Methodologies for rapid response for evidence-informed decision making in health policy and practice: an overview of systematic reviews and primary studies (Protocol)

Dr Michelle Haby, Dr Evelina Chapman, Dr Ludovic Reveiz, Dr Jorge Barreto, Ms Rachel Clark

Contacts: Dr Michelle Haby, haby@unimelb.edu.au; Dr Evelina Chapman, chapmane@paho.org;
Funded by the Pan American Health Organization, Brazil
Date of latest change to this protocol: 15 January 2015

Background
In May 2005 the World Health Assembly called on WHO Member States to “establish or strengthen mechanisms to transfer knowledge in support of evidence-based public health and healthcare delivery systems, and evidence-based health-related policies” (World Health Assembly 2005). It also called on WHO’s Director-General to “assist in the development of more effective mechanisms to bridge the divide between ways in which knowledge is generated and ways in which it is used, including the transformation of health-research findings into policy and practice” (World Health Assembly 2005).

In modern public health practice it is widely accepted that interventions underpinned by research evidence will be more effective than those that are not; also offering better value for money, transparency in decision making and accountability.

Evidence-informed decision-making (EIDM) refers to the systematic and transparent use of research evidence, along with other considerations important in decision-making, such as context, acceptability to stakeholders, feasibility of implementation, and equity (Carter et al. 2008, Oxman et al. 2009). These decisions can be applied to policy and/or practice.

Knowledge translation has been defined by the World Health Organization as: the synthesis, exchange, and application of knowledge by relevant stakeholders to accelerate the benefits of global and local innovation in strengthening health systems and improving people’s health (WHO 2006). Note that this term was first defined by the Canadian Institutes of Health Research in 2000 (Canadian Institutes of Health Research, Pablos-Mendez and Shademani 2006). Knowledge translation seeks to address the challenges to the use of scientific evidence in order to close the gap between the evidence generated and decision making (knowledge translation for action). The term “knowledge translation” has been used interchangeably with the term “evidence-informed decision-making” (WHO 2012) and has also been conceptualized as a term to describe the range of strategies to address the barriers to evidence-informed decision-making (Armstrong et al. 2013). For this overview the second concept will be used, i.e. where “knowledge translation” is used to describe the range of strategies used to address the barriers to evidence-informed decision-making. Other terms used to describe the efforts to support or
accelerate the uptake of research, include knowledge transfer, ‘knowledge-to-action’, knowledge exchange, linking research to action, diffusion of innovations, research utilization, implementation, diffusion, and dissemination (Graham et al. 2006).

Different conceptual frameworks\(^1\) have been developed to represent and explain how knowledge translation can, or does, occur (Best and Holmes 2010, Graham et al. 2006, Greenhalgh et al. 2004, Lavis et al. 2006, Moore et al. 2009, Redman et al. 2008, WHO 2012). It is worth noting, however, that these frameworks have not yet been tested empirically as a knowledge translation strategy. For the purpose of this overview, the WHO knowledge translation framework for health and ageing will be adopted to guide the overview (WHO 2012). This framework was developed from the linking research to practice framework (Lavis et al. 2006, Table 1) and is summarized in Figure 1 and Table 1. Further details regarding the framework can be found in the two main papers (Lavis et al. 2006, WHO 2012).

\[\text{Figure 1. The seven key elements for knowledge translation (KT) on ageing and health (WHO 2012).}\]

\(^{1}\) A range of terms are used in the literature, including framework, model, conceptual framework or model, theoretical framework or model and these terms are often used interchangeably without clear definition.
Table 1. High level summary of the WHO knowledge translation framework for health and ageing (Lavis et al. 2006, WHO 2012)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate and context:</td>
<td>Consideration of the local context and climate (i.e. the characteristics, circumstances, and conditions), with respect to ageing and health, as well as KT activities.</td>
</tr>
<tr>
<td>Linkage and Exchange Efforts:</td>
<td>Building relationships between users and researchers.</td>
</tr>
<tr>
<td>Knowledge Creation:</td>
<td>Creating new knowledge that is timely and relevant.</td>
</tr>
<tr>
<td>Push Efforts:</td>
<td>Pushing knowledge out to necessary groups in appropriate formats.</td>
</tr>
<tr>
<td>Facilitating Pull Efforts:</td>
<td>Enabling policymakers to identify relevant research.</td>
</tr>
<tr>
<td>Pull Efforts:</td>
<td>Pulling the relevant evidence into policy making by the users.</td>
</tr>
<tr>
<td>Evaluation Efforts</td>
<td>Monitoring and evaluating KT efforts.</td>
</tr>
</tbody>
</table>

