L. A., Group, Prisma- P. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015;349:g7647.

16. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-

Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet]February 2015.

17. Kamel, C. Mann, J. Rapid Evidence reviews: The CADTH Experience [Poster]. International Cochrane Colloquium, Quebec City, Quebec, Canada. [Internet]2013.

18. Khangura, S., Polisena, J., Clifford, T. J., Farrah, K., Kamel, C. Rapid review: an emerging approach to evidence synthesis in health technology assessment. Int J Technol Assess Health Care. 2014 Jan;30(1):20-7.

19. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. Int J Technol Assess Health Care. 2008 Spring;24(2):133-9.

20. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg. 2008 Nov;78(11):1037-40.

21. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

22. Garrity, C. Information Sharing Session on Rapid Review Initiatives. Available at: https://www.cadth.ca/sites/default/files/events/Chantelle-Garrity_RR-Initiatives_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

23. Merlin, Tracy, Tamblyn, David, Ellery, Benjamin. What's in a name? Developing definitons for common health technology assessment product types of the International Network of Agencies for Health technology Assessment (INAHTA). International Journal of Technology Assessment in Health Care. 2014;30(04):430-7.

24. Boulkedid, Rym, Abdoul, Hendy, Loustau, Marine, Sibony, Olivier, Alberti, Corinne. Using and reporting the Delphi method for selecting healthcare quality indicators: a systematic review. PLoS One. 2011;6(6):e20476.

25. Lilja, Kari K, Laakso, Kimmo, Palomki, J, editors. Using the Delphi method. Technology Management in the Energy Smart World (PICMET), 2011 Proceedings of PICMET'11:; 2011: IEEE.

26. Okoli, Chitu, Pawlowski, Suzanne D. The Delphi method as a research tool: an example, design considerations and applications. Information & Management. 2004;42(1):15-29.

27. Heiko, A. Consensus measurement in Delphi studies. Technological Forecasting & Social Change. 2012;8(79):1525-36.

28. Thangaratinam, Shakila, Redman, Charles WE. The Delphi technique. The obstetrician & gynaecologist. 2005;7(2):120-5.

29. Hsu, Chia-Chien, Sandford, Brian A. The Delphi technique: making sense of consensus. Practical assessment, research & evaluation. 2007;12(10):1-8.

30. Hasson, Felicity, Keeney, Sinead, McKenna, Hugh. Research guidelines for the Delphi survey technique. Journal of Advanced Nursing. 2000;32(4):1008-15.

31. FluidSurveys (web-based survey oftware). 2014; Available from: www.FluidSurveys.com.

32. SOFTWARE: FluidSurveys. 2015. Available from fluidsurveys.com (last accessed Jan 15, 2015).

33. McKenna, H. P. The Delphi technique: a worthwhile research approach for nursing? J Adv Nurs. 1994 Jun;19(6):1221-5.

34. SOFTWARE: NVivo. Version 10. Copyright QSR International Pty Ltd 2014.

35. Meyrick, Julian de. The Delphi method and health research. Health Education. 2003;103(1):7-16.

36. Hailey, D, Corabian, P, Harstall, C, Schneider, W. The use and impact of rapid health technology assessments. Int J Technol Assess Health Care. 2000;16:651 - 6.

37. Coates, V. Keynote Address: Rapid Reviews and Their Impact on Future Directions for Health Technology Assessment. . CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

38. Sandelowski, M. Reading, writing and systematic review. J Adv Nurs. 2008 Oct;64(1):104-10.

39. Shamseer, L. Moher, D. Planning a systematic review? Think protocols (Web Blog Commentary). BioMed Central Blog. January 5, 2015.

40. Systematic Reviews: CRD's guidance for undertaking reviews in health care. © Centre for Reviews and Dissemination, University of York. January 2009.

41. Campbell, D. T., & Stanley, J. C. Experimental and quasiexperimental designs for research. Chicago: Rand McNally; 1963.

# 5. EXPLORING ATTITUDES AND PERCEPTIONS

The following is a manuscript prepared for publication, based on a Q Methodology study exploring evidence producer and knowledge user attitudes and perceptions towards rapid reviews. The objective of this study was to use qualitative and quantitative methods to capture the subjective opinion of these two key stakeholder groups towards rapid reviews in order to gain a better understanding of the global discourse on this approach to evidence synthesis.

A copy of the letter from the Ottawa Hospital Research Ethics Board, approving this project, is provided in Appendix A.

Appendices which directly supplement the main manuscript have been included at the end of this chapter. Additional supporting documentation for this Q Methodology study is provided in Appendix D as follows:

a) Study materials – Communication and study materials
b) Detailed study results – Data and results tables

In order to maintain the anonymity of research participants in this study, names of participants have not been included in the study documentation.

The manuscript was co-authored by the student (SK), her co-supervisors, Tammy J. Clifford and David Moher. The student is the first author of this paper, having been responsible for study conception and design, data collection and analyses, and writing of the manuscript.

Drs. Clifford and Moher provided valuable feedback throughout the study process and reviewed the manuscript for accuracy and content.

**Expediting evidence synthesis: Exploring attitudes and perceptions towards rapid reviews using Q methodology**

Shannon Kelly[1,2*], David Moher[1,3], Tammy J Clifford[1,4]

[1] School of Epidemiology, Public Health and Preventive Medicine, University of Ottawa, Ottawa, Canada

[2]Cardiovascular Research Methods Centre, University of Ottawa Heart Institute, Ottawa, Canada

[3]Ottawa Hospital Research Institute, Ottawa, Canada

[4]Canadian Agency for Drugs and Technologies in Health, Ottawa, Canada

*Correspondence to Shannon Kelly

Abbreviated title: *Attitudes and Perceptions Towards Expedited Evidence Synthesis*

Word count (text only): 7,215

This manuscript includes 5 tables and 2 figures.

## Abstract

**Background:** Rapid reviews expedite the knowledge synthesis process with the goal of providing timely information to decision-makers who need to make evidence-informed decisions. A range of opinions exists on the value and appropriateness of this kind of research product; however, no research to date has formally captured these views. This paper aims to explore evidence producer and knowledge user attitudes and perceptions towards rapid reviews.

**Methods:** A Q methodology study was conducted to identify central viewpoints about rapid reviews based on a broad discourse compiled on the topic. Evidence producers and knowledge users rank-ordered 50 text statements compiled from pivotal literature, conference proceedings, online sources and unstructured consultation with a key stakeholders knowledgeable in rapid reviews. Participants also explained their Q-sort in writing and completed a demographic questionnaire. Individual Q-sorts were analysed using Q-Assessor (statistical method: factor analysis with varimax rotation). Factors, or salient viewpoints on rapid reviews, were identified, interpreted and described using the composite sorts, similarities and differences in rank value of the statements among factors using the explanations by participants.

**Results:** Eleven participants completed the Q-sort. Analysis of the individual Q sorts identified 3 prominent viewpoints which represent the broad spectrum of health care decision-makers and those who synthesize evidence to inform them.: Factor A, *Don't judge a book by its cover*, cautions against the use of study design labels to make judgements on rapid reviews (or any other research product) and asserts that quality or value must be measured individually. Factor B, *Gold standard or bust,* firmly holds the rigour of

systematic review true, and maintains that rapid reviews should be the exception and not the rule. Factor C, *The pragmatist(s),* focuses on the practical needs of the end-user rather than the review process.

**Conclusion:** Importantly, results show that there are rather opposing viewpoints on rapid reviews, but that some commonality across the different perspectives also exists. The three factors described here are not necessarily exhaustive of the attitudes and perceptions held about rapid reviews; however, the relatively discrete stances represented may be valuable on their own as they offer insight into how and why various stakeholders act as they do and what issues may need to be resolved before increase uptake of rapid reviews can be realized.

**Keywords**

rapid review, opinion, attitude, viewpoint, Q method, evidence synthesis, knowledge user, evidence producer, time factor

## INTRODUCTION

The requirement for timely input to policy and healthcare decision-making encouraged evidence producers to accelerate their processes, resulting in the approach often referred to as a rapid review. Rapid reviews expedite the evidence synthesis process by streamlining or tailoring the rigourous and explicit methods of a systematic review, and a variety of approaches may be employed (1-7). Use of rapid reviews is seemingly increasing as organizations struggle to meet the needs of knowledge users requesting timely evidence-informed decision support. Research on rapid reviews is consequently expanding in parallel as investigators attempt to fill documented knowledge gaps by attempting to define and validate approaches and quantify the implications and impact of use (1). Despite these efforts, little is known about the opinions or views of both evidence producers and knowledge users towards rapid reviews.

Although informal opinions about rapid review approaches seem to abound, no formal study of these views exists in the literature. Early on, as this type of approach was new to the evidence synthesis landscape, there appeared to be a certain stigma attached to rapid reviews. The general perception at that time was that a rapid review was a “quick and dirty” systematic review, and there was pushback from conservatives in the research methodology community despite uptake from knowledge users. Previous work has highlighted common themes associated with rapid reviews: the aim to inform health care decision-makers (also called knowledge users), a deficit in reporting and transparency of conduct, and an unclear, heterogeneous of approaches that all fall under the broad umbrella term ‘rapid review’ (8-11). Yet, despite some central shortcomings, rapid response programs continue to thrive and expand internationally (4, 7). Although negative views may persist, it seems clear that there

is a distinct group of supporters who continue to cautiously champion and encourage the use of rapid reviews to support evidence-informed decision making. No research to-date has attempted to capture these views, and we know very little empirically how producers subjectively feel about rapid reviews and the risk of flawed conclusions or 'less than best' data that may result from methodological concessions made while accelerating the evidence synthesis process. Similarly, no organized study to-date has measured the end-users opinions on rapid reviews, how they value this form of evidence, or their experience with rapid reviews in practice.

Though difficult to delineate, improved understanding of the prevailing or varying values, beliefs and attitudes pertaining to rapid reviews is essential, as mindset can influence action, conduct and uptake. Investigating attitude and perception is important for a few reasons. Cross (2005) states that attitude and opinion help to form cognitive relationships, which in turn may influence actions or conduct (12). In fact, attitude can be defined by a predisposition to act in a particular way (13). As such, positive thought may lead a producer or user to approach or value rapid reviews in a positive manner or predispose them to behave in a supportive fashion. Likewise, more cautious, or even pessimistic notions around rapid reviews may influence conduct, curb use, or sully their value which may limit impact. Comparing and contrasting these factors among and across the various stakeholder groups may serve to identify correlations in thought, similarities in experience or gaps in needs or methods. In addition, a comprehensive understanding of beliefs towards rapid reviews will further inform both evidence producers and researchers on how to continue to support the needs of decision-makers.

## A broader view of rapid reviews

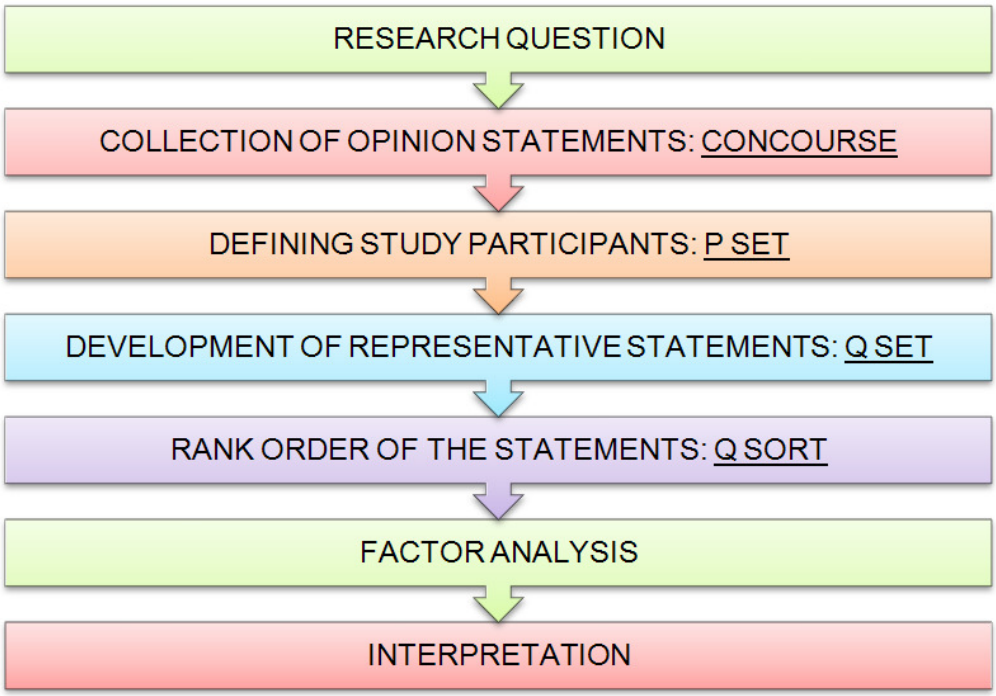
This study is part of a broader research program on rapid reviews which involved 3 independent, yet related studies, including: 1) a scoping review of rapid review samples to map characteristics and methods of rapid reviews and to check their adherence to conduct and reporting guidelines; 2) a modified-Delphi study aiming to identify key defining characteristics of rapid reviews; 3) the Q methodology study on attitudes and perceptions reported here. The course of action from the associated study program contributed to the sharing of knowledge and provided a gateway for an expanded discourse on rapid reviews; however, opening the dialogue and merely summarizing the collective thought is insufficient. Hartling et al. (2015) note the importance of studying end-user perspectives in their recent work (4). In order to further our global understanding of rapid reviews, it is also important to study the attitudes and traits of those who produce them. Given the absence of evidence from either perspective, a more formal review is merited.

## Q methodology

Fundamentally, Q methodology is a research methodology that allows for the systematic study of subjectivity (14). The method employs both qualitative and quantitative methods to reveal and detail viewpoints, values, attitudes, and opinions among a group of participants on a particular topic (15). A few key objectives underlie the use of a Q methodology; First, the goal of finding the range of communicated ideas on a topic, followed by exploration of the prevailing variations in it, and finally, to logically connect these variations in an orderly way to each other. Following individual rank-ordering of statements, connecting of viewpoints is completed statistically through an inversion of conventional factor analysis (15). The difference lies in the assessment of correlation of individuals rather than tests or

mathematical variables. Correlation is done across viewpoints and ultimately mapped to results labelled 'factors'. Following a careful and methodological interpretation, the resulting factors represent the participants' subjectivity on the topic, and tell a specific 'story' about their beliefs, values and perceptions (Figure 5-1) (14).

***Figure 5-1.*** *Steps in Q Methodology**




*Adapted from Amin, 2000 (16).

The main goal of this study is to gauge how producers and knowledge-users feel about rapid reviews, and explore the range of opinion on this emerging evidence synthesis approach. In addition, this study hopes to gain an understanding of whether these types of evidence summaries are valued, appropriate, or if certain misgivings persist given the lack of validation against gold standard methods. This paper presents the results of an explorative Q

methodology study of evidence producer and knowledge user attitudes and perceptions towards rapid reviews.

## METHODS

Q methodology was used to identify participants' collective attitudes and perceptions towards rapid reviews.

There are a small number of fundamental steps essential to the Q methodology(15). First, collection of a broad, balanced sample of statements, referred to as the 'concourse', which represents all relevant dialogue about a topic of interest. The concourse is then further refined into a set of statements called the 'Q set'. The Q set broadly represents the opinion field for the topic described in the concourse and is balanced to ensure that individual items capture each idea without gaps or unnecessary overlap. It is important to note that balance in this sense does not mean that half of the statements are positive and the other half negative.

There is no solitary or exact way to produce a Q set. According to theory, it must be "tailored to the requirements of the study and the demands of the research question it is seeking to answer" (17). Development of the Q set can generally be done in a *structured* or *unstructured* manner. In a structured Q set, relevant subject matter is organized into themes or ideas based on research or observation or possibly, a preconceived theory. Items in the Q set are then generated to ensure that all relevant themes identified are covered. An unstructured Q set is also constructed based on the entirety of relevant themes and key ideas collected. The more flexible sampling process allows for arrangement of the Q set into a series of statements representative of the whole population in the concourse. Arguably there is more freedom with this method of Q set definition; however, efforts must be made to

maintain a rigourous and comprehensive process. All Q sets are ultimately judged on comprehensiveness, representativeness and balance in relation to the research question while remaining unbiased to any particular viewpoint (3).

Next, a set of participants is selected who are referred to as the P set. Q methodology allows for use of small sample size as the aim is not to estimate population statistics, but rather to maximize diverse viewpoints and show the existence of these views (14). Q-sets of between 40 and 80 items have become standard as anything less may not represent the views or be too limiting (18, 19).

Participants are asked to review the Q set of randomly ordered statements and to rank each from those they agree with the most to those they disagree with the most. This sorting is done using a pre-defined grid based on a quasi-normal distribution. This is a standard means of simplifying the following statistical procedure without biasing the factors that are interpreted (20). Traditionally, Q sorting is carried out in-person, or by mail, with the participant is asked to organize statements individually printed on numbered cards on to a grid template. In recent years, numerous online software packages have been developed to facilitate the sorting process and remove the difficulty of having to mail study packages to participants. Both online and mail-in approaches have been validated against in-person interviews. Studies by Tubergen and Olins (1979) and Reber, Kaufman and Cropp (2000) showed reliability or validity, with no difference in outcomes associated with changing the method of administration (21). Mailing or online methods also allow for access to a theoretically relevant sample of individuals that have a much broader national or international distribution. Although Q-methodology gives the impression that it is a difficult

methodology for a lay-person to self-administer, studies have shown that parents, clinicians and the general public respond well when instructions are clear (17, 21). This method is referred to as 'Q sorting'. Following the Q sort, the data are analysed using factor analysis. Finally, factor interpretation is carried out based on the results of the analysis phase.

**Setting**

Web-based Q sorting with Q-Assessor software with e-mail communication to participants (22).

**Defining the Q set**

A broad, comprehensive concourse representing a range of views towards rapid review was derived from a wide-range of sources prior to the refinement of the Q set. The goal at this stage was to document as many viewpoints as possible pertaining to rapid reviews, before refining these views into the list of opinion statements that form the Q set. Following this approach, statements for the concourse were gathered or extracted using 1) a small set of academic papers focused on rapid reviews reviewed in detail for author viewpoints; 2) conference proceedings where opinions and beliefs towards rapid reviews were transcribed in-person from plenary, oral or panel presentations, and posters or abstracts were examined for relevant opinions (questions or comments related to expediting evidence production during these proceedings were also transcribed); 3) detailed review of online resources in the form of relevant blogs (blog.tripdatabase.com, statistically-funny.blogspot.ca, blogs.biomedcentral.com), social media (Twitter) and electronic mailing lists (Evidence-Based-Health) and, 4) in-person consultation in the form of unstructured dialogue with experts in evidence synthesis, including both users and producers of rapid reviews (1, 3, 5,

23-26). The first author attended the 2011 to 2014 Canadian Agency for Drugs and Technologies and Health (CADTH) Symposiums, the 2013 International Cochrane Colloquium in Quebec City, Quebec, and the 2014 Cochrane Canada Symposium in Ottawa, Ontario in order to document and record concourse statements.

A semi-structured approach was used to reduce the total number of viewpoints in the concourse to a balanced and representative Q set, eliminating repeated thoughts and redundancies. Items, or individual opinion statements, were organized based on similar themes and viewpoints pertaining to rapid reviews, including: timing, scope, perceived or actual bias resulting from tailoring methods, transparency or reporting, inconsistency in approaches used to expedite evidence synthesis, ways of tailoring methods, breadth or depth of evidence collected, utility of rapid reviews in decision-making, appropriateness, validity of results, confidence in results, and suggestions for future research in this area. Best practices for evidence synthesis (the gold standard for synthesizing evidence) were also factored in to the Q-set statements from the concourse (rigour, precision of estimate, reproducibility, transparency, explicit methods). Views in the concourse from both producers and knowledge also reflected general support for the use of rapid reviews as well as hesitance or reserved judgement until further research is published. Statements from the concourse were refined based on these themes and viewpoints into a Q set of 50 items. This process was carried out by the first author in consultation with the second and third authors.

**Assembling the P set**

In order to maximize the possibility that a variety of perspectives could be articulated, and to ensure that both knowledge users and producers were captured in the sample, participants in

this study were identified using a purposeful sampling approach. Study authors used a publicly available list of attendees present at four consecutive years of the annual CADTH symposium to identify both producers and knowledge users. The goal was to capture participants actively involved in the areas of policy making, program decision-making, healthcare delivery and research. Ineligible attendees were removed, including those who we industry representatives, administrative staff, students, patient group association representatives and those who attended the annual symposium only once in the four years reviewed. The initial recruitment goal was set at 50 participants.

Representatives were then split into two distinct lists representing knowledge users and producers and randomly ordered. Starting with the first person in each ordered list, those without a publicly accessible email address were removed in order to be consistent with Canada's anti-spam legislation that came into effect July 1, 2014 (http://fightspam.gc.ca). A large proportion of CADTH research staff were included in the sample. As such, the proportion of researchers was restricted to no more than 20% CADTH staff in order to maintain an unbiased grouping. After obtaining approval from the Ottawa Hospital Research Ethics Board, the first 25 individuals in each list were invited to participate using standardized email invitations containing a letter outlining the study objectives, methods, expected time commitment, consent information, and a link to the online Q sort. Replacement invitations were sent to new potential participants following a refusal or when no response was received from an invitee after 2 reminders sent at 7 day intervals.

The final P set consisted of 11 participants (53 invitations, response rate 20.8%). Five invitations were declined for unspecified reasons, 4 email invitations bounced and 2

potential participants contacted the first author to decline for personal reasons, including lack of time (n=1), lack of knowledge on rapid reviews (n=1). A profile of the expert panel is provided in Table 5-1. Participants were predominantly female (72.7%) with doctoral degrees (63.6%) and aged 35 or older (81.8%). All were from Canada. Two knowledge users, 8 producers and 1 respondent who did not consider themselves part of either category responded. Names of participants have not been identified in order to maintain the anonymity agreed upon as a condition of participation. Participants were not compensated.

***Table 5-1.*** *Profile of the producers and knowledge users (n=11).*

| **Geographic Location** | **n (%)** |
|---|---|
| Canada | 11 (100) |
| **Age:** | **n (%)** |
| 18 to 35 | 2 (18.2) |
| 36 to 50 | 4 (36.4) |
| 50 or above | 5 (45.5) |
| **Sex:** | **n (%)** |
| Female | 8 (72.7) |
| Male | 3 (27.3) |
| **Education:** | **n (%)** |
| Doctorate | 7 (63.6) |
| Masters | 3 (27.3) |
| Undergraduate | 1 (9.1) |
| **Consider Themselves:** | **n (%)** |
| Researcher/Producer | 8 (72.7) |
| Knowledge User | 2 (18.2) |
| Neither | 1 (9.1) |
| **Have ever been the author of a rapid review** | **n (%)** |
| Yes | 7 (63.6) |
| No | 4 (36.4) |
| **Have used a rapid review to aid in a policy or decision-making?** | **n (%)** |
| Yes | 7 (63.6) |
| No | 3 (27.3) |
| Unsure | 1 (0.9) |

Although the sample size may be considered small for a conventional factor analysis, the fundamental ideology and statistical technique underlying the Q method maintain that as long as a potential range of views are covered, small sample sizes may be adequate for the level of understanding sought out (15).

**Q sort table**

A predetermined grid, or Q sort table, based on a quasi-normal distribution was used (Figure 5-2). The table consisted of 50 cells spread across 7 columns of varying length matching the number of statements in the Q set. Scores of +3 (*most agree*) and -3 (*most disagree*) were assigned to anchor the extreme limits of the Q sort table, with sequential label numbering heading each column, including a value of '0' for neutral.

***Figure 5-2.*** *Fixed distribution for the Q-set*

| **Least Agree** | | | | | | **Most Agree** |
|---|---|---|---|---|---|---|
| | | | **Statement Scores** (n) | | | |
| **-3** | **-2** | **-1** | **0** | **1** | **2** | **3** |
| (2) | (6) | (10) | (14) | (10) | (6) | (2) |

Five individuals piloted the instructions, Q set and Q sort online using Q-Assessor, a web-based software dedicated to Q methodology that was customized for this study (22). Instructions were examined for clarity, feasibility, and to ensure that the practical elements of design were appropriate. Q set was examined by the same individuals and the study team for content validity. Feedback did not result in a reduction or increase in the number of statements, only minor adjustments to wording for clarity or ambiguity.

**Q sort process**

Participants completed the online Q sorting process using Q-Assessor (22). On the initial page, they were provided with an overview of study terminology, reminded of the study objectives, and asked to proceed to a preliminary Q sort of the 50 statements on rapid reviews. Next, participants sorted the statements into broad categories of "agree", "disagree" and "neutral" based on their own understanding, opinions and perceptions of rapid reviews. In the subsequent step, the Q sort table was presented (Figure 5-2). Participants were first asked to consider the range of opinion represented in the Q set while selecting and placing the statements they most strongly agree (n=2) or disagree (n=2) with onto the extremes of the table. After that, they free-sorted the remaining 46 statements, moving and reviewing the position of each until satisfied that they best reflected their own views. Finally, participants were asked open-ended questions qualifying the strongest views ranked in their Q sort. A brief profile questionnaire was also administered. Based on pilot testing, it was estimated that the time to completion would be between 20 and 25 minutes. Actual time to completion was 45 minutes, on average.

**Analysis and factor interpretation**

Q sorts entered by participants were analyzed using by-person factor analysis (i.e., statistical analysis is based on the individual, instead of a statement, characteristic or trait) in Q-Assessor. Initially, a correlation matrix was created to identify patterns of agreement and disagreement across the individual Q sorts. Correlations larger than 1.96 times the standard error ($1/\sqrt{n}$, where n is the number of statements) were used to identify significant relationships in the data (14). Factor extraction was initiated by calculating centroid factor loadings from the data. Positive and negative associations between each Q sort and the seven

preliminary factors were explored. Eigenvalues, variance (total and by factor) and communality ($h^2$) were also calculated. Eigenvalues and individual variance represent the strength of the factor extracted and its potential explanatory power, with a higher value representing superior factor choices (15). Communality is a measure of how much an individual Q sort holds in common with the other sorts in the study and is used for comparing and contrasting individual response across the initial (unrotated) factors.

