

# EVIDENCE SYNTHESIS FOR HEALTH POLICY AND SYSTEMS: A METHODS GUIDE

EDITED BY:

ÉTIENNE V. LANGLOIS | KAREN DANIELS | ELIE A. AKL





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# /// PREFACE

Over the last two decades, major gains have been made in global health: life expectancy has increased dramatically; polio eradication is tantalizingly within reach; six million more children survived until their fifth birthday; malaria deaths halved, while more than 20 million people living with HIV gained access to lifesaving treatment. These are all colossal achievements, which amount to millions of lives saved.

Despite these successes, progress has often been uneven, both between and within countries. There remains a 31-year discrepancy between the countries with the shortest and longest life expectancies, while more than half of the world's population is unable to access health services without incurring financial hardship. The implications of this are profound. Lack of access to affordable, quality health care perpetuates a vicious cycle of poverty and ill health, and every year millions of people, mostly in the world's poorest countries, die from sicknesses that we know how to prevent and treat.

Tackling these challenges will require modern health systems that ensure services reach the poorest, the most vulnerable and those who are most often left behind. These systems must be more dynamic and multisectoral; they must move beyond a focus on diseases and curative care, and place the needs of people and communities at their core. They must also empower people to take charge of their health, with a lifelong focus on preventing the major causes of disease and ill health.

Realizing this vision calls for health system reforms and policies grounded in tangible evidence for 'what works' and how. This is a fundamental contribution of the research community - but it means providing research evidence that is synthesized, accessible and contextualized, to enhance its applicability in different health systems.

That's what this guide is all about. Evidence Synthesis for Health Policy and Systems: A Methods Guide aims to support researchers and decision-makers, wherever they may live in the world, to generate and use high-quality evidence synthesis on health policy and systems. It outlines well-conducted, applied examples of relevant methods and techniques. I trust it will prove useful to researchers and decision-makers everywhere as they seek to play their part in promoting health, keeping the world safe, and serving the vulnerable.



**Dr Tedros Adhanom Ghebreyesus**

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# /// INTRODUCTION

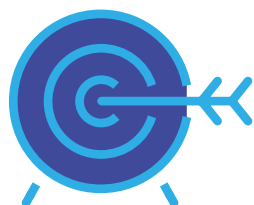
Health systems worldwide face increasingly complex challenges, such as the growing burden of chronic noncommunicable diseases, climate change and the emergence of new epidemics and antimicrobial resistance. These challenges have prompted an important shift in focus from curative care to prevention and health promotion, as well as the development of new service delivery, financing and governance models. Meeting these challenges will require new policies and health systems reforms that are informed by robust and contextualized evidence. This process will, in turn, rely upon the synthesis and appraisal of a wide array of research information and knowledge stemming from various data sources.

Evidence synthesis is a fundamental component of the evidence-informed approach to decision-making. Synthesizing health policy and systems evidence is increasingly recognized as critical to supporting policy decisions and producing guidance for health systems. There is growing demand from decision-makers for evidence synthesis products that are applicable to their local context, to improve the performance of health systems and ultimately enhance health outcomes. Decision-makers request reviews of the effectiveness of health policies and health systems interventions, but they also require contextual evidence, for example, to support the implementation of an intervention in their own setting or to assess stakeholders' perceptions and views of specific health system challenges and policy options. Rapid delivery of this information is also thought to increase the adoption of evidence-informed decision-making.

Evidence Synthesis for Health Policy and Systems: A Methods Guide provides a rationale for synthesizing evidence from health policy and systems research (HPSR) to support health policy-making and health systems strengthening. It introduces key challenges in synthesizing HPSR evidence and provides guidance on addressing these issues, including suggestions for engaging stakeholders in the synthesis process, framing a synthesis question, assessing context-sensitive evidence, understanding complexity, addressing health equity, selecting the appropriate synthesis approach for HPSR questions, presenting the evidence and making sense of the findings for health policy and systems decision-making.

The Methods Guide explores various ways to address these challenges, including methods and tools to conduct and promote the uptake of evidence synthesis for health policy and systems. The publication presents key methodological guidance relevant to HPSR evidence synthesis. Also, it showcases applied examples of relevant evidence syntheses in the field of HPSR and suggests approaches to foster the integration of such evidence into policy and practice. This publication is not intended as a handbook for the conduct of systematic reviews – further guidance in this regard can be found in the resource table appearing at the end of the Methods Guide – but rather is designed as a roadmap to the applied methods and resources that are available to those performing and using HPSR evidence synthesis.

As such, the Methods Guide has the following specific objectives:



- > to highlight and provide guidance on the key features of and approaches to HPSR synthesis;
- > to showcase examples of well conducted and innovative HPSR evidence syntheses encompassing different questions and methods;
- > to support capacity-strengthening efforts in HPSR evidence synthesis; and
- > to promote the integration of HPSR synthesis findings in policy and practice.

The target audience of the Methods Guide includes researchers undertaking health policy and systems evidence syntheses; teachers and students of HPSR evidence synthesis methods; stakeholders who are using HPSR evidence synthesis findings, such as policy-makers and those who support them (for instance, policy analysts), health systems managers, and national and international guideline development committees; and institutions that support or commission systematic reviews for health policy and systems decision-making.



In addition to the chapters outlining key approaches to HPSR synthesis and various applied examples, the Methods Guide showcases several narratives in the form of methods commentaries by experts who discuss the latest advances in relevant methodological approaches to HPSR synthesis; impact stories that present real-world examples and lessons learned from using evidence synthesis to support health policy and systems decision-making; and a policy perspective by decision-makers who address the usefulness and challenges of applying HPSR synthesis to enhance health policy-making.

The publication presents reflections on both the usefulness and limitations of evidence synthesis to enhance health policy and systems decision-making. It also identifies key knowledge gaps in methods and application of evidence synthesis in the field of HPSR. The Methods Guide can also be used to support capacity-strengthening efforts in HPSR evidence synthesis, including those in research and policy settings in low- and middle-income countries. As such, it is intended as a public good aiming to advance the science and practice of HPSR evidence synthesis, with a view to enhancing health policy-making and health systems strengthening worldwide.

# /// EXECUTIVE SUMMARY

Progress towards universal health coverage and the Sustainable Development Goals requires valid and relevant evidence to support key policy and systems decisions. Ideally, decision-making should be informed by the best available research evidence, which typically comes from evidence synthesis of health policy and systems research (HPSR).

**Chapter 1: Strengthening health policy and systems: the role of evidence synthesis** introduces evidence synthesis as a critical resource for health policy-making and health systems strengthening. It outlines the role of evidence synthesis in addressing the effectiveness of health systems interventions and policies, how and in what settings these interventions work and their cost-effectiveness, as well as stakeholders' perceptions and views of health system challenges and policy options. The chapter showcases applied examples of evidence syntheses focusing on health systems arrangements and their interconnections, as well as health system performance. It also discusses relevant synthesis approaches that can be useful at different steps in health policy-making. In addition, the chapter addresses some of the key challenges in synthesizing evidence for health policy and systems, including the complex nature of the evidence and the use of multiple types and sources of knowledge.

**Chapter 2: Engaging stakeholders and framing a synthesis question for health policy and systems** discusses how best researchers can engage stakeholders in the process of HPSR evidence synthesis and set research priorities to ensure that the syntheses are responsive to policy needs. It highlights the embedding of HPSR syntheses in health policy and systems decision-making as an emerging approach to stakeholder engagement. The chapter also discusses, using real-world illustrative examples, how to translate a policy issue into a synthesis question and how to structure such questions.

**Chapter 3: Applying synthesis methods in health policy and systems research** recognizes that a wide range of secondary research methods are needed to answer HPSR evidence synthesis questions. HPSR decision-makers are challenged by complex questions that require consideration from multiple perspectives and that must draw on evidence from more than only effectiveness reviews. This chapter therefore introduces resources that cover a spectrum of methods – qualitative, quantitative and mixed methods – and considers their application for HPSR evidence synthesis.

**Chapter 4: Understanding context in reviews and syntheses of health policy and systems research** focuses on the importance of contextual information to health policy and systems decision-making. In an attempt to enhance the relevance and usability of systematic reviews of HPSR evidence, this chapter introduces tools that facilitate greater reporting of context in such reviews and includes examples of reviews that take context into account.

**Chapter 5: Performing reviews of complex health policy and systems interventions** unpacks the challenge of health systems complexity, accepting that evidence synthesis methods need to embrace, rather than shy away from, such complexity. The chapter discusses how complexity has been defined and conceptualized, and what these definitions mean for the conduct of HPSR evidence synthesis. The chapter also offers tools that may be used in addressing complex health systems interventions and challenges through HPSR evidence synthesis.

**Chapter 6: Addressing health equity in syntheses of health policy and systems research** discusses the importance of health equity to health policy and systems strategies for universal health coverage. The chapter outlines various approaches to applying an equity lens to evidence syntheses of health policy and systems knowledge. It describes tools and guidance materials to inform the development of equity-focused syntheses, including an equity checklist for reviewers and reporting guidelines for systematic reviews with a focus on health equity.

**Chapter 7: Presenting and interpreting evidence syntheses for health policy and systems** discusses how authors of systematic reviews can summarize the synthesized evidence using SUPPORT summaries, Summary

of Findings tables and Evidence to Decision tables. In addition, it addresses use of the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system to assess the level of certainty in quantitative evidence and the GRADE-CERQual (GRADE- Confidence in the Evidence from Reviews of Qualitative research) approach to assess the level of confidence to be placed in qualitative evidence. The chapter also discusses deriving implications for practice, policy and research based on the review findings, as well as the importance of reporting the limitations of the work.

**Chapter 8: Addressing challenges in the conduct of policy-relevant evidence syntheses** discusses several issues, including the limited availability of primary evidence and problems in accessing suitable data, in addition to capacity challenges in HPSR synthesis, particularly in low- and middle-income countries (LMICs). Another challenge covered in this chapter is that of meeting policy-makers' expectations, particularly in terms of evidence related to local contexts. The chapter also discusses the use of rapid reviews and rapid response services to improve the timeliness of evidence synthesis and highlights ethical considerations in HPSR reviews.

**Chapter 9: Fostering the use of evidence synthesis findings in policy and practice** addresses factors influencing the uptake of review findings in health policy and systems decision-making, including the format of evidence synthesis, decision-makers' engagement in the synthesis process and incentives in place to support the use of HPSR synthesis. The chapter summarizes key approaches to enhancing the impact of evidence synthesis, including using frameworks to support the uptake of reviews, enhancing the policy relevance of evidence syntheses, establishing collaborative structures to engage decision-makers and embedding synthesis in policy and systems decision-making processes.

As a whole, this Methods Guide can support both researchers and decision-makers interested in conducting and using evidence synthesis to address policy and systems challenges. At the same time, it outlines the potential challenges and caveats of synthesizing and appraising health policy and systems knowledge, while acknowledging limitations in terms of policy and systems impact. The publication identifies current and future areas of methods development for HPSR synthesis, as well as efforts to strengthen capacities to conduct and apply evidence synthesis for health policy and systems decision-making, with a strong focus on LMICs. These factors are critical at a time when decision-makers require rapid delivery of robust and context-sensitive evidence to advance health equity and universal health coverage worldwide.

# /// DEVELOPMENT PROCESS

To develop Evidence Synthesis for Health Policy and Systems: A Methods Guide, the Alliance for Health Policy and Systems Research engaged a wide array of experts and stakeholders. The Advisory Group on Health Systems Research Synthesis and the Alliance's Scientific and Technical Advisory Committee (STAC) provided strategic input to the planning and development of the publication, including the selection of editors and authors. The Alliance also established an editorial panel (Sharon Straus, Simon Lewin and Xavier Bosch-Capblanch) to guide the content development and the publication process.

The editors of the publication developed an outline for the Methods Guide, in collaboration with the editorial panel and other specialists in evidence synthesis methods and/or health policy and systems research (HPSR). The editors used the outline to inform a call for published papers and to crowdsource key references, methods papers and applications of HPSR syntheses for inclusion in the publication. The call was widely disseminated, and the Alliance collated the suggestions, which were then assessed by the editors. The editors and authors used these and other select references to inform the first draft of the main chapters. Gaps in referencing for the early chapter drafts were filled iteratively, through further reading and discussion among the editors and other experts, such that the final chapters included a more comprehensive selection of methods papers and applied examples of HPSR syntheses as key resources.

The Alliance aimed to ensure that the most important of these key resources were available on an open-access basis. In cases where key articles were not open access, the lead editor's team entered into negotiations with the publishers, to secure open access for readers of this publication. In certain instances, the Alliance covered the cost of rendering open-access availability to strategic articles, either on the journal's website or directly on the Alliance (website <http://www.who.int/alliance-hpsr/resources/publications/hsr-synthesis/en/>).

For selected chapters, the editors invited coauthors with expertise in the subject area to contribute to the Methods Guide. The Alliance also commissioned methods commentaries, impact stories and a policy perspective.

The editors engaged an international group of 29 peer reviewers on the basis of their experience and interest in the areas of evidence synthesis and HPSR. Two peer reviewers examined each chapter and independently provided feedback for the authors. The authors and editors addressed the reviewers' input and enhanced the narratives accordingly.

All materials were then sent for copy-editing to Peggy Robinson (medical editor), who reviewed the chapters for consistency and clarity, overlap in content and adherence to the WHO Style Guide.

# /// ABBREVIATIONS AND ACRONYMS

**3ie:** International Initiative for Impact Evaluation

**AHPSR:** Alliance for Health Policy and Systems Research

**AUB:** American University of Beirut

**CBA:** controlled before-and-after [study design]

**CENTRAL:** Cochrane Central Register of Controlled Trials

**CICI:** Context and Implementation of Complex Interventions [framework]

**CMO:** context-mechanism-outcome

**CT:** computed tomography

**DALYs:** disability-adjusted life years

**EPOC:** Effective Practice and Organisation of Care (Cochrane Collaboration)

**EtD:** Evidence to Decision [framework]

**EVIPNet:** Evidence-Informed Policy Networks

**GESI:** Global Evidence Synthesis Initiative

**GRADE:** Grading of Recommendations Assessment, Development and Evaluation

**GRADE-CERQual:** Grading of Recommendations Assessment, Development and Evaluation – Confidence in the Evidence from Reviews of Qualitative research

**HICs:** high-income countries

**HPSR:** health policy and systems research

**iCCM:** integrated community case management

**INTEGRATE-HTA:** Integrated Health Technology Assessment for Evaluating Complex Technologies [consortium]

**ITS:** interrupted time series [study design]

**JCE:** Journal of Clinical Epidemiology

**K2P Center:** Knowledge to Policy Center

**LMICs:** low- and middle-income countries

**MENA:** Middle East and North Africa

**mHealth:** mobile health

**MoH:** Ministry of Health

**MOPH:** Ministry of Public Health

**OptimizeMNH:** Optimizing health worker roles for maternal and newborn health through task shifting [WHO recommendations]

**PCC:** Population, Concept, Context

**PECO:** Population, Exposure, Comparator (Control), Outcome

**PHC:** Primary Health Care

**PICO:** Population, Intervention, Comparator (Control), Outcome

**PICOS:** Population, Intervention, Comparator (Control), Outcome, Study Design (Setting)

**PIкот:** Population, Intervention, Comparator (Control), Outcome, Timeframe

**PIcotS:** Population, Intervention, Comparator (Control), Outcome, Timeframe, Study design

**Policy BUDDIES:** Policy BUilding Demand for evidence in Decision making through Interaction and Enhancing Skills

**PRISMA:** Preferred Reporting Items for Systematic Reviews and Meta-Analyses

**PRISMA-E:** equity extension of PRISMA

**PROGRESS-Plus:** Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Socioeconomic status and Social capital, with “Plus” referring to other attributes such as age, sexual orientation and temporary situations associated with health inequities

**QCA:** qualitative comparative analysis

**QE:** quasi-experimental

**RCT:** randomized controlled trial

**RES:** rapid evidence summary

**ROBINS-I:** Risk Of Bias In Non-randomized Studies - of Interventions

**SPARK:** Center for Systematic Reviews on Health Policy and Systems Research

**SPICE:** Setting, Perspective, Intervention, Comparison, Evaluation

**SPIDER:** Sample, Phenomenon of Interest, Design, Evaluation, Research type

**TRASI:** Tool for Recording and Accounting for Stakeholder Involvement

**UNICEF:** United Nations Children’s Fund

**UNHCR:** United Nations High Commissioner for Refugees

**WHO:** World Health Organization



1

**STRENGTHENING HEALTH  
POLICY AND SYSTEMS:  
THE ROLE OF EVIDENCE  
SYNTHESIS**

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### /// KEY POINTS

- Decision-makers require a wide array of knowledge to support policy and systems decisions and progress towards universal health coverage.
- The need for evidence includes effectiveness of health systems interventions and policies, how and in what settings these interventions work, and their cost effectiveness, as well as stakeholders' perceptions and views of health system challenges and policy options.
- Evidence synthesis is a fundamental component of the evidence-informed approach to decision-making, improving how decision-makers plan, develop and implement policies and health systems interventions.
- Evidence syntheses in health policy and systems research often require approaches and methods that embrace the complex nature of the evidence and the use of multiple types and sources of evidence.
- Methods for conducting policy-relevant evidence syntheses are evolving swiftly, and there is an increasing interest in novel and complementary approaches, including mixed-methods syntheses.

## 1.1 INTRODUCTION

Around the world, there is growing interest in ensuring that health policies and systems are informed by robust and relevant research evidence (1). Health policy-making and health systems strengthening require a broad evidence base tackling complex and multifaceted challenges. Policy-makers and health system stakeholders (henceforth termed “decision-makers”) thus require access to key insights stemming from a large body of literature that speaks to the realities of different health system settings. Systematic reviews and other types of evidence synthesis are increasingly recognized as having a key role in collating and assessing this knowledge, to inform policy decisions and produce guidance for health systems in various settings (2, 3).

Health policy-making and health systems strengthening require a broad evidence base tackling complex and multifaceted challenges.

support evidence-informed policy-making and health systems strengthening. For instance, evidence synthesis has the potential to reduce bias in the estimation of the effects of a policy option by identifying all relevant studies, critically appraising their quality, and synthesizing the results using a transparent and reproducible process. Yet evidence

For the purpose of this Methods Guide, we understand evidence synthesis as the contextualization and integration of evidence on a particular topic, including the findings of individual research studies (4). The process of synthesis is defined as the creation of something new from separate elements (5) which can include pulling together findings from multiple studies to answer a defined research question. The findings of evidence syntheses are often described as more reliable and valid than the results of individual studies, especially when the primary research results are conflicting (6). Evidence syntheses help in the collation, appraisal and reporting of research evidence through the use of transparent scientific methods that are detailed and reported in advance and that will be reproducible by others (7). A synthesis can take the form of a systematic review – defined as a review of the literature that uses systematic, explicit and accountable methods (5) – and may collate and integrate quantitative and/or qualitative results (8).

Traditionally, systematic reviews have focused mainly on synthesizing the effect measures of interventions to inform clinical care, health technology assessment and delivery of health care services (9). Increasingly, evidence syntheses of various types are recommended to support complex health policy and systems decisions. More specifically, evidence synthesis is now recognized as a fundamental component of the evidence-informed approach to decision-making, improving how decision-makers manage the research evidence available to them (2). Decision-makers at different levels increasingly acknowledge and demand evidence syntheses applicable to their local context, to improve the performance of the health system (10).