KT: knowledge translation

There is a growing literature describing the barriers and facilitators to the use of research evidence (Lavis et al. 2005, Liverani et al. 2013, Moore et al. 2009, Nutley 2003, Oliver et al. 2014, Orton et al. 2011) and a range of strategies have been tested to overcome these barriers and facilitate the uptake of research (LaRocca et al. 2012, Mitton et al. 2007, Moore et al. 2009). However, few empirical studies exist and typically those identified have targeted individuals, focused on individual level strategies, and perhaps with the exception of one knowledge brokering intervention (Dobbins et al. 2009), have proven to be relatively unsuccessful in achieving enhanced evidence use (LaRocca et al. 2012, Mitton et al. 2007, Moore et al. 2009).

A range of organizational efforts to enhance and support the use of research evidence in decision-making have been developed and applied at different levels, including local, national, regional and global. Users of these services have different needs and requirements in relation to the type of final product that they are looking for, which may include, among others, systematic reviews, clinical practice guidelines, health technology assessments, and policy briefs. Among these products, systematic reviews play a central role as they are the basis for the search, evaluation and synthesis of the available research and are used as a basis for all of the above mentioned products. Standardized methods exist for the preparation of systematic reviews and, in particular, the Cochrane Collaboration has made important efforts in their methods, design, use and dissemination.

Standardized processes and methodologies have also been developed for the other evidence products, including clinical practice guidelines, health technology assessments, and policy briefs. Within these processes thought is often given to strategies to enhance their uptake into policy and practice. For example, the collaborative network GRADE proposes a system to grade the quality of evidence and strength of recommendations for use in practice guidelines (Guyatt et al. 2008). The grading system joins key elements such as the balance between benefits and risks, the quality of evidence, values and preferences of users (patients, health professionals, etc.) and the costs and resource utilization that result from a decision. In the case of the formulation of evidence-informed policy options the SUPPORT
The project (Supporting Policy Relevant Reviews and Trials) produced a series of standardized tools that aim to help people who make decisions about health policies and programs to do so based on the best available evidence (Lavis et al. 2009). There are diverse approaches to conducting health technology assessments that incorporate aspects such as efficiency, safety, cost-effectiveness and the appropriateness of using these health technologies. However, there is a growing need to provide these evidence products more expeditiously (faster), while also maintaining credibility and technical quality.

One of the key barriers to the use of research evidence in decision-making is research production that is not timely or relevant (WHO 2012). With this in mind, a range of methods for rapid systematic reviews of the research evidence have been developed and put into practice. However, the availability of reviews of the evidence also needs to be accompanied by appropriate knowledge translation strategies to facilitate their use in decision making.

To comply with the standards in the synthesis, exchange and application of scientific knowledge requires significant resources (human, financial, etc.) in scenarios that require higher speed and technical quality for decision making. For this reason, it is necessary to establish a model of knowledge translation that is systematic, transparent, efficient and flexible and that responds to the needs of all stakeholders for decision making in health. To enable this, it is first necessary to ascertain the full range of strategies available and their potential effectiveness.

**Focus of this overview**

The focus of this overview is to develop methodologies for rapid response for evidence-informed decision making in health policy and practice based on the best available evidence. The expectation is that a rapid response will facilitate the use of research for decision making. This will require consideration of two main areas of research:

a) Methods for evidence syntheses (including systematic reviews) that shorten the time required for their completion – thus helping to overcome the barrier of ‘research production that is not timely or relevant’.

b) Other methods, processes and mechanisms that encourage the translation of research (including systematic reviews and other evidence syntheses).

Methods for rapid evidence syntheses could include:

a. Use of standardized methods
b. Use of only one reviewer for study selection
c. Reduced list of sources searched, including limiting to specialized sources (e.g. of SRs, economic evaluations)
d. Reduced timeframe of search
e. Articles searched in one language only
f. Exclusion of grey literature
g. Use of search tools that make it easier to find literature, e.g. grey literature, RCT

Other methods, processes and mechanisms to encourage research translation could include:

a. Facilitating access to existing systematic reviews, economic evaluations, CPGs, policy briefs etc.
b. Production of summaries of existing systematic reviews.
c. Use of deliberative dialogues for policy briefs
d. Closer collaboration between researchers and policy-makers
e. Mandates to support the use of research evidence, e.g. laws, policies.