Following a careful assessment of the preliminary factor loadings across a number of potential factor arrangements and their associated statistics, primary factors were extracted. In order to be considered, factors had to have an eigenvalue $\geq 1.00$ and at least one significant loading as assessed by the Fuerntratt criterion following a varimax rotation of latent factors (27). Additionally, the group of residual factors had to account for at least 40% of the total variance in the Q sorts (28).

Prior to factor interpretation, factor arrays (Table 5-2) and normalized weighted average statement scores (z-score[6]), or factor scores, were calculated. Statements with a significant factor score ($p<0.05$) were considered distinguishing for a factor (21). Factors were then qualitatively interpreted by the first author based on the systematic and methodical approach to factor interpretation using the organization system described by Watt et al. (Chapter 7) (15).

***Table 5-2.*** *Factor arrays*

> *<Author's note: Table 5-2 is too large to insert in-line, so it can be viewed at the end of the manuscript>*

[6] The weight "w" is based on the respondent's factor loading "f", and is calculated as: w=f/(1-f2). The weighted average statement score is then normalised (with mean of 0.00 and standard deviation of 1.00) to remove the effect of differences in numbers of defining respondents per factor, and making statements' factor scores comparable across factors.21. Van Exel, Job, de Graaf, Gjalt. Q methodology: A sneak preview. Online document http://www qmethodology net/PDF/Q-methodology. 2005.

## RESULTS

All 11 participants completed the Q sort process and answered the open-ended interview questions following (completion rate 100%). Three study factors were identified following a by-person factor analysis of 11 Q sorts. Study factors were categorized as Factor A "Don't judge a book by its cover", Factor B "Gold standard or bust" and Factor C "The pragmatist(s)". Following varimax rotation, the three extracted factors explained 46.1% of the total variance in this study. All 11 Q sorts loaded significantly on one of the three factors and none of the Q sorts were confounded (meaning that none of the Q sorts loaded significantly on more than one factor). All three factors had eigenvalues greater than 1.00, however, only two of the factors had two or more significant Q sorts and can be considered exemplar individual factors. Table 5-3 shows the characteristics for the factors. The composite reliability coefficients ($r_c$) indicated construct validity for each factor as all values acceded the acceptable threshold of 0.70 (29).

***Table 5-3.*** *Q Factor characteristics*

| **Characteristics** | **Factors** | | |
|---|---|---|---|
| | **A** | **B** | **C** |
| Number of Defining Variables | 8 | 2 | 1 |
| Composite Reliability | 0.97 | 0.889 | 0.8 |
| Standard Error of Factor Scores | 0.174 | 0.333 | 0.447 |

Each factor, or salient perspective on rapid reviews, emerged from the attitudes and beliefs of the participating producers and knowledge users. Factors were 'named' according to their defining characteristics and following a careful, comprehensive interpretation of the factor arrays, scores and rankings. Participant profile information and results from the open-ended

questions were also considered during interpretation. A description of each factor is presented with summary details of the participants who loaded significantly on the factor. Rankings of relevant items are provided. For example (+ 3) indicates that a statement is ranked in the +3 position which represents agreement in the factor array Q sort.

***Factor A. "Don't judge a book by its cover"***

Factor A explained 24.5% of the total study variance. Eight of 11 participants significantly loaded on this factor. Fifty percent were female and 87.5% were evidence producers.

This group was characterized by their view that we need to look more in-depth at the value or quality of individual review as opposed to a global assessment based on the labels traditionally employed to distinguish between evidence synthesis products (i.e. systematic review, rapid review). They had strong agreement (+3) with two statements in particular: "All evidence synthesis products, including rapid reviews, [systematic reviews, or health technology assessments], can be conducted very well or very poorly" and "A well-conducted rapid review may produce better evidence than a poorly conducted systematic review". They similarly disagreed (-2) with the statement that "a rapid review cannot be a systematic review". Quality and value were again referenced in factor A (+2) through participant agreement with the statement "Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence". Participants defined by this factor may prescribe to a manifesto that acknowledges 'the good, the bad and the ugly' in all types of evidence synthesis products.

The relationship between time and quality were also common themes in factor A. Participants agreed that value and quality were not tied to the length of time taken to complete a review, no matter how long or short. They agreed (+2) with the statement "A good quality review of evidence is determined by the methods used, not by the speed at which it is completed" and disagreed (-3) with the statement "The more time spent conducting the review of the evidence, the more valid the results of the review will be".

This group agreed (+2) that "Using rapid reviews to inform decisions is better than using no evidence at all" but that minimum reporting standards are desirable (+2) (e.g. A PRISMA statement for rapid reviews). This is supported by the disagreement (-2) documented for "Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review".

***Factor B. "Gold standard or bust"***

Factor B explained 9.6% of the total study variance. Two female participants significantly loaded on this factor, one producer and one knowledge user.

This group strongly believed in the gold standard systematic review to meet the needs of knowledge-users, and that use of rapid reviews should be the exception, and not the rule. They firmly hold the belief (+3) that "deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users" and that "rapid reviews cannot be systematic reviews". They also strongly disagreed (-3) that it is always appropriate to conduct rapid reviews. They agree (+2) with conducting a comprehensive systematic review

of all available evidence when time allows, and that rapid reviews do not replace systematic reviews or health technology assessments. They were also clear in their disagreement (-2) with the statement "The opportunity cost of a comprehensive systematic review or health technology assessment is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor" and generally agreed (+1) that "Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision". Participants also endorsed the view (+1) that "Rapids reviews are 'quick and dirty' systematic reviews", which participants in Factors A and C both disagreed with (-2). This sentiment is repeated in their disagreement (-2) with the principle suggested by "A well-conducted rapid review may produce better evidence than a poorly conducted systematic review"

Factor B, more than other groups, asserted that additional research in the area of rapid reviews is warranted. They also disagreed with statements pertaining to standardization of rapid review methods conflicting with the needs of knowledge users. They are neutral in their beliefs that rapid reviews meet the needs of decision-makers, and strongly (-2) disagree with the idea that "Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user". To this group, it appears that a systematic review should always be considered 'best'.

***Factor C. "The Pragmatist(s)"***

Factor C explained 11.9% of the total study variance. One participant, a female evidence producer, significantly loaded on this factor.

This factor was characterized by a focus on the pragmatic needs of the knowledge user, balanced with the value of tailored rapid reviews and the inherent risk of bias that may accompany their use in decision-making processes. In opposition to those in Factor B, participants felt strongly (+3) that “Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is ‘best evidence' is specific to the knowledge user”. They also strongly agree (+2) that rapid reviews meet the needs of knowledge users and must be tailored to the individual specific needs of those commissioning the review (+3). They disagree (-3) that “When time allows, a comprehensive systematic review of all available evidence should always be conducted”.

Factor C participants are also pragmatic in that they seem to accept that use of rapid reviews may bring with it some risk. They emphasize (+2) that “The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially ‘imperfect' evidence” and balance that with the requirement (+2) that transparency of process is important as it allows the end user to make their own assessment on validity and appropriateness. This is supported by the belief that there should be minimum standards for the methodological conduct of rapid reviews but disagree (-2) that “It is appropriate to endeavor to define a single, unique methodology for rapid reviews”. Related to this, they agree that “Standardization of rapid review methods may conflict with the needs of knowledge users”. They also admit more so than other factors they believe it is difficult to tell a rapid review from a systematic review unless it is explicitly stated (+1). This may carry forward the idea that although they like to have the option of a pragmatic approach to meet their needs, they also require as much information about the methods used so they know how much confidence they can place on the results.

In the perspective associated with Factor C, there is impartiality (0) associated with comparing rapid reviews to other product types, and about the needs for further research on rapid reviews. Although views on the judgement of quality of this type of evidence are also impartial, there is strong disagreement that "It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published".

There was some overlap with the perspectives defined by Factor A. Participants firmly disagreed (-2) that "A rapid review cannot be a systematic review" and that "Rapid reviews are quick and dirty systematic reviews".

### Consensus statements

Participants equally agreed or disagreed on several statements that were not distinguishable across factors, referred to as 'consensus statements' (Table 5-4). They generally agreed with the statement "Rapid reviews mean different things to different people". There was broad disagreement with three statements: "It is appropriate to endeavor to define a single, unique methodology for rapid reviews", "Any review of evidence that takes longer than 3 months to produce is not a rapid review." and "Any review of evidence that takes longer than 1 month to produce is not a rapid review". All participants strongly disagreed with the statement "Rapid reviews should only precede a more comprehensive and rigorous systematic review".

***Table 5-4.*** *Statements showing agreement and disagreement across factors*

| No. | Statements | Factor Score | | |
|---|---|---|---|---|
| **Disagreement across factors** | | **A** | **B** | **C** |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | -1 | 2 | 0 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0 | 3 | 1 |

| No. | Statements | Factor Score | | |
|---|---|---|---|---|
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -1 | 2 | -3 |
| 47 | A rapid review cannot be a systematic review. | -2 | 3 | -2 |
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | 1 | -2 | 3 |
| **Agreement across factors** | | | | |
| 6 | Rapid reviews mean different things to different people. | 1 | 2 | 1 |
| 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review. | -3 | -3 | -3 |
| 34 | It is appropriate to endeavor to define a single, unique methodology for rapid reviews. | -1 | -1 | -1 |
| 42 | Any review of evidence that takes longer than 3 months to produce is not a rapid review. | -1 | -2 | -1 |
| 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review. | -2 | -1 | -2 |

## DISCUSSION

This research explored the attitudes and perceptions towards rapid reviews in a group of evidence producers and knowledge users. Analysis of the Q sorts identified 3 salient viewpoints which represent the broad spectrum of health care decision-makers and those who synthesize evidence to inform them. Factor A cautions against using labels to judge the quality or value or rapid reviews (or any other evidence synthesis products) and asserts that these variables should be assessed on an individual basis before appropriateness and worth can be gauged. Those prescribing to Factor B firmly hold the concepts of rigour and consistency of process found in a comprehensive systematic review true, and maintains that rapid reviews should be the exception and not the rule. Factor C has a focus on the pragmatic needs of the end-user instead of process, and is content balancing any risk that may be introduced by tailoring of methods with the imperative need for timely review of evidence. Importantly, results show that there are quite opposing viewpoints on rapid reviews, but that some commonality across these perspectives also exists. The three factors described here are not necessarily exhaustive of the attitudes and perceptions held about rapid reviews; however, the relatively clear viewpoints may be valuable on their own as they offer insight

into how and why various stakeholders act as they do and what issues may need to be resolved to increase uptake of rapid reviews. To our knowledge this is the first study to specifically address this facet of rapid reviews.

Results of this study indicate that significant gaps still exist in perceived knowledge about rapid reviews. Most participants (Factor A) felt uncomfortable using the broad study labels to place any assessment of value or quality on the products falling under the nomenclature umbrella of 'rapid review'. Additionally, there was broad consensus across all of the factors extracted that the term 'rapid review' means different things to different people. The notion that all rapid reviews are not created equal is not a novel finding, but rather a commonly asserted trait noted by previous study authors (1, 3, 5, 24, 30). Our results indicate that most participants, regardless of viewpoint are well-aware of the heterogeneous range of approaches used to conduct rapid reviews, and that there is no standard or accepted way to carry out an accelerated evidence synthesis. In truth, it is still unclear whether rapid reviews should aspire to any standard at all. Participants in this study stipulated that it is inappropriate to consider a single methodology for rapid reviews, which indicates that future studies should focus on more acutely describing the range of approaches captured by the term "rapid review" with the goal of providing some clarity to end-users. This requirement for multiple approaches has been put in practice by health technology assessment agencies like the Canadian Agency for Drugs and Technologies in Health (CADTH) and Health Quality Ontario who have evolved their internal rapid response and review programs into multi-product offerings. Recent endeavors by Moher (2015) and Hartling (2015) suggest between 4 and 7 functional groupings of rapid review exist and this provides a good basis for further study of the different approaches going forward (4, 9). It is still uncertain if the

ability to form an explicit definition for rapid reviews in hindered because of the varied approaches that must be captured by it.

Research can "both communicate and miscommunicate" according to Glaziou et al. (2014), and research that is not adequately reported is at risk of becoming what the authors refer to as 'research waste' of time and resources (31). Transparency is central to the creation and evaluation of high quality research evidence, and something that rapid reviews are not well known for (3). Providing sufficient information to end-users on research process and results is arguably more important for rapid reviews given that they are designed specifically to inform policy and practice and are based upon deviations from accepted evidence synthesis practices. Results from analysis of the viewpoints in factor A shows that there is a desire by researchers to make their own judgements on the potential value and quality of rapid review products; However, Ganaan (2010), Harker (2012) and most recently Hartling (2015) have pointed out that inconsistencies in reporting and conduct make it difficult for knowledge users to apply these judgements. The hesitancy of participants in factors A and B to fully endorse rapid review methodology without caveat suggests that transparency is a pressing factor that must be addressed. This raises the question of whether extensions to current reporting guidelines (e.g., PRISMA, PRISMA-P) or conduct checklists (e.g., AMSTAR) are desired, or required to encourage higher quality reporting. The opinions expressed in this study serve to remind researchers, academic and non-profit organizations, HTA agencies, and editors of journals that we need to do better when it comes to transparent reporting of research process and methods (31).

Knowledge users are faced with a challenge when it comes to rapid reviews. They must decide whether it is acceptable to trade-off the timely receipt of evidence with the risk that altering methods could introduce bias or yield incomplete information that could lead to flawed conclusion (24).We found that some stakeholders are more risk-adverse (Factor B) than others (Factors A and C) when it comes to rapid reviews, even though no empirical study has ever quantified what the impact or effect may be to the outcome of a rapid review. (1, 2, 5, 7, 25, 26). Hartling and Polisena (2015) both point out that there are many well-established rapid response programs internationally which underscores that risk is acceptable for certain end-users in certain situations (4, 7). There may be situations where rapid reviews are inappropriate, as Coates and Polisena (2015) suggest, such as those where there may be legal implications (7), or where evidence is required to feed into the development of clinical practice guidelines (8). More research is warranted to clarify how decision-makers weigh these risks, to gauge when the risk of erroneous decision-making is too high, and which situations in particular are inappropriate for rapid review. According Brassey (2015) (32), decision-makers want straightforward access to robust answers to their clinical and policy questions. He suggests that rapid reviews, by design, are different as they do not aim to be a systematic review, now should they aim to this standard as there are inherent flaws with this label that do not serve knowledge users' needs well. He suggests our theoretical 'bar' should be set lower for rapid reviews, and that decision-makers don't always want or have time to wait for the 'best', rather they are interested in evidence that is better than they could have produced on their own. This is worth further investigating as it contradicts the notion that all rapid reviews aim to achieve most rigorous method of synthesizing evidence. Brassey further suggests that systematic reviews are themselves 'ballpark estimates' as they summarize

imperfect journal articles and are subject to publication bias so much so that they can never be described by the word 'accurate'. He notes emphatically that if we are going to produce ballpark estimates, we should turn them around quickly and not take 6 months to produce analogous results.

Factors extracted also showed opposing opinions on whether a rapid review can, in fact, be a systematic review. While it is clear that rapid reviews aspire to a standard, it is unclear what that standard actually is. Methodologically, we know that it is sometimes feasible for systematic processes to be sped up if resources are added. Moher (2015) provides a typology of rapid reviews that includes a category for 'traditional' systematic reviews done quickly (9). Due to poor reporting, we are often unable to tell whether a product like this has been tailored, or whether additional project resources were added to meet an expedited timeline. Theoretically a split exists amongst the various stakeholders too. Some fundamentally believe that if a product is a rapid review, by very nature then, it cannot also be systematic – which is equivalent to saying a rapid systematic review is an oxymoron, even though this term is often used for accelerated syntheses (33). Based on the results of this study, comparisons of rapid reviews to 'full', 'traditional' or 'gold standard' systematic reviews are common, and provide a notional frame of reference on which we can judge rapid review conduct, reporting and outcomes (34). We currently have little empirical evidence differentiating rapid reviews from systematic reviews, and no prospective research to-date has quantified differences between the two review types (11, 26). Simply put, at this time we do not know when a systematic review becomes 'unsystematic'. Further, we may be relating rapid reviews back to a frame of reference which itself is flawed. Systematic reviews, with the possible exception of those carried out by the Cochrane collaboration, have been noted to

have extreme variations in conduct, quality and reporting. Future research projects should aim to better quantify potential differences amongst these review types and to determine if assessing the quality and conduct of rapid reviews against this benchmark is fair or appropriate.

Another unique view stemming from this study relates to concepts of quality and time. Participants in Factor A specifically agreed that quality of a rapid review is not inherently tied to the time taken to complete the work, in contrast to the view of those in Factor C who held the opposite. Evidence actually supports the opinion of those in Factor C. Harker (2012), Hartling and Kelly (2015, submitted for publication) have all examined samples of rapid reviews in depth, evaluated their quality and balanced this measure against the times taken to produce the reviews (3, 4). Results have consistently shown a relationship between time and quality of reporting or conduct. Additional research is needed to confirm these findings across the typologies of rapid review approaches proposed by both Harker and Moher to investigate if time variables may be confounded by the approach.

**Strengths and Limitations**

The strengths in this study lie inherently with the methodology. Q methodology was selected for use in this project over other methods (e.g., simple questionnaire, interviews) because it offers the means to study subjective topics in a more systematic and rigorous manner. No other method explored enabled statements or qualitative descriptions to be quantified statistically using validated research techniques. Q methodology also offers a cost-effective way to solicit opinion from a geographically diverse pool of evidence producers and knowledge users within the confines of the research project timeline.

It is important to acknowledge the potential limitations associated with this study. Although a large sample size is not required for a Q methodological study, results are based on a small number of participants who were predominantly evidence producers in Canada. No benefit was derived from efforts aimed at improving response rates, including sampling with replacement, use of user-friendly software accessible online or by portable devices (e.g., phone or tablet), and weekly email reminders. This smaller than desired sample size meant that certain methodological concessions had to be made when interpreting factors. Ideally, factors are defined by more than one Q sort, which we did not achieve for Factor C. While the same result may have been achieved with a larger sample size we cannot verify this claim with our study population. Although inclusion was not intentional by design, this study population may enable some conclusions to be drawn about Canadian evidence producers and users and may allow for control of other variables (i.e. the health care system, and its needs and demands as a whole).

Second, although we have identified a series of insightful viewpoints on rapid reviews, the range of viewpoints is not globally reflective of views of the wider population of evidence producers and stakeholders. Q methodology does not endeavour to make a claim of universal applicability or to represent the views of a larger sample (12, 14). Q Methodology is also not intended to be a test of difference, and accordingly, results for evidence producers and knowledge users could not be compared and contrasted (4). While we cannot exclude the influence of this dynamic on our results, historically, key memberships are not usually a defining influence on the generation of factors. In order to truly identify the views of researchers and decision-makers independently, two separate studies would need to be carried out using identical Q sets and procedures. Additionally, the comments received post-

Q-sort more or less represent a unique, complementary qualitative study. Outside of interpreting the factors, they offer a depth of knowledge on this topic that deserves further exploration.

Additionally, time to completion was, on average, 15 to 20 minutes longer when study participants completed their rankings when compared to the pilot test. Although participants were guided in the study instructions not to over think their answers, it is likely that careful consideration and deliberation over each statement contributed to the longer time to completion. No participants started the ranking process and failed to complete their Q sort, so it is unlikely that the longer time impacted the completion rate.

**Conclusions**

This study has shown that there are distinct subsets of evidence producers and users who value and appreciate rapid reviews. At the same time, there are cautious segments of these populations who acknowledge the place of rapid reviews in evidence-informed decision-making under certain and exceptional circumstances. Due to a paucity of knowledge on rapid reviews, it is difficult to define where and when their suitability should be questioned, and decisions on appropriateness may need to be made individually on a case-by-case basis. Much of the discourse on rapid reviews revolves around central concepts of time and quality. While there is a growing body of evidence showing review quality decreases with abbreviated timeframes, there are still key stakeholders who believe that high-quality evidence can be synthesized in a timely manner. Empirical evaluation of these two factors is limited by historically poor and inconsistent reporting, so there is, it seems, still no right answer. It is clear however, that reporting transparency and quality must improve, and some

participants in this study suggest that guidelines are needed before improvements will be seen. It was also suggested in this study that we must better define our gold standard of reference for rapid reviews before some of the uncertainties raised in this dialogue can be resolved. Once we have empirical in some of these important research areas related to rapid reviews, further study of evidence producer and user attitudes and opinions should be explored to evaluate whether the discourse has changed.

**Acknowledgements**

The authors would like to acknowledge Dr. George Wells for kindly funding the Q Assessor software used for this research. We would also like to thank all of the participants and pilot testers for their valuable contributions to this study and for their continued support.

**References**

1. Ganann, R., Ciliska, D., Thomas, H. Expediting systematic reviews: methods and implications of rapid reviews. Implement Sci. 2010;5:56.

2. Hailey, D, Corabian, P, Harstall, C, Schneider, W. The use and impact of rapid health technology assessments. Int J Technol Assess Health Care. 2000;16:651 - 6.

3. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

4. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E. AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

5. Khangura, S., Konnyu, K., Cushman, R., Grimshaw, J., Moher, D. Evidence summaries: the evolution of a rapid review approach. Syst Rev. 2012;1:10.

6. Khangura, S., Polisena, J., Clifford, T. J., Farrah, K., Kamel, C. Rapid review: an emerging approach to evidence synthesis in health technology assessment. Int J Technol Assess Health Care. 2014 Jan;30(1):20-7.

7. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

8. Coates, V. Keynote Address: Rapid Reviews and Their Impact on Future Directions for Health Technology Assessment. . CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

9. Moher, D. Do we need a rapid review reporting guideline? Is PRISMA-P helpful when generating a RR protocol? Available at: https://www.cadth.ca/sites/default/files/events/David-Moher_Publishing-Rapid-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]February 2015.

10. Schunemann, H. J., Hill, S. R., Kakad, M., Vist, G. E., Bellamy, R., Stockman, L., Wisloff, T. F., Del Mar, C., Hayden, F., Uyeki, T. M., Farrar, J., Yazdanpanah, Y., Zucker, H., Beigel, J., Chotpitayasunondh, T., Hien, T. T., Ozbay, B., Sugaya, N., Oxman, A. D. Transparent development of the WHO rapid advice guidelines. PLoS Med. 2007 May;4(5):e119.

11. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet]February 2015.

12. Cross, R. M. Exploring attitudes: the case for Q methodology. Health Educ Res. 2005 Apr;20(2):206-13.

13. Ajzen, Icek, Fishbein, Martin. Attitudes and normative beliefs as factors influencing behavioral intentions. Journal of personality and social psychology. 1972;21(1):1.

14. Brown, Steven R. A primer on Q methodology. Operant subjectivity. 1993;16(3/4):91-138.

15. Watts, Simon, Stenner, Paul. Doing Q methodological research: theory, method & interpretation: Sage; 2012.

16. Amin, Z. Q methodology--a journey into the subjectivity of human mind. Singapore Med J. 2000 Aug;41(8):410-4.

17. Akhtar-Danesh, N., Dehghan, M., Morrison, K. M., Fonseka, S. Parents' perceptions and attitudes on childhood obesity: a Q-methodology study. J Am Acad Nurse Pract. 2011 Feb;23(2):67-75.

18. Curt, Beryl C. Textuality and tectonics: Troubling social and psychological science: Open University Press; 1994.

19. Stainton Rogers, R., Stenner, Paul., Gleeson, Kate. Social Psychology: A Critical Agenda. Cambridge: Polity: Wiley; 1995.

20. Brown, Steven R. Political subjectivity: Applications of Q methodology in political science: Yale University Press; 1980.

21. Van Exel, Job, de Graaf, Gjalt. Q methodology: A sneak preview. Online document http://www qmethodology net/PDF/Q-methodology. 2005.

22. Q-Assessor. [http://q-assessor.com].

23. Gough, D., Thomas, J., Oliver, S. Clarifying differences between review designs and methods. Syst Rev. 2012;1:28.

24. Hailey, D. A preliminary survey on the influence of rapid health technology assessments. Int J Technol Assess Health Care. 2009 Jul;25(3):415-8.

25. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid reviews versus full systematic reviews: an inventory of current methods and practice in health technology assessment. Int J Technol Assess Health Care. 2008 Spring;24(2):133-9.

26. Watt, A., Cameron, A., Sturm, L., Lathlean, T., Babidge, W., Blamey, S., Facey, K., Hailey, D., Norderhaug, I., Maddern, G. Rapid versus full systematic reviews: validity in clinical practice? ANZ J Surg. 2008 Nov;78(11):1037-40.

27. Fuerntratt, E. Zur Bestimmung der Anzahl interpretierbarer gemeinsamer Faktoren in Faktorenanalysen psychologischer Daten (The determination of the number of interpretable common factors in factor analysis of psychological data). Diagnostica. 1969;15:62–75.

28. Kline, Paul. An easy guide to factor analysis: Routledge; 2014.

29. Hair, JF, Andreson, RE, Tatham, RL, Black, WC. Multivariate data analysis. 5th (ed) Prentice-Hall Inc. Unites States of America. 1998.

30. Merlin, Tracy, Tamblyn, David, Ellery, Benjamin. What's in a name? Developing definitons for common health technology assessment product types of the International Network of Agencies for Health technology Assessment (INAHTA). International Journal of Technology Assessment in Health Care. 2014;30(04):430-7.

31. Glasziou, P., Altman, D. G., Bossuyt, P., Boutron, I., Clarke, M., Julious, S., Michie, S., Moher, D., Wager, E. Reducing waste from incomplete or unusable reports of biomedical research. Lancet. 2014 Jan 18;383(9913):267-76.