Synthesizing evidence from health policy and systems research (HPSR) is a useful approach to

synthesis in the field of HPSR poses key challenges, not least those pertaining to the complexity and context-specificity of the knowledge at stake. Health policy and system decision-making is also driven by societal values and norms and is largely influenced by stakeholders’ interests and power. These issues are acknowledged in this chapter as key notions of HPSR, and we discuss how they can be accounted for in HPSR evidence synthesis.

## 1.2 HEALTH POLICY AND SYSTEMS RESEARCH

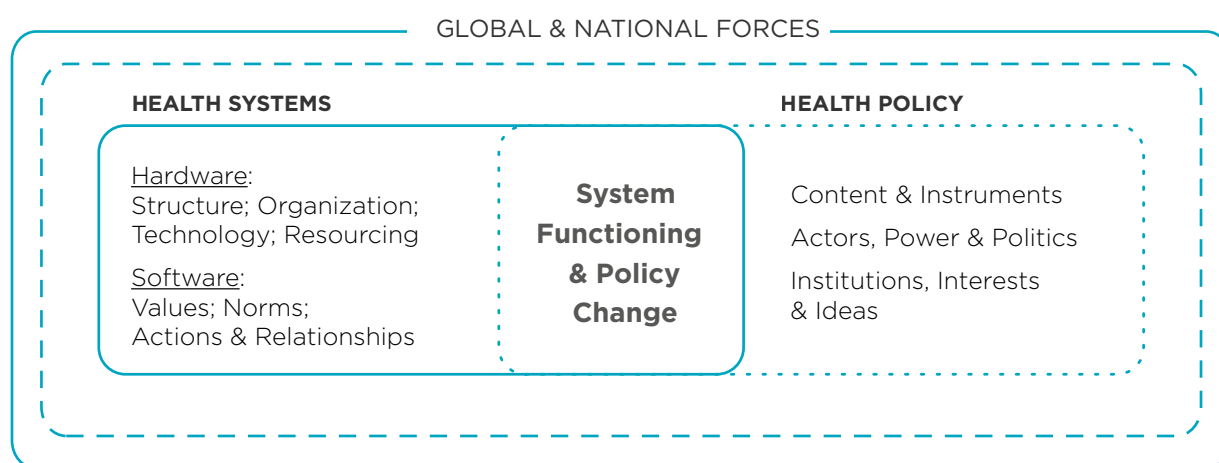
The field of HPSR seeks to understand and improve how societies organize themselves in achieving collective health goals, and how different stakeholders interact in the policy and health



system arenas (11). HPSR is often interdisciplinary, blending economics, sociology, anthropology, political science, public health and epidemiology to draw a picture of how health policies and systems function and respond to population health needs (11). HPSR encompasses research on the policies, organizations, programmes and people that make up health systems, and investigates how the interactions among these elements – and broader influences over decision-making practices – influence health system performance (12). It covers a wide range of issues, including health financing and governance, as well as the implementation of services and delivery of care in both the public and private sectors. HPSR enables the identification of gaps in capacity, barriers to efficient functioning and effective performance of the health system, and methods by which existing resources can be optimally utilized (1). HPSR can also cover the roles, interests, values and interactions of key stakeholders at local, national and global levels (11), as illustrated in Figure 1.1.

certainly need reviews on the effectiveness of health policies and health system interventions, yet they also require a proper understanding of the barriers and facilitators to implementation of these interventions at all levels of the health system. For instance, reviews of the effectiveness of mobile health (mHealth) programmes can indicate how mobile telecommunication may increase the reach of health care delivery systems (13, 14). Yet such effectiveness reviews do not address important information gaps related to users’ satisfaction and the integration and sustained use of mHealth in different health system settings, nor do they inform decision-makers about the contexts in which these interventions work best and for whom. This body of evidence can be complemented by a review of stakeholders’ perceptions and experience of mHealth in primary health care systems (15). This example shows that synthesizing policy-relevant evidence often requires a combination of quantitative, qualitative and/or mixed-methods reviews.

**FIGURE 1.1.** Interface of research in health policy and health systems.



Source: Gilson L, editor, Health policy and systems research: a methodology reader, 2012 (12).  
Reproduced with permission from the World Health Organization.

### 1.3 SYNTHESIS OF HEALTH POLICY AND SYSTEMS KNOWLEDGE

Because HPSR is interdisciplinary and draws from a broad evidence base, HPSR evidence syntheses often require approaches and methods that embrace the complex nature of the evidence. Addressing this complexity requires, in turn, the use of multiple sources and types of evidence. Decision-makers

Health system frameworks identify key functions and components – sometimes referred to as “building blocks” – that are subject to policy decisions and recognized as important determinants of health system performance (16). These components traditionally cover complex systemic challenges, including human resources for health. By their nature, health system components are intertwined, and understanding their interlinkages is critical to informing system-oriented interventions.

For example, progress in people-centredness and quality of services may depend on improvements in service delivery, management of health care professionals and availability of effective medicines, in addition to the engagement and empowerment of patients and caregivers (17). These complex interdependencies present a challenge in identifying and appraising research evidence to support efforts toward health systems strengthening. Consequently, this complexity offers a strong rationale for the development and use of various types of evidence syntheses to inform policy and systems decisions.

The reviews listed in Box 1.1 show how evidence syntheses can address the components of health systems and their interconnections, as well as health system performance. For instance, evidence syntheses can address the effects of different financial (18), governance (19) or service delivery

concepts – legal, humanitarian, social, public health and health economic – associated with indicators for measuring progress and long-term sustainability of such coverage. Evidence syntheses of HPSR are also useful for drawing a comprehensive picture of health system performance and the ways in which health policies and interventions can shape – and be shaped by – health systems and the broader determinants of health (11). Health systems settings and arrangements can influence the implementation and effectiveness of health policies and programmes. Syntheses of health systems evidence can thus be of great help in assessing the contextual determinants of health policy-making and implementation. One such example is a review of health system barriers and facilitators to the implementation of antiretroviral therapy for pregnant and postpartum women with HIV infection (29).

### BOX 1.1. EXAMPLES OF REVIEWS OF HEALTH SYSTEMS EVIDENCE



#### Health system components and their interlinkages

Health financing: impact of health insurance in Africa and Asia (21)

Governance arrangements for health systems, for instance decentralization of health systems in low- and middle-income countries (LMICs) (22)



#### Health system settings and performance

Health system facilitators and barriers to the integration of HIV and chronic disease services (23)

District decision-making for health in low-income settings (24)



#### Health system frameworks

Frameworks to assess health system governance (25)

Integration of health systems and social determinants of health (26)

(20) arrangements for health systems. In performing such syntheses, reviewers must bear in mind that health system components and interventions are often influenced by, or are sensitive to, the system itself and other contextual factors.

## 1.4 CONTRIBUTION OF EVIDENCE SYNTHESIS TO HEALTH POLICY AND SYSTEMS STRENGTHENING

An evidence synthesis may configure the findings of studies on an issue of interest to allow a conceptual understanding of health system challenges (27). For instance, Abihiro & De Allegri (28) conducted a synthesis of the definition, perspectives and scope of universal health coverage, outlining various

Different approaches to evidence synthesis can be employed to understand complex health systems interventions and to produce guidance for health systems strengthening (30, 31). Health policy and systems decisions require evidence syntheses that often go beyond the question of “what works” (32). Decision-makers are interested in reviews of the effectiveness of health policies and health systems interventions (which may take the form of meta-analyses), but they also require evidence on stakeholders’ perceptions and views of specific health system challenges and policy options. The latter issues are then amenable to a qualitative evidence synthesis or a mixed-methods synthesis, integrating quantitative and qualitative findings.

To address this need for a wide array of knowledge, novel approaches to evidence synthesis have

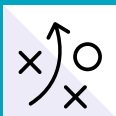
**BOX 1.2. EVIDENCE SYNTHESIS TO INFORM HEALTH POLICY-MAKING**  
Policy-relevant evidence syntheses address issues such as the following:



**What is the scope of the policy or health system “problem”?**



**What do we know about the issue?**



**What are effective solutions to this problem, for whom and in what context?**



**What are the various policy-making or decision-making options and their characteristics (such as distribution of benefits and costs)?**



**How can we implement and scale-up the solutions?**

Sources: Oliver, Dickson & Bangpan (27) and Lavis (37).

emerged to complement the traditional systematic review. One such novel approach is the realist review, in which the synthesis addresses how and why complex health systems interventions work in different contexts, going beyond the assumption that an intervention is either effective or ineffective (33); realist reviews are discussed in more detail in a methods commentary elsewhere in this volume. In turn, scoping reviews can be employed to map the concepts underpinning a policy and systems issue and the main sources and types of evidence available (34). Rapid reviews are also increasingly being used to provide actionable and relevant evidence to make informed decisions about health systems in both routine and emergency contexts (35). Similarly, meta-ethnography reviews provide a useful approach to understanding the views and experiences of stakeholders and to informing the implementation of health policy and systems interventions (36). Further information on the various approaches and methods available for evidence synthesis is provided in Chapter 3 of this Methods Guide and in Annex A, which presents a table of resources for conducting, reporting and assessing reviews.

Evidence syntheses can support health policy-making at numerous stages of the policy process, for instance, to illuminate policy problems, to challenge or develop policy assumptions, to offer evidence about the implementation and impacts of policy options, and to take into account a diversity of people and contexts (27). Syntheses are deemed

to be “policy-relevant” when a priority question for health policy-making is addressed and the review findings are clearly presented for policy audiences (Box 1.2) (27, 37).

In turn, different phases in the policy-making cycle will require different types of knowledge and different evidence synthesis approaches, as shown in Table 1.1.

## **1.5 SYNERGIES IN THE FIELD OF HEALTH SYSTEMS RESEARCH SYNTHESIS**

Primary studies included in HPSR evidence syntheses may range from large, quantitative, hypothesis-testing experimental studies to small-scale, in-depth theory-developing qualitative research, and may generate a variety of data, from large-scale administrative data to local feedback and monitoring data (38).

To address these different types of knowledge and the variety of questions confronting health policy and systems decision-makers and researchers, a range of synthesis methods and approaches is needed. For instance, reviewers might conduct a realist review to illuminate what, why and how health policies and health systems interventions work in different contexts (further guidance on, and practical examples of, realist reviews are provided in the methods commentary on realist reviews elsewhere in this Methods Guide). Furthermore, the reliability

**TABLE 1.1.** HPSR knowledge and evidence synthesis to support health policy-making

Step in policy-making	Policy question	Health policy and systems knowledge	Examples of relevant study designs	Examples of relevant synthesis approaches
<b>Priority-setting and clarifying the problem and its causes</b>	What are priority issues for the policy agenda? What is the nature, magnitude and appropriate framing of the problem, as well as contributing factors, which together indicate the need for intervention?	Health policy and systems challenges (e.g., coverage, quality, efficiency, equity); conceptual frameworks; stakeholders' views and experiences	Situational analyses, observational studies (e.g., population/community surveys, studies of health management information systems), stakeholder analyses, qualitative and mixed-methods studies	Scoping reviews, narrative reviews, mixed-methods evidence syntheses
<b>Assessing policy/programme options and identifying implications of policy or practice recommendations</b>	What is the appropriate set of policy options to address the problem, and what are the effects, efficiency, acceptability, feasibility and adaptability of these options?	Benefits and harms of health policy and systems intervention; cost-effectiveness; implementation factors, views/experiences, equity and human rights	Experimental studies (e.g., cluster randomized controlled trials), quasi-experimental studies (e.g., interrupted time series), observational studies, economic evaluations, policy analyses, qualitative and mixed-methods studies	Effectiveness reviews/meta-analyses, qualitative evidence syntheses, rapid reviews
<b>Identifying considerations for implementation and evaluation</b>	What are the barriers and facilitators to successful implementation, scale-up and sustainability of the options and potential windows of opportunity? What are the contextual factors influencing effectiveness?	Implementation knowledge (e.g., adoption, fidelity, barriers/facilitators, scale-up costs, equity); determinants of effectiveness of policy/system intervention	Case studies, process evaluations, bottleneck analyses, impact assessments, realist evaluations	Realist reviews, qualitative evidence syntheses (e.g., meta-ethnography), effectiveness reviews

of the evidence is likely to be greater if studies of different designs are examined together, and if their results are mutually supportive (39), which is crucial for health policy and systems decisions.

One challenge faced by reviewers of health policy and systems evidence is the selection of relevant synthesis methods to address different review questions. Methods for conducting policy-relevant evidence syntheses are evolving swiftly, and there is an increasing interest in novel and complementary approaches, for instance mixed-methods syntheses. The growing body of literature addresses new methods for identifying, interpreting and applying evidence in different decision-making contexts. Further guidance on these novel approaches, as well

as the selection of appropriate methods and the integration of quantitative and qualitative evidence, is provided elsewhere in this Methods Guide (see Chapter 3, concerning the selection and application of various methods; Chapter 4, concerning the context for HPSR evidence synthesis; and Chapter 5, concerning reviews of complex interventions).

These challenges have led to attempts at synergizing within the field of health systems research synthesis (10), with the aim of advancing methods for complex knowledge synthesis to inform health policy and systems interventions and reforms. The field of health systems research synthesis evolved from recognition of the various methodological challenges in synthesizing health policy and systems evidence,

as well as the need to strengthen capacities for synthesis of HPSR. These efforts supported the establishment of systematic review centres in LMICs, which focus on syntheses to improve the performance of health systems in those countries. Stakeholders involved in health systems research synthesis have also established networks such as the Global Evidence Synthesis Initiative (GESI) (40), to share good practices, provide training and increase collaboration in the field.

In addition, health systems research synthesis is concerned with the integration of review findings in policy and practice. Numerous challenges exist in the uptake of syntheses to support health policy and systems decisions. It is also important to understand that syntheses and research evidence in general constitute only one element in health policy-making and decision-making processes. Many factors beyond scientific findings influence policy- and decision-makers, such as financial constraints, legal issues, strategic fit for health systems, pressure from stakeholders and public opinion (9). Yet innovative approaches exist to promote and stimulate the usefulness of reviews, including the engagement

of policy-makers in evidence syntheses, as well as priority-setting methods for evidence synthesis, both of which are addressed in more detail in Chapter 2 of this Methods Guide. In addition, there is an increasing body of knowledge on effective approaches to stimulate the use of evidence synthesis in complex health systems decision-making (41).

## 1.6 CONCLUSION

Fostering the uptake of evidence syntheses remains an important challenge for health system stakeholders, dependent on issues such as the availability and applicability of evidence, the transparency of evidence-informed policy-making and the presence of systems incentives to support application of the research. Specific challenges exist in LMICs, including the need for more primary studies and enhanced capacities, resources and knowledge systems to support the production and use of evidence syntheses in these settings. All of these factors are critical at a time when decision-makers require robust and context-sensitive evidence to advance health equity and universal health coverage worldwide.

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# 2

## **ENGAGING STAKEHOLDERS AND FRAMING A SYNTHESIS QUESTION FOR HEALTH POLICY AND SYSTEMS**

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### /// KEY POINTS

- Health policy and systems research (HPSR) is led by questions about real-world policies, programmes, services and health systems arrangements, often taking the whole health system into account.
- HPSR embraces the engagement of stakeholders as a core principle, thus challenging the traditional approach to conducting evidence synthesis.
- Setting research priorities at the outset helps researchers to effectively target areas with the greatest potential benefit for health policies and systems.
- The research question should be amenable to review and should permit proper interpretation of the evidence once it has been identified and synthesized.
- The intent of the research question can be either exploratory (seeking to find new knowledge, understand a process or elicit an explanation) or evaluative or normative (seeking to assess an intervention or to identify an optimal intervention or practice for a particular purpose).

## 2.1 INTRODUCTION

Health policy and systems research (HPSR) is led by questions that are said to be “bubbling up from the field” (1). Indeed, these questions are about real-world policies, programmes, services and health systems arrangements (2), and they usually take the whole health system into account. At the same time, the process of refining the questions needs to be systematic and explicit. The breadth of potential HPSR synthesis questions reflects the multidisciplinary and interdisciplinary nature of the field. In turn, the range of the questions requires a wide array of approaches and methods that may be used in answering them, an issue that is further explored in Chapter 3 of this Methods Guide, concerning the choice and application of synthesis methods. The intent of a particular question can affect both the nature of the evidence synthesis – quantitative, qualitative or mixed – and its scope (3, 4). Similarly, the question will influence the range of content and methods experts who engage in the synthesis process.

Historically, the field of evidence synthesis has been shaped by syntheses on the effects of interventions, framed by questions that are amenable to this perspective (1). The increased interest in using evidence syntheses to inform policy and systems decisions created a need for a wider array of evidence, with greater relevance to the reality and varying context of policy-makers and health system decision-makers. As such, the perspectives of and disciplinary approaches to synthesis have undergone substantial evolution.

The variety of health systems frameworks that allow understanding and prediction of the drivers of health systems performance (or, sometimes, the lack of such frameworks) further complicates these efforts. Therefore, development of a synthesis question should take into account the heterogeneity of the health system setting and the complexity of the health policy and systems issues at stake, issues that are further discussed in Chapter 5 of this Methods Guide, concerning reviews of complex interventions.

Concurrently, there has been increasing interest in

A key challenge is to ensure that the question is policy-relevant for the specific local health system setting, while allowing the decision-makers to benefit from evidence that comes from different contexts.

fostering the policy relevance of evidence syntheses, to ensure that the questions and resulting conclusions address the needs and priorities of decision-makers (5). The importance of thinking about policy-relevant questions and syntheses is linked to the need for more context-sensitive data that are applicable to local health system decision-making. The availability of such data would help in assessing the health systems factors that influence implementation of proven interventions, and consequently would ensure a higher likelihood of favourable impacts on population health over the long term. This chapter discusses how researchers can engage stakeholders in the process of HPSR evidence synthesis and set research priorities to ensure that the syntheses are responsive to policy needs. It also discusses how to translate a policy issue into a synthesis question, and how to structure such questions (6).

## 2.2 ENGAGING STAKEHOLDERS AND EMBEDDING HPSR SYNTHESSES

Traditionally, evidence syntheses have been conducted by teams of researchers and scientific topic experts (7). In many instances, prioritization and conduct of research and evidence synthesis has been done solely by academics (8). However, HPSR embraces the engagement of stakeholders as a core principle (9), thus challenging the traditional approach to conducting evidence synthesis.

Around the world, there is increasing interest in codesign and codevelopment of research, including the active engagement of decision-makers in planning, conducting and using primary and secondary research to inform public policy (10, 11). Cocreation of evidence is gaining momentum as a means to align research and decision-making and to integrate knowledge generation and synthesis in complex policy planning and implementation (12). Furthermore, recent evidence suggests that early and meaningful engagement of decision-makers in the research cycle stimulates the use of findings in health systems strengthening (13–16).

The World Health Organization's strategy on

HPSR, entitled *Changing Mindsets*, calls for greater alignment and embedding of research into health systems processes (8). Embedded research conducted in partnership with decision-makers, integrated in a variety of health system settings and taking into account context-specific factors can facilitate greater relevance in policy-related priority-setting and decision-making (17).

This thinking has influenced how evidence syntheses of health policy and systems evidence are planned and conducted. Embedding evidence synthesis in policy and practice involves not just consulting stakeholders but also engaging them in the coproduction of HPSR syntheses (12).