**Objectives:**
The objective of this overview is to answer the following questions using the best available evidence:

1. What are the best methodologies to enable a rapid synthesis of research evidence for evidence-informed decision-making in health policy and practice (including laws)?
2. What are the best strategies to facilitate the uptake of the rapid syntheses of evidence, thus facilitating evidence-informed decision-making?

**Methods**

**Criteria for considering studies for inclusion**
Publications in English, French, Spanish or Portuguese, from any country and published in the last 10 years (from 2004 to December 2014) will be included. Both grey and peer-reviewed literature will be included.

**Types of studies**
Existing systematic reviews will be searched first and will be complemented with primary studies where no systematic review exists or where the systematic review is older than 5 years.

The search for primary studies will include the following designs:

a) Individual or cluster randomized controlled trials (RCTs), quasi-randomized controlled trials
b) Controlled before and after studies where people are allocated to control and intervention groups using non-randomized methods.
c) Interrupted time series with before and after measurements (and preferably with at least three measures).
d) Cost-effectiveness / cost-utility / cost-benefit.

Note: In addition, uncontrolled before and after studies, analytical observational studies (cohort, case-control, cross-sectional analytical studies), econometric studies, qualitative, historical, and sociological studies, other types of economic studies, national laws, policies and protocols that, selected according to the advice of experts, can provide relevant evidential data. The results from these studies will be clearly separated from the stronger study designs identified above.

**Types of participants**
The level of analysis could be at the level of the individual, organization, system or geographical area.

**Types of articles**

a) Articles that evaluate methodologies or approaches to rapid evidence syntheses for health policy and/or practice, including systematic reviews, clinical practice guidelines, policy briefs, and technology assessments (Methods).
b) Articles that evaluate the effectiveness of knowledge translation strategies for health policy and/or practice (Strategy effectiveness).
Types of comparisons
Suitable comparisons (where relevant to the article type) include:
- No intervention
- Another intervention
- Current practice

Types of outcome measures
Relevant outcome measures will depend on the type of article:

a) For articles that evaluate methods for rapid evidence syntheses versus standard evidence syntheses, relevant outcome measures include:
- Time to complete.
- Resources required to complete (e.g. $, personnel).
- Measures of synthesis quality.
- Measures of efficiency of methods.
- Satisfaction with methods and products.
- Implementation.

b) For articles that evaluate the effectiveness of knowledge translation strategies, relevant outcome measures include:
- Measures of research uptake / use.
- Change in knowledge, skill or practice (LaRocca et al. 2012).
- Changes in organizational structures or policy to support the use of research.
- Organizational-level change in how research is used.
- Changes in system-level structures or policy to support the use of research.
- System-level change in how research is used.
- Effective implementation.

Search methods for identification of studies

Sources

Databases
The following sources from 2004 to the present will be searched:

- PubMed
- EMBASE - Excerpta Medica database
- CINAHL
- LILACS
- Health Systems Evidence (http://www.mcmasterhealthforum.org/hse/)
- The Cochrane Library, including the Database of Abstracts of Reviews of Effectiveness (DARE), the Health Technology Assessment (HTA) database, NHS Economic Evaluation Database (NHSEED), and the database of Methods Studies.
- EconLit - Economics Literature

Grey literature and manual search
Some of the selected databases index a combination of published and unpublished studies (for example, doctoral dissertations and conference abstracts) therefore unpublished studies will be partially captured through the electronic search process. In addition key websites will be searched:
Google Scholar
Google

The authors’ own databases of knowledge translation literature will be searched by hand for relevant studies.

The reference list of included studies will be searched. Contact will also be made with key authors and experts in the area for further studies, e.g. JN Lavis, A Oxman, M Dobbins, S Nutley.

Documents that WHO/PAHO can provide even if they are not publications but working documents, especially those that exist in the Americas region will be included where they meet the inclusion criteria.

Contact will made via email or other means of communication (with the support of the regional office of PAHO), with people, professionals, institutions, groups and employees of the region’s centers to request information that is not published but is important for the review and meets the inclusion criteria for the review.

Search strategy
Databases will be searched using the following keywords (Table 2) – searched for in title and abstract, except where otherwise stated. Two separate searchers will be run. These include:
   a) Keyword area 3; and
   b) Keyword areas 1 AND 2.