32. Brassey, J. All That Glitters Is Not Gold — Are Systematic Reviews Fool's Gold? Available at: https://www.youtube.com/watch?v=G--

M46UDLmE&feature=youtu.be. CADTH Lecture Series. [Internet]: Canadian Agency for Drugs and Technologies in Health; May 2015.

33. Schunemann, H. J., Moja, L. Reviews: Rapid! Rapid! Rapid! ...and systematic. Syst Rev. 2015;4:4.

34. Yuan, Y., Hunt, R. H. Systematic reviews: the good, the bad, and the ugly. Am J Gastroenterol. 2009 May;104(5):1086-92.

***Table 5-2.*** *Q-set statements and factor array*

| No. | Statements | Factors | | |
|---|---|---|---|---|
| | | A | B | C |
| 1 | The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence. | 1 | 1 | 0 |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -1 | 2 | -3 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0 | 3 | 1 |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | -1 | 2 | 0 |
| 5 | Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users. | -2 | -2 | -1 |
| 6 | Rapid reviews mean different things to different people. | 1 | 2 | 1 |
| 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review. | -3 | -3 | -3 |
| 8 | The opportunity cost of a comprehensive SR or HTA is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor. | 0 | -2 | 1 |
| 9 | Rapid reviews do not replace SRs or HTAs. | 0 | 2 | 0 |
| 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly. | 3 | 2 | 0 |
| 11 | Rapid reviews are comparable to SRs except they are done in a more timely fashion. | -1 | 1 | 1 |
| 12 | Rapid reviews are ‘quick and dirty' systematic reviews. | -2 | 1 | -2 |
| 13 | Rapid reviews need to be tailored to the specific needs of the knowledge user. | 0 | 2 | 3 |
| 14 | Rapid reviews meet the needs of knowledge users. | 1 | 0 | 2 |
| 15 | There is a paucity of evidence on rapid reviews, so I cannot support or oppose their use in decision-making. | -1 | 0 | -1 |
| 16 | There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand. | 0 | 0 | -1 |
| 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand. | -1 | 0 | 2 |
| 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | 2 | 0 | 0 |
| 19 | It is always appropriate to conduct a rapid review. | -2 | -3 | -1 |
| 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence. | 2 | -1 | 0 |
| 21 | Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision. | 2 | 1 | 1 |
| 22 | My confidence in a rapid review is impacted by which methods are tailored to speed up the review process. | 1 | 0 | 0 |
| 23 | My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence. | 0 | 0 | -1 |
| 24 | It is important to have minimum standards for the methodological conduct of rapid reviews. | 0 | 1 | 2 |
| 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR). | 2 | 0 | 0 |
| 26 | Standardization of rapid review methods may conflict with the needs of knowledge users | 0 | -2 | 1 |
| 27 | The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially ‘imperfect' evidence. | 1 | -1 | 2 |
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is ‘best evidence' is specific to the knowledge user. | 1 | -2 | 3 |

| No. | Statements | Factors | | |
|---|---|---|---|---|
| | | A | B | C |
| 29 | Knowledge users do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product. | 1 | 0 | 0 |
| 30 | Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review. | 0 | 0 | 0 |
| 31 | Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users. | 0 | -1 | -1 |
| 32 | Rapid reviews can be timely and valid, even when methodological concessions are made. | 1 | 1 | 1 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 0 | -2 | 2 |
| 34 | It is appropriate to endeavor to define a single, unique methodology for rapid reviews. | -1 | -1 | -2 |
| 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods. | 1 | -1 | 0 |
| 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different. | 1 | 1 | 0 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | -1 | 1 | -1 |
| 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | -3 | -1 | -2 |
| 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review). | 2 | -1 | 1 |
| 40 | Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision. | -2 | 1 | -1 |
| 41 | A well-conducted rapid review may produce better evidence than a poorly conducted systematic review. | 3 | -1 | 2 |
| 42 | Any review of evidence that takes longer than 3 months to produce is not a rapid review. | -1 | -2 | -1 |
| 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review. | -2 | -1 | -2 |
| 44 | A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigourous methods for evidence synthesis. | -1 | 0 | 0 |
| 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed. | 2 | 1 | 0 |
| 46 | It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods. | -1 | 0 | 1 |
| 47 | A rapid review cannot be a systematic review. | -2 | 3 | -2 |
| 48 | ‘Rapid review' is too broad a phrase – doing a review in a more timely way can only be relative to how long it takes the same team to produce a full systematic review. | 0 | -1 | -1 |
| 49 | Producers are more concerned with the methodology and validity of rapid reviews than knowledge users. | 0 | 0 | 1 |
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | 0 | 0 | -2 |

**Variance** 2.08 **Standard Deviation** 1.4

# 6. DISCUSSION

## 6.1 Research Summary

The purpose of this thesis was to advance the current knowledge on rapid reviews with three separate, but interrelated research projects. A comprehensive search for literature on rapid reviews allowed for a detailed overview these products in Chapter 2, along with a comprehensive summary of common themes and trends. Three manuscripts have been produced and presented in this thesis. The final chapter brings together results from an in-depth study of the quality of reporting and conduct in a recent sample of rapid reviews (Chapter 3), a modified Delphi process aimed to arrive at a at definition of rapid reviews through a consensus building exercise with a cohort of experts in evidence synthesis (Chapter 4), and a Q methodology study with the objective to describe the salient viewpoints identified during a qualitative and quantitative study of attitudes and opinions on rapid reviews (Chapter 5). This final chapter aims to supplement the discussion and limitations sections in each manuscript to provide an overview of findings and their significance in current context.

## 6.2 Discussion

This thesis provides a comprehensive assessment of the design and reporting characteristics of a large, recent cohort of rapid reviews. Although it may have been preferable to study rapid review samples without date restriction, this limitation was necessary for feasibility. A detailed examination of the baseline characteristics showed a heterogeneous mix of nomenclature, research questions and approaches to rapid reviews from a relatively small

number of countries internationally. This finding correlates with those who have previously studied rapid review samples, indicating that there has been no real progression towards any particular rapid review method in recent years. Harker et al. (1) who also found that a large quantity of reviews are being produced by a relatively small number of countries. Respondents to both the modified Delphi survey were also limited geographically to the same countries, and respondent to the Q methodology study were all Canadian. We do not feel that this limits the generalizability of the findings in this thesis. The cross-sectional survey of rapid review producers by Polisena et al. published recently also corroborates our result (2). It seems that initial rapid review innovators such as Canada, the UK and Australia continue to contribute substantially to this field. Given their entrenched HTA and rapid response programs, high uptake from health care decision-makers and the increasing numbers of smaller evidence producing groups in these countries contributing to the rapid review literature, it is clear that there is an opportunity to provide leadership in the evolving methodological field. Recent initiatives led by individuals from these countries, such as the 2015 CADTH Rapid Review Summit and the establishment of a Cochrane Rapid Response methods group show that they are accepting of this opportunity. Hopefully, with the more global influence of groups such as the Cochrane Collaboration involved, a new group of interested parties will join the rapid review dialogue and contribute to filling some of the research gaps that persist.

The rapid review samples included in this study showed low compliance overall with both the PRISMA reporting guideline and AMSTAR quality of conduct checklist, although there was better overall compliance with reporting characteristics than with the conduct items. Only select items in both instruments were adequately addressed by any rapid review.

Previous literature has asserted that there may be requirements for both reporting and conduct guidelines for rapid reviews (3-5), although little advancement has been made in this area. Our results show that there is still much room for improvement in this area, and that reporting and conduct guidelines may facilitate and encourage more transparent output from accelerated research methods. This in turn, would aid decision-makers in balancing their requirements with the potential risk of incomplete or erroneous evidence resulting from tailored synthesis processes. In our study of attitudes and perceptions about rapid reviews, a salient viewpoint was identified that noted it is inappropriate to use product labels (e.g., rapid review, systematic review) to 'judge a book by its cover' when it comes to assessing value and quality in rapid reviews. It follows then that in order to achieve an adequate assessment of value and quality for a particular rapid review, 'the words must be written on the pages'. With deficits noted, future research should focus on tools to facilitate and support transparency of process and output. If this can be accomplished through the use of guidelines or checklists extended to focus on rapid reviews, then these options should unconditionally be pursued.

Supplementary analyses showed that there was evidence of an association between longer length of publication (increased number of PRISMA items adequately reported) and longer time to completion (increased number of AMSTAR domains met) on total scores in the cohort of rapid reviews studied in this thesis. For our purposes, rapid reviews were considered 'published' if they were indexed in a bibliographic database and were available in a peer-reviewed journal, and 'unpublished' when they were located in the grey literature (e.g., available on the website of the producing agency or organization). This relationship with length of report in pages was reciprocated when the rapid reviews were stratified by

publication status, but was not significantly associated with AMSTAR score in the published reviews. Although we were unable to explore regression against length of pages for AMSTAR due to data limitations, trends in the data also showed a relationship. These findings are novel, but should not be taken as definitive given the very small number of rapid reviews that reported time to completion, and the limitation of extracting a cross-sectional sample of rapid reviews. Interestingly, our findings regarding time to completion and quality of conduct as assessed by AMSTAR were in direct opposition to the viewpoint of the participants who prescribed to Factor A (*"Don't judge a book by its cover"*) in our exploration of attitudes and opinions on rapid reviews. While that group firmly believed that reduced time to completion was not related to reduced quality, we found a limited set of data to show the opposite. Although no formal study has explored this relationship, AMSTAR and PRISMA are likely collinearly related, so it is difficult to definitively attribute our findings to the quality of reporting or conduct alone. Regardless, these areas should be explored further to investigate the reasons for these relationships, and additional explanatory variables such as journal factors, or absence of a protocol through, if sample size permits, multiple or meta-regression. Modifications to the PRISMA and AMSTAR guidelines to allow a more granular examination of some of these factors may facilitate that process.

One of the aims of this thesis was to achieve a pragmatic, operational definition for rapid reviews that is useful to both evidence producers and users, and allows for differentiation of this approach from other synthesis methods. Experts in the modified Delphi study reached consensus on 10 of 11 final characteristics statements and results demonstrate that rapid reviews can be differentiated from systematic reviews or other evidence synthesis products using these key defining characteristics , although there may be overlap amongst some the

common traits. Experts agreed that a comprehensive definition of rapid reviews should consider multiple domains, including: (1) timeliness in relation to full systematic reviews; (2) an aim to meet the specific requirements of a decision-maker; (3) tailoring of the explicit and reproducible methods conventionally used to conduct systematic reviews in order to expedite the process; (4) flexibility of approach, process adapt and turnaround time; (5) the existence of risk to the overall validity of the process and findings that must be considered; and, (6) a goal to use the most rigorous and systematic methods that time will allow, and, (7) the essential requirement of transparency of process and completeness of reporting in all output from the rapid review. One domain suggested by Abrami et al. (6) as a key defining factor in rapid reviews, scope, was touched on in some of the expert comments, but not explicitly included in the final set of characteristics, except through inference from other characteristics. Experts did not agree on the statement describing assessment of the risk of bias within or across studies included in a rapid review, and attempts to clarify or revise statements focused on this domain were not successful. We attempted to apply the characteristic statements across the samples of rapid reviews examined in Chapter 3, and found that poor reporting obviously limited our capacity to assess goodness on fit on some of the variables (e.g., protocol, risk of bias, timeliness, limited reporting of reasons for acceleration or context from the commissioning knowledge user). These factors may be explored further by the student in follow-up research.

While this study was the first to report definitive characteristics of rapid reviews, no single definitive statement was produced that explicitly differentiates rapid reviews from other evidence synthesis methods. We were unable to eliminate overlap with systematic reviews at one end of the evidence synthesis continuum, and with scoping reviews at the other end, and

possibly, it was unfitting to attempt this feat. Participants in the Q methodology study (Chapter 5) unanimously agreed that it is inappropriate to endeavor to find a single, unique methodology for rapid reviews, and following the three studies in this project, the student agrees that it may not be appropriate to produce a single, unambiguous statement which captures the broad array of report types that fall under the term 'rapid review'. The shortcomings of our results highlight the requirement to move towards an alternative means of defining rapid reviews, one that better captures the spectrum of approaches utilized to expedite evidence synthesis processes and one that will better serve evidence producers and users. Work by Hartling et al. and Moher suggest that rapid reviews are better captured or characterized though a classification or taxonomy of rapid review sub-types (4, 7) and this idea should be explored further. Classification mechanisms have the advantage of grouping alike reviews into an arrangement according to some pre-defined criteria, which in turn, assists in generally differentiating these reviews from others and with other evidence synthesis products. Both Moher and Hartling et al. ascribe different classification schemes to their groupings on between 4 and 7 groupings. Many products produced by HTA and other agencies internationally nest easily into these categories, depending how they are defined. In order to capture the 'best' way to organize rapid reviews into a classification, further research should aim to achieve consensus from experts, evidence producers and knowledge users on a criteria for sorting these reviews, and pragmatically test the application of such a scheme across a wide array of published and unpublished rapid reviews to test applicability.

## 6.3 Research Contribution

The focus of this research was to improve knowledge on rapid reviews in areas where knowledge gaps currently exist, and to better understand the experience of evidence

producers and users as it relates to rapid reviews. Ensuring that research products better address the needs of a range of users is a theme relevant to all types of reviews, but undoubtedly central to rapid reviews. This thesis explores our current knowledge on rapid reviews and also makes a valuable contribution to the field of research on accelerated evidence products. The studies conducted as part of this thesis also provide a natural foundation for future research agendas and have already provided valuable contribution to the field of research in rapid reviews. A summary of the research activities resulting from this work is presented below.

### *6.3.1 Meetings and Workshops*

As a student I was selected by an internal committee to receive a full travel bursary from CADTH to attend the 2011 CADTH Symposium in Vancouver, British Columbia (BC) based on the research potential of my thesis work on rapid reviews, and my ability to contribute to the important conversations on this topic with evidence producers, industry and decision-makers attending. The valuable personal connections made at that conference laid a foundation for my involvement in many rapid review initiatives going forward. Over the past five years (2011 to 2015), I have attended all of the CADTH Symposiums across Canada and have presented the following in relation to the work from this thesis:

1. S Kelly, T Clifford, D Moher. Making evidence informative for decision-makers: Deconstructing 'rapid reviews'. Canadian Agency for Drugs and Technologies in Health (CADTH) Symposium, Ottawa, ON, April 2012. (Poster)

2. S Kelly, C Cameron, J Brassey, S Myles, A Chambers, S Bermingham, D Moher, T Clifford. *Meeting NEED with SPEED: How Rapid Reviews are changing the HTA/evidence Landscape.* Canadian Agency for Drugs and Technologies in Health (CADTH) Symposium, Ottawa, ON. April 2014 (Panel session, oral presentation, session moderator)

3. S Kelly, T Clifford, D Moher. *Deconstructing 'Rapid Reviews'? When is evidence 'good enough'?* Canadian Agency for Drugs and Technologies in Health (CADTH) Symposium, Saskatoon, SK, April 2015. (Oral presentation)

I attended the 21st International Cochrane Colloquium (19-23 September, 2013) and assisted with coordination and facilitation of a workshop on rapid review methodology with other research leaders in the field and involved attendees from around the world. The primary purpose of the workshop was to exchange and share information among the attendees about the methods used for rapid reviews, the usability of rapid reviews and their appropriateness to support informed decisions in health care. Discussions centred on the methods used, report formats and impact of rapid reviews in policy decisions. This workshop was attended by over 50 attendees including key leaders in the Cochrane community and formed the foundation for the creation of the Cochrane Rapid Reviews methods group of which I am an active member. This workshop was followed up by a meeting of select rapid review researchers at the Cochrane Canada Symposium in 2013 in Ottawa where official plans to create the Cochrane methods group for rapid reviews were communicated and discussed with administrators of the Cochrane Library.

In February 2015, I attended the CADTH Rapid Review Summit in Vancouver, BC with approximately 150 other participants where my work on rapid reviews was cited by three presenters over the course of the two-day forum attended by knowledge producers and users of rapid reviews from a wide range of research and practice settings across Canada and internationally (8).

### *6.3.2 Publications*

This thesis has produced three manuscripts that will be submitted for publication in peer-reviewed journals in 2015:

1. S Kelly, D Moher, TJ Clifford. Quality of conduct and reporting in rapid reviews: An exploration of compliance with PRISMA and AMSTAR guidelines.
2. S Kelly, D Moher, TJ Clifford. Defining rapid reviews - An eDelphi consensus approach.
3. S Kelly, D Moher, TJ Clifford. Expediting evidence: Exploring attitudes and perceptions towards rapid reviews using Q methodology.

In addition to these manuscripts, the exhaustive data collected on the sample of rapid reviews (Chapter 3) will be explored for further publication (Appendix B). I continue to collaborate with Dr. Andrea Tricco (St. Michael's Hospital/Li Ka Shing Knowledge Institute) to explore the definitions of rapid reviews cited or stated in the samples collected as part of this thesis and a similar project being conducted at St. Michael's Hospital in Toronto, Ontario. We intend to document themes common across the definitions collected and will explore publication once the content analysis is complete.

## 6.4 Future Research Directions

Research on rapid reviews is moving forward. At the 2015 CADTH Rapid Review Summit, a key objective was to identify areas for rapid review research (8), and several ongoing or new research initiatives were cited. Chantelle Garrity (Senior Program Manager, Knowledge Synthesis Group, Ottawa Hospital Research Institute) highlighted several research programs on rapid reviews underway, including my own. Two PhD students are currently working under Dr. David Moher from the Ottawa Hospital Research Institute, Centre for Practice

Changing Research to further characterize the types of rapid reviews being produced internationally and to strengthen methods that could be used for sharing, including resource tool kits and e-tools among other topics (8). Exploring the use of rapid reviews by research and funding agencies is also a priority in order to identify knowledge gaps, set research priorities, and ensure the appropriate use of funding resources.

At the same meeting, Dr. Andrea Tricco from St. Michael's Hospital and the Li Ka Shing Knowledge Institute in Toronto, Ontario outlined her research agenda to compare rapid reviews and full systematic reviews in a study called DARTS (Diagnostic Accuracy of Rapid reviews compared To Systematic reviews). At the meeting, attendees participated in a live consensus-building exercise to choose a rapid review approach for this research that will involve three research institutes from Canada (5).

A session was held at the Rapid Review Summit to prioritize rapid review research agendas going forward. In groups, summit attendees were asked to identify and share ideas and submit their suggestions to meeting organizers. The ideas were presented and discussed in a large forum setting which resulted in seven main thematic areas (8): 1) theory and taxonomy; 2) methods and application; 3) comparison and contrast with systematic review; 4) evaluation of use; 5) database; 6) influencing practice; and, 7) tools and guideline development. Some of these important topics have been addressed in this thesis, while others are being explored by graduate students, scientists and producing agencies internationally.

Findings from this thesis demonstrate that future research on rapid reviews should focus on several priority areas:

1. Researchers and methodologists must work towards quantifying any bias or differences in the estimates of effect that may be introduced through the tailoring of rigorous

evidence synthesis methods and whether these differences matter to decision-makers. Ideally a large prospective sample would capture systematic and rapid reviews answering a wide range of research questions and account for the inherent variation in approach to compare whether comprehensive methods, a longer production time and more resources truly result in findings that are more precise and/or relevant to end users. In addition, there must be an acknowledgement that semantics vary around both rapid and systematic reviews and that systematic reviews are subject to methodological, reporting and other deficiencies in the same way that rapid reviews have been described. Only then can an impartial comparison be carried out.

2. There must be dedicated research to better understand rapid reviews in the context of the needs of decision-makers. According to a May 2015 presentation by Jon Brassey (TRIP Database, Wales, United Kingdom) at CADTH, decision-makers want easy access to robust answers to their clinical and policy questions. He suggests that rapid reviews, by design, are different as they do not aim to be a systematic review, now should they aim to this standard as there are inherent flaws with this label that do not serve knowledge users' needs well (9). He suggests our theoretical 'bar' should be set lower for rapid reviews, and that decision-makers don't always want or have time to wait for the 'best', rather they are interested in evidence that is better than they could have produced on their own. This is worth further investigating as it contradicts the notion presented in this thesis that all rapid reviews aim to achieve most rigorous method of synthesizing evidence. Brassey suggests that systematic reviews are themselves 'ballpark estimates' as they summarize imperfect journal articles and are subject to publication bias so much so that they can never be described by the word 'accurate'. The concept that Brassey emphatically asserts

about systematic reviews (if we are going to produce ballpark estimates, we should turn them around quickly and not take 6 months to produce analogous results) is worth exploring formally and deserves the attention of a more formal research study.

3. In order to truly reduce the perception that rapid reviews are inferior simply because they aren't systematic reviews, research must continue to expand on the way rapid reviews are described and communicated. The definition of rapid reviews reported in this thesis must be expanded to explore the continuum of approaches utilized, and must focus on when it may be appropriate or best use of research time to employ any one approach. We need a coordinated group to lead, continue and disseminate research on rapid reviews with a goal of reducing research waste and diminishing the impact of semantics or language on the perception, uptake and use of rapid reviews. Research in this thesis suggests that at least some groups believe that rapid reviews should be the exception and not the rule in evidence synthesis, however, Jon Brassey (9) suggests the opposite, that systematic reviews should only be carried out when the rationale for answering a research question with increased time and resources justifies the expenditure.

## 6.5 Strengths and Limitations

Strengths and limitations of the individual studies have been highlighted in each chapter of this thesis separately in the manuscripts produced. The greatest strength of this thesis overall is the mixed-methods approach that integrated findings from a detailed literature review, a cross-sectional sample of rapid reviews, a modified Delphi study and a Q methodological study. Although our findings were more hypothesis-generating than confirmatory, no other approaches that were identified in the literature have a similar or such an expansive scope. This mixed-method approach allowed for integration of findings across different

methodological approaches, multiple data sources, different geographies and using viewpoints from experts in the field of evidence synthesis, researchers and knowledge users.

Rapid review is a unique topic area that is relevant and impactful on the health care decision-making environment in Canada, and world-wide. Although rapid reviews themselves are not new in concept, the field of research related to rapid reviews is emerging, and findings from this thesis serve to inform and provide an extended baseline for future research efforts. Through our aim to produce an operational definition for rapid reviews and our dialogue with experts, advancements in the fundamental thought processes surrounding rapid reviews were achieved. This includes the need to focus less on a definition for the sake of doing so, and more on applying pragmatic schemes that will aid decision-makers in using this type of evidence in their processes. The dialogue amongst both evidence producers and knowledge users showed that there are commonalities in viewpoints about rapid reviews across these two groups, a topic that has not been assessed though formal study yet.

Sample sizes for the modified Delphi study and especially, the Q methodology portion of this thesis were small and a very limited number of knowledge users responded, which may limit the validity of the findings of these studies. Further study may be warranted in a larger, more geographically diverse group of stakeholder to confirm our findings. Additionally, the dialogue on rapid reviews that formed the key viewpoints and the defining characteristics was based on the opinion of the individuals who participated. Although we have confidence that we made every attempt to produce a comprehensive and demonstrative view of rapid reviews for these topics, we must acknowledge that the sampling mechanisms employed may have resulted in a group of participants who not representative of all experts in the field,

especially those outside academia. Regardless, we hold that the information generated from these studies is both valuable in content and informative to the budding field of rapid review research.

## 6.6 Conclusions

Rapid reviews have become increasingly popular as evidence producers struggle to balance the requirements of evidence-informed decision-making processes with the need to produce high quality, inclusive evidence summaries. Knowledge users worldwide rely on evidence from rapid reviews to inform their work. The growing number of established rapid response programs and services internationally suggest that consumption of this type of evidence syntheses is high, and this supported by the recent trend of publishing rapid reviews in peer-reviewed journals. However, well-established difficulties with reporting transparency and completeness limit the abilities of end-users to make informed decisions on the validity and value of rapid reviews for their purposes, which has led some to question their more global appropriateness in decision-making processes.

This thesis makes an important contribution to the literature by providing a robust mixed methods research program which contributes information to inform documented knowledge gaps in our current understanding of rapid reviews. After integrating findings from a detailed literature search and three separate studies addressing unique facets of rapid reviews, we suggest that future research focus on comprehensively capturing the spectrum of rapid review approaches into a more comprehensive classification structure. This will serve to clarify methods utilized, and provide a basis on which rapid reviews can be compared and contrasted with other evidence synthesis methods. This scheme may also facilitate extension

of current systematic review reporting and conduct guidelines (e.g., PRISMA, AMSTAR) to rapid review methodologies. We suggest that these future endeavors will move towards improvements in protocol use, clarity, transparency and quality of conduct and reporting for rapid reviews. These initiatives will benefit researchers and methodologists, evidence producers, health care decision-makers and ultimately, individuals in Canada who rely on all of these groups for system-wide quality of practice and care.

## 6.7 References


1. Harker, J., Kleijnen, J. What is a rapid review? A methodological exploration of rapid reviews in Health Technology Assessments. Int J Evid Based Healthc. 2012 Dec;10(4):397-410.

2. Polisena, J. Garritty, C. Kamel, C. Stevens, A. Abou-Setta, AM. Rapid review programs to support health care and policy decision making: a descriptive analysis of processes and methods. Syst Rev. [10.1186/s13643-015-0022-6]. 2015(4:26).

3. Garrity, C. Information Sharing Session on Rapid Review Initiatives. Available at: https://www.cadth.ca/sites/default/files/events/Chantelle-Garrity_RR-Initiatives_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]. February 2015.

4. Moher, D. Do we need a rapid review reporting guideline? Is PRISMA-P helpful when generating a RR protocol? Available at: https://www.cadth.ca/sites/default/files/events/David-Moher_Publishing-Rapid-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC. [Internet]. February 2015.

5. Tricco, AC. Antony, J. Straus,SE. Systematic reviews vs. rapid reviews: What's the difference? Available at: https://www.cadth.ca/sites/default/files/events/Andrea-Tricco_RR-vs-Systematic-Reviews_Feb-4-2015.pdf. CADTH Rapid Reviews Summit, Vancouver, BC [Internet]. February 2015.