Cottrell and colleagues identified 6 expected benefits of engaging stakeholders in evidence synthesis (18):

- establishing credibility
- anticipating controversy
- ensuring transparency and accountability
- improving relevance
- enhancing quality
- increasing dissemination and uptake of evidence synthesis findings.

Keown, Van Eerd & Irvin identified the following opportunities for engagement of stakeholders in systematic reviews (19):

- topic consultation
- feedback meetings during the review
- membership on the review team
- involvement in dissemination.

Land and colleagues proposed the following five steps for engaging stakeholders in the prioritization and planning of evidence syntheses as being of the utmost relevance in framing a review question (20):

- 1 Identify the stakeholders.
- 2 Identify policy- and practice-relevant topics.
- 3 Frame and prioritize the review questions.
- 4 Establish the specific scope of each review.
- 5 Arrange a public review of the draft review protocol.

Saan and colleagues proposed a Tool for Recording and Accounting for Stakeholder Involvement (TRASI) in systematic reviews (21). The aim of TRASI is to systematically and transparently account for the role of stakeholders and their influence in a replicable way.

Although involving stakeholders in the synthesis process has numerous benefits, researchers must also consider the time and effort needed to foster such involvement (22). Indeed, knowledge users commonly cited lack of time or opportunity to participate as a barrier to their engagement in evidence synthesis (12). Also, it may be advisable to inform stakeholders that in addition to local data, they may need to use global evidence from evidence syntheses. In that situation, the synthesis team should work with the stakeholders to contextualize findings from the global evidence to the particular local setting.

To help researchers to address these challenges, the following sections provide guidance on how to set research priorities for evidence synthesis, how to translate a policy issue into a synthesis question and how to structure policy-relevant synthesis questions.

## 2.3 SETTING RESEARCH PRIORITIES

Setting research priorities at the outset helps researchers to effectively target areas with the greatest potential benefit for health policies and systems. The value of priority-setting is enhanced when the prioritization responds to the needs of the population and various stakeholders, including health system decision-makers. Indeed, evidence suggests that engaging policy-makers and stakeholders in setting research priorities increases the likelihood that the research evidence will be used in policy and practice (23). Box 2.1 provides an illustrative example of a priority-setting exercise on the topic of refugee health from the Center for Systematic Reviews on Health Policy and Systems Research (SPARK) in Lebanon.

Formal priority-setting exercises are commonly used to engage stakeholders in setting research priorities (25). The aim of such exercises could be to set priorities for a relatively narrow area (such as the retention of nurses) or to set priorities for larger health sector reforms. Such exercises can be conducted at various levels, including institutional, subnational, national and global. Priorities may be based on technical information (such as epidemiological and

### **BOX 2.1. PRIORITY-SETTING FOR EVIDENCE SYNTHESIS ON THE TOPIC OF REFUGEE HEALTH: A CASE EXAMPLE FROM LEBANON**

In 2014, the SPARK team conducted a priority-setting exercise on the topic of refugee health. A group of stakeholders, including academics, policy-makers and programme managers, discussed a number of questions relevant to this policy issue. This discussion influenced the prioritization of a research question on coordination mechanisms for health services, which eventually led to the conduct of two systematic reviews: one on suggested models for coordinating the provision of health services in humanitarian crises (24), and the other on the effectiveness of different mechanisms and models of coordination between organizations, agencies and bodies providing or financing health services (6).

The findings of these two reviews were further discussed during a policy dialogue and eventually led the Lebanese Ministry of Public Health (MOPH) to recruit a refugee health coordinator, as described in the impact story concerning policy-responsive systematic reviews in addressing the situation of Syrian refugees in Lebanon, elsewhere in this Methods Guide.

### **BOX 2.2. PRIORITY-SETTING FOR EVIDENCE SYNTHESIS FOR THE HEALTH SECTOR: A CASE EXAMPLE FROM CHINA**

The review group from the China Center for Health Development Studies, Peking University, interacted with national-level policy-makers to identify questions that would be relevant across the country. These interactions included in-depth interviews with the policy-makers, participation of the senior researchers as advisors on committees for policy design and regular presentations by the policy-makers to the review group on the policy problems they were facing. These interactions led to a primary list of review questions. This list was discussed in a formal consensus workshop during which the policy-makers and senior researchers selected broad review questions for further investigation. The review group then searched for existing systematic reviews that addressed the selected questions. When such systematic reviews were identified, the review team discussed them with the policy-makers or checked the need to adjust the questions, to ensure more direct targeting to the policy issues. Sometimes, the policy question was broad, so the review team conducted a scoping review to assess the overall situation in terms of research aspects, topics and the design of studies in this area. Then, more specific and targeted systematic review questions were developed, based on the findings of the scoping reviews.

Source:  
Dr. Beibei Yuan, China Center for Health Development Studies,  
Peking University, personal communication, 18 March 2018.

cost data), the views of informed participants (a consensus approach) or both. Contributors to these exercises may include one or more of the following groups: researchers, funders, policy-makers, health systems decision-makers, communities and other stakeholders (25). Box 2.2 provides an illustrative example of a national-level priority-setting exercise from the China Center for Health Development Studies at Peking University.

Viergever and colleagues developed a checklist to assist in planning a priority-setting exercise for health research (26). Their checklist includes nine common themes of good practice: context, use of a comprehensive approach, inclusiveness, information-gathering, planning for implementation, criteria, methods for deciding on priorities, evaluation and transparency. Although the checklist was not designed specifically for the field of HPSR, it is relevant

for planning and conducting HPSR syntheses. More recently, the SPARK tool was developed to prioritize questions specifically for systematic reviews in HPSR (27).

## **2.4 TRANSLATING A POLICY ISSUE INTO A SYNTHESIS QUESTION**

A critical step in evidence synthesis is moving from a policy issue to a focused synthesis question with specific and well-defined elements. This process ensures that the question is amenable to review and permits proper interpretation of the evidence once it has been identified and synthesized.

When decision-makers are engaged in question development, the resulting synthesis questions may be too narrow to allow inclusion of enough evidence to make the findings informative. Conversely,

**TABLE 2.1** Illustrative examples of translating policy issues into synthesis questions

Policy issue	Mode of stakeholder engagement	Synthesis question
How to respond to the health needs of Syrian refugees in Lebanon	Formal priority-setting exercise	During and after humanitarian crises, how do different mechanisms and models of coordination between organizations, agencies and governmental bodies providing or financing health services compare, in terms of access to health services and health outcomes?
How best to implement health insurance for individuals not covered for ambulatory care or by other insurance schemes, in light of planned implementation of community-based health insurance by the Lebanese MOPH	Consultation with MOPH representatives through an informal meeting	What are the barriers and facilitators to implementation, uptake and sustainability of community-based health insurance schemes in low- and middle-income countries?
How to prevent drug counterfeiting in Lebanon through MOPH policies	Inclusion of policy-maker as member of synthesis team shaping the synthesis question	What is the effectiveness of systems-level interventions implemented to combat or prevent drug counterfeiting?
How to improve routine informational support systems for health systems strengthening	Formal priority-setting exercise involving policy-makers	What are the effects of interventions to improve routine health information systems for health systems management?
How best to manage integrated services while moving toward a national health insurance policy in South Africa	Face-to-face meetings with both provincial and district health systems managers	What are the effects of interventions to manage integrated services in moving toward a national health insurance policy?
How best to contract out public health services	Formal priority-setting exercise	What are the effects of interventions related to the contracting-out of services?

stakeholders may push for questions that are too broad and not amenable to evidence synthesis or questions leading to syntheses with heterogeneous evidence. In these cases, the “logic” of research – defining a research question and establishing methods to address it – does not necessarily match the “logic” of policy-making. This mismatch will most likely require negotiation between decision-makers and researchers, for instance, through mechanisms such as priority-setting exercises discussed above.

Table 2.1 provides practical examples to illustrate how decision-makers’ and stakeholders’ requests for evidence on broad policy issues may necessitate additional clarification and refinement by the synthesis team to generate answerable questions. A key challenge is to ensure that the question is policy-relevant for the specific local health system setting, while allowing the decision-makers to benefit from evidence that comes from different contexts.



## 2.5 STRUCTURING THE SYNTHESIS QUESTION

Framing a synthesis question in HPSR is influenced by the intent of the synthesis question (1). The intent of a question can, on the one hand, be exploratory, that is, seeking to find new knowledge, understand a process or elicit an explanation for a phenomenon. On the other hand, questions can have an evaluative or normative intention, that is, seeking to assess an intervention for effectiveness or against a standard, or seeking to identify an optimal intervention or practice for a particular purpose (1). Syntheses of health policy and systems evidence can also vary in perspective, from global – for instance, taking stock of a compendium of evidence on a health issue with a

view of informing global guidelines – to national and local levels. In addition, questions can be framed at different levels within policy and systems processes: at the micro level, that of the individual in the system; at the meso level, referring to the functioning of organizations and interventions; and at the macro level, that of the system’s architecture and oversight (see Table 2.2).

The remainder of this section reviews various approaches to structuring questions for evidence syntheses. When applying these approaches, reviewers must ensure that the question is policy-responsive; they must also consider the complexity of the health system and the influence of interrelationships and interconnections within that system on the interventions of interest. They

**TABLE 2.2** Examples of HPSR questions by level of analysis and type of question

Level of analysis:	MACRO Architecture and Oversight of Systems	MESO Functioning of Organizations and Interventions	MICRO The Individual in the System
<b>Intent of question:</b>			
 Normative/Evaluative	<p>How can political parties be effectively involved in a country’s health planning process for universal health coverage?</p> <p>Does a new financing mechanism protect the poorest households from the catastrophic costs of accessing care?</p> <p>Can community accountability mechanisms have impact on health outcomes?</p>	<p>How can access to and uptake of a screening and treatment programme for an epidemic condition be maximised?</p> <p>What are the reasons for low efficiency of community governance structures in administering a decentralised fund scheme?</p>	<p>What financial and non-financial incentives will best encourage health workers to locate in underserved communities?</p> <p>Does individual coaching offer better support to health system managers than formal training?</p> <p>Do conditional cash transfers encourage individual behaviour change in use of health care?</p>
 Exploratory/Explanatory	<p>Why do informal health markets continue to flourish in areas where publicly provided services are adequate?</p> <p>What norms underpin the effective exercise of oversight by communities?</p>	<p>How do pay-for-performance arrangements interact with local accountability structures?</p> <p>Why do organizations involved in the implementation of health policies prioritize some aspects of their mandate more than others?</p> <p>How has the introduction of subsidies for institutional deliveries changed household birthing practices?</p>	<p>Why do frontline health providers frequently diverge from recommended clinical guidelines?</p> <p>How has engaging traditional practitioners in government clinics changed laypersons’ perceptions of public services?</p>

Source: Sheikh K et al., Building the field of health policy and systems research: framing the questions, 2011 (1). Copyright 2011 under the terms of the Creative Commons Attribution License.



also need to consider that decision-makers will not necessarily frame their questions to the reviewers in structured way. Further information on evidence syntheses of complex health system interventions can be found in Chapter 5 of this Methods Guide.

Questions used for evidence syntheses addressing an HPSR topic are of different types. Table 2.3 shows the format of and illustrative examples for these various types of questions, which build on the following elements: population (P), intervention (I), exposure (E), comparator (C), outcomes (O) and setting (S)

The PICO framework is commonly used to structure systematic review questions. For reviews of health policy and systems interventions, this framework can be used to specifically formulate questions comparing the effectiveness of the interventions or policy options. The acronym refers to the following concepts:

- Population
- Intervention
- Comparator
- Outcomes.

PICO has a number of variants, including PICOT, PICOS and PICOTS, where T stands for “Timeframe” and S for “Study design”. However, PICO and its

variants are not optimal for reviews of exposures. For that type of review, the I for “Intervention” should be replaced by E for “Exposure” (hence, the PECO framework).

Similarly, PICO is not optimal for qualitative syntheses. In fact, qualitative questions cannot necessarily be used to address policy options (the Intervention and the Comparator) or to prespecify outcomes of interest. Instead, they focus on the perspective of the individuals experiencing the policy options and thus may help with better understanding implementation. SPIDER and SPICE are two frameworks that can be used for qualitative syntheses.

Cooke, Smith & Booth developed the SPIDER framework for evidence syntheses that include qualitative and mixed-methods research studies (28). SPIDER refers to the following concepts:

- Sample (in lieu of Population)
- Phenomenon of Interest (in lieu of Intervention)
- Design (in lieu of Comparator)
- Evaluation (in lieu of Outcomes, to capture “more unobservable and subjective constructs”)
- Research type (qualitative, quantitative or mixed methods).

**TABLE 2.3** Format and illustrative examples for various types of questions used for evidence synthesis in HPSR

Type of question	Format	Example
Prognosis	Population, Outcomes	In populations in conflict settings (P), what are the health indicators (O)?
Exposure	PECO	In populations in conflict settings (P), how does deprivation of access to care (E), relative to usual access (C), affect health indicators (O)?
Intervention	PICO	In populations in conflict settings (P), does using telemedicine (I), relative to standard care (C), improve access to care (O)?
Qualitative	SPICE	In conflict settings (S), what are citizens’ (P) views of using telemedicine (I), relative to standard care (C), in terms of barriers and facilitators (E)?
Qualitative	SPIDER	Among citizens in conflicts settings (S, P), how is using telemedicine (I), relative to standard care (D), viewed in terms of barriers and facilitators (E) based on qualitative research (R)?
Scoping review	PCC	In populations with limited access (P), what research on using telemedicine (C) has been conducted in conflict settings (C)?

Booth proposed the SPICE framework for research questions within the social sciences (29). SPICE stands for the following concepts:

- Setting (Where?)
- Perspective (For whom?)
- Intervention (What?)
- Comparison (Compared with what?)
- Evaluation (With what result?)

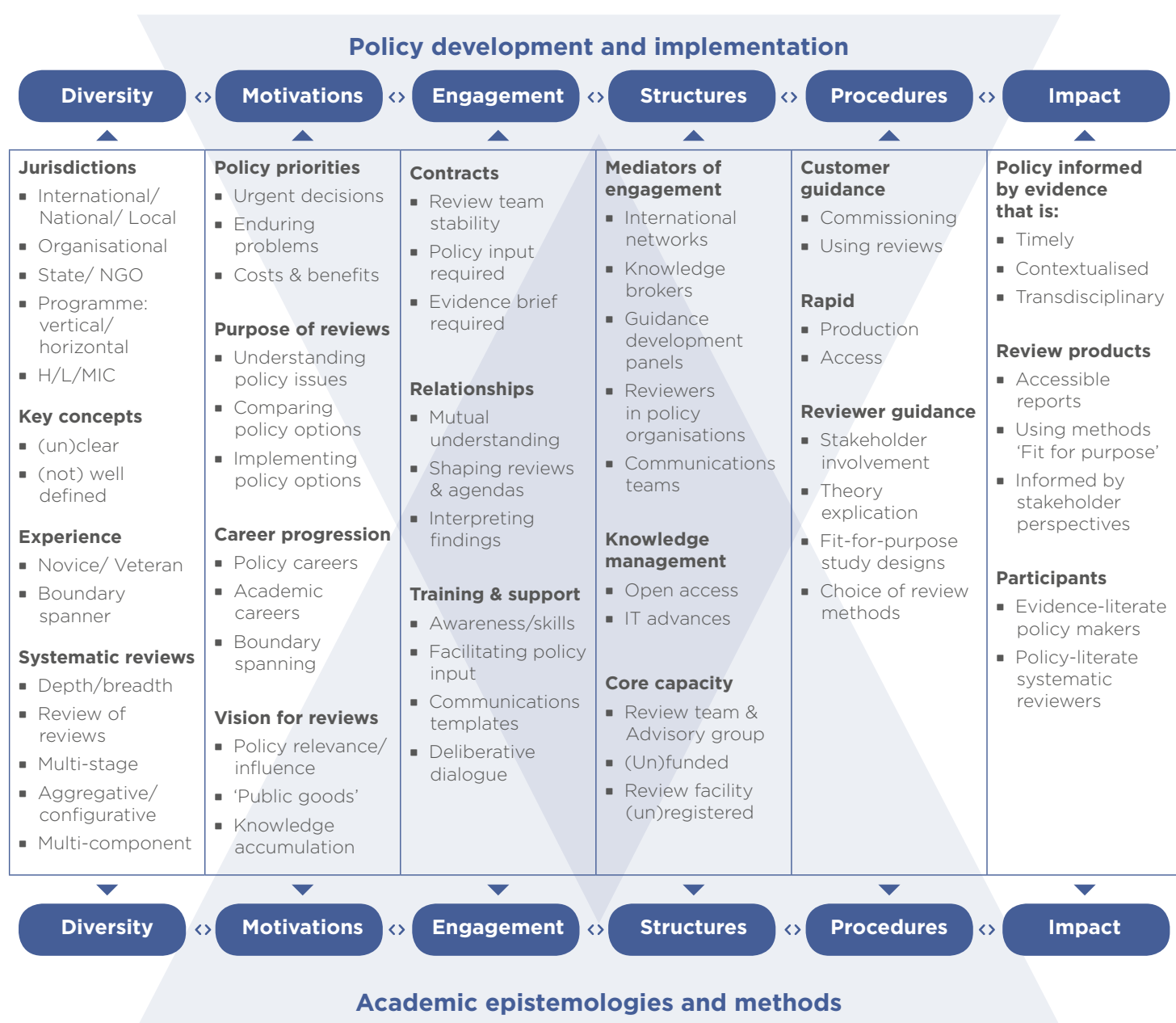
The Joanna Briggs Institute has suggested the PCC

framework for conducting scoping reviews (30). PCC stands for the following concepts:

- Population
- Concept
- Context.

Systematic reviewers may use logic models and frameworks to conceptualize the interlinkages among the various elements of their question. Such models may help in defining the eligibility criteria, developing the search strategy, identifying relevant outcomes,

**FIGURE 2.1.** Analytical framework for policy-relevant systematic reviews.



Source: Oliver S, Dickson K, Policy-relevant systematic reviews to strengthen health systems: models and mechanisms to support their production, 2016 (32).  
Reproduced with permission from Policy Press, University of Bristol.

depicting mediating and moderating factors (or barriers and facilitators) and communicating the findings of their synthesis (31). Logic frameworks are also useful for “unpacking” and understanding the components inherent to complex health policies and health system interventions (see also Chapter 5 of this Methods Guide, for further discussion of reviews of complex interventions).

Oliver & Dickson proposed a detailed analytical framework for policy-relevant systematic reviews, inspired by community engagement research (Figure 2.1) (32). Their framework highlights the importance of harnessing the motivations of both organizations and individuals, supporting engagement between policy and research, embedding efforts in appropriate structures, and supporting the organizations and individuals with formal procedures.

## 2.6 CONCLUSION

In summary, the synthesis team needs to consider opportunities to engage stakeholders in the evidence

synthesis process and must also be aware of both the potential benefits and the potential challenges of doing so. The synthesis team will need to follow structured approaches to prioritizing policy issues and translating them into structured and specific questions. Throughout this process, it is essential to apply systems thinking, by ensuring that the question is policy-responsive, by considering the complexity of health systems, and by taking into account the influence of health system arrangements and interconnections with the health policy and systems interventions or phenomena of interest.