Table 2. Keyword areas for searching

<table>
<thead>
<tr>
<th>Keyword Areas</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Knowledge translation</td>
<td>“Information dissemination” OR “diffusion of innovation” OR “knowledge generation” OR “knowledge translation” OR “knowledge transfer” OR “knowledge uptake” OR “knowledge exchange” OR “knowledge broker*” OR “knowledge mobilization” OR “knowledge mobilisation” OR “research uptake” OR “research use” OR “use of research” OR “evidence informed” OR “evidence-informed” OR “decision making” OR “decision-making” OR “research utilization” OR “research utilisation” OR “technology transfer” OR “knowledge-to-action” OR “knowledge to action” OR “implementation science”</td>
</tr>
<tr>
<td>2. Systematic reviews</td>
<td>“systematic review” OR ”meta-analysis” OR MEDLINE</td>
</tr>
<tr>
<td>3. Rapid evidence syntheses</td>
<td>Search terms used in the databases included:</td>
</tr>
<tr>
<td></td>
<td>“realist review*” OR “realist synthesis” OR “realist syntheses” OR “realist evaluation” OR “meta-method*” OR “meta method*” OR “realist approach*” OR “meta-evaluation*” OR “meta evaluation*” OR “rapid literature review*” OR “rapid systematic review*” OR “rapid scoping review*” OR “rapid review*” OR “rapid approach*” OR “rapid synthesis” OR “rapid syntheses” OR “rapid evidence assess*” OR “evidence summar*”</td>
</tr>
</tbody>
</table>
Results will be downloaded into the EndNote reference management program and duplicates removed. Two separate EndNote databases will be created: one for search results from search ‘a’ and the other for search ‘b’.

Note that for search a) studies will be limited to systematic reviews in the first instance. This is because the area of knowledge translation is broad and we expect a large number of articles to be identified. Once gaps in knowledge translation areas are identified, more focused search strategies for primary studies can be articulated and run. In the case of search b) we are expecting a more reduced number of articles to be identified and few systematic reviews. Thus the same search strategy can be utilized to identify appropriate systematic reviews and primary studies.

Internet search for methods for rapid evidence syntheses will utilize the search terms: ‘rapid review’; ‘rapid approach’; ‘rapid synthesis’; ‘meta-method’; ‘meta-evaluation’; ‘rapid evidence assessment’; ‘expedited review’; ‘accelerated review’; ‘realist review.’

If additional relevant key words are detected during any of the electronic or other searches the electronic search strategies will be modified to incorporate these terms – any changes will be documented.

The search strategy for PubMed can be found in Appendix 1. This will be modified for other databases as appropriate.

**Data collection and analysis**

**Selection of studies**

Searches will be conducted and screened according to the selection criteria by one review author (MH). The full text of any potentially relevant papers will be retrieved for closer examination. The inclusion criteria will be applied against these papers by two reviewers (MH and RC). All studies which initially appear to meet the inclusion criteria but on inspection of the full text paper do not meet the inclusion criteria will be detailed in a table ‘Characteristics of excluded studies’ together with reasons for their exclusion. Disagreements regarding eligibility of studies will be resolved via consensus.

The results of the study selection process will be presented in a flow chart using the format suggested in the PRISMA statement (Moher et al. 2009) – Figure 1.

**Data extraction**

One reviewer will extract all relevant data from included papers and a second reviewer will verify the extracted data. Differences will be resolved by discussion and consensus.

Data extracted for each included systematic review will depend on the article type but will include – see Table 3.
<table>
<thead>
<tr>
<th>Rapid evidence synthesis methods</th>
<th>Effectiveness of knowledge translation strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author/s and year of publication</td>
<td>Author/s and year of publication</td>
</tr>
<tr>
<td>Objectives</td>
<td>Objectives</td>
</tr>
<tr>
<td>Included study designs and number of studies of each design</td>
<td>Included study designs and number of studies of each design</td>
</tr>
<tr>
<td>Years included in search strategy</td>
<td>Years included in search strategy</td>
</tr>
<tr>
<td>Date of last search</td>
<td>Date of last search</td>
</tr>
<tr>
<td>Method/s tested</td>
<td>Strategy tested, duration, frequency etc</td>
</tr>
<tr>
<td></td>
<td>Setting (e.g. national government, clinical practice)</td>
</tr>
<tr>
<td></td>
<td>Target population (e.g. policy makers, executives, administrators)</td>
</tr>
<tr>
<td>Country or region of study</td>
<td>Country or region of study</td>
</tr>
<tr>
<td>Outcomes measured</td>
<td>Outcomes measured</td>
</tr>
<tr>
<td>Results – including numbers where appropriate</td>
<td>Results – including numbers where appropriate</td>
</tr>
<tr>
<td></td>
<td>Follow-up period</td>
</tr>
<tr>
<td>Quality assessment</td>
<td>Quality assessment</td>
</tr>
<tr>
<td>Critical success factors*</td>
<td>Critical success factors*</td>
</tr>
<tr>
<td>Limitations</td>
<td>Limitations</td>
</tr>
<tr>
<td>Research gaps</td>
<td>Research gaps</td>
</tr>
</tbody>
</table>