6. Abrami, Philip C., Borokhovski, Eugene, Bernard, Robert M., Wade, C. Anne, Tamim, Rana, Persson, Tonje, Bethel, Edward Clement, Hanz, Katherine, Surkes, Michael A. Issues in conducting and disseminating brief reviews of evidence. Evidence & Policy: A Journal of Research, Debate and Practice. 2010 //;6(3):371-89.

7. Hartling, L., Guise, J. M., Kato, E., Anderson, J., Aronson, N., Belinson, S., Berliner, E., Dryden, D., Featherstone, R., Foisy, M., Mitchell, M., Motu'apuaka, M., Noorani, H., Paynter, R., Robinson, K. A., Schoelles, K., Umscheid, C. A., Whitlock, E.

AHRQ Comparative Effectiveness Reviews. EPC Methods: An Exploration of Methods and Context for the Production of Rapid Reviews. Rockville (MD): Agency for Healthcare Research and Quality (US); 2015.

8. CADTH. Rapid Review Summit: Then, Now, And In The Future. Available from: https://www.cadth.ca/sites/default/files/pdf/RR%20Summit_FINAL_Report.pdf. Ottawa, Ontario. CADTH. 2015.

9. Brassey, J. All That Glitters Is Not Gold — Are Systematic Reviews Fool's Gold? Available at: https://www.youtube.com/watch?v=G--M46UDLmE&feature=youtu.be. CADTH Lecture Series. [Internet]: Canadian Agency for Drugs and Technologies in Health; May 2015.

# 7. APPENDICES

# APPENDIX A. OTTAWA HOSPITAL RESEARCH ETHICS BOARD APPROVAL

*Ottawa Hospital Research Ethics Boards / Conseils d'éthique en recherches*

May 25, 2012

Dr. David Moher
Ottawa Hospital - General Campus
Ottawa Hospital Research Institute, Clinical Epidemiology Program
Centre for Practice-Changing Research

removed for privacy

Dear Dr. Moher:

**Re: Protocol # 20120143-01H** **Making Evidence Informative for Decision-Makers: An Exploration of Knowledge, Attitudes and the Validity of 'Rapid Reviews'**

**Protocol approval valid until - May 24, 2013**

Thank you for the e-mail from Ms. J. Peters dated May 25, 2012. I am pleased to inform you that this protocol underwent expedited review by the Ottawa Hospital Research Ethics Board (OHREB) and is approved to recruit only English-speaking participants. No changes, amendments or addenda may be made to the protocol or the letters/consent forms without the OHREB's review and approval.

Approval is for the following documents:
- Protocol dated August 30, 2011
- English membership introduction letter, received May 25, 2012
- English A Q Methodology study letter of information and consent, received May 25, 2012
- English eDelphi study letter of information and consent, received May 25, 2012
- English Delphi Questionnaire, received March 9, 2012
- English Q Methodology Questionnaire, received March 9, 2012
- Data Extraction Form received March 9, 2012
- Revised OHREB application received May 8, 2012

f the study is to continue beyond the expiry date noted above, a Renewal Form should be submitted to the OHREB approximately six weeks prior to the current expiry date. If the study has been completed by this date, a Termination Report should be submitted.

The Ottawa Hospital Research Ethics Board is constituted in accordance with, and operates in compliance with the requirements of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans; Health Canada Good Clinical Practice: Consolidated Guideline; Part C Division 5 of the Food and Drug Regulations of Health Canada; and the provisions of the Ontario Health Information Protection Act 2004 and its applicable Regulations.

Yours sincerely,

Signature removed for privacy

Raphael Saginur, M.D.
Chairman
Ottawa Hospital Research Ethics Board

/cb

# APPENDIX B. ADDITIONAL CONTENT – CHAPTER 3

## SUPPLEMENT 7-1. INAHTA SCAN QUESTIONNAIRE RESULTS

**INAHTA Rapid Response Survey Results**

**CADTH Query – September 30, 2011:** The Canadian Agency for Drugs and Technologies in Health (CADTH) is preparing a paper on 'rapid reviews' or expedited systematic reviews/HTAs, particularly related to how this type of evidence meets the needs of decision-makers. Part of study will involve a comprehensive search for 'rapid reviews' that have been produced internationally since 2005 in order to formally capture methods, common characteristics and other key features. The search is large in scope and intentionally unrestricted. We are also well aware that definitions for 'rapid reviews' vary and are intentionally not specifying criteria that need to be fulfilled in order to qualify for a rapid review. As such, we would like to briefly survey INAHTA members on their current practice regarding rapid reviews.

**Question: We would like to know about current or planned 'rapid review' products:**

| ORGANIZATION | Does your Agency currently undertake Rapid Review? (YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future? (YES / NO) | If YES, What type of "rapid review" products does your agency produce (Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| **SBU, Sweden** Helena Dahlgreen | Yes | | SBU Alert Reports The Alerts could be described as early assessments. We try to assess the methods before they are spread in the Swedish Health Care. | 6 -12 months | Yes http://www.sbu.se/en/Published/ |
| **NHSC, UK** Claire Packer | No | No | n/a | n/a | n/a |
| **Catalan, Spain** Antoni Parada | Yes | | Under the official category of CAHIAQ technical consultations (but this is currently undergoing | One week – 6 months dependant on scope of request | Yes www.aatrm.net |

| ORGANIZATION | Does your Agency currently undertake Rapid Review? (YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future? (YES / NO) | If YES, What type of "rapid review" products does your agency produce (Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| | | | changes)[7] | | |
| **AVALIA-T (Galician HTA Agency), Spain** Dr. Leonor Varela Lema | Yes | n/a | Rapid Assessments (technical Reports)[8] and Brief Reports[9] | 1 month (brief reports) to 3 months (brief assessments) | Yes Consultas técnicas). (brief reports are internal only and therefore not available on the web) |
| **Ministry of Health, Malaysia** Dr. Issuna Mudla bt Mohamed Ghazali and Dr Rugayah Bakri | Yes | n/a | Technology Review Report and Information Brief | 1 week (Information Brief) 2-4 months (Technology Review Report) | Yes – technology review reports are: http://www.moh.gov.my/technology_reviews Information Briefs are |

[7] We are actually discussing about how to define our final catalogue of products and services. We have mainly worked with "HTA reports" and "Technical queries or consultations". Officially, Technical queries have been definided as documents generated from processes of assessment when the commissioning or requesting party needs to obtain an answer in less time than would normally be required for a complex, exhaustive and extensive assessment report. This definition "was respected" until 3 or 4 years. Technical queries were similar to "rapid reviews". They were undertaken from 3 to 6 months of time. The problem was not respecting this category by the need to fit some other reviews made in a short period of time. For instance, under the category of "Technical queries" we have documents carried out in 6 months, meanwhile other have been carried out in just a few days. As you can imagine, the rigor and quality of these documents can not be object of comparison. Thus, we are working in defining new categories of products.
My preliminary idea would be to keep the following categories:
- CAHIAQ reports (HTA, evaluation of health care services, drugs, impact of research, and so on.)
- CAHIAQ technical queries (similar to the rapid reviews according to or adapting the standards proposed at an International level).
- Rapid responses (a category where to fit those "extremely" rapid answers we are only based maybe on an HTA report performed by other agency or a Cochrane Systematic Review).

[8] **Rapid assessments (Technical reports)**: which are systematic reports carried out within a timeframe of 3 months. They follow the same methodology as full systematic reviews but they have a narrower focus than full reports. They cover the review of effectiveness, safety, and other aspects (economic, ethical, etc) but do not include cost-effectiveness evaluations or ethical analysis.

[9] **Brief reports**: they are reports elaborated in answer to specific questions from decision makers. They are systematic but can be focused only on one or two specific issues or simply summarize already available HTA reports. On the contrary to full HTA reports or Technical reports they don´t undergo an external review.

| ORGANIZATION | Does your Agency currently undertake Rapid Review? (YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future? (YES / NO) | If YES, What type of "rapid review" products does your agency produce (Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| | | | | | internal only and not available on the web |
| **LBI-HTA, Austria**<br>Ms. Claudia Wild | Yes | n/a | Quick scan<br><br>Early assessment of Onco-Drugs/HSS<br><br>DSD on new hospital interventions | 1 week<br><br>1 month<br><br>2-3 months | Not available on web site<br><br>http://hta.lbg.ac.at/en/content.php?iMenuID=101<br><br>http://hta.lbg.ac.at/en/content.php?iMenuID=101 |
| **Healthcare Improvement, Scotland**<br>Susan Myles | Yes | n/a | Scoping Report<br>Evidence Notes | Approx.. 1 & 3 months | Yes<br>www.healthcareimporvementscotland.org.<br>NOTE See link to Scottish Health Technologies Group page.<br>http://www.healthcareimprovementscotland.org/programmes/clinical__cost_effectiveness/shtg.aspx |
| **DAHTA, Germany**<br>Elisabeth Giesenhagen | No | No | n/a | n/a | n/a |
| **HIQA, Ireland** | Yes[10] | n/a | See below[11] | See below[12] | See below[13] |

[10] We are planning to do more "rapid HTAs" in the next couple of years (see below) by which we mean shorter HTAs that have a specific research focus, and/or which could be used to support a national programme of clinical guidelines in development. We have just completed one project, and another is starting. There is also a tendency in Ireland to use the term "rapid HTA" for the industry provided and agency assessed HTA (pharmaceutical reimbursement assessments)

| ORGANIZATION | Does your Agency currently undertake Rapid Review? (YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future? (YES / NO) | If YES, What type of "rapid review" products does your agency produce (Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| Martin Flattery | | | | | |
| **CDE, Taiwan** Grace Hui-Min Wu | Yes | n/a | Assessment report for all new drugs which apply for listing | 42 days | Yes http://www.nhi.gov.tw/webdata/webdata.aspx?menu=21&menu_id=713&WD_ID=849&webdata_id=3689. |
| **IHE, Canada** Christa Harstall | yes | n/a | Qwiknotes (list of abstracts)<br>Technotes<br>Compnote (offered but have not yet produced) | Qwicknotes (2 -4 weeks)<br>Technotes (1-3 months)<br>Compnote (3-6 months) | Depends on the level of the response<br><br>Qwicknotes (not published but listed on website)<br>Technotes (none published yet but will be available on website)<br><br>A list of all our rapid assessments can be found at: http://www.ihe.ca/research/health-technology- |

[11] Our two examples are (i) the estimation of cost-effectiveness of a policy of introducing repeat universal screening of pregnant women for HIV infection in the 3rd trimester ( to support a national guideline) and (ii) the specifications for, and costs, of a deep brain stimulation service to be provided in Ireland and comparison with the usual policy of referring these patient to the UK

[12] 90 days will be the target. We are currently trying to refine the process, and the pregnancy study referred to above has taken longer than anticipated. The DBS study (which has very specific purpose) is about to commence, and will be interesting to see how it goes. Our longer term objective is to do these types of review in 90 days.

[13] The HIV report above is due to be made available on our website during December. If it would be of any benefit for you to look at, I would be happy to share a draft of it with you before then.

| ORGANIZATION | Does your Agency currently undertake Rapid Review? (YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future? (YES / NO) | If YES, What type of "rapid review" products does your agency produce (Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| | | | | | assessment/rapid-assessments/ <http://www.ihe.ca/research/health-technology-assessment/rapid-assessments/> |
| **Gesundheit Osterreich GmbH, Austria** Daniela Perti | No – but did in past | Yes – will be doing these again in the future | Rapid Assessments | 22 weeks (400 hours)[14] | Yes http://www.goeg.at/de/BerichtDetail/ [15] |
| **VASPVT, Lithuania** Juozas Galdikas | No | Yes – in the near future[16] | n/a | n/a | n/a |
| **FINOHTA, Finland** | Yes | n/a | MUMM (Managed uptake of | 6 – 12 months | Yes |

[14] In detail we have described the process of the preparation and the methodology of Rapid Assessments and also HTA in a process manual and methodology manual (process: http://www.goeg.at/de/BerichtDetail/Prozesshandbuch-fuer-Health-Technology-Assessment-2010.html , methods: http://www.goeg.at/de/Bereich/HTA-Methoden-und-Prozesse.html , available only in German until now).

[15] Links to specific Rapid Assessments from Gesundheit Osterreich GmbH

- Rapid Assessment: Pharmacological interactions between acetylcholinesterase inhibitors (drugs for treatment of dementia) and other drugs (finished 2010, available only in German): http://www.goeg.at/de/BerichtDetail/Interaktionen-zwischen-Antidementiva-und-anderen-Medikamenten.html
- Rapid Assessment: Effectiveness of screening for COPD using spirometry (finished 2010, available only in German): http://www.goeg.at/de/BerichtDetail/Effektivitaet-eines-COPD-Screenings-mittels-Spirometrie.html
- Rapid Assessment: Professional dental hygiene (finished 2009, available only in German): http://www.goeg.at/de/BerichtDetail/Dentalhygiene

[16] State Health Care Accreditation Agency under the Ministry of Health of the Republic of Lithuania (hereafter – Accreditation Agency) does not undertake rapid reviews at the moment. Currently Accreditation agency has prepared an application for the project to get the financial support from European Funds. The main purpose of the project is to create the HTA system in Lithuania. Furthermore it is planned: to prepare the strategy for HTA in Lithuania and produce HTA and rapid reports as well. Besides Accreditation agency has already submitted the required documents to participate in the EUnetHTA Joint Action 2 project. One of the work-packages will produce rapid reports.So we have plans to produce rapid reports in the near future. For that reasons we are very interested in the results of your query and the final paper of rapid reviews.

| ORGANIZATION | Does your Agency currently undertake Rapid Review?<br><br>(YES / N0) | If NO, does your agency have plans to produce "rapid reviews" in the future?<br><br>(YES / NO) | If YES, What type of "rapid review" products does your agency produce<br><br>(Please name/list if possible) | What timeframe(s) do you offer for your "rapid review" products? | Are they publicly available on your website and if so, can you please provide the URL/website address? |
|---|---|---|---|---|---|
| Mäkelä Marjukka | | | medical methods) | | http://finohta.stakes.fi/FI/halo/katsaukset/index.htm in Finnish<br><br>http://lib.stakes.fi/ohtanen/haku.aspx English summary when you search with HALO<br><br>*note URLs will change next year as website is being updated |

## SUPPLEMENT 7-2. DATA EXTRACTED FOR RAPID REVIEW SAMPLES

The following variables were extracted for each rapid review sample (n=66) included in Chapter 3. Data extraction sheets were kept separate for published and unpublished samples.

| Category | Variable Extracted |
|---|---|
| Study Characteristics | First Author |
| | Year |
| | Title |
| | Journal Name |
| | Organization or Agency Associated |
| | Country |
| | URL |
| | Supplemental Data/Appendices? |
| Rapid Review terminology and definition, approach etc. | Self identifies as an RR? |
| | Where is RR mentioned in the report (e.g., abstract, intro, limitations) |
| | Was a definition of RR cited? (provide citation) |
| | RR definition used |
| | Rationale provided for an expedited timeline? |
| | Which of David Moher's RR approach categories does the RR best fit to (i to vii)? |
| Decision-making context | Consultation with commissioner/requestor? |
| | Specific decision-making context provided? |
| | Type of decision? |
| | Purpose of rapid review (context) |
| | Were results presented in context of the decision-at-hand? |
| Time to completion | Lit search date |
| | Submitted for publication date |
| | Accepted date |
| | Reported time to completion |
| | Estimated time to completion |
| | External reference to RR timeframe for completion (general or range) |
| Research Questions (check all that apply) | Efficacy, Effectiveness, Safety, Diagnostic or screening test accuracy, health economics, policy, public health, service delivery, health systems/quality improvement, clinical practice guideline, other (note) |
| Protocol | Mentioned? |
| | Published or registered? |
| | Elements included in protocol (Objectives, PICO, methods, research questions) |
| Eligibility Criteria | Are individual items clearly stated for P,I,C and O |
| | Intervention(s) being studied |
| | Inclusion and Exclusion criteria clearly stated? |
| Literature Search | Were structured databases searched? |
| | How many? |
| | Check all that apply, or state other (e.g., MEDLINE, PubMed, EMBASE, Cochrane Library etc.) |
| | Grey lit searched? |

| Category | Variable Extracted |
|---|---|
| | Reference list checked? |
| | Handsearching? |
| | Trial registries? |
| | Citation Mapping? |
| | Other? |
| | Search Strategy Supplied |
| | Flow diagram? |
| Search limitations applied | Date limitations? |
| | State the date limit applied |
| | Language limitations (*in lit search OR in screening) |
| | Geographical limitations |
| Included Study Types | Secondary |
| | Primary RCT |
| | Primary NRS |
| | Other |
| # Reviewers | Screening? |
| | Was checked if single screen? |
| | Data extraction |
| | Was checked if single extractor? |
| | Quality Assessment? |
| | Was checked if single extractor? |
| Data Extraction | Level of detail (Summary, Detailed, Comprehensive) |
| | Study characteristics provided? |
| | Patient characteristics provided? |
| | Other? |
| Quality Assessment | Done? |
| | Which tool(s) |
| | GRADE? |
| Peer Review? | Internal |
| | External |
| | Who reviewed? |
| Methods/Tailoring | Notable tailoring listed |
| Outcomes | # of outcomes studied |
| Evidence Synthesis | Was there a synthesis of evidence? |
| | Narrative/Descriptive |
| | Meta-analysis |
| | Indirect Treatment comparison or network meta-analysis |
| | Other? |
| Economic Evaluation | Done? |
| | Previous model |
| | De novo Model |
| Disclaimer | Yes/No |
| | How and where mentioned? |
| | Was ‘RISK’ mentioned at all in the context of the rapid review methods |
| | Other |

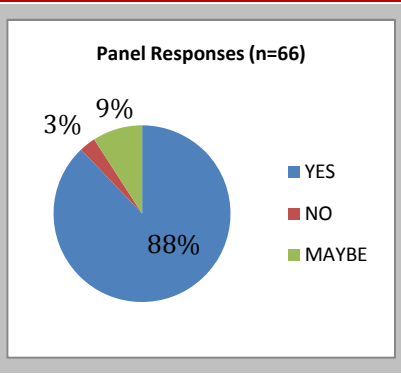
| Category | Variable Extracted |
|---|---|
| Miscellaneous | Included study list? Or references? |
| | Excluded study list? Or references? (with reasons provided?) |
| | Were data tables provided? |
| | Were there supplemental appendices? In document or online |
| | What was in the appendices? |
| | Was a key message statement provided? |
| Reporting and Conduct Guidelines | PRISMA items adequately met*<br>Detailed scores for each domain were also recorded (Y\| partially Y\| N \| not applicable) |
| | AMSTAR items adequately met*<br>*Detailed scores for each domain were also recorded(Y \| partially Y \| N \| not applicable \| can't assess) |
| Notes | Free text comments if required |

# APPENDIX C. ADDITIONAL CONTENT – CHAPTER 4

## SUPPLEMENT 7-3. ROUND 1 ONLINE QUESTIONNAIRE AND SUMMARY OF RESULTS

(administered via FluidSurveys)

| QUESTION 1. In your experience, on average, how long does it take to do a systematic review? | |
|---|---|
| **Panel Response (in weeks)**<br>**66 responses** | **Mean:** 39.5±24.6<br>**Median(IQR):** 34.8 (34.8 to 52.2)<br>**Minimum:** 0.3<br>**Maximum:** 104.4<br>**I don't know:** 5 responses |
| **Summary of Comments** | • Length of SR is Impacted by many factors:<br>• How you define the "start" and "finish" of the review;<br>• Review topic, scope and complexity;<br>• Size of the literature;<br>• Resources available and whether they are funded or volunteer/academic; |

| QUESTION 2. If you were do a 'rapid review', would it be completed in a shorter time frame than a systematic review? | |
|---|---|
| **Panel Response**<br>**66 responses** |  |
| **Summary of Comments** | • Yes! The whole point is to do them more quickly<br>• One of CADTH's rapid review products is a systematic review.<br>• A rapid review that takes 4 to 8 weeks could be as long as one of our shorter systematic reviews.<br>• Yes, but depends on: Scoping, resourcing, concessions taken in methods and many other things.<br>• A rapid review is a research methodology using a shortened time frame; a SR takes as long as it takes.<br>• This, in my opinion, is the essence of a rapid review. The methods may evolve (more/less) depending on the complexity of the question, but the point is to provide a relatively rigorous product |

| | |
|---|---|
| | as efficiently as possible to an end user in need of information to inform an important decision. |

**QUESTION 3. In your experience, on average, how long does it take to do a rapid review?**

| | |
|---|---|
| **Panel Response (in weeks)**<br>**66 responses** | **Mean:** 10.4±7.4<br>**Median(IQR):** 8.7 (8.6 to 13.0)<br>**Minimum:** 0.3<br>**Maximum:** 32.6<br>**I don't know:** 4 responses |
| **Summary of Comments** | • There are varying levels of rapid reviews with varying time lines<br>• It depends on similar factors to a SR: topic, scope, PICO, number of shortcuts taken, level of detail, whether you search primary studies or other SR/MAs<br>• Timeframe varies based on when the decision-maker needs the information<br>• Never more than:<br>  • 1 month<br>  • 6 months<br>• Rapid review is too broad of a term – some can be done in a day, and others in a month<br>• I do not think there is a time that a rapid review 'ought' to take, just that it should be less than a full systematic review, otherwise a modification of methods is unjustified. |

**QUESTION 4. What types of research questions are best answered using a 'rapid review' methodology?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Efficacy/Effectiveness | | 78% | 50 |
| Safety/Harms | | 44% | 28 |
| Cost-effectiveness/Utility | | 38% | 24 |
| Guidelines | | 42% | 27 |
| Public Health or Policy | | 39% | 25 |
| None | | 6% | 4 |
| Other | | 14% | 9 |
| | Total Responses | | 64 |

**Summary of Comments**

- Any type of question works, but it must be focused, especially if the only defining characteristic of rapid reviews is speed.
- The best research question is the one that meets the decision-makers needs.
- Rapid reviews are good for overviews of guidelines, but not for development

| | |
|---|---|
| | of guidelines.<br>• Safety/Harms may be too burdensome to review in a rapid review |

**QUESTION 5. Should a research protocol be written prior to conducting a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 72% | 46 |
| No | | 5% | 3 |
| Maybe | | 22% | 14 |
| I don't know | | 2% | 1 |
| | Total Responses | | 64 |

**Summary of Comments**

- A protocol necessary for all scientific work.
- A full protocol is too long for a rapid review, it won't be quick enough.
- A protocol is required to keep both the research and the decision-maker focused and agreeable.
- A protocol should define the methods and be transparent about what will be done (and not done).
- It would be interesting to explore the possibility of developing a standard protocol for rapid reviews, as one of the strategies for accelerating the process.
- The minimum that should be done are objectives, PICOS and a literature search outline and time frame.
- My system doesn't need research protocols because I've action-researched myself four algorithms to structure the process. The four are for interventional procedures, medicines, cell-based therapies and tests.

**QUESTION 6. Should electronic databases (e.g., PubMed, MEDLINE, Cochrane Library, etc.) be searched when doing a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 98% | 64 |
| No | | 0% | 0 |
| Maybe | | 2% | 1 |
| I don't know | | 0% | 0 |
| | Total Responses | | 65 |

**Summary of Comments**

- They are a crucial resource, as are registers like clincialtrials.gov etc.

| | |
|---|---|
| | • Same searches as a regular systematic review.<br>• At least the minimum recommended by the Cochrane Handbook.<br>• A smaller number of databases may be searched for a rapid review (vs. a full SR).<br>• Even if you don't restrict the databases you search, you may restrict the dates of the search, increase the specificity of the search or do more snowballing.<br>• Which databases (and how many) depends on the nature of the rapid review and the topic under study.<br>• I'm not sure where else you would get evidence for the review. |

**QUESTION 6a. If YES, how many databases should be searched at minimum?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| 1 | | 20% | 13 |
| 2 | | 33% | 21 |
| 3 | | 34% | 22 |
| 4 | | 6% | 4 |
| 5 | | 3% | 2 |
| 6 | | 2% | 1 |
| 7 | | 0% | 0 |
| 8 | | 0% | 0 |
| 9 | | 0% | 0 |
| 10 | | 2% | 1 |
| | Total Responses | | 64 |

**Summary of Comments**

- Hard to set a minimum number of databases.
- In order to get high quality RCTs (randomized controlled trials) and SRs (systematic reviews), you need to use several defined databases.
- Number and type of databases are important, but it is also important to consider how else you will limit further once you have results (will you only use readily retrievable, no interlibrary loans)
- This is a poorly worded question – there is no magic number and it depends on a number of factors.

**QUESTION 7. Should grey literature (unpublished) literature be searched when doing a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 37% | 24 |
| No | | 15% | 10 |

| | | | |
|---|---|---|---|
| Maybe | | 46% | 30 |
| I don't know | | 2% | 1 |
| | Total Responses | | 65 |

**Summary of Comments**

- This is dependent on both topic and database return/yield.
- Grey literature may be very important for newer technologies.
- Very important if you don't find published literature.
- This is the only place to find current policy information.
- How do you define grey literature? All grey literature is not unpublished.
- Conference abstracts should not be included in rapid reviews.
- This is too time consuming to do for a rapid review.
- This may be an important way to distinguish rapid reviews from full SRs.
- Grey lit is becoming easier to search, but without it there is substantial potential for bias.

**QUESTION 8. How many reviewers should participate in literature screening for a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| 1 | | 44% | 28 |
| 2 | | 52% | 33 |
| 3 | | 2% | 1 |
| 4+ | | 3% | 2 |
| | Total Responses | | 64 |

**Summary of Comments**

- It depends on the topic, the decision being made, and whether you still want to claim your review is 'systematic'
- Question is unclear – are you addressing how many people should look at a given bibliographic record or how many people in total should be involved in the screening process?
- At least 2 people should be involved in the screening process because difficult decisions can arise regarding eligibility, and it is better to have two people review and decide. I would be conservative and exclude only if both agree.
- One reviewer OK for rapid reviews, but should test inter-rater reliability on a portion of citations and/or check excluded studies for agreement.
- If time permits, two reviewers are best.
- The number of reviewers depends on the level of certainty needed in the decision.
- Regardless of what you do, be transparent when reporting.