The next few chapters of this Methods Guide discuss certain aspects related to the synthesis question in more detail. Chapter 3, concerning the choice and application of synthesis methods, addresses how to match a synthesis question to the appropriate synthesis methodology. Chapter 4, concerning context in HPSR, and Chapter 5, on performing reviews of complex interventions, discuss the impact of the synthesis question on the approach to context and complexity, respectively.

### METHODS PAPERS PERTINENT TO SETTING PRIORITIES IN HPSR

- Akl EA, Fadlallah R, Ghandour L, Kdouh O, Langlois E, Lavis JN, et al. The SPARK Tool to prioritise questions for systematic reviews in health policy and systems research: development and initial validation. *Health Res Policy Syst.* 2017;15:77. doi: <https://doi.org/10.1186/s12961-017-0242-4> (27). Note: This article describes a tool designed for prioritizing questions for evidence synthesis specifically in the realm of HPSR.
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When applying the approaches outlined in these papers, reviewers will need to consider the HPSR-specific aspects discussed in the text.

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3

# **APPLYING SYNTHESIS METHODS IN HEALTH POLICY AND SYSTEMS RESEARCH**

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### /// KEY POINTS

- Numerous synthesis methods – both quantitative and qualitative – are available to address a variety of aims in health policy and systems research (HPSR). These methods enable aggregating information; interpreting processes, perceptions, beliefs and values; developing theory; identifying gaps in the literature; exploring methodological aspects; and developing frameworks, guidelines, models or programmes.
- Approaches to conducting reviews in HPSR follow basic systematic review methods but are also grounded in the basic epistemological assumptions of this field of research.
- Resources are available that provide clear and accessible guidance on how to conduct reviews and syntheses across a wide range of approaches, but specific guidance is not yet available on how to apply this guidance to the conduct of an evidence synthesis from a health systems perspective.
- Addressing a research question through quantitative, qualitative and mixed-methods syntheses can contribute to health policy decision-making by going beyond the issue of whether or not an intervention works and also explaining how it works in different contexts, for whom it works, and the relationships and associations within the environment that facilitate or prohibit success.

### 3.1 SYSTEMATIC REVIEW AND SYNTHESIS OF RESEARCH EVIDENCE

Research evidence is generated through primary studies that typically use either quantitative or qualitative methods or, in some instances, a combination of the two. Quantitative research is defined as “the systematic empirical investigation of quantitative properties of phenomena and their relationships”, which often involves a measurement of some kind (1). In contrast, qualitative research is described as an “in-depth enquiry in order to understand the meaning of phenomena and their relationships” (1). The process of bringing together evidence generated through primary research studies – whether qualitative, quantitative or a combination of the two – is referred to both as systematic review and as evidence synthesis. At present, there is no uniformity in the use of these terms; some researchers use them interchangeably, others use them to distinguish different approaches to bringing together research evidence, and yet others use them to refer to different steps in the process of bringing the evidence together. This chapter draws on literature that uses both of these terms, as well as others, such as research synthesis and knowledge synthesis. However, the chapter does not debate the use and meaning of the various terms. Instead, it uses them fluidly in referring to the process of responding to a research question through systematic, explicit and accountable methods to review evidence from primary studies, in the process synthesizing this evidence to create “something new” from the previously separate primary studies (1).

Reviews or syntheses that bring together findings from quantitative studies are often aggregative, “where the synthesis is predominantly aggregating (adding up) data to answer the review question” (1). Reviews or syntheses that bring together findings from qualitative studies tend to be configurative, “where the synthesis is predominantly configuring (organising) data from the included studies to answer the review question” (1). However, the process of synthesizing research evidence is not limited to the dichotomy of quantitative and qualitative methods. Instead, a wide spectrum of methods is available to address one or more of the following aims (2-5):

- aggregate information
- explain or interpret processes, perceptions, beliefs and values

- develop theory
- identify gaps in the literature or the need for future research
- explore methodological aspects of a method or topic
- develop or describe frameworks, guidelines, models, measures, scales or programmes.

The choice of synthesis method depends on the aim or purpose of the secondary research project and which of these intentions the team hopes to fulfil (5). The target intention is determined both by the research question and by knowledge of how the research users intend to use the information generated through the process (see Chapter 2 of this Methods Guide for a discussion of engaging stakeholders in the process of framing the question).

Researchers seeking to contribute synthesized evidence towards the resolution of real-world challenges must be willing and able to employ methodological flexibility.

### 3.2 RESOURCES THAT TEACH GENERAL SYNTHESIS METHODS

This Methods Guide is intended primarily to introduce the issues and literature specific to evidence synthesis of health policy and systems research (HPSR) questions; it is not intended to teach synthesis methods. However, there is recognition that many users may be novices who need an introduction to basic methods. Several resources (1, 6-9) are available that provide clear and accessible guidance on how to conduct reviews and syntheses across the range of approaches introduced in this chapter. Additional information about resources for conducting, reporting and assessing reviews is available in Annex A of this Methods Guide.

Two text books, *An Introduction to Systematic Reviews*, edited by Gough, Oliver & Thomas (1), and *Synthesizing Qualitative and Quantitative Health Evidence*, by Pope, Mays & Popay (6), offer a basic introduction to systematic reviews, without subscribing to any particular approach. They are

useful for researchers who want an introduction to the steps that must be followed in conducting reviews, as well as for those interested in the differences between quantitative and qualitative reviews.

Gough D, Oliver S, Thomas J, editors. *An introduction to systematic reviews*. Los Angeles (CA): Sage Publications; 2012 (second edition published in 2017) (1).

Pope C, Mays N, Popay J. *Synthesizing qualitative and quantitative health evidence: a guide to methods*. London: Open University Press; 2007 (6).

The Cochrane Handbook for Systematic Reviews of Interventions (7) and the Joanna Briggs Institute Reviewer's Manual (8), both freely available online, are specifically written for those wanting to do systematic reviews for the Cochrane Collaboration or the Joanna Briggs Institute, respectively. Each of these resources includes contributions by experts within their collaborations, and each offers clear and simple explanations of how to conduct reviews. They are therefore useful for anyone wanting to learn more about basic and advanced review methods, whether or not they intend to register a review with one of these two collaborations.

Higgins JPT, Green S, editors. *Cochrane handbook for systematic reviews of interventions version 5.1.0* [updated March 2011]. The Cochrane Collaboration; 2011 (<http://handbook-5-1.cochrane.org/>) (7).

Aromataris E, Munn Z, editors. *Joanna Briggs Institute reviewer's manual*. Adelaide: University of Adelaide, The Joanna Briggs Institute; 2017 (<https://reviewersmanual.joannabriggs.org/>) (8).

The website of the Cochrane Qualitative & Implementation Methods Group is useful for those wanting to learn more about qualitative evidence synthesis (9). Although the current edition of the Cochrane Handbook (7) has a chapter on qualitative evidence synthesis, that resource is still mostly focused on quantitative reviews. Therefore, this website is useful for those seeking advice and explanations, beyond that offered in the Cochrane Handbook.

Cochrane Qualitative & Implementation Methods Group [homepage]. London: Cochrane (<http://methods.cochrane.org/qi/welcome>) (9).

For further information about approaches to analysis in systematic reviews of qualitative studies, see Chapter 4 of this Methods Guide, specifically Box 4.3, which describes three approaches suitable for such reviews.

### 3.3 METHODS FOR SYNTHESIZING HPSR EVIDENCE

Systematic reviews of health policy and systems questions form part of the broader body of HPSR. In addition to following basic systematic review methods, the approaches to conducting HPSR reviews are grounded in the basic epistemological assumptions of HPSR overall, as introduced in Chapter 1 of this Methods Guide. Gilson (10) has summarized these assumptions by stating that HPSR:

- ✚ is a multidisciplinary research field, distinguished by the issues and questions addressed through the research rather than by a particular disciplinary base or set of methods;
- ✚ includes research that focuses on health services as well as on the promotion of health in general;
- ✚ includes concern for global and international issues as well as national and sub-national issues, as global forces and agencies have important influences over health systems in low- and middle-income countries;
- ✚ encompasses research on or of policy, which means that it is concerned with how policies are developed and implemented and the influence that policy actors have over policy outcomes - it addresses the politics of health systems and health system strengthening;
- ✚ promotes work that explicitly seeks to influence policy, that is, research for policy.

HPSR considers the system as a whole (11), rather than narrowly focusing on a specific disease or health service intervention (10). As described in Chapter 1 of this Methods Guide, concerning the role of evidence synthesis, health systems are strengthened through the interconnectedness of all health system building blocks (governance, financing, information services, human resources, service delivery, medical technologies) (12, 13). Health systems are also complex, and their performance is influenced by context and depends on interrelationships among the various actors within the system (implementers, managers, policy-makers, health workers, communities and more). In accepting

this complexity, HPSR recognizes that change within the health system cannot be explained through one-dimensional or linear approaches to understanding causality (10). Researchers within this field therefore accept, as do many other social scientists, that there is no singular objective truth or reality (14).

Rather, there may be many explanations as to why particular events occur within the system (such as poor uptake of vaccinations). Research methods are needed that allow for multiple perspectives, to answer particular questions challenging actors within various health systems (15). As such, researchers seeking to respond to HPSR questions with synthesized evidence must be prepared to employ a range of synthesis methods.

As with primary studies in HPSR, evidence syntheses of health policy and systems questions are not limited by paradigm. Rather, the approach taken is defined by the question asked (10). Therefore, in this Methods Guide, users are not directed to a single synthesis approach; instead, a variety of literature is suggested to explain the range of approaches. When choosing a particular synthesis approach, the review team should always clearly define the question, specify who is seeking answers through this question and understand how the answers will be used to inform policy and implementation. The chosen synthesis approach must be able to generate an answer that will satisfy all of these requirements. For example, there is no point in doing a review of studies that examine only the quantifiable costs of an intervention if the community requesting the review actually wants to know whether people who have previously received this intervention perceived it as expensive or not. To fully answer this question, the team may have to look at studies of cost-effectiveness in conjunction with studies of people's perceptions after receiving the intervention.

### 3.3.1 Moving beyond effectiveness reviews

The most common type of systematic review is an effectiveness review (1), that is, a review that synthesizes data from primary studies assessing the effectiveness of an intervention, such as Cochrane reviews of randomized controlled trials (7). Quantitative effectiveness reviews are useful in distinguishing the relative effectiveness of an intervention compared with one or more other interventions, or compared with usual care. Decision-makers may request evidence about such comparisons, particularly at the policy planning stage, a point when they typically need evidence on

the effectiveness of various policy options and health system interventions (see Table 1.1 in Chapter 1 of this Methods Guide). However, although effectiveness reviews are necessary, they may not be sufficient in providing all of the information that decision-makers and other stakeholders need, particularly as they move from assessing the contemplated options to implementing the agreed-upon intervention. Health policy and systems researchers seeking to participate in finding solutions to the range of real-world challenges faced by actors within health systems therefore need to consider a broader range of approaches, so as to take context (16) and complexity (17) into account (see Chapter 4 and Chapter 5, respectively, for discussions of context and complexity). Other approaches to evidence synthesis include (but are not limited to) the following:

➤ **Meta-ethnography** is "a method for reviewing ethnographic (and other qualitative) studies using methods similar to the ethnographic analysis of primary research data, extracts, concepts, metaphors and themes arising from different studies, then interpreting and synthesising these into a 'line argument' " (1).

➤ **Realist review or synthesis** is "a method of synthesis that seeks to populate an explicit programme theory to provide an explanatory analysis aimed at discerning what works for whom, in what circumstances, in what respects and how" (1). For further detail, see the methods commentary on realist reviews elsewhere in this Methods Guide.

➤ **Narrative review or synthesis** is a "term used in three different ways to describe (i) traditional non systematic literature; (ii) reviews that synthesise words (text) rather than numbers; (iii) a specific approach of narrative explanation in research synthesis" (1)

In the methods papers recommended and summarized later in this chapter, these approaches and many more are presented in greater detail.

### 3.3.2 Resources introducing a range of synthesis approaches

To date, there is no overview of synthesis methods specifically suited to HPSR questions; in particular, no

guidance is available on how to conduct an evidence synthesis from a health systems perspective. In the absence of such an overview, this section summarizes papers offering a general overview of a range of methods.

In their 2005 overview of synthesis methods, Dixon-Woods and colleagues take an approach similar to that of the basic principles important to HPSR (3). Their view is that evidence generated by systematic reviews for an audience of stakeholders with influence on health policy must be policy-relevant (a key principle of HPSR). They argue :

**Decision-makers at all levels in areas of policy and practice are faced with complex questions, concerned with issues such as the nature and scale of policy and practice problems; causal pathways; possible interventions and their form and consequences; the experiences of people involved in particular types of role or who are the target of interventions; and crucial processes of implementation and delivery. It is perhaps a truism that complex questions demand complex forms of evidence (3).**

In this paper, Dixon-Woods and colleagues provide an overview and critique of several types of reviews that they believe might contribute to informing policy decision-making. They explain the difference between integrative and interpretive reviews and describe the limitations of traditional reviews for informing policy-makers and practitioners. The authors also tabulate their overview, covering both the strengths and weaknesses of each approach. Their table makes for easy comparisons among the approaches. This paper is useful for its insights into newer synthesis approaches, but it does not provide any information about traditional effectiveness reviews, which, despite certain criticisms, remain important. Effectiveness reviews are covered in the textbook resources suggested in Section 3.2 above.

Dixon-Woods M, Agarwal S, Jones D, Young B, Sutton A. Synthesising qualitative and quantitative evidence: a review of possible methods. *J Health Serv Res Policy*. 2005;10(1):45-53. Open access: <http://journals.sagepub.com/r/dixon-woods-article> (3).

In addition to Dixon-Woods and colleagues (3), Gough, Thomas & Oliver (2), Kastner and colleagues (5, 18), and Tricco and colleagues (4) have provided useful overviews of synthesis approaches.

In their 2012 article, Gough, Thomas & Oliver offer a less descriptive, more conceptual overview of

systematic review methods, focusing particularly on the difference between aggregative and configurative reviews and explaining the purpose or intention behind different review methods (2). Knowing the differences among these various intentions is important when considering whether the review method chosen will yield the knowledge sought by the requesters of the review.

Gough D, Thomas J, Oliver S. Clarifying differences between review designs and methods. *Syst Rev*. 2012;1:28. doi: <https://doi.org/10.1186/2046-4053-1-28> (2).

Kastner and colleagues published a protocol for a scoping review of knowledge synthesis methods (18). The protocol includes a comprehensive table listing possible approaches to evidence synthesis (for which the authors use the term “knowledge synthesis”). For each synthesis approach, the authors list the corresponding type of evidence synthesized and provide a summary description.

Kastner M, Tricco AC, Soobiah C, Lillie E, Perrier L, Horsley T, et al. What is the most appropriate knowledge synthesis method to conduct a review? Protocol for a scoping review. *BMC Med Res Methodol*. 2012;12:114. doi: <https://doi.org/10.1186/1471-2288-12-114> (18).

Using this protocol (18), Tricco and colleagues conducted a scoping review of emerging knowledge synthesis methods (4). The authors map the recent literature describing these methods, and offer brief summary descriptions of each method in the main text. The article includes a table detailing the type of evidence synthesized by each method, the discipline in which that method was most widely used and the objective of the method, as explained by authors of papers included in the scoping review. In addition to their brief descriptions in the main text, Tricco and colleagues also include detailed descriptions of the various methods as appendices to the paper (4). Although these authors were not writing with HPSR evidence synthesis specifically in mind, their descriptions make the task of finding the most appropriate method easier. Using their descriptions, HPSR reviewers can assess their review question against each of the described methods, to find the best fit. The review team can then go to the references cited by Tricco and colleagues for further detail.

Tricco AC, Soobiah C, Antony J, Cogo E, MacDonald H, Lillie E, et al. A scoping review identifies multiple emerging knowledge synthesis methods, but few studies operationalize the method. *J Clin Epidemiol.* 2016;73:19–28. doi: <https://doi.org/10.1016/j.jclinepi.2015.08.030> (4).

In work based on the same protocol (18), Kastner and colleagues offered a “conceptual algorithm to optimize selection of a knowledge synthesis method for answering a research question” (5). The algorithm matches the purpose or aim of a review question to what these authors see as the appropriate review approach to meet that purpose. The algorithm goes on to suggest the outputs that may be expected by following the selected approach and the situations where these outcomes may be applied in health care practice and policy. The authors do not cover questions of effectiveness, because methods for these questions are well established. In the web appendices to this article, the authors show worked examples of research questions in relation to the knowledge synthesis method most appropriate for that question.

Kastner M, Antony J, Soobiah C, Straus SE, Tricco AC. Conceptual recommendations for selecting the most appropriate knowledge synthesis method to answer research questions related to complex evidence. *J Clin Epidemiol.* 2016;73:43–9. doi: <https://doi.org/10.1016/j.jclinepi.2015.11.022> (5).

### 3.3.3 Resources written specifically with HPSR in mind

Users of this Methods Guide may also be interested in two papers written specifically with the HPSR reviewer in mind (19, 20). Both of these articles are introductory conceptual overviews that intend to stimulate discussion and interest. They also describe the applicability of the methods for HPSR. Users are advised to read these articles in conjunction with the other methods resources detailed in this chapter, as well as the methods commentary on quasi-experimental studies elsewhere in this volume.

Gilson L. Qualitative research synthesis for health policy analysis: what does it entail and what does it offer? *Health Policy Plan.* 2014;29 Suppl 3:iii1–5. doi: <https://doi.org/10.1093/heapol/czu121> (19).

Rockers PC, Røttingen JA, Shemilt I, Tugwell P, Bärnighausen T. Inclusion of quasi-experimental studies in systematic reviews of health systems research. *Health Policy.* 2015;119(4):511–21. doi: <https://doi.org/10.1016/j.healthpol.2014.10.006> (20).

### 3.3.4 Mixed-methods synthesis for multiple perspectives on HPSR questions

Mays, Pope & Popay claim that “Decision-makers must address complicated questions about the nature and significance of the problem to be addressed; the nature of proposed interventions; their differential impact; cost-effectiveness; acceptability and so on” (21). The complexity inherent in this description suggests that multiple review methods, taking multiple perspectives into account, may be needed to address these complicated questions. This understanding is supported both by Noyes and colleagues (22) and by Harden and colleagues (23), who argue for the value of combining qualitative and mixed-methods syntheses with quantitative reviews of effectiveness. Together, these authors’ arguments suggest that addressing a research question through quantitative, qualitative and mixed-methods syntheses can contribute to health policy decision-making by going beyond the issue of whether or not an intervention works and also explaining how it works in different contexts, for whom it works, and the relationships and associations within the environment that facilitate or prohibit success (22, 23). However, as Pearson and colleagues note, policy-makers may find it difficult to understand what to do when they are faced with multiple reviews on the same topic (24). Yet, as Mays, Pope & Popay suggest, policy-makers and managers are already making use of a wide range of sources of evidence, although they are under “pressure to adopt a more systematic approach to the utilization of the complex evidence base” (21). In many instances, decision-makers may not themselves have the time or the capacity to adopt such an approach.