*These are factors that influence the effectiveness of the method/strategy as mentioned by the authors of the review.

Data extracted for primary studies will depend on the article type but will include all of the above, with the following changes:

- Instead of ‘Included study designs and number of studies of each design’ – Study design and population size
- Instead of ‘Years included in search strategy’ – Year of study
- ‘Date of last search’ will be excluded.

**Assessment of methodological quality of included reviews**

The quality of included systematic reviews will be assessed by two reviewers using AMSTAR: A MeaSurement Tool to Assess Reviews (Shea et al. 2007). AMSTAR assesses the degree to which review methods avoided bias by evaluating the methods against 11 distinct criteria. Each item on AMSTAR is rated as yes (clearly done), no (clearly not done), can’t answer, or not applicable. Disagreements regarding scores will be resolved through discussion and consensus. A review that adequately meets all
of the 11 criteria is considered to be a review of the highest quality. For this overview we will consider reviews that achieve scores of between 8 to 11 high quality; scores of 4 to 7 medium quality; and scores of 0 to 3 low quality. The review quality assessment will be used to interpret the results of reviews when synthesized in this overview and in the formulation of conclusions. Reviews with scores of 0 to 3 will be noted as included but not contribute to the main result.

The quality of any primary studies included will be assessed using a set of criteria adapted from: Cochrane Effective Practice and Organisation of Care Review Group (EPOC) Data Collection Checklist, and the Critical Appraisal Skills Programme (CASP) for the interrupted time series, longitudinal studies and uncontrolled before and after studies, case-control studies and cross-sectional analytical studies.

GRADE (Grading of Recommendations Assessment, Development and Evaluation) will be used to evaluate the quality of evidence within and across systematic reviews for each important outcome. This assessment will take into account the challenge of applying GRADE to non-clinical evidence (Burford et al. 2012).

**Data synthesis**
Interventions/strategies will be classified according to the WHO knowledge translation framework (Table 1 and (Lavis et al. 2006, WHO 2012)). Methods, populations, outcomes and results will also be classified into meaningful categories. Summary of findings and strength of evidence tables will be elaborated.

Descriptive summaries about the efficacy of the interventions will be generated. Where possible, meta-analysis will be conducted, i.e. if there are more than two studies testing similar interventions with outcome measures that are combinable.
Figure 1. Systematic review selection flow chart

Records identified through database searching (n = )

Additional records identified through other sources (n = )

Records after duplicates removed (n = )

Records screened (n = )

Records excluded (n = )

Full-text articles assessed for eligibility (n = )

Full-text articles excluded, with reasons (n = )

Additional systematic reviews identified through hand searching of reference lists of included systematic reviews (n = )

Systematic reviews included (n = )
References
Moore G, Todd A and Redman S 2009. Strategies to increase the use of evidence from research in population health policy and programs: Evidence Check rapid reviews brokered by the Sax Institute (http://www.saxinstitute.org.au) for the Primary Health and Community Partnerships Unit, NSW Department of Health.


### Appendix 1 – Detailed search strategy

**PubMed – 4 December 2014**

<table>
<thead>
<tr>
<th>Search</th>
<th>Query</th>
<th>Items found</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>b)</strong></td>
<td>Search #1 AND #2</td>
<td>2426</td>
</tr>
<tr>
<td>#3</td>
<td>Search (“systematic review”[Title/Abstract] OR “meta-analysis”[Title/Abstract] OR MEDLINE[Title/Abstract])</td>
<td>133582</td>
</tr>
</tbody>
</table>