**QUESTION 9. How many reviewers should participate in data abstraction for a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| 1 | | 53% | 34 |
| 2 | | 44% | 28 |
| 3 | | 0% | 0 |
| 4+ | | 3% | 2 |
| | Total Responses | | 64 |

**Summary of Comments**

- It depends. (on the quality standard needed | timelines | review topic | resources available)
- Data extraction must be efficient, so it is OK to have one extract and one check.
- A random sample of data could be checked by a second reviewer following single extraction.
- Two is better than one, but time and resources factor in to this.

**QUESTION 10. Should a risk of bias analysis be conducted when doing a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 59% | 38 |
| No | | 6% | 4 |
| Maybe | | 31% | 20 |
| I don't know | | 3% | 2 |
| | Total Responses | | 64 |

**Summary of Comments**

- Yes, always (Note: multiple answers for this question were decidedly more 'firm' than in previous questions).
- Always should be done, but work needed. A full Risk of Bias (e.g., Cochrane tool) is too long when considering rapid review timelines. There is nothing quick for non-randomized studies.
- Yes - Could be a full or cursory examination, but if the latter, then it should be stated as a limitation and how much weight placed on cursory examinations of bias should be considered during interpretation of findings. Serves as a good to signal to the reader.
- If appropriate for the question.
- If the sources being included have already been assessed, this step may be expedited.

**QUESTION 11. Should external peer review be conducted when doing a 'rapid review'?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 34% | 22 |
| No | | 12% | 8 |
| Maybe | | 50% | 32 |
| I don't know | | 3% | 2 |
| | Total Responses | | 64 |

**Summary of Comments**

- Dependent on the content and decision-making need (sensitivity of decision, timelines, money involved, disinvestment etc.).
- An efficient system is needed to maintain the 'rapidity' of the review: If this can be achieved then yes.
- Question unclear – for a journal? For publication? I was under the impression that rapid reviews are not published in journals and are housed in institution websites which make peer review a much more complex issue in terms of implementation.
- Can limit number of peer-reviewers and response to comments in a rapid review.
- Can limit to internal peer-review.
- May need to condense turnaround times (this may be hard for busy peer-reviewers).
- This could happen after the review has been submitted for the purpose for which it was commissioned.
- There is little time for this unless the processes of a systematic review are altered.

**QUESTION 12. Conducting 'rapid reviews' | How important is each item to the conduct of a rapid review:**

**Panel Response**

| **Panel Response:** | 1 | 2 | 3 | 4 | 5 | n/a | Total Responses |
|---|---|---|---|---|---|---|---|
| Protocol written and/or registered a priori | 3 (5%) | 6 (9%) | 7 (11%) | 18 (28%) | 30 (47%) | 0 (0%) | 64 |
| Strict study protocol | 3 (5%) | 16 (25%) | 16 (25%) | 17 (27%) | 12 (19%) | 0 (0%) | 64 |
| Narrow review question(s) | 2 (3%) | 1 (2%) | 7 (11%) | 18 (28%) | 36 (56%) | 0 (0%) | 64 |
| Explicit objectives | 2 (3%) | 0 (0%) | 5 (8%) | 8 (12%) | **49 (77%)** | 0 (0%) | 64 |
| Clear PICO(s) statement | 1 (2%) | 2 (3%) | 5 (8%) | 7 (11%) | **49 (77%)** | 0 (0%) | 64 |
| Eligibility criteria specified a priori | 1 (2%) | 1 (2%) | 8 (12%) | 16 (25%) | 38 (59%) | 0 (0%) | 64 |
| Comprehensive literature search | 2 (3%) | 10 (16%) | 22 (34%) | 22 (34%) | 7 (11%) | 1 (2%) | 64 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Limited literature search | 5 (8%) | 5 (8%) | 14 (22%) | 20 (31%) | 17 (27%) | 3 (5%) | 64 |
| Stringent eligibility criteria for study selection | 2 (3%) | 2 (3%) | 12 (19%) | 17 (27%) | 31 (48%) | 0 (0%) | 64 |
| Data abstraction piloted | 7 (11%) | 11 (17%) | 19 (30%) | 17 (27%) | 10 (16%) | 0 (0%) | 64 |
| Assess risk of bias | 5 (8%) | 2 (3%) | 14 (22%) | 17 (27%) | 25 (39%) | 1 (2%) | 64 |
| Narrative or descriptive data synthesis | 2 (3%) | 2 (3%) | 10 (16%) | 24 (38%) | 25 (39%) | 1 (2%) | 64 |
| Meta-analysis (if possible) | 5 (8%) | 7 (11%) | 19 (30%) | 25 (39%) | 8 (12%) | 0 (0%) | 64 |
| Additional analyses (if required)(e.g., sensitivity/subgroup/meta-regression/consistency) | 9 (14%) | 10 (16%) | 27 (42%) | 11 (17%) | 7 (11%) | 0 (0%) | 64 |
| Assess findings using GRADE approach | 10 (16%) | 13 (20%) | 23 (36%) | 14 (22%) | 4 (6%) | 0 (0%) | 64 |

**Summary of Comments**

- Terminology is unclear – important to differentiate between 'essential' and 'necessary'
- Literature searching is not about being comprehensive or limited – it's about the yield, which speaks to timelines, not methods.
- GRADE is very time consuming, but it is important to present the strength of evidence somehow.
- Engagement with the users of the review is essential for deciding how to conduct your review.
- **Reviewers note: overwhelmingly, the comments focused on the following overall statements versus the inclusion or exclusion of individual components:**
    - This is very topic, scope and objective-dependent
    - What makes sense for one review may not make sense for another.
    - There is no "one-size-fits-all"
    - Which shortcuts, and where they are taken, should be tailored for each rapid review. Some matter more than others.
    - It is impossible and/or unhelpful to make sweeping statements.
    - Although I support a full protocol, there needs to be a built-in component of flexibility and iterative design
    - Compromises must be done intentionally and thoughtfully.
    - No matter what you do, what is tailored, you must be transparent and inform the reader/decision-maker.
    - The decision-maker should sign-off on tailored methods.
    - Individual types of bias – selection, language, publication, outcome reporting – should be understood, reported transparently, and it is important to understand how results may be impacted.
    - A rapid review should not be necessarily equivalent to "low

quality" evidence syntheses. You may want to consider what types of bias you are willing to accept in the rapid review. What is important is to be explicit and transparent in reporting and clearly state where the risk of bias at the rapid review level may affect results and conclusions.

- Many 'neutral' answers – important to recognize that there are contingencies which could render the item more or less important.
- Compromises will vary from project to project.

**QUESTION QUESTION 13. The importance of reporting transparency | How important is it to report the component in a rapid review:**

**Panel Response**

| **Panel Response:** | 1 | 2 | 3 | 4 | 5 | n/a | Total Responses |
|---|---|---|---|---|---|---|---|
| Title identifies the report/summary as a rapid review or some sort of accelerated knowledge synthesis | 2 (3%) | 1 (2%) | 1 (2%) | 12 (19%) | **45 (73%)** | 1 (2%) | 62 |
| Structured summary or abstract | 3 (5%) | 5 (8%) | 12 (19%) | 17 (27%) | 24 (39%) | 1 (2%) | 62 |
| Protocol written and/or registered | 3 (5%) | 5 (8%) | 12 (19%) | 22 (35%) | 19 (31%) | 1 (2%) | 62 |
| Post-hoc changes made to the protocol | 4 (6%) | 4 (6%) | 8 (13%) | 27 (44%) | 17 (27%) | 2 (3%) | 62 |
| Rationale for the review (and possibly for why expediting was necessary) in context of what is already known or a relevant policy question | 0 (0%) | 3 (5%) | 6 (10%) | 20 (32%) | 32 (52%) | 1 (2%) | 62 |
| Objectives | 1 (2%) | 2 (3%) | 2 (3%) | 12 (19%) | **45 (73%)** | 0 (0%) | 62 |
| Explicit research questions | 1 (2%) | 1 (2%) | 0 (0%) | 10 (16%) | **50 (81%)** | 0 (0%) | 62 |
| PICO (Population, Intervention, Comparator, Outcomes) | 2 (3%) | 0 (0%) | 6 (10%) | 11 (18%) | 43 (69%) | 0 (0%) | 62 |
| Eligibility criteria for article selection | 1 (2%) | 1 (2%) | 6 (10%) | 10 (16%) | **44 (71%)** | 0 (0%) | 62 |
| Information sources searched | 1 (2%) | 2 (3%) | 2 (3%) | 10 (16%) | **47 (76%)** | 0 (0%) | 62 |
| Date last searched | 1 (2%) | 3 (5%) | 3 (5%) | 11 (18%) | 43 (69%) | 1 (2%) | 62 |
| Years of search coverage | 1 (2%) | 2 (3%) | 4 (6%) | 9 (15%) | **45 (73%)** | 1 (2%) | 62 |
| Search terms/strategy for one or more databases | 4 (6%) | 3 (5%) | 10 (16%) | 11 (18%) | 33 (53%) | 1 (2%) | 62 |
| Number of reviewers screening literature | 1 (2%) | 8 (13%) | 9 (15%) | 15 (24%) | 29 (47%) | 0 (0%) | 62 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Number of reviewers abstracting data | 1 (2%) | 8 (13%) | 9 (15%) | 15 (24%) | 29 (47%) | 0 (0%) | 62 |
| | Screening and abstraction methods | 2 (3%) | 8 (13%) | 9 (15%) | 14 (23%) | 28 (45%) | 1 (2%) | 62 |
| | Assessment of publication bias | 6 (10%) | 7 (11%) | 20 (32%) | 14 (23%) | 15 (24%) | 0 (0%) | 62 |
| | Reasons for/list of excluded studies | 9 (15%) | 10 (16%) | 21 (34%) | 17 (27%) | 5 (8%) | 0 (0%) | 62 |
| | Methods for synthesis of results | 1 (2%) | 2 (3%) | 10 (16%) | 21 (34%) | 28 (45%) | 0 (0%) | 62 |
| | Summary measure(s) (e.g., RR, mean difference) | 3 (5%) | 0 (0%) | 17 (27%) | 13 (21%) | 29 (47%) | 0 (0%) | 62 |
| | Methods for additional analyses - sensitivity/subgroup/meta-regression/consistency | 5 (8%) | 6 (10%) | 12 (19%) | 18 (29%) | 21 (34%) | 0 (0%) | 62 |
| | Review flow reported in results (e.g., QUOROM, PRISMA) | 3 (5%) | 9 (15%) | 10 (16%) | 10 (16%) | 30 (48%) | 0 (0%) | 62 |
| | Narrative synthesis of results | 1 (2%) | 3 (5%) | 6 (10%) | 15 (24%) | 37 (60%) | 0 (0%) | 62 |
| | Synthesis of results/meta-analysis (if applicable) | 1 (2%) | 0 (0%) | 10 (16%) | 19 (31%) | 31 (50%) | 1 (2%) | 62 |
| | Results of any additional analyses conducted - sensitivity/subgroup/meta-regression/consistency | 3 (5%) | 6 (10%) | 10 (16%) | 19 (31%) | 23 (37%) | 1 (2%) | 62 |
| | Peer review conducted (internal or external) | 2 (3%) | 9 (15%) | 8 (13%) | 19 (31%) | 22 (35%) | 2 (3%) | 62 |
| | Discussion or interpretation of results | 0 (0%) | 2 (3%) | 2 (3%) | 17 (27%) | 41 (66%) | 0 (0%) | 62 |
| | Study limitations presented | 1 (2%) | 1 (2%) | 3 (5%) | 15 (24%) | 42 (68%) | 0 (0%) | 62 |
| | Employ GRADE approach for findings | 5 (8%) | 11 (18%) | 24 (39%) | 14 (23%) | 6 (10%) | 2 (3%) | 62 |
| | Conclusions | 1 (2%) | 1 (2%) | 1 (2%) | 14 (23%) | **44 (71%)** | 1 (2%) | 62 |
| | Disclosure of funding sources | 2 (3%) | 2 (3%) | 5 (8%) | 11 (18%) | 39 (63%) | 3 (5%) | 62 |
| | Disclaimer on 'rapid review' methods | 2 (3%) | 3 (5%) | 2 (3%) | 16 (26%) | 37 (60%) | 2 (3%) | 62 |
| | Review authors identified | 1 (2%) | 3 (5%) | 6 (10%) | 13 (21%) | 37 (60%) | 2 (3%) | 62 |
| | Author contact provided | 1 (2%) | 2 (3%) | 6 (10%) | 14 (23%) | 38 (61%) | 1 (2%) | 62 |
| | Country of origin provided | 3 (5%) | 2 (3%) | 13 (21%) | 11 (18%) | 30 (48%) | 3 (5%) | 62 |

**Summary of Comments**

**ITEM-SPECIFIC COMMENTS**

- Reasons for exclusion should be reported. May not need to include list of excluded studies and reasons for excluding each study.
- No need for the individual review authors as long as the decision-

maker or reader has someone to contact.

- By "disclaimer" I presume you mean a statement of the potential limitations of the methods used and I take this to be different from "study limitations" which I assumed to refer to the individual studies. The GRADE approach attempts to do several things, but "employing" the approach is not a matter of transparency. Instead should have said something like "produce GRADE SOE tables" or something like that to focus on reporting.
- Not sure about review authors and author contact questions - some agencies don't like to have personal authorship, but it would be important to have contact information for further information shown.
- Did you mean study-level limitations or review-level limitations?
- Assessment of publication bias is tricky. The best check is a good search, so consideration of its limitations is important. Funnel plots are next to worthless, so I'm not sure what is meant by this question.

**GENERAL COMMENTS**

- This question is not overly helpful – all methods should be reported transparently and the question
- I found this last set of questions hard to answer because I felt inherent in the question was that they should be done....not all the above methods are/should be necessarily employed in a rapid review.
- In my view, the compromises made for a RR are to the methodology. Why would one be less transparent about it??
- Ideally an RR process and report should follow the same principles as a traditional SR. Explicit, transparent and reproducible reporting is essential. Lack of transparency +/- poor reporting invalidates the usefulness of an RR approach (RR utility depends on the circumstances. Sometimes a full SR is more appropriate. One size does not fit all)
- I find this section a bit hard to answer - in my view, the compromises made for a RR are to the methodology. Why would one be less transparent about it??
- Same comments as previous page (question)
- It may have been useful to identify what reviewers are thinking of when they are thinking of "methods" that can be adjusted. But perhaps this is something you are going to try and tease out, though more assumptions will have to be made than if you had asked respondents about this aspect of the question.
- Readers aren't typically interested in detailed methodology, but we can tell them if asked.

**QUESTION 14. In your opinion, is it reasonable to employ 'rapid reviews' to inform the policy and decision-making process?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 82% | 51 |

| | | | |
|---|---|---|---|
| No | | 0% | 0 |
| Maybe | | 18% | 11 |
| I don't know | | 0% | 0 |
| | Total Responses | | 62 |

**Summary of Comments**

- It isn't feasible or possible to undertake a full SR to underpin every single policy or decision.
- This assumes rapid reviews are a distinct approach – all reviews make compromises between what is do-able in the resource /time available and what is possible.
    - There should be a caveat that RRs have inherent limitations or an opportunity to state that RRs are not complete and that a more fulsome review is required
- The extended wait time for full systematic reviews is often not practical.
- Decision-makers need timely information in order to inform policy.
    - RRs are reasonable and necessary and what the policy-makers want and need
    - Some issues are highly time-sensitive, however, considerable thought needs to go into whether an RR is appropriate in every instance, and then in planning the approach
        - Policy-makers should be made aware of the risks and have balanced those risks against the need to have a quick response
    - RRs are really is better than nothing. Need an alternative to adhoc lit searches or "expert opinion"
    - Realistic in a modern world of economic restraints
    - They will go forward with the decision regardless
    - We should be able to provide the products that decision-makers need.
- Spending months on an exhaustive review of one subject leaves three or four other subjects un-reviewed
- RR can be used to see if further research is necessary
- RRs are only useful if the end users fully appreciate the limitations of RRs when employing them in the decision-making process.
- Unsure if RRs are useful in clinical decision-making and clinical practice guideline development

**QUESTION 15. In your opinion, are 'rapid reviews' a legitimate form of knowledge synthesis?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 89% | 55 |
| No | | 2% | 1 |
| Maybe | | 8% | 5 |

| | | | |
|---|---|---|---|
| | I don't know | 2% | 1 |
| | Total Responses | | 62 |

**Summary of Comments**

- Speed and quality must be combined with a robust methodology and transparency.
- There will always be a need for full SR, but there is a large need for RRs and this is most certainly a legitimate form of knowledge synthesis.
    - RRs are important in the right circumstances, not to replace a regular SR when you don't want to bother with a "fussy and overcomplicated" SR.
    - Not enough is known about the methodological difference between a full SR and a RR and any potential differences in conclusions. A move towards only conducting RRs would not serve the research community well.
- I conceive RRs more as tools for HTA and policy decision making.
- It can be a valid form of knowledge synthesis if its methods are explicitly reported and the potential role of bias incurred in the methodological shortcuts are assessed and quantified (a topic for meta-epidemiological research)
- Variations in RRs exist, so it depends on how each review was conducted..
- Important to not only state what you are telling the decision-maker, but also what the RR it is not telling them.
- How you identify the evidence is important, but whether a SR and RR is used, you will likely get the key evidence that needs to inform policy –It is the interpretation of the evidence and knowing how it will be applied to practice, within current standards of practice that are the difficult parts and where additional time and efforts are needed.
- Somewhere in the middle between 'narrative reviews' and 'systematic reviews'.

**QUESTION 16. In your opinion, is it important to have an established methodology for conducting 'rapid reviews' (e.g., similar to the Cochrane Handbook)?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Yes | | 61% | 38 |
| No | | 10% | 6 |
| Maybe | | 29% | 18 |
| I don't know | | 0% | 0 |
| | Total Responses | | 62 |

**Summary of Comments**

- Yes, however, I think they are far more challenging and nuanced to define in a fixed protocol. Whereas systematic reviews are defined by their systematic methods and rigour, rapid reviews are defined by their efficient timeline. Timeline is secondary to SRs (although still important), whereas methods are secondary to RRs (although still important).
- I have policy makers asking about how to do this all the time.
- Yes, we have an internal working guidance our group follows which incorporates Cochrane and other non-Cochrane approaches (e.g., NICE, AHRQ)

- It would be great to have an established valid approach for consistency between reviewers.
- It would enable briefer reporting, and allow a fuller exploration of the implications of the methodology if multiple people were using a similar approach.
- RRs are reviews done quickly. Many of the same issues apply so I'm not sure they should be seen as a different method.
    - Already have an established method for systematic reviews. People trained in SRs know the reasons for the different steps, so depending on the context and the question, they will have to judge which steps are reasonable to modify.The aim should be to provide as rigorous an assessment as possible, while still meeting the time/resource demand imposed. I don't see that much more guidance than this is required.
- The established methodology would need to allow for a variety of different approaches to conducting the rapid review, to reflect the many reasons why a rapid review would be undertaken.
- Yes, but requires flexibility, and acknowledges that there will be variations in method based on the topic and the purpose.
- There will not be a "One size fits all" single methodology which is appropriate in every situation. The key is transparency--to say what you did and why you did it. Should be focused on what the minimum standards are, or high-level principles.
- Some agreed upon standards are important.  But if they're needlessly onerous, they will not be useful.

**QUESTION 17. What should the full length of a 'rapid review' report (or summary of results) be on completion?**

**Panel Response**

| Response | Chart | Percentage | Count |
|---|---|---|---|
| Under 5 pages | | 8% | 5 |
| 5-10 pages | | 18% | 11 |
| 10-25 pages | | 35% | 22 |
| 25-50 pages | | 10% | 6 |
| 50-100 pages | | 0% | 0 |
| More than 100 pages | | 2% | 1 |
| I don't know | | 27% | 17 |
| | Total Responses | | 62 |

**Summary of Comments**

- Too hard to dictate the length
- Need to generate different outputs for different audiences.
- Should follow CHSRF 1:3:25 format
- You need to base length on what the decision-maker needs – it

| | |
|---|---|
| [redacted] | could be a single paragraph “elevator note” or a 100 pages of scientific text plus appendices.<br>• If it is in a journal publication, the usual limitations are appropriate. |

## SUPPLEMENT 7-4. ROUND 2 QUESTIONNAIRE

**Title:** eDELPHI ON RAPID REVIEWS: ROUND 2 SURVEY

This questionnaire is part of a Masters research project, being conducted as a Delphi study in three rounds (with feedback to participants after each round). **You have already completed the first round; this is the second.** The project aims to identify the defining characteristics of 'rapid reviews'.

The Round 2 Survey is based on your responses, rankings and free-text comments from Round 1. We have specifically sought to propose language regarding defining characteristics of rapid reviews that may lead to a broad definition of rapid reviews. We are providing you with the opportunity to agree or disagree with the each of the eleven (11) statements describing rapid reviews and you have the opportunity to propose edits by way of comment for each.

**Please place an 'X'** in the table to note whether you agree or disagree with the proposed wording, and use the comments box to add any additional input you may have.

For example:

| **PROPOSED LANGUAGE BASED ON QUESTION A:** | |
|---|---|
| Based on the responses and a content analysis of the comments received, there is some consensus …<br><br>**Do you agree with the following statement?:**<br><br>**Rapid reviews are …** | |
| **Agree** | X |
| **Disagree** | |
| **Comments** | I think you should change the wording… |

**Please return your completed Round 2 survey** as an MS Word document (or compatible file format) to Shannon Kelly by way of an email message and attachment to <email address removed for privacy> by **March 14, 2014**. Your responses will remain anonymous and you may leave the study at any time. THANK YOU!

**ROUND 2 SURVEY START**

| **PROPOSED LANGUAGE ON THE TIMING OF A RAPID REVIEW BASED ON QUESTIONS 1-3:** |
|---|
| Based on the responses and a content analysis of the comments received, there is some consensus on the length of time required to conduct a rapid review. |

| **Do you agree with the following statement?:**<br><br>**Rapid reviews are conducted in considerably less time than a standard systematic review (In the median range of 9 weeks compared to a median of 35 weeks).** | |
|---|---|
| **Agree** | |
| **Disagree** | |
| **Comments** | |

| **PROPOSED LANGUAGE BASED ON QUESTION 4: The types of research questions best answered by a rapid review** | |
|---|---|
| Based on the responses and a content analysis of the comments received, there was consensus that the best type of research questions answered by a rapid review are those related to efficacy and effectiveness. There was no consensus on the other types of research questions that may be addressed by a rapid review, however, those who commented agreed that the best type of research questions are those that meet the need of the decision-maker.<br><br>**Do you agree with the following statement?:**<br><br>**Rapid reviews are useful in answering questions on the efficacy or effectiveness of health technologies or other interventions. They may be appropriate for other types of research questions, which are best considered in the context of the particular needs of the decision-maker.** | |
| **Agree** | |
| **Disagree** | |
| **Comments** | |

| **PROPOSED LANGUAGE BASED ON QUESTION 5: Rapid review research protocols** | |
|---|---|
| Based on the responses received, there was almost consensus that a research protocol should be written prior to the conduct of a rapid review in order to keep in line with systematic review best practices. The content analysis of the comments received showed that most of those who answered 'maybe' also support a protocol being written, but there is little consensus on what the protocol should contain or what the format should be.<br><br>**Do you agree with the following statement?:**<br><br>**A protocol should be written prior to conducting a rapid review. Further research is required to define what content a rapid review protocol should contain and the most appropriate format.** | |
| **Agree** | |
| **Disagree** | |
| **Comments** | |

| **PROPOSED LANGUAGE BASED ON QUESTIONS 6 AND 7: Rapid review literature searching** |
|---|
| Based on the responses received, there was consensus that electronic databases should be searched |

when conducting rapid reviews, and that more than databases should be searched at minimum. No consensus on whether grey literature should be searched. Content analysis of the comments showed opposing views on each question, and a general understanding that these topics may be review-specific.

**Do you agree with the following statement?:**

**Structured electronic databases should be searched when conducting a rapid review and searching a minimum of two databases is suggested. The choice of individual databases and the requirement to search grey literature are specific to the topic and decision-making requirements and decisions on each should be tailored to the needs of the individual rapid review.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTIONS 8 AND 9: Number of reviewers**

Based on the responses received, there was no consensus on the number of reviewers that should be used for literature screening or data abstraction. Content analysis of comments produced differing opinions on whether a single reviewer was sufficient or whether two reviewers were essential to keeping the rapid review conduct 'systematic'.

**Do you agree with the following statement?:**

**The number of reviewers who participate in literature screening and data abstraction varies. In order to maintain a systematic review process, two reviewers may participate in this process; however, to expedite or make the process more efficient, a single reviewer may carry out screening and data abstraction with tailored follow-up by a second reviewer for agreement and/or error checking.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTION 10: Assessment of risk of bias in rapid reviews**

Based on the responses and a content analysis of the comments received, there is no consensus on the inclusion of a risk of bias assessment in a rapid reviews.

**Do you agree with the following statement?:**

**The decision to conduct a risk of bias assessment on included studies should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTION 11: inclusion of peer review in a rapid review**

Based on the responses and a content analysis of the comments received, there is no consensus on the inclusion of external peer-review in a rapid review.

**Do you agree with the following statement?:**

**The decision to include external peer-review should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTIONS 12 AND 13: Essential conduct and reporting items**

Based on the individual responses and a content analysis of the comments received, there is some consensus that explicitly stated objectives and a clear PICO are essential to the conduct a rapid review. There is also some consensus that reporting of the following items is important: title self-identifies as a rapid review, objectives, research questions, eligibility criteria, information sources searched, dates of literature search, and conclusions. There was no consensus on the other items essential to the conduct of a rapid review.

Comments proved to be essential for these two questions. Content analysis of the extensive comments on these questions reveal that generally there is not a "one-size-fits-all" solution, and the individual items listed may be tailored in one review and not another dependent on the needs of the review and the decision being made, along with timelines required to deliver the rapid review. Reporting of items should generally not differ from that of a systematic review, although certain concessions may be made on the level of detail reported.