Reviewers of HPSR questions can simplify the task of the decision-makers with whom they work. In particular, they can consider whether the question that is being addressed would best be answered by combining data from a range of sources within a single review. They might also consider doing several parallel reviews, focusing on the same topic but using different review methods, so as to offer multiple lenses through which to view the same issue. For example, a decision-maker may have been alerted to a situation in which an intervention is ineffective; in response, she may ask to see evidence showing the intervention’s effectiveness in other settings, as well as reports of perceptions of barriers to the intervention. Researchers wanting to respond to her question with synthesized evidence will need to employ a mixed-methods approach. As described above, some HPSR evidence syntheses may entail

adoption of one or more of the methods across the synthesis spectrum, whereas other questions may require a mixed-methods approach.

When multiple reviews are performed, one of the following three processes can be followed (24):

➤ **Segregated:** Searching, appraisal and synthesis of the quantitative and qualitative studies happen in parallel, with the final synthesis drawing the results together.

➤ **Integrated:** All review processes happen simultaneously, with data from the various types of studies being converted into a comparable format for mixed-methods synthesis.

➤ **Contingent:** Qualitative, quantitative and mixed-methods primary studies are reviewed and synthesized separately, after which the separately synthesized findings are integrated using common frameworks or rubrics.

Another way of viewing these processes is to see them as sequential or convergent (23):

➤ **Sequential:** Qualitative, quantitative and mixed-methods primary studies are reviewed and synthesized separately, after which the separately synthesized findings are integrated using common frameworks or rubrics.

➤ **Convergent:** Qualitative, quantitative and mixed-methods primary studies are reviewed simultaneously, and the findings are integrated from the start using common frameworks or rubrics.

No matter what approach the reviewers take, the findings generated from the synthesis of primary studies across the research traditions (quantitative, qualitative and so on) must be integrated (26) to achieve a higher level of understanding than would be achieved by looking only at studies from a single research tradition. The outcome of these reviews may present a synthesis in which “the quantitative and qualitative findings may either support each other (confirmation) or contradict each other (refutation); or they may simply add to each other (complementary)” (24).

## Methods papers

In contrast to the availability of numerous guidelines for conducting reviews of a single study type (qualitative or quantitative), guidelines for conducting mixed-methods reviews are relatively sparse (25). Four papers are of particular relevance to

systematic reviewers of HPSR questions (21, 23–25). These papers provide an overview of mixed-methods approaches, introduce the literature on methods for integrating data and offer guidance on integrating synthesis processes and findings.

Mays, Pope & Popay (21) start from the premise that health management and policy-making for health are “messy” and “complex”, and thus that traditional review methods may limit reviewers’ ability to respond to policy and management questions. Instead, they suggest that managers and policy-makers may best be served with a synthesis of information from multiple sources: not just qualitative and quantitative research data, but also information from nonresearch sources (for a discussion on supporting this kind of decision-making, which includes reference to the OptimizeMNH process (26) and the DECIDE framework (27), see Chapter 7 of this Methods Guide, concerning the presentation and interpretation of evidence syntheses, as well as Chapter 9, about fostering the use of evidence synthesis in policy and practice, and the impact story concerning development of health systems guidance). In support of this recommendation, Mays, Pope & Popay (21) offer a pragmatic guide to conducting synthesis of data from mixed sources, for the purposes of health management and policy-making. Their guide includes brief discussions of the kinds of skills needed for such syntheses and comments on the feasibility of synthesizing disparate evidence. They guide their readers through the stages of reviewing qualitative and quantitative evidence, and then introduce various synthesis approaches, all with the goal of making the results accessible to health managers and policy-makers. This article is therefore well aligned with the intention of ensuring that HPSR is applicable to decision-makers within the health system. It also provides a practical starting point in understanding mixed-methods reviews and deciding when to consider conducting such a review.

Mays N, Pope C, Popay J. Systematically reviewing qualitative and quantitative evidence to inform management and policy-making in the health field. *J Health Serv Res Policy*. 2005;10 Suppl 1:6–20. Open access: <http://journals.sagepub.com/r/mays-article> (21).

Pearson and colleagues (24) have as their intended audience systematic reviewers addressing questions from clinical decision-makers, rather than questions from health policy and systems decision-makers. Nonetheless, their discussion of mixed-methods

reviews offers useful lessons for any team conducting a mixed-methods review. The authors go to great lengths to explain what a mixed-methods review is, and the different formats in which such reviews can be conducted. They also offer a detailed explanation of how the findings from mixed-methods reviews may be analysed and integrated. They explain processes for converting quantitative data into qualitative data, as well as converting qualitative data into numeric values for integration with quantitative data. Although integrating data about complex health policy and systems questions from a wide array of sources may prove more challenging and heterogeneous than allowed for by the formulas suggested in this article, it is important for reviewers to become familiar with this analytical foundation for mixed-methods reviews.

Pearson A, White H, Bath-Hextall F, Salmond S, Apostolo J, Kirkpatrick P. A mixed-methods approach to systematic reviews. *Int J Evid Based Healthc.* 2015;13(3):121-31. doi: 10.1097/XEB.000000000000052 ([https://journals.lww.com/ijebh/Fulltext/2015/09000/A\\_mixed\\_methods\\_approach\\_to\\_systematic\\_reviews.3.aspx](https://journals.lww.com/ijebh/Fulltext/2015/09000/A_mixed_methods_approach_to_systematic_reviews.3.aspx)) (24).

Tricco and colleagues (25) conducted a scoping review of knowledge synthesis methods for integrating qualitative and quantitative data. As such, their article does not, in itself, provide any guidelines to the various integration methods, offering instead an overview of already-published methods papers. The gift of this paper to reviewers conducting evidence syntheses, however, lies in the appendices. It is here that the authors present detailed descriptions and critiques of the various knowledge synthesis approaches that they identified. Tricco and colleagues (25) offer both definitions of the various approaches and comparisons among them. Both novice and experienced reviewers can decide on the best approach for their review question by considering the question against the approaches outlined in these appendices. The detailed citations in the appendices allow reviewers to access the original texts and independently explore each of the summarized approaches.

Tricco AC, Antony J, Soobiah C, Kastner M, MacDonald H, Cogo E, et al. Knowledge synthesis methods for integrating qualitative and quantitative data: a scoping review reveals poor operationalization of the methodological steps. *J Clin Epidemiol.* 2016;73:29-35. doi: <https://doi.org/10.1016/j.jclinepi.2015.12.011> (25).

The paper by Harden and colleagues (23) is the most recent of this quartet. It forms part of a larger body of ongoing work designed to enable systematic reviews to more comprehensively take issues of context and complexity into account (22). Although this paper is specifically targeted to reviewers within the Cochrane Collaboration, it is applicable to anyone wanting an understanding of approaches to integrating evidence within systematic reviews. The authors begin with an overview of why and when integration is necessary, also explaining the various approaches to integration. They then offer a detailed description of methods and tools used to integrate qualitative and process evaluation evidence within reviews of intervention effectiveness. This description is based on practical examples, which explain how authors of prior reviews have integrated their review processes and findings. These examples include descriptions of sequential reviews using matrices and logic models for integration, as well as descriptions of integration within convergent designs, such as integrating an exploration of programme theory.

Harden A, Thomas J, Cargo M, Harris J, Pantoja T, Flemming K, et al. Cochrane Qualitative and Implementation Methods Group guidance series—paper 5: methods for integrating qualitative and implementation evidence within intervention effectiveness reviews. *J Clin Epidemiol.* 2018;97:70-8. doi: <https://doi.org/10.1016/j.jclinepi.2017.11.029> (23).

### Examples of single-method systematic reviews of the same topic (sequential)

This chapter argues that health policy and systems decision-makers may require multiple perspectives to assist them in resolving a particular challenge, and therefore that systematic reviewers of HPSR questions should be prepared to employ a range of synthesis methods in answering these questions. This section summarizes three systematic reviews on the topic of lay health workers, all conducted by the same core group of reviewers, but from different perspectives (28-30). These are good examples of reviews that address a policy-relevant question at the system level.

Health systems across the globe, particularly those in low- and middle-income countries (LMICs), struggle to achieve optimum levels of human resource coverage (31). One approach to augmenting the work of existing cadres of health workers has been



the addition of lay/community health workers to local and national health systems (31). The inclusion of such workers has been particularly encouraged at the international level, as part of the drive for a renewed focus on strengthening primary health care systems (32). Lay health workers have been found to work either as generalists (across disease and service areas, for example, in palliative care and taking on a broad range of primary health care tasks) or as specialists in a single area (for example, promotion of breast-feeding or provision of support in tuberculosis treatment). Decision-makers at international, national and local levels need sound information when considering whether to initiate, expand, strengthen, support or even end lay health worker programmes.

Lewin and colleagues started by conducting a traditional quantitative review to assess the effectiveness of lay health worker programmes (first published in 2005, with an update in 2010) (28). That review offers decision-makers information about the effectiveness of lay health workers in general and their effectiveness within specific programme areas (such as tuberculosis and infant feeding). Recognizing that decision-makers need to know more than whether or not the intervention works, the review team complemented the effectiveness review with a synthesis of qualitative studies on stakeholder perspectives on lay health worker programmes (29). In doing so they made the following argument:

While the [effectiveness] review concluded that this approach is promising, the results of these trials were heterogeneous, which, given the complexity of these types of interventions, was not unexpected. In addition, the level of organisation and support used for these interventions may have been higher than in real-life settings. If these types of interventions are to be successfully implemented and scaled up, we need a greater understanding of the factors that may influence their success and sustainability. These include the values, preferences, knowledge and skills of stakeholders, and the feasibility and applicability of the intervention for particular settings and healthcare systems. ...While Cochrane reviews of effectiveness are not designed to answer these types of questions, there is growing acknowledgement that syntheses of qualitative research can address questions such as these (29).

Initially, the team attempted to review only the qualitative studies that had been conducted alongside the trials included in the effectiveness review, but they found only few such studies (33). In explaining their approach to expanding the synthesis, the first author of the qualitative review has presented the following argument:

Qualitative studies done alongside trials have the advantage of dealing with the same population, intervention, time period etc., and can more directly point to why the intervention did or did not work in the context of the trials. However, they also have the same disadvantages of most trials – i.e. they are usually exploring an intervention that is being implemented under “artificial” conditions, over a short time period, with more resources than usual. When including qualitative studies that are not done alongside trials, we may also have the opportunity to explore what happens when an intervention is implemented under “real life” conditions and over time (C. Glenton, Global Health Unit, Norwegian Institute of Public Health, personal communication, 23 March 2018).

After publishing the initial effectiveness review in 2005, the review team also found that although they could show that lay health worker interventions in primary and community health had promising benefits for promoting the uptake of childhood vaccination, there was poor understanding of the costs and cost-effectiveness of these programmes. They therefore also conducted a complementary review of the costs and cost-effectiveness of vaccination programme interventions involving lay health workers (30).

Although each of these three reviews (28–30) provides useful information on its own, when they are considered together, the spectrum of methods provides a wider range of information and perspectives for decision-makers.

Lewin S, Munabi-Babigumira S, Glenton C, Daniels K, Bosch-Capblanch X, van Wyk BE, et al. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database Syst Rev.* 2010;(3):CD004015. doi: 10.1002/14651858.CD004015.pub3 (<http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD004015.pub3/pdf>) (28).

Glenton C, Colvin CJ, Carlsen B, Swartz A, Lewin S, Noyes J, et al. Barriers and facilitators to the implementation of lay health worker programmes to improve access to maternal and child health: qualitative evidence synthesis. *Cochrane Database Syst Rev.* 2013;(10):CD010414. doi: 10.1002/14651858.CD010414.pub2 (<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010414.pub2/full>) (29).

Corluka A, Walker DG, Lewin S, Glenton C, Scheel IB. Are vaccination programmes delivered by lay health workers cost-effective? A systematic review. *Hum Resour Health*. 2009;7:81. doi: <https://doi.org/10.1186/1478-4491-7-81> (30).

### Examples of systematic reviews integrating evidence from multi-method primary studies into a single review (convergent)

Among the six health systems building blocks, health information receives relatively less attention than the other five, but it is of equal importance in the overall strength of the system; in fact, the other building blocks depend on the presence of a strong information system. Akhlaq, Sheikh & Pagliari argue that “The ability to capture, exchange and use accurate information about patients and services is vital for building strong health systems, providing comprehensive and integrated patient care, managing public health risks and informing policies for public health and health financing” (34). Sound information systems are particularly needed in LMIC settings where health indicators are often poor. Yet adoption of systems for health information exchange is often slow, with many LMICs lacking the required organizational and technological capacity (34, 35). To inform policy- and decision-making so as to enhance adoption of health information systems, Akhlaq and colleagues felt it important to first understand the reported barriers and facilitators to such adoption (34, 35) (the two references cited here and listed below are the original protocol (34), which includes the authors’ tools as appendices, and the full review (35)). However, these authors were not looking simply at the effectiveness of interventions to enhance health information exchange and uptake, nor were they looking only for perceptions of barriers and facilitators. Instead, as the first author has described:

Our initial searches showed that health information exchange studies contained heterogeneous or diverse study designs (e.g. different technologies, interventions, methods and populations), therefore in order to increase the scope of our review and to make it an exploratory study, we decided to include all published and unpublished studies which are either qualitative, quantitative or mixed methods (A. Akhlaq, Department of Health and Hospital Management, Institute of Business Management, Pakistan, personal communication by email, 25 February 2017).

The authors therefore searched across the range of study designs, anticipating that the data would be too heterogeneous for a quantitative analysis. They treated all of the data as descriptive, with barriers and facilitators across the studies analysed thematically and the integrated findings reported narratively. This style of analysis and reporting differs from that of another mixed-methods review, by Bohren and colleagues (36). The authors of the latter review analysed and reported the qualitative and quantitative findings separately within the same paper, integrating their understanding of the findings in their discussion. Each of these two approaches may be appropriate, depending on the question being asked.

Akhlaq A, Sheikh A, Pagliari C. Barriers and facilitators to health information exchange in low- and middle-income country settings: a systematic review protocol. *J Innov Health Inform*. 2015;22(2):284-92. doi: [10.14236/jhi.v22i2.98](https://doi.org/10.14236/jhi.v22i2.98) (<https://hjournal.bcs.org/index.php/jhi/article/view/98/190>) (34).

Akhlaq A, McKinstry B, Muhammad KB, Sheikh A. Barriers and facilitators to health information exchange in low- and middle-income country settings: a systematic review. *Health Policy Plan*. 2016 (9);31:1310-25. doi: <https://doi.org/10.1093/heapol/czw056> (35).

Bohren MA, Vogel JP, Hunter EC, Lutsiv O, Makh SK, Souza JP, et al. The mistreatment of women during childbirth in health facilities globally: a mixed-methods systematic review. *PLoS Med*. 2015;12(6):e1001847. doi: <https://doi.org/10.1371/journal.pmed.1001847> (36).

## 3.4 CONCLUSION

The questions that health policy and systems researchers address are broad. Effectively responding to these questions requires that individual researchers and research teams have an expansive toolbox of both primary and secondary research methods. This chapter has introduced resources that can be used not only to fill the toolbox with secondary research methods, but also to gain proficiency in using the tools and to gain discretion in deciding the tasks to which the various tools are most well suited.

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# **UNDERSTANDING CONTEXT IN REVIEWS AND SYNTHESSES OF HEALTH POLICY AND SYSTEMS RESEARCH**

**KAREN DANIELS**



### /// KEY POINTS

- Health systems are sensitive to political, economic and social factors that occur locally, nationally and internationally.
- Context is determined by situational factors, structural factors, cultural factors and international or exogenous factors.
- Implementation and context are highly interconnected, with implementation of evidence-based interventions always taking place within a given context, which in turn influences how the implementation takes place.
- Contextual information is fundamental for policy planning and development, but is often stripped away in systematic reviews.
- Reporting rich contextual information in primary studies helps to enrich the usefulness of subsequent systematic reviews.

## 4.1 INTRODUCTION

This chapter introduces the notion of context and its relationship to health policies and systems. It then considers how context may be taken into account in systematic reviews and evidence syntheses of health policy and systems research (HPSR) questions. The issue of context is closely related to the methods described in both Chapter 3 and the methods commentary on realist reviews, elsewhere in this volume; it is also fundamental to reviews of complex health interventions, as described and discussed in Chapter 5.

## 4.2 THE IMPACT OF CONTEXT ON HEALTH POLICY AND SYSTEMS INTERVENTIONS

Health systems exist within, and are sensitive to, particular contexts (1–4). In other words, health systems are sensitive to political, economic and social factors that occur locally, nationally and internationally (5). Health systems interact “with the population and with the specific contexts in which they are embedded” (2). They will react and adapt to changes in the immediate environment (the local context), such as an epidemic or a major environmental incident, but they are also sensitive to changes in the national and global environments, such as major policy shifts, changes in technology or politics, and fiscal changes (6). These systemic factors have been described as falling into four main categories (5):

- Situational factors, transient or impermanent occurrences, such as a flood, which may lead to an increase in waterborne disease and thus bring attention to issues of sanitation.
- Structural factors, elements that are relatively unchanging or slow to change, such as a country’s political system or its level of inequity, which can determine the extent to which residents depend on public health. High levels of wealth or poverty are likely to also affect a country’s disease profile and other characteristics.
- Cultural factors, including pervasive belief systems, such as beliefs about women, hierarchy and ethnicity, which can shape local policies. For example, in some countries where the dominant religion does not favour abortion, this is mirrored in health policies that do not favour women’s right to access abortion services either.

- International or exogenous factors, whereby nation states, although independent, may also be subject to interdependencies. For example, if one country has managed to control a particular infectious disease (such as malaria), it may be concerned that a neighbouring country has not done the same, and therefore may seek to influence how its neighbour manages the disease.

One of the major contemporary changes facing health systems is the shift in focus from the Millennium Development Goals to the Sustainable Development Goals. Although the decision to adopt the Sustainable Development Goals was made at the United Nations, within the global context, and national governments have agreed to these goals, it is health systems managers at the front line of health care delivery, operating within their local contexts, who will have to adapt their services to reflect this shift within the global context (7). To take another example, the World Health Organization has responsibility for population health around the globe, that is, the global health system. As such, one of its functions is to set policies and develop guidelines to be used by countries across the globe, in an effort to ensure the highest attainable level of health for all people (8). These policies and guidelines, which are agreed to as being of global good, or good for the global health system, are then taken up by national governments, which ensure that they are implemented by health workers at the front line of delivery of care.

This context sensitivity contributes to the diversity of varied health systems, and also to their complexity (6, 9). Another contributor to diversity is the fact that health systems are path dependent, that is, they are products of historical processes that have shaped them. For example, if a country has a colonial past, then its health system will be shaped by that past, and it may continue to organize services in the same manner as during the colonial period (10). Health systems are also social institutions, in that they are both a product of the society in which they occur and an influence on that society (6, 11, 12). The values and principles held by the society are likely to be reflected in the health system; for example, if a society values social equity, it may have a health system that favours universal access to health care (2, 6, 11).

Health systems activity takes place at different levels: the macro level (global and national health systems), the meso level (local or district health system) and the micro level (individual health facilities up to the patient-provider interface) (Figure 4.1) (13–15).

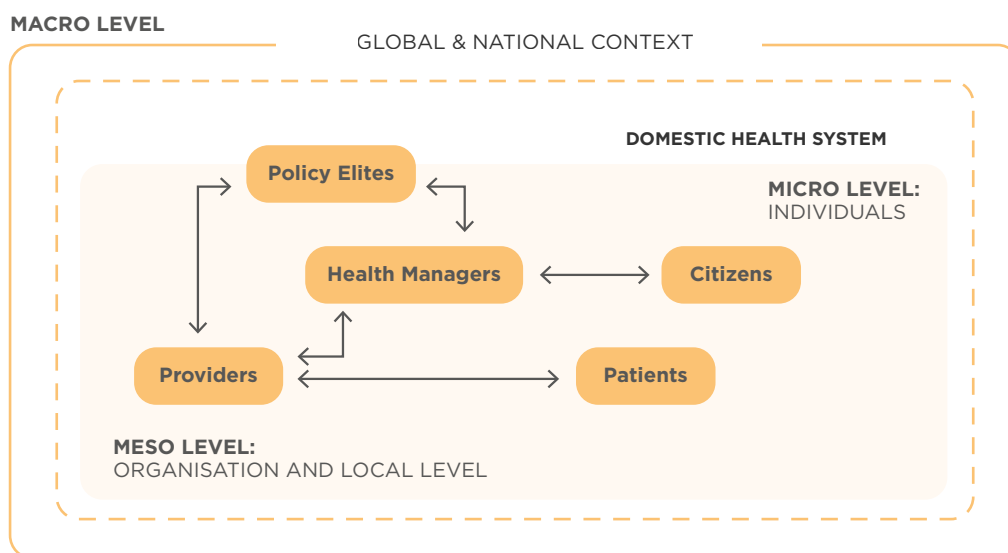


In Europe in particular, reference is also made to a supranational level, because the legal and policy environment created by the European Union affects the health policy environment of European member states (16, 17). The specificities, roles and functions of each of these levels are also sensitive to context (6) and may “vary quite substantially between countries, depending on the type and level of decentralization and autonomy of regions, provinces, or districts” (2). At the micro level, there are further sublevel divisions, in that health service delivery can take

place within communities and at primary health care facilities, as well as at secondary and tertiary care hospitals. Each of these sublevels of front-line service delivery can be seen as a context, with its own systems and contextual interactions. The immediate environment of health services delivery is also sometimes referred to as the setting, although the term “setting” is often used interchangeably with the word “context”. The difference between setting and context is described in Box 4.1.

Reviews of health policy and systems research questions need to take context into account to enhance the relevance and usability of the research outputs.

**FIGURE 4.1.** The different levels of health systems.



Source: Gilson L, editor, Health policy and systems research: a methodology reader, 2012 (13). Reproduced with permission from the World Health Organization.

#### **BOX 4.1. DISTINGUISHING CONTEXT AND SETTING**

The literature is not always clear on the difference between context and setting, with some authors using the terms interchangeably, and others distinguishing the two. The following definitions by Pfadenhauer and colleagues (14, 18) are appealing:

**Context** is “conceptualized as a set of characteristics and circumstances that consist of active and unique factors that surround the implementation. As such it is not a backdrop for implementation but interacts, influences, modifies and facilitates or constrains the intervention and its implementation. Context is usually considered in relation to an intervention or object, with which it actively interacts. A boundary between the concepts of context and setting is discernible: setting refers to the physical, specific location in which the intervention is put into practice. Context is much more versatile, embracing not only the setting but also roles, interactions and relationships” (18).

**Setting** “usually has a narrower focus. It often refers to the place where an intervention is delivered (e.g. primary care setting) or the circumstances of an intervention (e.g. low-income setting)” (14).

### 4.3 IMPLEMENTING HPSR EVIDENCE IN CONTEXT

Implementation of evidence-based interventions is the process of bringing into use practices that have been proven effective through research evaluation. This process occurs within health systems, and thus is also sensitive to the health policy and systems context in which the implementation occurs (14, 18, 19). Pfadenhauer and colleagues have explored the relationship between implementation and context, arguing that these are highly interconnected, with implementation of evidence-based interventions always taking place within a given context, which influences how the implementation takes place (14). Tomoaia-Cotisel and colleagues support this argument (15), further claiming that understanding context is important to the replication of research, because contextual knowledge is important to interpreting and applying the findings. In addition, before the findings can be applied, the evidence-based intervention needs to be adapted for the context in which it will be implemented. Therefore, the adapters need information about the original context or contexts in which the intervention was research-tested, so as to determine what changes might be needed for the intervention to work in the new context. To think about this more practically, imagine an intervention that works when tested in a research study in rural northern Sweden, where, although people are living remotely, they have good infrastructural access. Now imagine trying to implement that same intervention in rural Sudan, where access to resources and infrastructure is really poor. Or, to use a less extreme example, consider implementing the same intervention in rural northern Sweden and rural Alaska, where the environmental conditions may be similar, but the health systems (of Sweden and the United States, respectively) have vast differences. Thus, interventions that work in one context cannot simply be transported to another context, without some consideration and potential adaptation. This consideration is made easier when researchers offer details about the original context and setting in which the intervention was tested.

### 4.4 ADDRESSING THE CHALLENGE OF CONTEXT TO SYSTEMATIC REVIEWS OF HEALTH POLICY AND SYSTEMS INTERVENTIONS

The field of HPSR seeks to inform policy and

implementation through evidence (hence the need for policy relevance), as outlined in Chapter 1. However, traditional systematic reviews examining the effectiveness of interventions have been criticized for being too reductionist and for not taking context into account (15, 20–22). These limitations present a challenge in performing systematic reviews of HPSR questions because contextual information is fundamental for policy planning and development, for instance, in assisting decision-makers to decide whether certain policy options are applicable to their context and setting (23–25). Greenhalgh has argued that in these traditional systematic reviews, the “technical process of stripping away all but the bare bones of a focused experimental question removes what practitioners and policymakers most need to engage with: the messy context in which people get ill, seek health care (or not), receive and take treatment (or not), and change their behaviour (or not)” (20). Key to these criticisms is that after stripping away the context, the researchers can only say whether an intervention works or not; they cannot explain why this is, why the intervention works or not (18, 26, 27). Systematic reviews that strip away context may be perceived as lacking relevance to policy- and decision-makers seeking information that will help them adapt the interventions reviewed to their local context (15, 21, 28). The lack of contextual relevance is, in turn, offered as a potential explanation for why policy- and decision-makers may not routinely use systematic reviews as part of their decision-making process (28, 29).

A closer examination of context is recommended, because the context in which an intervention takes place will act as a mediator in the success or failure of the intervention; therefore, policy- and decision-makers need to know why a given intervention works in one place yet may fail in another (15, 18, 20, 22, 26, 27). Thus, reviews of HPSR questions need to take context into account to enhance the relevance and usability of the research outputs. But review authors cannot do this on their own. A clearer description of context in reviews is reliant on a clearer description of context in primary studies (see Box 4.2).

### 4.5 METHODS PAPER

Although systematic reviewers may be keen to focus on context in their reviews, the authors of the primary studies upon which systematic reviews and other types of evidence synthesis are based may not have paid attention to the value of reporting on contextual factors that might affect the intervention

#### **BOX 4.2. A PLEA FOR CONTEXT-RICH PRIMARY STUDIES TO SUPPORT CONTEXT-RICH SYSTEMATIC REVIEWS AND EVIDENCE SYNTHESIS**

The challenge of including context starts at the level of primary studies. If systematic reviewers are to take context into account, they need primary studies that do the same. Evidence synthesis becomes difficult when the primary studies included in the syntheses do not offer sufficient contextual information (15). Reporting rich contextual information in primary studies helps to enrich the usefulness of systematic reviews (15). This can enable these reviews to include an understanding of contextual factors that will, in turn, allow decision-makers to transfer knowledge gained from interventions implemented and evaluated in one context to the implementation of such interventions in other contexts (15).

Glenton, Lewin & Scheel struggled to find qualitative studies conducted alongside experimental trials, despite actively searching for them (30). This team had conducted an effectiveness review in which the results were promising but heterogeneous. Thus, they sought qualitative studies that had been conducted alongside the included trials, with the aim of using this contextual information to help explain the heterogeneity. Yet they found that 83% of the included trials either had no linked qualitative studies, or the qualitative studies that did exist were not accessible. Ultimately, they were able to access corresponding qualitative studies for only 17% of the included trials, and even then they found that the descriptions of the methods and the qualitative results were often sparse. They therefore concluded that qualitative studies conducted alongside trials hold some promise for explaining heterogeneity, by offering insight into the trial intervention context, but that too few of these studies are being conducted for their full promise to be realized.

In response to the poor reporting of context in primary studies, Tomoaia-Cotisel and colleagues developed a tool for the researchers with whom they were working, to be used in collecting contextual information in primary studies using quantitative, qualitative and mixed-methods designs (15). This tool is based on their experience of collecting contextual information across 14 research teams. When publishing their findings, each of the 14 teams added the contextual information that they had collected, as appendices to the main article. Investigators performing primary studies would be well advised to consider using a tool such as that developed by Tomoaia-Cotisel and colleagues, or developing their own tool. The use of such tools could improve the richness of their recording of the context in which their study took place, and in which the intervention that they are evaluating was implemented. Furthermore, reporting guidelines for journal articles have been extended to encourage authors of primary quantitative studies to report context in more detail. Enhanced reporting on context in evidence syntheses is therefore contingent on the authors of primary studies expanding on their context reporting.

(15, 21). Pfadenhauer and colleagues have some advice to offer in this regard (14, 18, 19). These authors developed the Context and Implementation of Complex Interventions (CICI) framework, as a means to guide the inclusion of context and implementation in health technology assessments and systematic reviews of complex interventions (18, 19). The guidance offered is intended for use by review authors across the range of quantitative, qualitative and mixed-methods reviews. Rather than presenting a new method, these authors offer a checklist that systematic reviewers may use to ensure that their reviews become more sensitive to the role that context plays in the implementation of the intervention or phenomenon being studied. They offer clear descriptions of all the context domains listed, as well as examples of context-sensitive data extraction forms that can be used in reviews of quantitative and qualitative studies. The authors also turn their attention to how an intervention may

be affected by the way in which it is implemented. The checklist presented in their most recent article (19) details aspects of the implementation process, including implementation theory, process, strategy, agents and outcomes. This information is supported by seven appendices, which include lists of the articles that contributed to their framework, further elaboration on the framework, data extraction forms, a guide to expert consultation and a worked example of the use of the framework. This article is available on an open-access basis:

Pfadenhauer LM, Gerhardus A, Mozygemba K, Lysdahl KB, Booth A, Hofmann B, et al. Making sense of complexity in context and implementation: the Context and Implementation of Complex Interventions (CICI) framework. *Implement Sci.* 2017;12:21. doi: <https://doi.org/10.1186/s13012-017-0552-5> (19).

Attention to context in systematic reviews is further discussed in Chapter 3, concerning methods; Chapter 5, concerning reviews of complex interventions; and the methods commentary on realist reviews. In particular, Chapter 3 introduces the concepts of quantitative, qualitative and mixed-methods reviews. The CICI framework could be considered a companion to any of these review types, including qualitative reviews, although the latter tend to be inherently more context-focused than quantitative reviews. In quantitative reviews in particular, reviewers could consider using the CICI framework to inform a narrative reporting of the information on context that has been extracted from primary studies, so as to shed further light on the synthesis of quantitative outcomes.

## 4.6 SYSTEMATIC REVIEWS TAKING CONTEXT INTO ACCOUNT: EXAMPLES

### Review example

Liu and colleagues (31) explicitly set out to take context into account in their systematic review exploring interventions to attract and retain health workers in underserved rural areas. In exploring the literature, they found that studies and reviews of interventions presented contradictory evidence, yielding a complex picture of the effectiveness of the interventions. In response, the review authors recognized that these interventions had been developed and implemented in various contexts through different processes, and they felt that this heterogeneity might explain the variation in intervention effectiveness. Thus, they set out to conduct a review that would take this variation into account, with the objective of identifying contextual factors that policy-makers should consider when they design and implement interventions. Context was therefore taken into account in the design of the search terms, the study selection, and the collection and analysis of data. Using this approach, the authors were able to offer review findings that addressed contextual factors at the macro, meso and micro levels of the health systems. These factors included the fiscal capacity of a country or organization, decentralization of the health system and legislative processes. In making these contextual factors explicit, the review authors enhanced policy-makers' ability to consider how the intervention might work in their own contexts.

Liu X, Dou L, Zhang H, Sun Y, Yuan B. Analysis of context factors in compulsory and incentive strategies for improving attraction and retention of health workers in rural and remote areas: a systematic review. *Hum Resour Health*. 2015;13:61. doi: <https://doi.org/10.1186/s12960-015-0059-6> (31).

### Review protocol example

Like Liu and colleagues (31), Belrhiti and colleagues (32) have embarked upon an HPSR systematic review that explicitly takes context into account. These authors very specifically focus on the meso level of the health system, by exploring interventions to improve district health systems management and leadership. In their protocol (32), they explain how exploring the effectiveness of such interventions is a primary objective of the review, whereas exploring contextual factors that enable or constrain the interventions is a secondary objective. This secondary objective is justified by the authors' understanding of the interventions as multifaceted and complex in nature, and their observation that the interventions are "implemented in social systems characterized by human agency, uncertainty, and unpredictability" (32). The authors therefore begin by using a logic model (see Chapter 5 in this Methods Guide, on performing reviews of complex interventions, in particular section 5.5) to illuminate key contextual issues that may affect the interventions. The authors also describe how they will use "best fit" framework synthesis (described in more detail in Box 4.3) to analyse organizational policies and procedures, to allow them to interpret what is happening in specific contexts. They propose using this framework for the qualitative studies included in the review. These authors therefore acknowledge context in the overall focus of their review, in their inclusion criteria and in the analytical process of the review.

Belrhiti Z, Booth A, Marchal B, Verstraeten R. To what extent do site-based training, mentoring, and operational research improve district health system management and leadership in low- and middle-income countries: a systematic review protocol. *Syst Rev*. 2016;5:70. doi: <https://doi.org/10.1186/s13643-016-0239-z> (32).

The "best fit" framework mentioned above may be unfamiliar to some readers. Although Belrhiti and colleagues use the framework, they do not offer a detailed explanation of it. Box 4.3 includes a description of this framework, along with the antecedent thematic and framework synthesis approaches for comparison. These approaches are best considered in relation to the literature on qualitative methods, introduced in Chapter 3.

### **BOX 4.3. THREE APPROACHES TO ANALYSIS IN SYSTEMATIC REVIEWS OF QUALITATIVE STUDIES**

Analysis within reviews of qualitative studies (also known as qualitative evidence synthesis) follows the same principles as analysis of data in primary studies. Such analysis can be either inductive (whereby themes, codes and categories emerge from the data) or deductive (whereby themes, codes and categories are chosen a priori, before the analysis starts).

#### **Thematic synthesis (33, 34)**

Thematic synthesis involves analysing data from primary qualitative studies in an inductive manner, the approach commonly used for many primary studies. Using this approach, reviewers code the primary studies (sometimes just the results section, but often the discussion and conclusions too), line by line, as if coding a transcript of an interview or field notes from a qualitative observation. This coding can then lead to the development of descriptive themes (analysis at the manifest or superficial level) and analytic themes (when the reviewers go deeper, trying to identify patterns, relations and explanations in the data, thus analysing at the latent level). This approach is appropriate when the reviewers are doing an exploratory study, wanting to see what emerges from the data, and when they hold no prior assumptions about what they might find in relation to the review question. Although this approach can lead to a rich and nuanced analysis, the downside is that exploring the data in depth can take a very long time. However, in HPSR, when working with policy-makers who are seeking quick answers to prespecified questions and challenges, reviewers may not have the luxury of the time required by such an approach. Another challenge with this approach, as with thematic analysis of qualitative primary studies, is that the process of arriving at codes, themes and categories is often intuitive, with many of the links and explanations being made in the researcher's or the reviewer's mind, rendering transparency of the process hard to achieve.

#### **Framework synthesis (34, 35)**

Framework synthesis of qualitative studies follows the same principles as framework analysis of primary studies, whereby a deductive approach is used to analyse data from primary studies included in systematic reviews. With this approach, a tentative framework of themes or concepts is identified in advance. This up-front framework could be developed through the reviewers' own understanding of the issue being reviewed, it could be developed from the literature on the subject, or it could be developed in conjunction with the requesters of the review (such as policy-makers, health systems managers or health policy lobbyists). As is often the case in reviews of HPSR questions, the requesters of the review are likely to have a predefined set of questions and issues that they would like to have addressed. Using the predefined framework, the reviewers can ensure that they actively seek out data to answer those questions. Having a predefined framework that is developed in collaboration with the review requesters can also be more transparent than trying to explain how themes have emerged from the data. The predefined framework is also useful for combining data from multiple study types, because data about the same issue can be grouped under the same predefined theme and then compared from there. One of the dangers of this approach is that reviewers may become attached to their predefined themes or categories and may be unwilling to consider data that do not fit within this framework. Those data could easily be lost, with the attendant risk that contradictory data or new insights become "buried", even if there was no attempt to hide the data.

#### **"Best fit" framework synthesis (35–37)**

"Best fit" framework synthesis combines thematic and framework synthesis, using both a deductive and an inductive approach to analyses. With this approach, the authors begin by systematically searching the literature for a theory or framework that would best align with their research question. In their search, they explicitly take context into account. For example, as described in section 4.6 of this chapter, Belrhiti and colleagues (32) are using the "best fit" approach to answer the question "To what extent do site-based training, mentoring and operational research improve district health system management and leadership in low- and middle-income countries (LMICs)?" Their question contains both interventions – site-based training, mentoring and operational research – and two levels of settings – district health systems and LMICs. Therefore, in their approach, they will look for explanatory theories and frameworks related both to the interventions and to how these interventions operate in the identified settings (this concept could also be incorporated into a logic model; see Chapter 5 on performing reviews of complex interventions, in particular section 5.5). The authors will also simultaneously search for primary studies that meet the intervention and setting criteria. They will then develop a tentative framework, based

on the “best fit” of what they find in the literature, and as they analyse the context-sensitive primary studies, they will fit the data from these studies into the predefined framework. However, the originators of the “best fit” approach recognized that it would be unlikely for all of the data from the primary studies to fit within such a predefined framework; they furthermore recognized that the “best fit” theories that reviewers find are likely to be generic and not context specific (36, 37). Thus, using this approach, reviewers will also code data from the context-specific primary studies inductively, looking at what new themes and categories emerge. These new themes and categories will then be compared and translated into the predefined framework, bringing context-specific data and insights to what might originally have been a generic framework. From there, the reviewers can develop a new, higher-level framework that brings together the predefined theory and framework with the intervention and context-specific data. Thus, Belrhiti and colleagues (32), as well as the originators of the approach, suggest that this approach is context sensitive. However, the originators argue that this approach can only be used where predefined theories or frameworks exist. In instances where the reviewers have little advance knowledge about the topic, a more inductive approach remains preferable.

Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Med Res Methodol*. 2008;8:45. doi: <https://doi.org/10.1186/1471-2288-8-45> (33).

Gough D, Oliver S, Thomas J. *An introduction to systematic reviews*. Los Angeles (CA): Sage Publications; 2012 (34).

Dixon-Woods M. Using framework-based synthesis for conducting reviews of qualitative studies. *BMC Med*. 2011;9:39. doi: <https://doi.org/10.1186/1741-7015-9-39> (35).