**Do you agree with the following statement?:**

**Rapid reviews are conducted in the same way that a systematic review is conducted. Taking into account timelines, decision-making needs, and the topic under study, certain methodological components of a rapid review may be tailored in order to expedite the process. Regardless of how the review is conducted, methods should be explicitly stated and reporting should be transparent to the reader and reproducible.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTIONS 14-15: utility of rapid reviews in the decision-making process and legitimacy as a knowledge synthesis format**

Based on the responses and a content analysis of the comments received, there is consensus that it is reasonable to employ rapid reviews to inform policy and decision-making processes and that rapid reviews are a legitimate form of knowledge synthesis. Comments also relayed that it is important to maintain an open and transparent dialogue between the requestor and the rapid review research team.

**Do you agree with the following statement?:**

**Rapid reviews are a legitimate form of knowledge synthesis. It is reasonable to employ rapid reviews to inform policy and decision-making processes when there is the need for a timely evidence review. The decision to use a rapid review should be considered in the context of the decision at hand and balanced against any potential limitations involved in tailoring methods or expediting the review process. It is important to maintain an open and transparent dialogue between the rapid review requestor and the review team.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTION 16: Established methodologies for rapid reviews**

Based on the responses, there is no consensus on whether an established methodology should be used for rapid reviews. A content analysis of the comments received shows opposing views in this subject area. Although there are many in favour of establishing some sort of RR methodological guidance, it is unclear how to structure the guidance so that it meets the needs of all stakeholders. Those not in favour stated that RRs are a variation of SR, possibly not a distinct method but rather a variation of an already existing method. RRs should follow already established SR standards, maintaining rigour and quality as much as timelines will allow.

**Do you agree with the following statement?:**

**It is unclear if a unique methodology for rapid reviews should be developed. Further research in this area is warranted.**

| | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**PROPOSED LANGUAGE BASED ON QUESTION 17: Length of a rapid review**

Based on the responses, there is no consensus on what the full length of a rapid review should be. Similar to questions 12 and 13, content analysis of the comments received shows that there is not a "one-size-fits-all" solution, and report length may be tailored based on the needs of the review and the decision being made, along with timelines required to deliver the rapid review. Reporting of items should generally not differ from that of a systematic review, although certain concessions may be made on the level of detail reported.

**Do you agree with the following statement?:**

**Reporting length of rapid reviews may vary based on the individual requirements of the**

| **decision-maker commissioning the review and the audience for which the review is intended.** | |
|---|---|
| Agree | |
| Disagree | |
| Comments | |

**Please confirm your email address below:**

_____

## SUPPLEMENT 7-5. SAMPLE ROUND 3 QUESTIONNAIRE

**Note this is a sample of one experts' survey. Each participant received a survey questionnaire with their own responses in context with the group response.*

This survey represents the third round in a modified Delphi survey on Rapid Reviews. You have already completed rounds 1 and 2. The round 3 Survey is based on your responses (N=44), level of agreement and free-text comments from Rounds 1 and 2. Although we had a great deal of consensus on the proposed language following round 2, we also received a large volume of free-text comments proposing changes to the wording or concepts. We have done our best to reflect your comments in round 3, keeping the original responses from the round 1 survey in context.

For each of the 11 questions in this survey, the draft wording circulated in round 2 has been re-stated for your reference, followed by two columns: Column one shows the group response to each statement (% who agreed) and column two shows your own individual response from round 2 (agree/disagree). In the rows below, the draft wording proposed in round 3 for your consideration, followed by two blank columns that are provided as an opportunity for you to reconsider your response. An additional row has been provided should you have further comment. An example is listed below:

| **SAMPLE QUESTION: Rapid review** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Rapid reviews are … | 85.7% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews may be…** | X | |
| **Further Comments?** | | |

**We would appreciate if you would reconsider your original response in the context of the group response to each statement and if you wish to change your response, please do so by placing an X in the appropriate AGREE or DISAGREE column.** Please note that you do not have to change your original response if you do not wish to. Comments from Round 2 have been provided for your reference in an accompanying attachment (RR eDelphi - Round 2 Comments for circulation.pdf).

**Please return your completed Round 3 survey** to Shannon Kelly by way of an email message and attachment to <email address removed for privacy> by **September 12, 2014**. Your responses will remain anonymous and you may leave the study at any time.

THANK YOU!

**ROUND 3 SURVEY START**

| **PROPOSED LANGUAGE ON BASED ON QUESTIONS 1-3: The timing of a rapid review** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Rapid reviews are conducted in considerably less time than a standard systematic review (In the median range of 9 weeks compared to a median of 35 weeks). | 85.7% | Disagree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews are defined by the time taken to complete an evidence synthesis related to a defined research question(s) using the most systematic or rigorous methods as possible/time allows. Based on the experience of the panel, rapid reviews are conducted in less time, on average, than a systematic review (median 9 weeks compared to a median of 35 weeks). There is a spectrum of approaches used to produce rapid reviews and, in turn, variable times to completion.** | | |
| **Further Comments?** | | |

| **PROPOSED LANGUAGE ON THE TIMING OF A RAPID REVIEW BASED ON QUESTION 4: The types of research questions best answered by a rapid review** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Rapid reviews are useful in answering questions on the efficacy or effectiveness of health technologies or other interventions. They may be appropriate for other types of research questions, which are best considered in the context of the particular needs of the decision-maker. | 90.5% | Disagree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews may be useful in answering specific questions on the efficacy or effectiveness of health technologies or other interventions. They may be appropriate for other types of research questions, which are best considered in the context of the particular needs of the decision-maker and the feasibility of answering those needs within a limited timeframe.** | | |
| **Further Comments?** | | |

| **PROPOSED LANGUAGE BASED ON QUESTION 5: Rapid review research protocols** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| A protocol should be written prior to conducting a rapid review. Further research is required to define what content a rapid review protocol should contain and the most appropriate format. | 90.5% | Agree |

| Edited Draft Wording Round 3 | Agree | Disagree |
|---|---|---|
| **A protocol should be written prior to conducting a rapid review. Irrespective of contents or design, the protocol should generally outline the approach, PICO, scope and aim to maximize transparency and reproducibility in the end product.** | | |
| **Further Comments?** | | |

| PROPOSED LANGUAGE BASED ON QUESTIONS 6 AND 7: Rapid review literature searching | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Structured electronic databases should be searched when conducting a rapid review and searching a minimum of two databases is suggested. The choice of individual databases and the requirement to search grey literature are specific to the topic and decision-making requirements and decisions on each should be tailored to the needs of the individual rapid review. | 76.2% | MAYBE |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Structured electronic databases should be searched when conducting a rapid review; the decision on the number and type of databases to be searched and whether to search grey literature should be based on the topic of the individual rapid review and the need for decision-making.** | | |
| **Further Comments?** | | |

| PROPOSED LANGUAGE BASED ON QUESTIONS 8 AND 9: Number of reviewers | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| The number of reviewers who participate in literature screening and data abstraction varies. In order to maintain a systematic review process, two reviewers may participate in this process; however, to expedite or make the process more efficient, a single reviewer may carry out screening and data abstraction with tailored follow-up by a second reviewer for agreement and/or error checking. | 76.2% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **The number of reviewers participating at any stage of a rapid review process may vary. It is important to balance rigour in conduct with and a pragmatic approach to the requirements of the rapid review. To streamline the effort, a single reviewer may carry out screening and data abstraction with a second reviewer checking for agreement, errors and/or inter-rater reliability, as appropriate.** | | |
| **Further** | | |

| | |
|---|---|
| **Comments?** | |

| **PROPOSED LANGUAGE BASED ON QUESTION 10: Assessment of risk of bias in rapid reviews** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| The decision to conduct a risk of bias assessment on included studies should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required. | 66.7% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **The decision to conduct quality assessment or critical appraisal on the studies included in a rapid review should be carefully weighed against the impact to rigour, the validity of the final product and timelines required. There may be select approaches to rapid reviews where it is not possible to evaluate the validity of included studies.** | | |
| **Further Comments?** | | |

| **LANGUAGE BASED ON QUESTION 11: inclusion of peer review in a rapid review** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| The decision to include external peer-review should be based on the needs of the individual rapid review, taking into account the sensitivity of the decision, subject complexity, and the timeliness required. | 85.8% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews ideally have a peer review process incorporated into their approach. To meet the specific timelines of a rapid review, the process may be tailored.** | | |
| **Further Comments?** | | |

| **LANGUAGE BASED ON QUESTION 12 and 13: Essential conduct and reporting items** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Rapid reviews are conducted in the same way that a systematic review is conducted. Taking into account timelines, decision-making needs, and the topic under study, certain methodological components of a rapid review may be tailored in order to expedite the process. Regardless of how the review is conducted, methods should be explicitly stated and reporting should be transparent to the reader and reproducible. | 83.4% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **There are a spectrum/continuum of approaches used to produce** | | |

| | | |
|---|---|---|
| **rapid reviews, all of which tailor accepted systematic review methods in some manner to expedite the review process. Where the condensed timeframe permits, some rapid reviews may approach levels of rigour comparable to that of a systematic review. Irrespective which shortcuts are made, or at which part of the rapid review process, the methods should always be explicitly stated, with the goal of maintaining transparency and enabling reproducibility. This will allow end-users to fully consider the evidence in context with concessions made in the review process.** | | |
| **Further Comments?** | | |
| **LANGUAGE BASED ON QUESTIONS 14-15: utility of rapid reviews in the decision-making process and legitimacy as a knowledge synthesis format** | | |
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Rapid reviews are a legitimate form of knowledge synthesis. It is reasonable to employ rapid reviews to inform policy and decision-making processes when there is the need for a timely evidence review. The decision to use a rapid review should be considered in the context of the decision at hand and balanced against any potential limitations involved in tailoring methods or expediting the review process. It is important to maintain an open and transparent dialogue between the rapid review requestor and the review team. | 97.3% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews are a legitimate form of knowledge synthesis. It is reasonable to employ rapid reviews to inform policy and decision-making processes when there is the need for a timely evidence review. The decision to use a rapid review should be considered in the context of the decision at hand and balanced against any potential risk involved in expediting the review process. It is important to maintain an open and transparent dialogue between the rapid review requestor and the review team.** | | |
| **Further Comments?** | | |

| **LANGUAGE BASED ON QUESTION 16: Established methodologies for rapid reviews** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| It is unclear if a unique methodology for rapid reviews should be developed. Further research in this area is warranted. | 66.7% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **There is no consensus on rapid reviews being a unique knowledge synthesis product a variation of a systematic review in a condensed timeframe. There are a spectrum of approaches to rapid reviews being used and that there may be no one-size-fits-all methodology. There is still tension over whether additional research is warranted to better understand the ultimate impact of various workflow** | | |

| | | |
|---|---|---|
| **adaptations on the rapid review product.** | | |
| **Further Comments?** | | |

| **LANGUAGE BASED ON QUESTION 17: Length of a rapid review** | | |
|---|---|---|
| **Draft Wording Round 2** | **Group response** (% who agree) | **Your response** |
| Reporting length of rapid reviews may vary based on the individual requirements of the decision-maker commissioning the review and the audience for which the review is intended. | 92.9% | Agree |
| **Edited Draft Wording Round 3** | **Agree** | **Disagree** |
| **Rapid reviews may vary in length based on the level of detail needed to adequately answer the research question, the requirements of the decision-maker commissioning the review, the audience for which the review is intended, and the delivery time line.** | | |
| **Further Comments?** | | |

**OVERALL COMMENTS (Optional)**

| |
|---|
| |

## SUPPLEMENT 7-6. INVITATION EMAIL SENT TO POTENTIAL EXPERTS

**Subject:** Invitation to participate: eDelphi on 'Rapid Reviews'

**Email Message Body:**

Dear <*custom name*>,

You are being asked to participate in an **eDelphi study aiming to identify the defining characteristics of 'rapid reviews'.** This study is being conducted by Shannon Kelly of the University of Ottawa, Department of Epidemiology and Community Medicine and is being done as part of a Masters thesis. This research is being conducted under the direction and supervision of Tammy Clifford, PhD., and David Moher, PhD.

**Background**

Although not delineated by an established definition, 'rapid reviews' are a type of accelerated systematic review with no commonly accepted or validated methodology. They have become increasingly popular as evidence producers struggle to balance the urgent or emergent requirements of the decision-making process with the need for high quality, inclusive evidence summaries. A clear, transparent, and sufficiently detailed definition of rapid reviews is necessary to solidify the placement of rapid reviews in the evidence continuum. This study will contribute to this end goal.

**Purpose of this study**

The purpose of this study is to survey evidence producers and experts to discover what these key stakeholders consider being the key defining characteristics of rapid reviews. Defining characteristics are defined as 'one of a number of essential features by which a rapid review can be recognized'. The results will be used to study the key characteristics of expedited knowledge synthesis reports, in order to gain a better understanding of completeness, quality and potential bias. Once defined, healthcare decision-makers will be better able to judge how much value to place on the evidence contained in a rapid review, and be more informed regarding the potential risk associated with altering traditional systematic review methods.

**Your participation**

You are being asked to respond with your input on the defining characteristics of rapid reviews. Your responses (not your identity) will be shared with other participants in this study. Pilot testing suggests each round takes about 15 minutes to

complete. We will contact you by the email address you provide for invitations for the next round. There will be approximately 4-6 weeks in between each round. Should you agree to participate, we ask that you kindly respond to the initial survey round by June 21, 2013.

As a participant in the study, you will be asked to identify yourself to the main study investigator (Shannon Kelly), solely for the purpose of administering the study. A brief demographic survey will be administered as part of the first survey round. Your anonymity will be secured and at no time will your name or any other identifying information be shared with other study participants or any third party. There are no known risks associated with this study. Potential benefits of participating include the opportunity to learn more about this type of evidence product and the satisfaction of contributing to knowledge in this methodological area. You may withdraw at any time without consequence.

This study has been granted ethical approval by the Ottawa Hospital Research Ethics Board.

**Confidentiality**

All research-related records will be kept for ten years after termination of the study. The Ottawa Hospital Research Ethics Board and the Ottawa Hospital Research Institute may review your relevant study records for audit purposes.
The results of this research may also be published in professional journals or presented at scientific conferences, but any such presentations will report only aggregated findings. Should you be interested in receiving a copy of the study findings or a link to the website highlighting these findings, please contact Shannon Kelly.

Shannon Kelly, Msc. (candidate)
Department of Epidemiology and Community Medicine, Faculty of Medicine
University of Ottawa
<contact information removed for privacy>

Any questions about study participation may also be directed to:

Tammy Clifford, PhD
Vice President, Strategic Initiatives and Chief Scientist, Canadian Agency for Drugs and Technologies in Health (CADTH)
Adjunct Professor, Department of Epidemiology and Community Medicine, Faculty of Medicine, University of Ottawa

<contact information removed for privacy>

David Moher, PhD
Senior Scientist, Clinical Epidemiology, Ottawa Hospital Research Institute
Associate Professor, Department of Epidemiology and Community Medicine, Faculty of Medicine, University of Ottawa
<contact information removed for privacy>

If you have any questions about your rights as a research participant you may contact the Chairman of the Ottawa Hospital Research Ethics Board at <contact information removed for privacy>.

**Consent Decision**

By selecting the "I agree to participate" link below you confirm that you:

1. Understand what is required based on reading the letter of information
2. Understand that your participation is voluntary and you are free to withdraw at any time
3. Understand the provisions for confidentiality

**I agree to participate**
http://fluidsurveys.com/s/rapidreviews/?code=6g3wpcxsvw

By selecting the "I do not agree to participate" link below you confirm that you are not agreeing to take part in this study at this time:

**I do not agree to participate**
http://fluidsurveys.com/s/rapidreviews/?code=6g3wpcxsvw&invact=unsubscribe

Thank you!
Shannon Kelly

*This link is uniquely tied to this survey and your email address. Please do not forward this message.*

## SUPPLEMENT 7-7. EMAIL SENT TO EXPERT PANEL FOR ROUND 2

**Subject:** Invitation to participate: eDelphi on 'Rapid Reviews': Round 2 Survey

**Email Message Body:**

Dear <*custom name*>,

Thank you for your participation last year in our eDelphi on rapid reviews and for completing the first round questionnaire! Apologies for the delay in getting round two circulated, but we have collected a lot of information and are committed to ensuring we obtain high quality results from this study.

We invite you to participate in the Delphi Round 2 survey attached to this email.

We have attached a summary of Round 1 responses to assist with your feedback in this round. Please review these before, and use them while, completing the Round 2 survey.

The Round 2 Survey is based on your responses, rankings and free-text comments from Round 1. We have specifically sought to propose language regarding defining characteristics of rapid reviews that may lead to a broad definition of rapid reviews. We are providing you with the opportunity to agree or disagree with the proposed wording and you have the opportunity to propose edits by way of comment for each statement listed.

The Delphi Round 2 Survey will close on March 14, 2014. We hope that you will be able to provide your valuable feedback by this date, and we thank you for your time and continued participation in this important initiative.

With best wishes,
Shannon Kelly

CC: Tammy Clifford, David Moher

## SUPPLEMENT 7-8.EMAIL SENT TO EXPERT PANEL FOR ROUND 3

**Subject:** Invitation to participate: eDelphi on 'Rapid Reviews': Round 3 Survey

**Email Message Body:**

Dear <*custom name*>,

Thank you for your continued participation in our **eDelphi on rapid reviews** and for completing the first and second round questionnaires. **We are now inviting you to participate in Round 3.** The Round 3 survey is attached to this email message**,** along with a document containing all comments from Round 2 for your reference.

The Round 3 Survey is based on your responses (N=44), level of agreement and free-text comments from Rounds 1 and 2. Although we had a great deal of consensus on the proposed language following Round 2, we also received a large volume of free-text comments proposing changes to the wording or concepts. We have done our best

to reflect your comments in Round 3, while carefully considering the original responses received from Round 1.

We hope that you will be able to provide your valuable feedback by way of a returned survey on or before **August 31, 2104**, and **we thank you for your time and continued participation in this important initiative**.

Regards,
Shannon Kelly

# APPENDIX D. ADDITIONAL CONTENT – CHAPTER 5

## SUPPLEMENT 7-9. INVITATION LETTER

Subject: **REQUEST FOR SURVEY PARTICIPATION: Exploring Attitudes and Perceptions Towards Rapid Reviews**

Hello <name>,

**You are invited to participate in a survey aiming to solicit personal opinion about 'rapid reviews'.** This study is being conducted by Shannon Kelly of the University of Ottawa, Department of Epidemiology and Community Medicine and is being done as part of a Masters thesis. This research is being conducted under the direction and supervision of Drs. Tammy Clifford and David Moher.

'Rapid reviews' expedite the knowledge synthesis process by tailoring traditional methods with the goal of providing more timely information to decision-makers (also referred to as knowledge users) who need to make emergent or urgent evidence-informed decisions. No research to date has attempted to capture how various stakeholders subjectively feel about accelerated evidence syntheses, or rapid reviews.

**PURPOSE OF THE STUDY:**
We are specifically looking to explore perceptions and attitudes of evidence producers and knowledge users to determine if there are differing opinions on rapid reviews amongst them and across a variety of thematic areas. The ultimate goal is to achieve a better overall understanding of how individuals value this form of evidence and to identify positive and negative attitudes that may lead to restricted uptake, knowledge transfer and ultimately, impact.

**YOUR PARTICIPATION:**
In order to ensure that the survey reflects the perspectives and opinions of a broad range of knowledge users and producers, we are contacting individuals from various groups and organizations who have previously attended the CADTH Symposium on more than one occasion to ask for their participation. You have been invited to participate in this study because you have been identified as either a researcher or knowledge user who may have a viewpoint to share on this topic. We value all opinions – there is no wrong answer.

**You will be asked to represent your own views on rapid reviews by assessing a range of opinion statements using the online interface.** Pilot testing suggests the survey may take up to 30 minutes to complete. Participants are encouraged to consider each statement carefully, but not to over think the statements. A very brief demographic survey will be administered after the main

survey. Your anonymity will be secured and at no time will your name, your responses or any other identifying information be shared with other study participants. You may withdraw at any time without consequence.

**If you would like to participate, please complete the survey before <Date>.** The survey has been configured for use on desktop computer web browsers and on iOS (Apple) devices, although other devices *may work.

Thank you,
Shannon Kelly

---

To participate in this study, please click on this link:

**Yes, I want to participate in this study**.

Your browser should open to the study's start page. If for some reason it doesn't, simply copy and paste this entire link into your browser's location bar:

http://q-assessor.com/studies/847/responses/new?code=XXXX

We hope that you want to participate, but if you do not, click on this link:

**No, I do not want to participate in this study**.

Your browser should open to the study's page to refuse this invitation. If for some reason it doesn't, simply copy and paste this entire link into your browser's location bar:

http://q-assessor.com/studies/847/responses/refuse?code=XXXX

## SUPPLEMENT 7-10. THANK YOU REPLY TO PARTICIPANTS

Subject: **THANK YOU FOR PARTICIPATING: Exploring Attitudes and Perceptions Towards Rapid Reviews**

Hello,

Thank you for taking the time to complete our survey exploring attitudes and perceptions towards rapid reviews. Your opinion is very important to us!

If you have provided us with your email address, we will follow-up with you when study results are available and/or published. If you forgot to add your email address and are interested in study results, please contact Shannon Kelly at <contact information removed for privacy>.

Have a great day,

Shannon

## SUPPLEMENT 7-11. ONLINE MATERIALS – INTRODUCTORY PAGE

### EXPLORING ATTITUDES AND PERCEPTIONSTOWARDS RAPID REVIEWS

We have collected opinion statements from a variety of Canadian and International stakeholders on rapid reviews.

You will first be asked to sort these statements into 'piles' – one pile for statements you generally agree with, a second pile for those you generally disagree with, and a third pile for statements you feel neutral about. Then, you will be asked to identify the statements you MOST agree with, and the two you MOST disagree with, and to sort the remaining statements into categories in-between. Responses will then be evaluated to determine differences and similarities among the various perspectives.

***A note regarding terminology used:***

**PRODUCERS** are anyone who carries out research activities, and for the purposes of this survey, may be involved in evidence synthesis activities in any capacity.

**KNOWLEDGE USERS** are those who are likely to be able to use the knowledge generated through research in order to make informed decisions about health policies, programs, and/or practices.

**SYSTEMATIC REVIEWS** employ rigorous methods, such as those prescribed by the Cochrane Collaboration, to summarize research evidence.

**RAPID REVIEWS** are assumed to generally following similar methods, but these methods are tailored or modified in order to synthesize research evidence in a more timely manner to meet the particular needs of knowledge users.

**HTA**, or Health technology Assessment, is a broader, policy-based assessment of medical, social, ethical and economic implications of development, diffusion and use of health technologies.

### STUDY CONTACTS:

If you have any questions or concerns, please feel free to contact me:

Shannon Kelly, Msc. (candidate)
Department of Epidemiology and Community Medicine, Faculty of Medicine
University of Ottawa
<contact information removed for privacy>

Any questions about the study may also be directed to:

<contact information removed for privacy>

This study has been granted ethical clearance according to the recommended principles of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, and the policies of the Ottawa Hospital Research Ethics Board. Any ethical concerns about this study may be directed to the Chair of the Ottawa Hospital Research Ethics Board: Raphael Saginur, M.D <contact information removed for privacy>

## SUPPLEMENT 7-12. ONLINE MATERIALS – Q SORT TABLE SET-UP

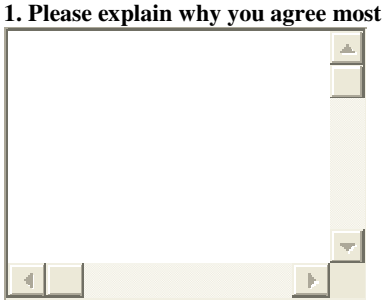
(Administered via Q-Assessor)

| Label | Number of Statements in Bin | Bin "Score" |
|---|---|---|
| MOST Agree | 2 | + 3 |
| ++ | 6 | + 2 |
| + | 10 | + 1 |
| Neutral | 14 | 0 |
| - | 10 | -1 |
| -- | 6 | -2 |
| MOST Disagree | 2 | -3 |

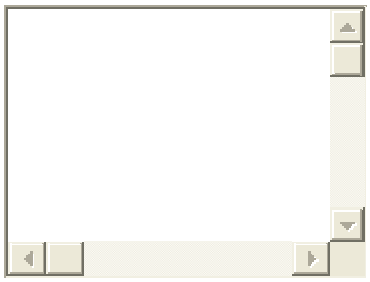
## SUPPLEMENT 7-13. ONLINE MATERIALS – ANCILLARY QUESTIONS

(administered via Q-Assessor)

**1. Please explain why you agree most with the two statements you have placed below the "MOST AGREE". ***



**2. Please explain why you disagree most with the two statements you have placed below the "MOST DISAGREE". ***



**3. Do you consider yourself primarily a researcher/producer or a knowledge-user? ***

- ☐ Researcher/Producer
- ☐ Knowledge User
- ☐ I do not consider myself a researcher/producer or a knowledge user

**4. What is the highest level of education you have achieved? ***

- ☐ High School
- ☐ Undergraduate
- ☐ Masters
- ☐ Doctoral
- ☐ Prefer not to answer

**5. Which age category do you fall in? ***

- ☐ Under 18
- ☐ 18 to 35
- ☐ 36 to 50
- ☐ 50 or above
- ☐ Prefer not to answer

**6. Are you: ***

- ☐ Male
- ☐ Female
- ☐ Prefer not to answer

**7. What is your country of residence? ***

**8. Have you ever been the author of a rapid review? ***

- ☐ YES
- ☐ NO

UNSURE

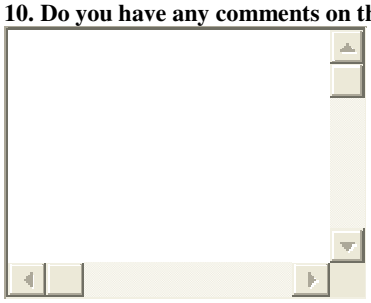
**9. Have you ever used a rapid review to aid in a policy or decision-making? ***

YES

NO

UNSURE

**10. Do you have any comments on this survey that you would like to share with the investigators?**



**11. If you would like to be updated on the results of this research, please provide your email address so that we can follow-up. We will not share this email address with any other parties and you will remain anonymous.**

## SUPPLEMENT 7-14. Q-SORT CORRELATION MATRICES

The correlation matrix represents all of the meaning and variability found in this study.