Carroll C, Booth A, Leaviss J, Rick J. “Best fit” framework synthesis: refining the method. *BMC Med Res Methodol*. 2013;13:37. doi: <https://doi.org/10.1186/1471-2288-13-37> (36).

Carroll C, Booth A, Cooper K. A worked example of “best fit” framework synthesis: a systematic review of views concerning the taking of some potential chemopreventive agents. *BMC Med Res Methodol*. 2011;11:29. doi: <https://doi.org/10.1186/1471-2288-11-29> (37).

## 4.7 CONCLUSION

Contextually rich systematic reviews and evidence synthesis may better support health policy and systems decision-makers, as they consider how to apply the evidence for implementation in their

settings. Contemporary developments in evidence synthesis methods can enable reviewers to produce such contextually rich reports. Production of such reviews is supported even further when reviewers are able to extract contextually rich data from the primary studies included in the final systematic reviews.

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**METHODS**  
COMMENTARY

# **REALIST REVIEWS IN HEALTH POLICY AND SYSTEMS RESEARCH**

**GEOFF WONG**



### /// KEY POINTS

- Realist reviews aim to address questions about how, why, for whom, in what contexts and to what extent health systems, programmes and/or policies function.
- A realist perspective is based on the premise that for any observed outcome, there are one or more causal processes (called “mechanisms”) that only become active in certain contexts: Context (C) + Mechanism (M) = Outcome (O).
- The realist perspective offers an explicit explanation of how and why context influences an outcome, and this explanation of causation occurs at a level of abstraction that permits empirical testing.
- A realist logic of analysis enables learning that may be transferable, on the basis of transferability of mechanisms.

## INTRODUCTION

Researching health policy, systems and interventions is no easy task. Health systems and interventions are complex: they consist of multiple providers who undertake a range of activities in different settings, they have outcomes that are context-sensitive, and so on. The policies that are intended to direct and/or influence health systems are also complex. For example, they typically target different aspects of the system and may produce both desired and undesired outcomes. The research evidence shows that health systems, policies and interventions seem to function as desired, some of the time, for some people, in some settings.

This partial success creates a problem for researchers, especially those who wish to perform evidence syntheses. More established systematic review approaches (such as Cochrane systematic reviews) are helpful in that they can provide information on overall effect sizes of health policies and systems, sometimes by subgroups. However, the challenges of implementation, scaling up or rolling out – how stakeholders get what they want from a programme or policy under different settings, at different scales and so on – is not readily addressable using these well established approaches. This is where realist reviews can play a part, as they seek more to unpack, explain and understand than to determine effect sizes. The purpose of realist reviews is to address questions about how, why, for whom, in what contexts and to what extent health systems, programmes and/or policies function, thus providing the types of knowledge that are more useful for implementation (1).

## REALIST REVIEWS: A DEFINITION

Within this Methods Guide, the nature of the complex interventions examined in health policy and systems research (HPSR) and the challenges of systematically reviewing such interventions are clearly articulated in Chapter 5. Realist reviews (also commonly called “realist syntheses”) represent one approach to systematic reviews that is particularly useful for making sense of complex interventions – an important first step to understanding how to change these interventions for the better. A realist review is a theory-driven approach to reviewing the literature – that is, the purpose of the review is to produce one or more theories to explain particular phenomena (2-4). As such, realist reviews are much more explanatory

than judgemental. In other words, they are more useful for explaining why outcome patterns occur in health systems or complex interventions than for producing findings that describe how one health system or complex intervention is “better” than another. Realist reviews are usually used to explain, in full or in part, how and why health systems or complex interventions work, for whom, in what contexts and to what extent. Related to realist reviews are realist evaluations, a form of theory-driven evaluation (2).

This commentary presents an introductory overview of the assumptions that underlie realist reviews, with the intent of showing why realist reviews are one approach to making sense of health systems and complex interventions in HPSR. The commentary does not provide details of how to actually undertake a realist review, although a brief overview of guidance available on this topic appears at the end of the commentary.

## ASSUMPTIONS UNDERPINNING REALIST REVIEWS

Realist reviews are underpinned by a realist philosophy of science. There are many different versions of realism, but in realist reviews the underlying version is that put forward by Pawson & Tilley (2-4). These authors assert that for any observed outcome, there are one or more causal processes (which they call “mechanisms”) that only become active in certain contexts. This explanation for causation has been expressed in short form as Context (C) + Mechanism (M) = Outcome (O). This way of thinking about causation, while seemingly simple, provides the essential building blocks for realist reviews and explains their potential usefulness and power.

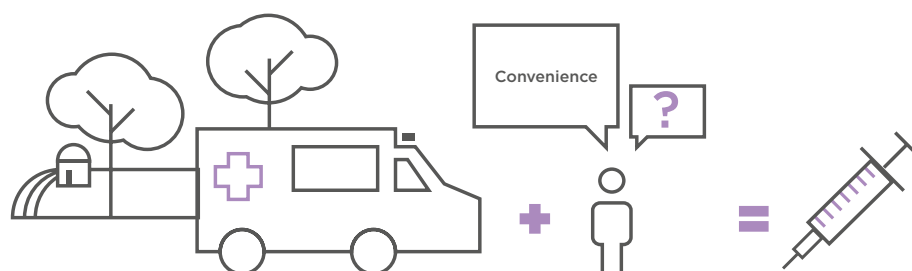
The concept of mechanism is central to realist reviews. To understand its importance, it is worth dissecting what goes on in a complex intervention. As mentioned in Chapter 5 of this Methods Guide, complex interventions have multiple components and outcomes that appear to be context dependent. One way of thinking about these components is to assume that each consists of one or more deliberately selected intervention strategies. To illustrate, consider the following fictitious example of findings from a realist review: A project team reviews the literature on vaccination uptake rates in low- and middle-income countries (LMICs). The team notes that some programmes, as reported across multiple studies, have as one of their components mobile outreach vaccination clinics provided by

trained health care professionals. The reviewers notice, from the data included in their realist review, that when this component is used, there is a slight increase in vaccination uptake in some contexts, notably the more remote villages. To make sense of this observation, using a realist “lens”, they interpret the mobile outreach clinic as a form of intervention strategy, that is, something that is deliberately done by the health care professionals. The deliberate activity (intervention strategy) in this component of the programme is having health care professionals go out to the villages to offer vaccinations. Using the realist lens, the reviewers assume that the intervention strategy has now changed the context – from one where no vaccinations were available in a remote village to one where trained health care professionals

now come to the village to provide this service. This new context (locally available vaccinations) activates the mechanism of perceived convenience among the villagers and causes the outcome of a slight increase in vaccination uptake. The realist causal explanation of this outcome may be expressed in a way that explains relationships between the context that is needed to activate the relevant mechanism and the outcome that is produced – something that is known in realist approaches as a Context-Mechanism-Outcome (CMO) configuration. In this case, the CMO configuration can be summarized as follows: when remote villages are offered vaccinations by mobile clinics (C, for context), the population perceives this to be convenient (M, for mechanism) and so people get vaccinated (O, for outcome) (Figure 1).

**FIGURE 1.** CMO configuration in a rural setting.

When people in remote villages are offered vaccinations in mobile clinics (C for context), they perceive this service to be convenient (M for mechanism) and so get vaccinated (O for outcome).

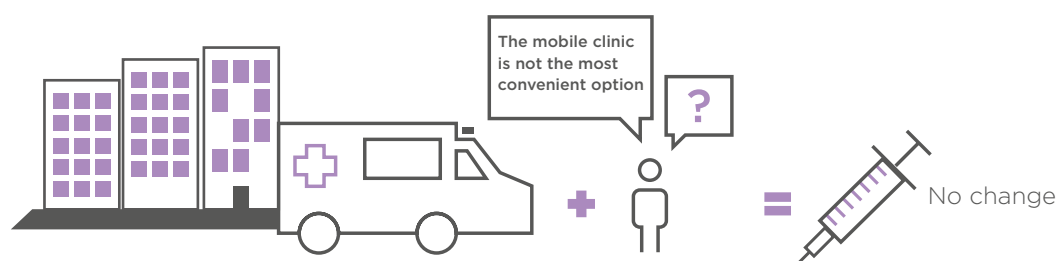


This illustrative example is deliberately simplistic, and it is highly likely that other contexts and mechanisms will influence the outcome of vaccine uptake; hence, the increase in vaccination uptake is only slight, not dramatic. Other contexts may be activating different mechanisms as well, and some of these may counter the causal effects of the convenience mechanism. For example, a mechanism of distrust of outsiders may be present in a context where the health care professionals are not local, thus leading to an outcome of nonattendance at the mobile clinic.

To further illustrate the value of using a realist lens to analyse data, consider a similar intervention in a different setting. In an urban setting, multiple opportunities to receive vaccination may exist, and hence the mechanism of perceived convenience is not activated. Thus, the CMO configuration in the urban setting might be that when multiple opportunities exist to be vaccinated (C, for context) mobile clinics do not increase vaccination uptake (O, for outcome) because people do not perceive the clinics as increasing convenience (M, for mechanism) (Figure 2).

**FIGURE 2.** CMO configuration in an urban setting.

When multiple opportunities to be vaccinated exist (C for context), the availability of mobile clinics does not increase vaccine uptake (O for outcome), because people do not perceive the clinics as increasing convenience (M for mechanism).



A number of important points are worth highlighting with this Context + Mechanism = Outcome realist lens for analysis of outcomes. First, from a realist perspective, intervention strategies do not cause outcomes. Instead, what intervention strategies do is change (or not) the context that matters to the outcome of interest. In the first illustrative example above, it was not the intervention strategy (the mobile clinic) that caused the outcome of a slight increase in vaccination uptake in the rural setting, but rather the mechanism of convenience, as perceived by individuals, interacting with the presence of the mobile clinic: in other words, in this rural setting, the presence of the mobile clinic functioned as context to trigger the mechanism of perceived convenience to cause an increase in vaccination uptake. As illustrated in the second example, if the intervention were to be studied in an urban setting, the literature might report that mobile clinics were not associated with an increase in vaccination uptake, because in that setting, multiple opportunities exist for getting vaccinated and hence the mechanism of perceived convenience is not activated.

In this case, the intervention strategy (the mobile clinic) has not changed the context that matters, which, in the urban setting, is the presence of multiple opportunities to get vaccinated. In realist terms, the CMO configuration in the urban setting is that when multiple opportunities exist to be vaccinated (C for context), mobile clinics do not increase vaccination uptake (O for outcome) because people do not perceive the clinics as increasing convenience (M for mechanism). In this setting, rather than changing the context, the mobile clinic becomes simply one of a number of vaccination providers; if the clinic were to visit a neighbourhood only once a week, it might in fact prove to be the least convenient provider. In contrast, in the remote village, mobile clinics change the context in such a way as to enable access to a service that did not otherwise exist in that location. The key here is to understand that intervention strategies change contexts, but in and of themselves they do not cause outcomes.

The second important point arising from applying the realist lens is the advantage of an explicit explanation of how and why context influences an outcome, that is,  $C + M = O$ . The issue here is that it is perfectly acceptable to make claims that outcomes depend on context; however, if such claims are made, then it is important to explain how and why context

influences outcomes. Realist reviews provide such an explanation. This realist logic of analysis ( $C + M = O$ ) also provides a structure for data analysis when a complex intervention is unpacked and studied in detail. Such unpacking often resembles detective work, as it may be unclear at the start of a realist review how and why the outcomes of a complex intervention, as reported in the literature, have occurred. To expand further, for many complex interventions, a final desired outcome (such as a change in health status, longevity or mortality) can be identified. However, there is often a complex web of events leading to this final desired outcome. Returning to the example of vaccinations, the desired outcome for a complex intervention like a vaccination programme might be a reduction in childhood mortality among those who undergo vaccination. Indeed, vaccinations may have an effect on mortality, but so too would nutrition levels, accidents and illnesses for which there are no vaccines. Thus, the implication for the realist review is to work out what, in reality, a vaccination programme may or may not be able to influence, and also what the

more intermediate or proximal outcomes might be in the web leading to the final desired outcome. What the reviewer can then do is uncover where the intervention strategies within a vaccination programme have had an influence (if any) on these proximal outcomes.

Realist reviews represent one approach to systematic reviews that is particularly useful for making sense of complex interventions.

Realist reviewers tackle the unpacking of complex interventions by first developing an initial programme theory, an abstracted description and/or diagram that lays out what a complex intervention comprises and how it is expected to work. In other words, the programme theory should contain both a description and/or diagram of the intervention strategies and information about how these should be implemented. Data from the included literature is used to gradually modify the initial programme theory into a more refined one that is realist in nature. In other words, the final programme theory should contain CMO configurations that explain the outcomes for each intervention strategy contained within the overall programme theory of the complex intervention.

When developing the CMO configurations within a programme theory, a common challenge is knowing which factors or elements are functioning as context. For example, there is a tendency to assume that a characteristic such as age, sex, geographical location or some other variable is functioning as context. In a realist review, claiming that a certain factor is

functioning as context is to claim that the factor is a feature triggering a mechanism that will cause an outcome of interest. In other words, the interpretation that something is functioning as context must be done in relation to the CMO configuration of interest. In the example of mobile vaccination clinics, it is not the setting (rural or urban) that is functioning as context for a potential change in vaccination uptake. Rather, it is the provision of a new service (the mobile clinics) relative to what other services are available that functions as context.

The third point, related to the second, is that a realist lens for analysing data specifies the explanation of causation of any outcome at a level of abstraction that permits empirical testing. In other words, it sets the level of abstraction at the middle range (5). The value of specifying any explanation of causation at this level of abstraction is that data can be sought to confirm, refute or refine the explanation. In the example of the mobile vaccination clinics, the review team may have undertaken the realist review because they wish to understand the scaling-up of mobile clinics in other LMICs. They might then ask what would happen to the outcome of vaccination uptake if mobile clinics were to be implemented in a semirural area, which might prove to be a very different setting from the rural and urban settings already considered. One way of addressing this question would be to extend the existing realist review by seeking out additional data to understand the behaviour of the mechanism of “perception of convenience” in this new setting.

Finally, a realist logic of analysis enables learning that may be transferable, on the basis of transferability of mechanisms. An important challenge with complex interventions relates to their many components, which interact in linear or nonlinear ways and which have outcomes that are context-sensitive; as a result, not only is it hard to know what to analyse, but it is also difficult to be confident that any learning will be relevant in other contexts. The realist logic of  $C + M = O$  focuses the analysis on causal mechanisms and provides a justification for the transferability of any learning. In the illustrative example of mobile vaccination clinics, it is likely that all people can perceive whether something is convenient; as such, focusing on the mechanism of perceived convenience may mean that it is possible to make sense of the outcomes that mobile clinics can produce in various contexts. Another example would be the concept of optimism bias acting as a mechanism. Optimism bias is the cognitive process whereby people believe that they are at a lower risk than others of experiencing a

negative event. This form of bias has been implicated in the phenomenon of young people continuing to smoke or drink alcohol to excess, despite the known increased risks of cancer and cardiovascular and respiratory disease associated with these activities (6). To recap, realist reviews are able to produce learning that is transferable, because they can focus on causal processes (that is, mechanisms) that are common across different settings. Of course, it is entirely possible that an assumption that the same mechanism is operating in different settings is untrue. However, by using a realist lens to analyse the data, the causal explanation is deliberately specified in the middle range, and hence data can be sought to enable confirmation, refutation or refinement of any assumptions about the presence or absence of a particular mechanism in a different setting

## PROCESS OF UNDERTAKING A REALIST REVIEW

When undertaken in a rigorous manner, all types of systematic reviews are labour intensive. This principle holds true for realist reviews, where much of the time and effort needed is spent on developing the initial programme theory and then finding the relevant data to develop, confirm, refute or refine aspects of it. This initial detective work sometimes requires realist reviewers to think laterally to solve the puzzle of how and why a complex intervention works, for whom, in what contexts and to what extent. A thorough realist review typically takes 12 to 18 months. As with other types of review, any of the processes within a realist review may be truncated or shortened to save time and resources. However, if this is done, every effort should be made to explain the implications of such actions on the plausibility of the findings.

In a realist review, the data (which may be qualitative or quantitative) must be interpreted appropriately to build the coherent arguments that make up the programme theory. Realist reviews are systematic in nature, in that there are specific processes to be developed and followed. Most commonly, realist reviews are subdivided into the following stages:

- 1 **Locate existing theories:** These may be theories of any type that could help to create an understanding of the topic of interest. Existing theories may be identified through informal searching and requests for input from content experts, funders and/or stakeholders (among other methods). The goal is to use these theories to develop an initial programme theory.

2 Search for data: This step is usually done with input from an information specialist (librarian) who helps to develop, pilot and refine the search strategies.

3 Select documents for inclusion in the review: Retrieved documents are screened for relevance (whether the data can contribute to building and/or testing of the programme theory) and rigour (whether the methods used to generate the relevant data are credible and trustworthy).

4 Extract and organize the data: The processes needed for this stage are developed, piloted and refined. Examples include using a spreadsheet to collect descriptive data of documents and using qualitative data analysis software to organize textual data.

5 Analyse and synthesize the data: A realist lens is used to analyse and synthesize the data at this stage.

6 Test the programme theory: The purpose of any analysis and synthesis is to further develop, confirm, refute or refine (that is, to test) aspects of the initial programme theory. The goal is to develop a more refined realist programme theory to explain the outcomes (the final desired outcomes or more proximal outcomes, whether intended and unintended) within a complex intervention.

These six stages have been set out above in a linear fashion, but in practice, realist reviews are more iterative: additional searching may be needed to find more relevant data to enable refinement of the programme theory, and stages 3 to 6 are often done in parallel. Stages 5 and 6 may also be highly iterative, requiring the reviewer to constantly move between data and their use to test the programme theory. Figure 3 presents an overview of the stages of a realist review and their interconnections.

The following are among the common pitfalls encountered when undertaking realist reviews:

- No initial programme theory is developed.
- An initial programme theory is developed, but it is not refined and/or is not realist in nature.

- Insufficient relevant data are sought out (for example, by excluding certain study types, only doing a single search, using inclusion criteria that are too narrow or not looking for documents where the same mechanism may be in operation).

- A realist lens is not applied during analysis of the data, and instead some other form of data analysis is used or only a thematic analysis is undertaken.

- The intervention strategy is confused with the mechanism (that is, it is assumed that the intervention strategy caused the outcome).

- Contexts, mechanisms and outcomes are not configured into CMO configurations.

Before beginning a realist review, the review team needs to have a thorough understanding of the assumptions that underpin such reviews. Tips and tricks on how to avoid the pitfalls listed above may be found in articles by Pawson & Manzano-Santaella (7) and by Wong (8).