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 100 | 13 | -19 | 4 | 12 | -2 | 16 | 9 | -7 | 34 | 18 |
| **2** | 13 | 100 | 40 | 42 | 45 | 37 | 60 | 45 | 48 | 64 | 26 |
| **3** | -19 | 40 | 100 | 43 | 30 | 27 | 39 | 20 | 38 | 36 | 1 |
| **4** | 4 | 42 | 43 | 100 | 25 | 48 | 45 | 32 | 45 | 42 | 7 |
| **5** | 12 | 45 | 30 | 25 | 100 | 23 | 29 | 39 | 37 | 47 | 12 |
| **6** | -2 | 37 | 27 | 48 | 23 | 100 | 26 | 51 | 42 | 38 | 20 |
| **7** | 16 | 60 | 39 | 45 | 29 | 26 | 100 | 44 | 55 | 58 | 20 |
| **8** | 9 | 45 | 20 | 32 | 39 | 51 | 44 | 100 | 48 | 46 | 6 |
| **9** | -7 | 48 | 38 | 45 | 37 | 42 | 55 | 48 | 100 | 43 | 17 |
| **10** | 34 | 64 | 36 | 42 | 47 | 38 | 58 | 46 | 43 | 100 | 20 |
| **11** | 18 | 26 | 1 | 7 | 12 | 20 | 20 | 6 | 17 | 20 | 100 |

Note: A value of 41 represents 0.41 multiplied by 100

### *Standard error (SE) of the correlation matrix*

| | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 100 | 13 | -19 | 4 | 12 | -2 | 16 | 9 | -7 | 34 | 18 |
| **2** | 13 | 100 | 40 | 42 | 45 | 37 | 60 | 45 | 48 | 64 | 26 |
| **3** | -19 | 40 | 100 | 43 | 30 | 27 | 39 | 20 | 38 | 36 | 1 |
| **4** | 4 | 42 | 43 | 100 | 25 | 48 | 45 | 32 | 45 | 42 | 7 |
| **5** | 12 | 45 | 30 | 25 | 100 | 23 | 29 | 39 | 37 | 47 | 12 |
| **6** | -2 | 37 | 27 | 48 | 23 | 100 | 26 | 51 | 42 | 38 | 20 |
| **7** | 16 | 60 | 39 | 45 | 29 | 26 | 100 | 44 | 55 | 58 | 20 |
| **8** | 9 | 45 | 20 | 32 | 39 | 51 | 44 | 100 | 48 | 46 | 6 |
| **9** | -7 | 48 | 38 | 45 | 37 | 42 | 55 | 48 | 100 | 43 | 17 |
| **10** | 34 | 64 | 36 | 42 | 47 | 38 | 58 | 46 | 43 | 100 | 20 |
| **11** | 18 | 26 | 1 | 7 | 12 | 20 | 20 | 6 | 17 | 20 | 100 |

Note: SE calculated as:(( $1/\sqrt{n}$)*100). A value of 41 represents 0.41 multiplied by 100
Orange correlations are statistically significant as they fall between 2 and 2.5 times (SE = 60.3 to 75.4)the standard error.
Yellow correlations trend towards being statistically significant as they come close to being 2 times the standard error (≥50).

## SUPPLEMENT 7-15. FACTOR LOADINGS

The loadings express the extent to which each Q sort is associated with each factor. Factor loadings in excess of 0.50 (plus or minus) can be considered significant, however.

### *Unrotated Q sort factor loading matrix (n=7)*

| Q sort | Factor | | | | | | | $h^2$ |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | |
| **8174** | 0.13141 | 0.60329 | 0.11441 | 0.29681 | 0.27382 | 0.09923 | -0.12686 | 0.5834 |
| **8176** | 0.78804 | 0.14342 | 0.02191 | -0.06425 | -0.04936 | 0.00146 | 0.04982 | 0.6511 |
| **8185** | 0.45021 | -0.16855 | 0.0131 | -0.37848 | 0.04678 | 0.0084 | 0.38096 | 0.5219 |
| **8186** | 0.60359 | -0.28424 | 0.55147 | -0.05315 | 0.18554 | 0.08993 | 0.06393 | 0.7986 |
| **8194** | 0.53428 | 0.00884 | -0.11966 | 0.05231 | 0.1428 | -0.02699 | 0.07705 | 0.3296 |
| **8198** | 0.55526 | -0.38279 | 0.08575 | 0.46752 | -0.05177 | 0.38573 | 0.29049 | 0.9167 |
| **8199** | 0.72566 | 0.00659 | 0.06709 | -0.18614 | 0.08849 | 0.19419 | -0.28389 | 0.6918 |
| **8200** | 0.6173 | -0.08837 | -0.17681 | 0.15103 | 0.10109 | 0.07367 | 0.01845 | 0.4589 |
| **8215** | 0.67288 | -0.22546 | -0.02935 | -0.04948 | 0.04534 | 0.15306 | -0.08066 | 0.5389 |
| **8221** | 0.80283 | 0.26536 | 0.06865 | 0.08657 | 0.14305 | -0.10885 | 0.03971 | 0.761 |
| **8223** | 0.25014 | 0.19806 | 0.09914 | 0.04339 | -0.29969 | 0.17698 | -0.12329 | 0.2498 |
| **Eigenvalues** | 3.8667 | 0.8086 | 0.3908 | 0.5287 | 0.2675 | 0.2771 | 0.3623 | -- |
| **Total Variance** | 35.1518 | 7.3509 | 3.5527 | 4.8064 | 2.4318 | 2.5191 | 3.2936 | **59.1064** |

Green shading indicates significant by the Fuerntratt criterion (1)

$h^2$ = common variance, or communality measure explains how much how much a particular Q sort holds in common with all the other Q sorts in the study group. A high communality signals that the Q sort is typical or highly representative of the group as a whole, a low communality that it is atypical. (Watts, Simon; Stenner, Paul (2012-03-19). Doing Q Methodological Research (Kindle Location 2489). SAGE Publications. Kindle Edition.)

### Rotated Q Sort factor loading matrix (varimax rotation) (n=7)

| Q sort | Factor | | | | | | | $h^2$ |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | |
| **8174** | 0.11802 | 0.73443 | -0.00557 | 0.00053 | 0.11949 | -0.03247 | -0.12104 | 0.5834 |
| **8176** | 0.63649 | 0.10406 | 0.2052 | -0.05377 | 0.32896 | 0.08396 | 0.27366 | 0.651 |
| **8185** | 0.30617 | -0.20014 | 0.19695 | 0.01825 | -0.02403 | 0.07102 | 0.58597 | 0.5219 |
| **8186** | 0.28805 | 0.00358 | 0.77397 | 0.01503 | 0.07067 | 0.25821 | 0.21153 | 0.7986 |
| **8194** | 0.52333 | 0.08742 | 0.07885 | -0.01093 | 0.00667 | 0.14315 | 0.14577 | 0.3295 |
| **8198** | 0.31271 | -0.0484 | 0.22382 | 0.00066 | 0.12145 | 0.86398 | 0.07201 | 0.9167 |
| **8199** | 0.5944 | 0.04992 | 0.36496 | 0.31377 | 0.31047 | -0.00293 | 0.08977 | 0.692 |
| **8200** | 0.60049 | 0.03266 | 0.07007 | 0.05938 | 0.05857 | 0.28623 | 0.05903 | 0.4589 |
| **8215** | 0.56684 | -0.12485 | 0.2791 | 0.19298 | 0.15661 | 0.22561 | 0.10695 | 0.5388 |
| **8221** | 0.69778 | 0.33089 | 0.245 | -0.15036 | 0.20115 | 0.06652 | 0.19274 | 0.761 |
| **8223** | 0.09481 | 0.08139 | 0.03328 | 0.01357 | 0.47907 | 0.05718 | -0.01276 | 0.2499 |
| **Eigenvalues** | 2.4985 | 0.7355 | 1.0133 | 0.1655 | 0.5372 | 0.9873 | 0.5644 | -- |
| **Total Variance** | 22.7136 | 6.6864 | 9.2118 | 1.5045 | 4.8836 | 8.9755 | 5.1309 | **59.1064** |

Green shading indicates significant by the Fuerntratt criterion (1)

## Unrotated Q sort factor loading matrix (n=3)

| | A | B | C | $h^2$ |
|---|---|---|---|---|
| **8174** | 0.13141 | 0.60329 | 0.11441 | 0.3944 |
| **8176** | 0.78804 | 0.14342 | 0.02191 | 0.6421 |
| **8185** | 0.45021 | -0.16855 | 0.0131 | 0.2313 |
| **8186** | 0.60359 | -0.28424 | 0.55147 | 0.7492 |
| **8194** | 0.53428 | 0.00884 | -0.11966 | 0.2999 |
| **8198** | 0.55526 | -0.38279 | 0.08575 | 0.4622 |
| **8199** | 0.72566 | 0.00659 | 0.06709 | 0.5311 |
| **8200** | 0.6173 | -0.08837 | -0.17681 | 0.4202 |
| **8215** | 0.67288 | -0.22546 | -0.02935 | 0.5045 |
| **8221** | 0.80283 | 0.26536 | 0.06865 | 0.7196 |
| **8223** | 0.25014 | 0.19806 | 0.09914 | 0.1116 |
| **Eigenvalues** | 3.8667 | 0.8086 | 0.3908 | -- |
| **Total Variance** | 35.1518 | 7.3509 | 3.5527 | **46.05** |

Green shading indicates significant by the Fuerntratt criterion (1)

## Rotated Q Sort factor loading matrix (varimax rotation) (n=3)

| | A | B | C | $h^2$ |
|---|---|---|---|---|
| **8174** | -0.04896 | 0.61659 | -0.10834 | 0.3943 |
| **8176** | 0.63758 | 0.4089 | 0.26143 | 0.642 |
| **8185** | 0.40766 | 0.01062 | 0.25489 | 0.2313 |
| **8186** | 0.29542 | 0.11777 | 0.80504 | 0.7493 |
| **8194** | 0.51352 | 0.15932 | 0.10374 | 0.2999 |
| **8198** | 0.49924 | -0.12246 | 0.44492 | 0.4622 |
| **8199** | 0.58604 | 0.27841 | 0.33192 | 0.5311 |
| **8200** | 0.62939 | 0.08502 | 0.12951 | 0.4201 |
| **8215** | 0.62862 | 0.0252 | 0.32963 | 0.5045 |
| **8221** | 0.60607 | 0.5363 | 0.25441 | 0.7196 |
| **8223** | 0.13065 | 0.29252 | 0.09479 | 0.1117 |
| **Eigenvalues** | 2.6944 | 1.0603 | 1.3113 | -- |
| **Total Variance** | 24.4945 | 9.6391 | 11.9209 | **46.0545** |

Green shading indicates significant by the Fuerntratt criterion (1)

## SUPPLEMENT 7-16. FACTOR SCORES

### Rank Statement Scores for Factors A, B and C

| Statement # | Factors | | | | | |
|---|---|---|---|---|---|---|
| | A | | B | | C | |
| | Z-Score | Rank | Z-Score | Rank | Z-Score | Rank |
| 1 | 0.486 | 16 | 0.621 | 13 | 0 | 32 |
| 2 | -0.783 | 38 | 0.843 | 9 | -2.059 | 50 |
| 3 | -0.262 | 32 | 2.463 | 1 | 0.686 | 18 |
| 4 | -0.861 | 40 | 1.664 | 3 | 0 | 32 |
| 5 | -0.989 | 43 | -1.242 | 45 | -0.686 | 42 |
| 6 | 0.523 | 15 | 0.843 | 9 | 0.686 | 18 |
| 7 | -2.135 | 49 | -2.263 | 49 | -2.059 | 50 |
| 8 | 0.059 | 27 | -1.642 | 47 | 0.686 | 18 |
| 9 | 0.297 | 21 | 1.242 | 5 | 0 | 32 |
| 10 | 1.869 | 1 | 1.442 | 4 | 0 | 32 |
| 11 | -0.893 | 41 | 0.621 | 13 | 0.686 | 18 |
| 12 | -1.943 | 48 | 0.421 | 18 | -1.373 | 48 |
| 13 | 0.339 | 19 | 1.021 | 6 | 2.059 | 2 |
| 14 | 0.674 | 12 | 0.2 | 25 | 1.373 | 8 |
| 15 | -0.952 | 42 | 0 | 30 | -0.686 | 42 |
| 16 | 0.15 | 26 | 0.2 | 25 | -0.686 | 42 |
| 17 | -0.514 | 37 | 0 | 30 | 1.373 | 8 |
| 18 | 1.026 | 8 | 0 | 30 | 0 | 32 |
| 19 | -1.023 | 44 | -2.463 | 50 | -0.686 | 42 |
| 20 | 1.55 | 4 | -0.222 | 35 | 0 | 32 |
| 21 | 1.295 | 5 | 0.621 | 13 | 0.686 | 18 |
| 22 | 0.684 | 11 | 0.2 | 25 | 0 | 32 |
| 23 | 0.211 | 25 | 0.2 | 25 | -0.686 | 42 |
| 24 | 0.298 | 20 | 0.421 | 18 | 1.373 | 8 |
| 25 | 1.246 | 6 | 0.2 | 25 | 0 | 32 |
| 26 | 0.011 | 28 | -1.242 | 45 | 0.686 | 18 |
| 27 | 0.466 | 18 | -0.821 | 42 | 1.373 | 8 |
| 28 | 0.535 | 14 | -1.842 | 48 | 2.059 | 2 |
| 29 | 0.484 | 17 | 0 | 30 | 0 | 32 |
| 30 | -0.148 | 30 | 0.4 | 19 | 0 | 32 |
| 31 | 0.296 | 22 | -0.421 | 37 | -0.686 | 42 |
| 32 | 0.866 | 9 | 0.421 | 18 | 0.686 | 18 |
| 33 | 0.269 | 23 | -0.843 | 43 | 1.373 | 8 |
| 34 | -0.393 | 33 | -0.621 | 40 | -1.373 | 48 |
| 35 | 0.6 | 13 | -0.621 | 40 | 0 | 32 |
| 36 | 0.738 | 10 | 0.843 | 9 | 0 | 32 |

| Statement # | Factors | | | | | |
|---|---|---|---|---|---|---|
| | A | | B | | C | |
| | Z-Score | Rank | Z-Score | Rank | Z-Score | Rank |
| 37 | -0.462 | 34 | 0.421 | 18 | -0.686 | 42 |
| 38 | -2.149 | 50 | -0.222 | 35 | -1.373 | 48 |
| 39 | 1.173 | 7 | -0.621 | 40 | 0.686 | 18 |
| 40 | -1.53 | 47 | 0.421 | 18 | -0.686 | 42 |
| 41 | 1.837 | 2 | -0.222 | 35 | 1.373 | 8 |
| 42 | -0.856 | 39 | -1.642 | 47 | -0.686 | 42 |
| 43 | -1.396 | 45 | -0.821 | 42 | -1.373 | 48 |
| 44 | -0.505 | 36 | -0.2 | 32 | 0 | 32 |
| 45 | 1.826 | 3 | 0.821 | 10 | 0 | 32 |
| 46 | -0.48 | 35 | 0 | 30 | 0.686 | 18 |
| 47 | -1.412 | 46 | 1.842 | 2 | -1.373 | 48 |
| 48 | -0.118 | 29 | -0.421 | 37 | -0.686 | 42 |
| 49 | 0.235 | 24 | -0.2 | 32 | 0.686 | 18 |
| 50 | -0.237 | 31 | 0.2 | 25 | -1.373 | 48 |

## Normalized Factor Scores for Factors A, B and C

### Factor A

| # | Statements | Z-Score |
|---|---|---|
| 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly. | 1.869 |
| 41 | A well-conducted rapid review may produce better evidence than a poorly conducted systematic review. | 1.837 |
| 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed. | 1.826 |
| 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence. | 1.55 |
| 21 | Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision. | 1.295 |
| 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR). | 1.246 |
| 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review). | 1.173 |
| 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | 1.026 |
| 32 | Rapid reviews can be timely and valid, even when methodological concessions are made. | 0.866 |
| 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different. | 0.738 |
| 22 | My confidence in a rapid review is impacted by which methods are tailored to speed up the review process. | 0.684 |
| 14 | Rapid reviews meet the needs of knowledge users. | 0.674 |
| 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods. | 0.6 |

| | | |
|---|---|---|
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | 0.535 |
| 6 | Rapid reviews mean different things to different people. | 0.523 |
| 1 | The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence. | 0.486 |
| 29 | Knowledge users do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product. | 0.484 |
| 27 | The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially 'imperfect' evidence. | 0.466 |
| 13 | Rapid reviews need to be tailored to the specific needs of the knowledge user. | 0.339 |
| 24 | It is important to have minimum standards for the methodological conduct of rapid reviews. | 0.298 |
| 9 | Rapid reviews do not replace SRs or HTAs. | 0.297 |
| 31 | Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users. | 0.296 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 0.269 |
| 49 | Producers are more concerned with the methodology and validity of rapid reviews than knowledge users. | 0.235 |
| 23 | My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence. | 0.211 |
| 16 | There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand. | 0.15 |
| 8 | The opportunity cost of a comprehensive SR or HTA is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor. | 0.059 |
| 26 | Standardization of rapid review methods may conflict with the needs of knowledge users | 0.011 |
| 48 | 'Rapid review' is too broad a phrase – doing a review in a more timely way can only be relative to how long it takes the same team to produce a full systematic review. | -0.118 |
| 30 | Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review. | -0.148 |
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | -0.237 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | -0.262 |
| 34 | It is appropriate to endeavor to define a single, unique methodology for rapid reviews. | -0.393 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | -0.462 |
| 46 | It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods. | -0.48 |
| 44 | A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigourous methods for evidence synthesis. | -0.505 |
| 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand. | -0.514 |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -0.783 |
| 42 | Any review of evidence that takes longer than 3 months to produce is not a rapid review. | -0.856 |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | -0.861 |
| 11 | Rapid reviews are comparable to SRs except they are done in a more timely fashion. | -0.893 |
| 15 | There is a paucity of evidence on rapid reviews, so I cannot support or oppose their use | -0.952 |

| | | |
|---|---|---|
| | in decision-making. | |
| 5 | Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users. | -0.989 |
| 19 | It is always appropriate to conduct a rapid review. | -1.023 |
| 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review. | -1.396 |
| 47 | A rapid review cannot be a systematic review. | -1.412 |
| 40 | Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision. | -1.53 |
| 12 | Rapid reviews are ‘quick and dirty' systematic reviews. | -1.943 |
| 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review. | -2.135 |
| 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | -2.149 |

## Factor B

| # | Statements | Z-Score |
|---|---|---|
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 2.463 |
| 47 | A rapid review cannot be a systematic review. | 1.842 |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | 1.664 |
| 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly. | 1.442 |
| 9 | Rapid reviews do not replace SRs or HTAs. | 1.242 |
| 13 | Rapid reviews need to be tailored to the specific needs of the knowledge user. | 1.021 |
| 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different. | 0.843 |
| 6 | Rapid reviews mean different things to different people. | 0.843 |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | 0.843 |
| 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed. | 0.821 |
| 21 | Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision. | 0.621 |
| 11 | Rapid reviews are comparable to SRs except they are done in a more timely fashion. | 0.621 |
| 1 | The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence. | 0.621 |
| 40 | Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision. | 0.421 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | 0.421 |
| 32 | Rapid reviews can be timely and valid, even when methodological concessions are made. | 0.421 |
| 24 | It is important to have minimum standards for the methodological conduct of rapid reviews. | 0.421 |
| 12 | Rapid reviews are ‘quick and dirty' systematic reviews. | 0.421 |
| 30 | Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review. | 0.4 |

| | | |
|---|---|---|
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | 0.2 |
| 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR). | 0.2 |
| 23 | My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence. | 0.2 |
| 22 | My confidence in a rapid review is impacted by which methods are tailored to speed up the review process. | 0.2 |
| 16 | There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand. | 0.2 |
| 14 | Rapid reviews meet the needs of knowledge users. | 0.2 |
| 46 | It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods. | 0 |
| 29 | Knowledge users do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product. | 0 |
| 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | 0 |
| 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand. | 0 |
| 15 | There is a paucity of evidence on rapid reviews, so I cannot support or oppose their use in decision-making. | 0 |
| 49 | Producers are more concerned with the methodology and validity of rapid reviews than knowledge users. | -0.2 |
| 44 | A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigourous methods for evidence synthesis. | -0.2 |
| 41 | A well-conducted rapid review may produce better evidence than a poorly conducted systematic review. | -0.222 |
| 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | -0.222 |
| 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence. | -0.222 |
| 48 | ‘Rapid review' is too broad a phrase – doing a review in a more timely way can only be relative to how long it takes the same team to produce a full systematic review. | -0.421 |
| 31 | Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users. | -0.421 |
| 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review). | -0.621 |
| 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods. | -0.621 |
| 34 | It is appropriate to endeavor to define a single, unique methodology for rapid reviews. | -0.621 |
| 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review. | -0.821 |
| 27 | The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially ‘imperfect' evidence. | -0.821 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | -0.843 |
| 26 | Standardization of rapid review methods may conflict with the needs of knowledge users | -1.242 |
| 5 | Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users. | -1.242 |
| 42 | Any review of evidence that takes longer than 3 months to produce is not a rapid review. | -1.642 |
| 8 | The opportunity cost of a comprehensive SR or HTA is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor. | -1.642 |

| | | |
|---|---|---|
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | -1.842 |
| 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review. | -2.263 |
| 19 | It is always appropriate to conduct a rapid review. | -2.463 |

## Factor C

| # | Statements | Z-Score |
|---|---|---|
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | 2.059 |
| 13 | Rapid reviews need to be tailored to the specific needs of the knowledge user. | 2.059 |
| 41 | A well-conducted rapid review may produce better evidence than a poorly conducted systematic review. | 1.373 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 1.373 |
| 27 | The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially 'imperfect' evidence. | 1.373 |
| 24 | It is important to have minimum standards for the methodological conduct of rapid reviews. | 1.373 |
| 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand. | 1.373 |
| 14 | Rapid reviews meet the needs of knowledge users. | 1.373 |
| 49 | Producers are more concerned with the methodology and validity of rapid reviews than knowledge users. | 0.686 |
| 46 | It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods. | 0.686 |
| 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review). | 0.686 |
| 32 | Rapid reviews can be timely and valid, even when methodological concessions are made. | 0.686 |
| 26 | Standardization of rapid review methods may conflict with the needs of knowledge users | 0.686 |
| 21 | Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision. | 0.686 |
| 11 | Rapid reviews are comparable to SRs except they are done in a more timely fashion. | 0.686 |
| 8 | The opportunity cost of a comprehensive SR or HTA is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor. | 0.686 |
| 6 | Rapid reviews mean different things to different people. | 0.686 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0.686 |
| 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed. | 0 |
| 44 | A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigourous methods for evidence synthesis. | 0 |
| 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different. | 0 |
| 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods. | 0 |
| 30 | Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review. | 0 |

| | | |
|---|---|---|
| 29 | Knowledge users do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product. | 0 |
| 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR). | 0 |
| 22 | My confidence in a rapid review is impacted by which methods are tailored to speed up the review process. | 0 |
| 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence. | 0 |
| 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | 0 |
| 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly. | 0 |
| 9 | Rapid reviews do not replace SRs or HTAs. | 0 |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | 0 |
| 1 | The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence. | 0 |
| 48 | 'Rapid review' is too broad a phrase – doing a review in a more timely way can only be relative to how long it takes the same team to produce a full systematic review. | -0.686 |
| 42 | Any review of evidence that takes longer than 3 months to produce is not a rapid review. | -0.686 |
| 40 | Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision. | -0.686 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | -0.686 |
| 31 | Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users. | -0.686 |
| 23 | My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence. | -0.686 |
| 19 | It is always appropriate to conduct a rapid review. | -0.686 |
| 16 | There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand. | -0.686 |
| 15 | There is a paucity of evidence on rapid reviews, so I cannot support or oppose their use in decision-making. | -0.686 |
| 5 | Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users. | -0.686 |
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | -1.373 |
| 47 | A rapid review cannot be a systematic review. | -1.373 |
| 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review. | -1.373 |
| 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | -1.373 |
| 34 | It is appropriate to endeavor to define a single, unique methodology for rapid reviews. | -1.373 |
| 12 | Rapid reviews are 'quick and dirty' systematic reviews. | -1.373 |
| 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review. | -2.059 |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -2.059 |

## SUPPLEMENT 7-17. DESCENDING ARRAY OF FACTOR DIFFERENCES

**Factors A,B**

| # | A | B | Delta |
|---|---|---|---|
| 28 | 0.535 | -1.842 | 2.377 |
| 41 | 1.837 | -0.222 | 2.059 |
| 39 | 1.173 | -0.621 | 1.794 |
| 20 | 1.55 | -0.222 | 1.772 |
| 8 | 0.059 | -1.642 | 1.701 |
| 19 | -1.023 | -2.463 | 1.44 |
| 27 | 0.466 | -0.821 | 1.287 |
| 26 | 0.011 | -1.242 | 1.253 |
| 35 | 0.6 | -0.621 | 1.221 |
| 33 | 0.269 | -0.843 | 1.112 |
| 25 | 1.246 | 0.2 | 1.046 |
| 18 | 1.026 | 0 | 1.026 |
| 45 | 1.826 | 0.821 | 1.005 |
| 42 | -0.856 | -1.642 | 0.786 |
| 31 | 0.296 | -0.421 | 0.717 |
| 21 | 1.295 | 0.621 | 0.674 |
| 29 | 0.484 | 0 | 0.484 |
| 22 | 0.684 | 0.2 | 0.484 |
| 14 | 0.674 | 0.2 | 0.474 |
| 32 | 0.866 | 0.421 | 0.445 |
| 49 | 0.235 | -0.2 | 0.435 |
| 10 | 1.869 | 1.442 | 0.427 |
| 48 | -0.118 | -0.421 | 0.303 |
| 5 | -0.989 | -1.242 | 0.253 |
| 34 | -0.393 | -0.621 | 0.228 |
| 7 | -2.135 | -2.263 | 0.128 |
| 23 | 0.211 | 0.2 | 0.011 |
| 16 | 0.15 | 0.2 | -0.05 |
| 36 | 0.738 | 0.843 | -0.105 |
| 24 | 0.298 | 0.421 | -0.123 |
| 1 | 0.486 | 0.621 | -0.135 |
| 44 | -0.505 | -0.2 | -0.305 |
| 6 | 0.523 | 0.843 | -0.32 |
| 50 | -0.237 | 0.2 | -0.437 |
| 46 | -0.48 | 0 | -0.48 |
| 17 | -0.514 | 0 | -0.514 |
| 30 | -0.148 | 0.4 | -0.548 |

| # | A | B | Delta |
|---|---|---|---|
| 43 | -1.396 | -0.821 | -0.575 |
| 13 | 0.339 | 1.021 | -0.682 |
| 37 | -0.462 | 0.421 | -0.883 |
| 9 | 0.297 | 1.242 | -0.945 |
| 15 | -0.952 | 0 | -0.952 |
| 11 | -0.893 | 0.621 | -1.514 |
| 2 | -0.783 | 0.843 | -1.626 |
| 38 | -2.149 | -0.222 | -1.927 |
| 40 | -1.53 | 0.421 | -1.951 |
| 12 | -1.943 | 0.421 | -2.364 |
| 4 | -0.861 | 1.664 | -2.525 |
| 3 | -0.262 | 2.463 | -2.725 |
| 47 | -1.412 | 1.842 | -3.254 |

## Factors A,C

| # | A | C | Delta |
|---|---|---|---|
| 10 | 1.869 | 0 | 1.869 |
| 45 | 1.826 | 0 | 1.826 |
| 20 | 1.55 | 0 | 1.55 |
| 2 | -0.783 | -2.059 | 1.276 |
| 25 | 1.246 | 0 | 1.246 |
| 50 | -0.237 | -1.373 | 1.136 |
| 18 | 1.026 | 0 | 1.026 |
| 31 | 0.296 | -0.686 | 0.982 |
| 34 | -0.393 | -1.373 | 0.98 |
| 23 | 0.211 | -0.686 | 0.897 |
| 16 | 0.15 | -0.686 | 0.836 |
| 36 | 0.738 | 0 | 0.738 |
| 22 | 0.684 | 0 | 0.684 |
| 21 | 1.295 | 0.686 | 0.609 |
| 35 | 0.6 | 0 | 0.6 |
| 48 | -0.118 | -0.686 | 0.568 |
| 39 | 1.173 | 0.686 | 0.487 |
| 1 | 0.486 | 0 | 0.486 |
| 29 | 0.484 | 0 | 0.484 |
| 41 | 1.837 | 1.373 | 0.464 |
| 9 | 0.297 | 0 | 0.297 |
| 37 | -0.462 | -0.686 | 0.224 |
| 32 | 0.866 | 0.686 | 0.18 |
| 43 | -1.396 | -1.373 | -0.023 |
| 47 | -1.412 | -1.373 | -0.039 |

| # | A | B | Delta |
|---|---|---|---|
| 7 | -2.135 | -2.059 | -0.076 |
| 30 | -0.148 | 0 | -0.148 |
| 6 | 0.523 | 0.686 | -0.163 |
| 42 | -0.856 | -0.686 | -0.17 |
| 15 | -0.952 | -0.686 | -0.266 |
| 5 | -0.989 | -0.686 | -0.303 |
| 19 | -1.023 | -0.686 | -0.337 |
| 49 | 0.235 | 0.686 | -0.451 |
| 44 | -0.505 | 0 | -0.505 |
| 12 | -1.943 | -1.373 | -0.57 |
| 8 | 0.059 | 0.686 | -0.627 |
| 26 | 0.011 | 0.686 | -0.675 |
| 14 | 0.674 | 1.373 | -0.699 |
| 38 | -2.149 | -1.373 | -0.776 |
| 40 | -1.53 | -0.686 | -0.844 |
| 4 | -0.861 | 0 | -0.861 |
| 27 | 0.466 | 1.373 | -0.907 |
| 3 | -0.262 | 0.686 | -0.948 |
| 24 | 0.298 | 1.373 | -1.075 |
| 33 | 0.269 | 1.373 | -1.104 |
| 46 | -0.48 | 0.686 | -1.166 |
| 28 | 0.535 | 2.059 | -1.524 |
| 11 | -0.893 | 0.686 | -1.579 |
| 13 | 0.339 | 2.059 | -1.72 |
| 17 | -0.514 | 1.373 | -1.887 |

## Factors B,C

| # | B | C | Delta |
|---|---|---|---|
| 47 | 1.842 | -1.373 | 3.215 |
| 2 | 0.843 | -2.059 | 2.902 |
| 12 | 0.421 | -1.373 | 1.794 |
| 3 | 2.463 | 0.686 | 1.777 |
| 4 | 1.664 | 0 | 1.664 |
| 50 | 0.2 | -1.373 | 1.573 |
| 10 | 1.442 | 0 | 1.442 |
| 9 | 1.242 | 0 | 1.242 |
| 38 | -0.222 | -1.373 | 1.151 |
| 37 | 0.421 | -0.686 | 1.107 |
| 40 | 0.421 | -0.686 | 1.107 |
| 16 | 0.2 | -0.686 | 0.886 |
| 23 | 0.2 | -0.686 | 0.886 |
| 36 | 0.843 | 0 | 0.843 |

| # | A | B | Delta |
|---|---|---|---|
| 45 | 0.821 | 0 | 0.821 |
| 34 | -0.621 | -1.373 | 0.752 |
| 15 | 0 | -0.686 | 0.686 |
| 1 | 0.621 | 0 | 0.621 |
| 43 | -0.821 | -1.373 | 0.552 |
| 30 | 0.4 | 0 | 0.4 |
| 31 | -0.421 | -0.686 | 0.265 |
| 48 | -0.421 | -0.686 | 0.265 |
| 22 | 0.2 | 0 | 0.2 |
| 25 | 0.2 | 0 | 0.2 |
| 6 | 0.843 | 0.686 | 0.157 |
| 29 | 0 | 0 | 0 |
| 18 | 0 | 0 | 0 |
| 11 | 0.621 | 0.686 | -0.065 |
| 21 | 0.621 | 0.686 | -0.065 |
| 44 | -0.2 | 0 | -0.2 |
| 7 | -2.263 | -2.059 | -0.204 |
| 20 | -0.222 | 0 | -0.222 |
| 32 | 0.421 | 0.686 | -0.265 |
| 5 | -1.242 | -0.686 | -0.556 |
| 35 | -0.621 | 0 | -0.621 |
| 46 | 0 | 0.686 | -0.686 |
| 49 | -0.2 | 0.686 | -0.886 |
| 24 | 0.421 | 1.373 | -0.952 |
| 42 | -1.642 | -0.686 | -0.956 |
| 13 | 1.021 | 2.059 | -1.038 |
| 14 | 0.2 | 1.373 | -1.173 |
| 39 | -0.621 | 0.686 | -1.307 |
| 17 | 0 | 1.373 | -1.373 |
| 41 | -0.222 | 1.373 | -1.595 |
| 19 | -2.463 | -0.686 | -1.777 |
| 26 | -1.242 | 0.686 | -1.928 |
| 27 | -0.821 | 1.373 | -2.194 |
| 33 | -0.843 | 1.373 | -2.216 |
| 8 | -1.642 | 0.686 | -2.328 |
| 28 | -1.842 | 2.059 | -3.901 |

1. Fuerntratt, E. Zur Bestimmung der Anzahl interpretierbarer gemeinsamer Faktoren in Faktorenanalysen psychologischer Daten (The determination of the number of interpretable common factors in factor analysis of psychological data). Diagnostica. 1969;15:62–75.

## SUPPLEMENT 7-18. STATEMENTS NOT LINKED TO ANY FACTOR

### Statements That Do Not Distinguish Between ANY Pair of Factors (NON-Significant; p > 0.01)

| # | Statements | Factors | | | | | |
|---|---|---|---|---|---|---|---|
| | | A Z-Score | Rank | B Z-Score | Rank | C Z-Score | Rank |
| 1 | The evidence from rapid reviews is good enough to inform low-risk, emergent policy or decision-making needs when the alternative is the use of no evidence. | 0.486 | 1 | 0.621 | 1 | 0 | 0 |
| 5 | Rapid reviews are too focused in scope and/or context to be generalizable to a variety of knowledge users. | -0.989 | -2 | -1.242 | -2 | -0.686 | -1 |
| **6** | **Rapid reviews mean different things to different people.** | **0.523** | **1** | **0.843** | **2** | **0.686** | **1** |
| **7** | **Rapid reviews should only precede a more comprehensive and rigorous systematic review.** | **-2.135** | **-3** | **-2.263** | **-3** | **-2.059** | **-3** |
| 9 | Rapid reviews do not replace SRs or HTAs. | 0.297 | 0 | 1.242 | 2 | 0 | 0 |
| 14 | Rapid reviews meet the needs of knowledge users. | 0.674 | 1 | 0.2 | 0 | 1.373 | 2 |
| 15 | There is a paucity of evidence on rapid reviews, so I cannot support or oppose their use in decision-making. | -0.952 | -1 | 0 | 0 | -0.686 | -1 |
| 16 | There is so much overlap across the various evidence synthesis methods that I cannot generalize my opinion to favor one over the other without the context of the decision at hand. | 0.15 | 0 | 0.2 | 0 | -0.686 | -1 |
| 21 | Appropriateness of a rapid review varies with the type of decision being made, and any financial, legal or other important contextual facets tied to the decision. | 1.295 | 2 | 0.621 | 1 | 0.686 | 1 |
| 22 | My confidence in a rapid review is impacted by which methods are tailored to speed up the review process. | 0.684 | 1 | 0.2 | 0 | 0 | 0 |
| 23 | My confidence in a rapid review is directly tied to results being presented and contextualized by the strength and applicability of the evidence. | 0.211 | 0 | 0.2 | 0 | -0.686 | -1 |
| 24 | It is important to have minimum standards for the methodological conduct of rapid reviews. | 0.298 | 0 | 0.421 | 1 | 1.373 | 2 |
| 29 | Knowledge users do not fully understand the implications of streamlining evidence synthesis methods to produce a more timely evidence product. | 0.484 | 1 | 0 | 0 | 0 | 0 |
| 30 | Reporting of the results of rapid reviews must be tailored to the knowledge user(s) who commissioned the review. | -0.148 | 0 | 0.4 | 0 | 0 | 0 |
| 31 | Rapid reviews that omit an assessment of the quality of included studies are useless to knowledge users. | 0.296 | 0 | -0.421 | -1 | -0.686 | -1 |
| 32 | Rapid reviews can be timely and valid, even when methodological concessions are made. | 0.866 | 1 | 0.421 | 1 | 0.686 | 1 |
| **34** | **It is appropriate to endeavor to define a single, unique methodology for rapid reviews.** | **-0.393** | **-1** | **-0.621** | **-1** | **-1.373** | **-2** |
| 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different. | 0.738 | 1 | 0.843 | 1 | 0 | 0 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | -0.462 | -1 | 0.421 | 1 | -0.686 | -1 |
| **42** | **Any review of evidence that takes longer than 3 months to produce is not a rapid review.** | **-0.856** | **-1** | **-1.642** | **-2** | **-0.686** | **-1** |

| # | Statements | Factors | | | | | |
|---|---|---|---|---|---|---|---|
| | | A Z-Score | Rank | B Z-Score | Rank | C Z-Score | Rank |
| **43** | **Any review of evidence that takes longer than 1 month to produce is not a rapid review.** | **-1.396** | **-2** | **-0.821** | **-1** | **-1.373** | **-2** |
| 44 | A rapid review must be justified with a valid rationale for both speeding up the process and tailoring rigourous methods for evidence synthesis. | -0.505 | -1 | -0.2 | 0 | 0 | 0 |
| 46 | It is difficult to tell a rapid review from a systematic review unless very specific nomenclature is used in the title or description of methods. | -0.48 | -1 | 0 | 0 | 0.686 | 1 |
| 48 | 'Rapid review' is too broad a phrase – doing a review in a more timely way can only be relative to how long it takes the same team to produce a full systematic review. | -0.118 | 0 | -0.421 | -1 | -0.686 | -1 |
| 49 | Producers are more concerned with the methodology and validity of rapid reviews than knowledge users. | 0.235 | 0 | -0.2 | 0 | 0.686 | 1 |
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | -0.237 | 0 | 0.2 | 0 | -1.373 | -2 |

**Bolded statements** are NON-Significant; $p > 0.05$

## SUPPLEMENT 7-19. DEFINING STATEMENTS FOR EACH FACTOR

| No. | Statements | Factor Score | | |
|---|---|---|---|---|
| | | A | B | C |
| **FACTOR A: THEME** | | | | |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -1 | 2 | -3 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0 | 3 | 1 |
| 11 | Rapid reviews are comparable to SRs except they are done in a more timely fashion. | -1 | 1 | 1 |
| 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | 2 | 0 | 0 |
| 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence. | 2 | -1 | 0 |
| 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR). | 2 | 0 | 0 |
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | 1 | -2 | 3 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 0 | -2 | 2 |
| 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed. | 2 | 1 | 0 |
| **FACTOR B: THEME** | | | | |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -1 | 2 | -3 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0 | 3 | 1 |
| 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | -1 | 2 | 0 |

| No. | Statements | Factor Score | | |
|---|---|---|---|---|
| | | A | B | C |
| 8 | The opportunity cost of a comprehensive SR or HTA is too high and it is more advantageous to conduct rapid reviews when timeliness is a factor. | 0 | -2 | 1 |
| 9 | Rapid reviews do not replace SRs or HTAs. | 0 | 2 | 0 |
| 12 | Rapid reviews are ‘quick and dirty' systematic reviews. | -2 | 1 | -2 |
| 19 | It is always appropriate to conduct a rapid review. | -2 | -3 | -1 |
| 26 | Standardization of rapid review methods may conflict with the needs of knowledge users | 0 | -2 | 1 |
| 27 | The value of rapid reviews in the context of emergent decision-making needs outweighs the disadvantages or risk of bias and potentially ‘imperfect' evidence. | 1 | -1 | 2 |
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is ‘best evidence' is specific to the knowledge user. | 1 | -2 | 3 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 0 | -2 | 2 |
| 37 | I put more confidence in evidence produced in a systematic review than of a rapid review. | -1 | 1 | -1 |
| 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | -3 | -1 | -2 |
| 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review). | 2 | -1 | 1 |
| 40 | Rapid reviews should only be conducted when the alternate option is the use of no evidence to inform a decision. | -2 | 1 | -1 |
| 41 | A well-conducted rapid review may produce better evidence than a poorly conducted systematic review. | 3 | -1 | 2 |
| 47 | A rapid review cannot be a systematic review. | -2 | 3 | -2 |
| **FACTOR C: THEME** | | | | |
| 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted. | -1 | 2 | -3 |
| 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 0 | 3 | 1 |
| 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly. | 3 | 2 | 0 |
| 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand. | -1 | 0 | 2 |
| 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is ‘best evidence' is specific to the knowledge user. | 1 | -2 | 3 |
| 33 | Transparency of process is more important than the actual methods used to produce rapid reviews, as transparency allows the end user to make their own assessment on validity and appropriateness. | 0 | -2 | 2 |
| 50 | It is difficult to judge the validity of a rapid review as the reporting is often truncated and protocols are not published. | 0 | 0 | -2 |

## SUPPLEMENT 7-20. OPEN-TEXT COMMENTS RELATED TO FACTOR CHOICES BY Q SORT

| Q sort ID | MOST DISAGREE (-3) | | | | |
|---|---|---|---|---|---|
| | **Statement No.** | **- 3 statement choice #1** | **Statement No.** | **-3 statement choice #2** | **Participant Explanation** |
| ID: 8174 | 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review | 19 | It is always appropriate to conduct a rapid review. | *I don't think that rapid reviews are always appropriate and I don't think that they can replace a high quality systematic review* |
| ID: 8176 | 19 | It is always appropriate to conduct a rapid review. | 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | *Just because you spent more time producing a report does not necessarily mean you produced a quality report. Quality in method far outweighs the "time" equation in my mind. Rapid reviews should be considered one of many tools available in the wrold of evidence synthesis. It should not be the only tool. Decision to use a repaid review should be based on several factors such as available resource, need for timely information, focus of the synthesis, with the evidence user's needs in mind.* |
| ID: 8185 | 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted | 47 | A rapid review cannot be a systematic review | *The statements create a false dichotomy. there is no reason a rapid review cannot be a systematic review in its pure sense* |
| ID: 8186 | 2 | When time allows, a comprehensive systematic review of all available evidence should always be conducted | 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review | *A RR can be done at any time - whether there's been no existing SR/MA - or when there have been many. What that RR will look like will differ accordingly but to say it can only precede a more fullsome SR/MA is wasteful. For a RR, time is the differentiating factor. But for producers of RR (and SR & MA & HTA), the issue also goes to resource/capacity. So someone (head of that team) is making a decision about which report type (RR, SR/MA, HTA) to tackle each type of decision question. We should not be doing de novo SR for each request as a matter of standard (ie just because), if one is able to find existing work on the topic that can be "updated" or otherwise contextualized to the current need.* |

| Q sort ID | MOST DISAGREE (-3) | | | | |
|---|---|---|---|---|---|
| | **Statement No.** | **- 3 statement choice #1** | **Statement No.** | **-3 statement choice #2** | **Participant Explanation** |
| ID: 8194 | 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review | 12 | Rapid reviews are 'quick and dirty' systematic reviews. | *There are many situations in which rapid reviews are both necessary (need for timeliness) and sufficient (a large amount of evidence is simply not available), and there is no purpose in following with a complete systematic review at that point in time. Subsequently there may be, once the evidence has accumulated, but doing both on the same evidence base is not the same. Quick, yes, dirty, no. Rapid reviews aspire to a standard. What that standard should be may not be clear yet.* |
| ID: 8198 | 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | 17 | There is a risk involved in tailoring accepted SR methods to produce rapid reviews that we do not yet understand | *Rapid reviews as a method have been shown to be effective so use them* |
| ID: 8199 | 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | 43 | Any review of evidence that takes longer than 1 month to produce is not a rapid review | *More time spent on the review could grant more thoroughness. However, validity of the review is not dependent on time, but rather the methodology used in conducting the review. Defining rapid reviews by absolute time frame is not appropriate because depending on the scope and scale of the question, more than a month of time may be needed to conduct a rapid review.* |
| ID: 8200 | 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review | 38 | The more time spent conducting the review of the evidence, the more valid the results of the review will be. | *Validity of the review is not determined by the amount of time put into it. RRs have a place in making decisions beyond being the predecessor of SRs. Especially because full SRs/HTAs may not be appropriate for answering time sensitive issues.* |
| ID: 8215 | 12 | Rapid reviews are 'quick and dirty' systematic reviews. | 32 | Rapid reviews can be timely and valid, even when methodological concessions are made | *The term "quick and dirty" reflects a cutting of corners which rapid reviews are not. The quantity of time needed to produce a rapid review is not necessarily tied to quality of the results for the purpose of decision making.* |
| ID: 8221 | 7 | Rapid reviews should only precede a more comprehensive and rigorous systematic review | 19 | It is always appropriate to conduct a rapid review. | *'Rapid reviews should only precede a more comprehensive and rigorous systematic review': depending on the methods used for the RR, this could be a duplication of effort and it depends on the decision that is being made. It is always appropriate to conduct a rapid review: Again, depends on the decision being made. If it's a highly political, risky, high budget, a lot of differences in opinions in the clinical community, it probably warrants a SR - where bias is minimized and validity may be higher.* |

| Q sort ID | MOST DISAGREE (-3) | | | | |
|---|---|---|---|---|---|
| | **Statement No.** | **- 3 statement choice #1** | **Statement No.** | **-3 statement choice #2** | **Participant Explanation** |
| ID: 8223 | 19 | It is always appropriate to conduct a rapid review. | 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user. | Policy decisions need to be made on a regular basis and are often timely, but that does not mean short cuts should be taken to "back up" that policy decision, due diligence is still required. In some instances rapid responses are sufficient as the evidence is clear or in some cases there is no evidence, so conducting a full rapid review is a waste of resources. |

| Q sort ID | MOST AGREE (+3) | | | | |
|---|---|---|---|---|---|
| | **Statement No.** | **-+3 statement choice #1** | **Statement No.** | **+3 statement choice #2** | **Participant Explanation** |
| ID: 8174 | 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 4 | Further research comparing the methods and results of rapid reviews and systematic reviews is required before I decide how I feel about rapid reviews. | *I think that the most important thing is that no one knows the extent of bias in rapid reviews and we need to study this further* |
| ID: 8176 | 20 | Rapid reviews and all other evidence synthesis products hold the same value as long as they retain the core value of being transparent in conduct, include the highest quality evidence available and present results with a qualification on the strength of evidence | 41 | When time allows, a comprehensive systematic review of all available evidence should always be conducted | *The second statement defines my attitude towards rapid reviews. If the evidence synthesis is done using core quality methodology, I believe the end product is superior to a poorly conducted SR* |
| ID: 8185 | 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly | 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods | *Rapid review is not a concept that be compared with systematic review. This is a false dichotomoy. A rapid review is simply evidence synthesis done with greater expediency* |
| ID: 8186 | 13 | Rapid reviews need to be tailored to the specific needs of the knowledge user | 28 | Knowledge users don't always need all of the evidence, they just need the best evidence to support their decision, and what is 'best evidence' is specific to the knowledge user | *RR came into being in order to support decision makers. The time required to do a gold standard SR/MA was too long....decisions couldn't wait. So, to achieve the shorter timelines associated with a RR, you can't do "superfluous" stuff - answer the question, give the best evidence, that's it. This is not the time to pursue academic endeavours. The "best evidence" can come from already existing syntheses - so why bombard a decision maker with countless individual studies when you can provide them with something that's* |

| Q sort ID | MOST AGREE (+3) | | | | |
|---|---|---|---|---|---|
| | Statement No. | -+3 statement choice #1 | Statement No. | +3 statement choice #2 | Participant Explanation |
| | | | | | *already synthesized/boiled down. Again, it's RR in support of something.* |
| ID: 8194 | 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR) | 35 | Rapid reviews are not a unique methodology, they are simply a variation of a systematic review that can fall anywhere on the continuum of evidence synthesis methods | *Strong need for minimum standards of reporting - based on my observations of the EBM field since CONSORT, and my frustrations in doing reviews with poorly reported studies. It's not the solution, but it is a necessary preliminary. Not a unique methodology ... in principle, systematic review methods should be broadly applicable and generalizable. In practice, we're constrained by time and the available evidence. Over time, with standardization, automation, collaboration and systematization, I can see the methods converging to produce a more complete rapid review and a quicker systematic review.* |
| ID: 8198 | 14 | Rapid reviews meet the needs of knowledge users | 18 | Using rapid reviews to inform decisions is better than using no evidence at all. | *Rapid reviews done right have been proven to be effective forms of evidence production* |
| ID: 8199 | 10 | All evidence synthesis products, including rapid reviews, SRs, or HTAs, can be conducted very well or very poorly | 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is completed | *Rigorous and transparent methodology underpin the integrity of any reviews, regardless whether it's a formalized systematic review or a rapid review assessment. As in clinical trials, poor methods in reviews may introduce bias in the result of knowledge synthesis.* |
| ID: 8200 | 25 | It is important to have minimum standards for the reporting of rapid reviews (e.g., a PRISMA-RR) | 36 | The results from a systematic review may not differ from those of a rapid review, but more research is needed to support this theory and quantify why results may be the same or different | *I'm not up to date on the literature in which comparisons have been made between findings of RRs and SRs for the same topic. But I see value in making such comparisons because I think there are likely many situations where evidence derived from a RR is sufficent. This is my own hypothesis and I'm not sure if ihas been tested yet. I see value in having at least a minimum standard guiding RRs. I'm not sure why we would set standards for SRs but not RRs just because of differences in timing or depth of review.* |
| ID: 8215 | 39 | Achieving a precise estimate of effect (from a SR) may not inform the decision-at-hand any better than a general estimate of effect (produced by a rapid review) | 41 | When time allows, a comprehensive systematic review of all available evidence should always be conducted | *I am thinking about the Ebola crisis and the need for rapid decision making based on good evidence available in a timely fashion. having precise estimates of effect may not change the decisions being made.* |
| ID: 8221 | 12 | Rapid reviews are 'quick and dirty' systematic reviews | 45 | A good quality review of evidence is determined by the methods used, not by the speed at which it is | *'A good quality...' - I think you can have poor quality SRs - it's all about the methods. The methods are an equalizer of sorts. 'Rapid reviews* |

| Q sort ID | MOST AGREE (+3) | | | | |
|---|---|---|---|---|---|
| | **Statement No.** | **-+3 statement choice #1** | **Statement No.** | **+3 statement choice #2** | **Participant Explanation** |
| | | | | completed | *do not...' - It's all about risk. How confident do decision makers need to be in the answer?* |
| ID: 8223 | 3 | Deviating from accepted systematic review methods may introduce bias and impact the validity of the resulting rapid review, which may be an unacceptable risk for some for knowledge users. | 47 | A rapid review cannot be a systematic review | *Having a defined template for rapid reviews places everyone in the same playing field as it will be clear what process has been followed and how the rapid review should be used - defining its strengths and weaknesses.* |