## EXAMPLES OF REALIST REVIEWS IN ACTION

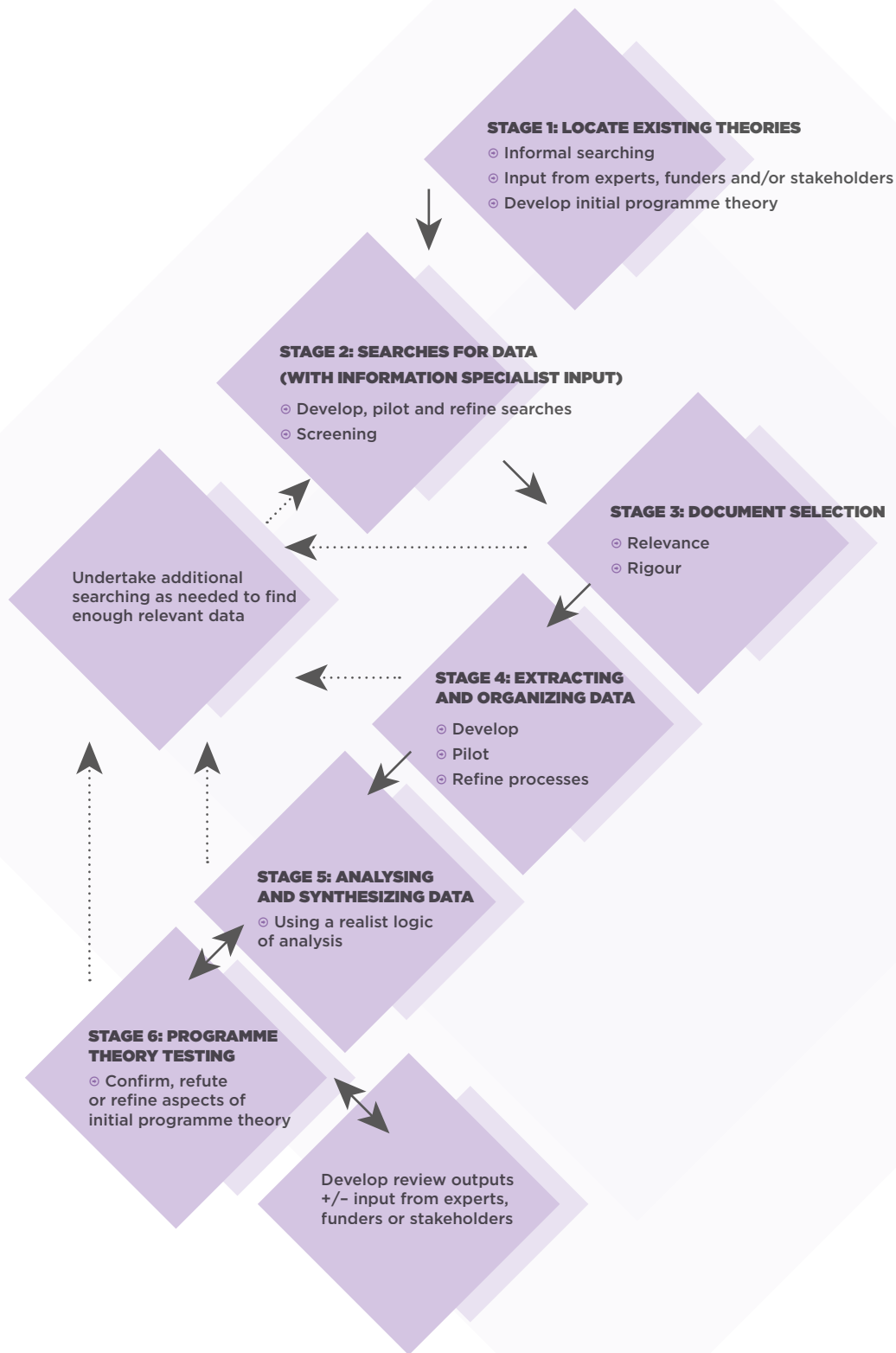
Realist reviews can contribute to knowledge in different ways. Four examples of potential contributions are briefly outlined in this section. More details about each example may be found by reading the full-text articles.

As mentioned above, realist reviews have a particular strength for making sense of complex interventions. Papoutsi and colleagues, in their realist review concerning social and professional influences on antimicrobial prescribing for doctors in training (9), were able to explain why interventions that tried to change the antimicrobial prescribing behaviour of doctors in training mainly by providing education (a narrow focus) had mixed to no impact. This paper and its protocol (10) may also be of interest to those wishing to carry out their own realist reviews, because these documents and their supplementary files provide in-depth detail on methodology.

Related to the goal of making sense of complex interventions is the possibility of using realist reviews to understand issues related to their implementation. Willis and colleagues, in their article on scaling up complex interventions (11), focused on understanding why and in which contexts complex public health interventions are more likely to be scaled up. By reviewing, in detail, the literature on three case



**FIGURE 3.** The stages of a realist review. Dashed arrows indicate potential iteration.



examples, these authors were able to uncover four core mechanisms that need to be activated if scaling-up is to occur.

The ability of realist reviews to transfer learning from one setting to another may be seen in the realist synthesis on threats to legislative interventions in public health by Wong, Pawson & Owen (12). These authors performed a realist review to develop a programme theory to understand whether implementation of a piece of public health legislation was likely to be successful. Elsewhere, Pawson, Wong & Owen (13) provide an in-depth methodological analysis of the thinking that went into building this programme theory. In the realist review reported in these two papers, the programme theory that was developed was tested in a desktop exercise that examined the likely success (or otherwise) of any legislation banning smoking in motor vehicles carrying children in jurisdictions where no such legislation existed. Enforcement of the legislation is an important series of activities that has an influence on success. However, there were no evaluations of such legislation or its enforcement when this review was performed. Therefore, to understand the influence of enforcement on the success of in-vehicle smoking legislation, the reviewers looked at situations where similar mechanisms might be in operation. The literature upon which the reviewers drew to understand the issue of enforcement related to compulsory child restraints. Their rationale was that this literature would contain data on the reasons for people's behaviour when it is important to protect a child from harm while travelling in a vehicle. In other words, they postulated that the same mechanism of wanting to protect children was likely to be in operation in both situations and thus that the literature about enforcement of child restraints could be used to inform enforcement of in-vehicle smoking legislation. (For more details, see the section entitled "Is the law enforceable?" in the article by Pawson, Wong & Owen (13).)

The final example for the use of realist reviews relates to the development of complex interventions. Complex interventions invariably contain multiple intervention strategies. Realist reviews may be

used to develop a coherent theoretical basis for the selection of intervention strategies for such complex interventions. In a study on access to primary care for socioeconomically disadvantaged older people in rural areas, by Ford and colleagues (14), the realist review provided part of the data needed to develop a complex intervention that would be tested in a future feasibility study (15).

Realist reviews have also been used to explain and understand HPSR topics in LMICs. Examples include health provider responsiveness to social accountability initiatives in LMICs (16), mobile phone-based health interventions for noncommunicable disease management in sub-Saharan Africa (17) and understanding the performance of community health volunteers involved in the delivery of health programmes in underserved areas (18).

## CONCLUSION

Realist reviews may be helpful in making sense of the multiple outcomes reported for complex interventions. They do so by offering an explicit, empirically testable explanation of how context is linked to outcomes (through mechanisms). They also provide a justification for why the learning from one situation may be transferable to another, because the same mechanisms may be in operation.

This commentary has not provided in-depth details on how to perform a realist review. Anyone interested in undertaking a realist review should read Pawson's *Evidence-Based Policy: A Realist Perspective* (3). Quality and reporting standards and training materials for realist reviews (19) are freely accessible online on the RAMESES Projects website (20). Training courses are also available (for example, from the University of Oxford's Department of Continuing Education (21)), and a vibrant community of realist researchers regularly support each other through the RAMESES JISCMail list (22). Undertaking a realist review may seem, to those less experienced, a daunting task, but taking advantage of these resources will ease the way.

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# 5

## **PERFORMING REVIEWS OF COMPLEX HEALTH POLICY AND SYSTEMS INTERVENTIONS**

**KAREN DANIELS**



### /// KEY POINTS

- Complexity may be defined as a characteristic of interventions or as a characteristic of the system where an intervention is implemented; alternatively, complexity may be a feature of both the intervention and the system.
- Health systems interventions are not only complex in themselves, but they also often depend upon complex implementation processes, and are subject to implementation within complex systems.
- Health policy and systems research (HPSR) embraces complexity, along with the understanding that an evaluation of complex interventions, whether through primary studies or systematic reviews, needs to take this complexity into account.
- Researchers are moving beyond asking whether it is possible to undertake reviews of complex interventions towards finding methods to ensure that such reviews produce useful results.
- Reviewers of HPSR can develop the appropriate skills to address challenging questions about complex interventions.
- Recent growth in the field of evidence synthesis offers useful tools for health policy and systems researchers needing to conduct reviews of complex interventions.

## 5.1 INTRODUCTION

The study of interventions that are complex, or of interventions that are implemented within the context of complex systems, is widely discussed in the field of health policy and systems research (HPSR) (1) and is also common to other fields of research (2). Yet reviewers may well be perplexed not only about what complexity means in general, but also about how to address it in systematic reviews. Indeed, there has been criticism of how traditional effectiveness reviews have oversimplified interventions, failing to fully explain intervention effects by not taking complexity into account (3, 4). This chapter introduces the concept of complexity and its implications for systematic reviews and other evidence syntheses of HPSR. It also offers some suggestions for literature that may help in undertaking and understanding reviews of complex interventions and reviews of interventions that have been implemented within complex systems.

Conducting systematic reviews on questions about complex interventions becomes less daunting when appropriate methodological tools are used.

## 5.2 THE PLACE OF COMPLEXITY IN HPSR

It has been argued that the extent to which researchers embrace complexity as part of their scientific investigations is determined by the assumptions they make about how the world they are researching works (2). They may view that world as complicated but predictable, with linear causation due to a succession of events, or they may view the world as chaotic, a place where there is no clear link between events and outcomes (leaving causation therefore unexplainable), or they may take the middle road, viewing the world as complex, nonlinear and interactive, but not entirely chaotic, and allowing for some form of explanation (2). Epistemologically, HPSR embraces complexity and thus also embraces the understanding that an evaluation of complex interventions, whether through primary studies or systematic reviews, needs to take this complexity into account (5, 6).

### 5.2.1. Complex interventions and complex systems: a multiplicity of definitions

Many definitions of complexity are available within the health care literature (2, 7–13). Some definitions

explain interventions as complex, others suggest that the system in which an intervention is implemented is complex, and yet others describe complexity as a feature of both the intervention and the system.

Petticrew (7) offers a definition of intervention complexity taken from the Medical Research Council of the United Kingdom, whereby “complexity resides (among other things) in the number of interacting components; the number and difficulty of behaviours required by those delivering or receiving the intervention; the number of groups or organizational levels targeted by the intervention; the number and variability of outcomes; and the degree of flexibility or tailoring of the intervention permitted”. He also points out that complex interventions are defined as

having nonlinear pathways, compared with what are perceived as simple interventions, which have linear pathways (7); for example, a health promotion intervention to reduce smoking will require many components and involve many persons, and it may not be clear which of these will influence the outcome, whereas the effect of a clinical intervention (a drug) to reduce smoking can be explained through an essentially linear clinical pathway.

Shiell and Hawe and their colleagues have argued against defining interventions as complex, suggesting instead that the complexity lies in the systems in which interventions are implemented (11, 12). They propose that “complexity is a property of a system not an intervention” (12). Thus, they focus on the need to understand the context in which the intervention is implemented, and the interaction between the intervention and its implementation context (11, 12). In other words, the outcome of the intervention is shaped by the complexity (flexibility, interchangeability, nonstandardization, adaptability, multiplicity of players and relations, and so on) of the context. This is similar to the thinking of Anderson and colleagues (8), who argue that in complex interventions, the structural components of the intervention can be reproduced, but the function of implementing the intervention cannot be re-created, as this is contingent and context specific. Anderson and colleagues (8) also show that there are multiple dimensions of complexity that may influence an outcome. They point to intervention complexity, implementation complexity, context



complexity and complexity in participant responses (8). By these definitions, an intervention with certain core components would yield different outcomes if it were implemented in downtown Manhattan than if it were implemented in Lagos, because these two metropolises are very different from one another. Taking again the example of a health promotion intervention to reduce smoking, the core of this intervention may remain the same, but cultural attitudes, cigarette pricing, tobacco legislation and other aspects may be very different in Lagos than in Manhattan, and these differences may influence the outcome of the intervention. See Chapter 4 of this Methods Guide for further discussion of context.

Lewin and colleagues (9) argue that definitions of complexity highlight “multiple, interacting components and non-linear causal pathways” and that these definitions emphasize “variability in content, context and mode of delivery, as well as the unpredictability of their effects”. The authors speak to both complex interventions and complex systems, suggesting that these have features of nonlinearity, context dependency, adaptability and interdependence of intervention elements (9).

Petticrew and colleagues (10) refer to another dimension of complexity that systematic reviewers need to take into account, namely that research factors can also add to complexity, such as occurs when data collection methods act as an effect modifier, or when the research question itself is complex, for example, seeking to evaluate a package of interventions.

The Medical Research Council of the United Kingdom has published several updates of their guidelines for evaluating complex interventions, the most recent of which appeared in 2015 (13), with further updates anticipated.

### 5.3 COMPLEXITY OF HEALTH SYSTEMS INTERVENTIONS

The past few years have seen a shift in the lens through which interventions are considered, from a health services perspective to a health systems perspective. A health services perspective focuses on enabling health services delivery to function better. A health systems perspective embraces the idea that the delivery of health services occurs within the context of broad and complex social, economic and

political dynamics (see also Chapter 1 of this Methods Guide, concerning the role of evidence synthesis in strengthening health policy and systems; Chapter 4, concerning context in reviews of HPSR; and the methods commentary on realist reviews). Broadly, this can be thought of as the complexity of the external system. Health systems are also inherently internally complex. Each part within a system relates to other parts of that same system. The success of one part of the system is dependent on the other parts; for example, clinical services delivery is dependent on supplies, human resources, financing, and numerous other factors. This dependency in turn makes each part of the system sensitive to changes in other parts of the system; for example, the supply chain will not work if there is a breakdown in transport services. As a further illustration, reducing morbidity in a particular disease area will require interaction among multiple “moving parts” of the system, including appropriate clinical, public health and health systems guidelines, an adequate drug supply chain, well trained health workers, operational facilities from which to treat the patients, health promotion in the community, political will to resolve the problem, good relationships among different actors within the services, sufficient funding and sound information systems. Actors within the health system – decision-makers, implementers, health workers and communities – contribute to these moving parts, and interact with them so as to influence the health system. However, these actors do not have full control over any of the parts, or indeed of the system as a whole.

According to Sheikh and colleagues, most interventions for health systems strengthening are complex (6). Health systems interventions tend to have multiple components; for example, an intervention to strengthen a supply chain process may attempt to do so by training health workers, improving communication infrastructure and improving the health information system. These interventions also involve multiple stakeholders or participants; for example, health promotion efforts may be targeted at parents, children and health workers. They are also likely to involve multiple levels of the health system (whereby policy may be created at the national level, but implemented by district managers; for further detail on health systems levels, see Figure 4.1, in Chapter 4 of this Methods Guide). Furthermore, these interventions are often open to adaptation, and may be tailored to fit the specific circumstances of the context in which they are implemented.

### 5.3.1. Examples of complexity in health systems interventions

#### Country context contributing to complexity

The use of lay health workers is sometimes seen as an intervention that can be implemented in a uniform way across multiple settings, as with the global strategy of integrated community case management (iCCM) (14). Yet qualitative studies from a multicountry evaluation of the implementation of iCCM by the United Nations Children's Fund (UNICEF) showed that the experience of the intervention, and the use of lay health workers, differed greatly across country settings (15, 16). In Ghana, for example, the data revealed concerns about lay health workers being unpaid and poorly supervised, regularly running out of necessary commodities (experiencing stock-outs), lacking in essential equipment and remaining outside the formal health system (15). In Malawi, there were concerns that lay health workers might not be accepted if they were not selected by, and did not originally come from, the communities that they were intended to serve (16). In Ghana, the lay health workers were preliterate or semiliterate traders and subsistence farmers who volunteered for the task alongside their income-generating activities. However, in Malawi, the lay health workers were fully employed within the public health system, and had to have completed formal schooling to be selected. Thus, although the core of the intervention – the use of lay health workers to deliver iCCM – was the same in the two countries, the country context greatly influenced how the intervention was implemented and received. These differences in the implementation and experience of the intervention were determined by differences in participants, circumstances and understandings between the settings.

#### Simple intervention, complex implementation

Even the delivery of seemingly simple interventions may prove complex. Take the example of childhood vaccination. There may be clinical evidence showing that a particular vaccine may help to reduce the incidence and severity of a particular disease, but this intervention must be implemented in very different real-world settings. Although the core of the intervention may be stable (use of an injectable vaccine), multiple components may come into play in its delivery. For example, the vaccine may rely on a cold chain to be effective. In settings without electricity, plans would need to be made to keep the medication cold, and these plans would, in turn, involve engaging a range of participants (policy-makers to decide whether it is worthwhile paying for

generators to run refrigerators, operations managers to purchase the generators, health workers to operate the generators, and so on). Decisions about how this cold chain is to be enabled would need to take place at multiple levels of the system (national, provincial, district, facility, and so on), and would need to be communicated across these levels. In other words, the apparently simple decision to vaccinate children becomes a complex web of interactions that all affect the extent to which the intervention will be effective.

#### Complexity as a lack of intervention standardization

Complexity may also arise through a lack of standardization. For example, a decision-maker may want to improve the time-keeping system for health workers in the primary health care facilities in her setting, and may seek synthesized research evidence to inform this choice. A reviewer wanting to support this decision-maker with an evidence synthesis may run into multiple challenges when trying to define what a time-keeping intervention is. In one primary study, the authors may have evaluated an electronic system, in another a clerk may have recorded the arrival and departure of health workers at the facility, and in yet another, the health workers may have kept a daily record, whereas a further study may have relied on health workers' weekly recall. Some time-keeping interventions may have included a record of health worker tasks, whereas others may have recorded only arrival and departure times. Some studies may have had an added intervention of teaching health managers to analyse and act on the information gathered through the record-keeping, whereas others may simply have stopped at enhanced recording of health workers' time use. By implication, a review of such a topic would yield a range of heterogenous studies, challenging the reviewers' ability to offer a simplified synthesis of the overall body of evidence.

## 5.4 METHODS OF REVIEWING COMPLEX HEALTH SYSTEMS INTERVENTIONS

Traditional methods for effectiveness reviews “typically use strategies to simplify real-world complexities and frame them in predictable and often linear terms” (8). As such, a traditional effectiveness review will narrowly define the intervention of focus and aggregate the effects of the intervention, as seen across multiple studies. In other words, these reviews look at homogeneous interventions, evaluated using the same study design, for which

the outcomes may be assumed to have occurred through a predictable causal pathway (although these causal pathways may not always be well understood). Complex interventions, such as those described above, challenge this narrow approach to research synthesis, in particular the ability to synthesize like with like. In contrast to clinical interventions, where the reviewers can define quite strictly what drug is being investigated and at what dosage, complex health systems interventions may not be so easy for reviewers to define. Complexity in implementation, evaluation, context and more disturbs or challenges the conduct of reviews. The review question may be hard to determine, there may be no standardized intervention, the settings may be wide ranging, and the study designs and outcomes may vary considerably. In response, reviewers may opt for a simplified approach, such as including only evaluations of interventions that meet narrowly defined criteria and that have been implemented in very similar settings, without any variations. The problem with this type of narrowing, though, is that it may yield a synthesis of very few studies and could result in a single-study review or an empty review (17), thus not yielding much information suitable for decision-making. Therefore, reviewers need to include in their toolbox methods and approaches that enable the investigation of complex interventions.

Despite these challenges, the synthesis of complex interventions is possible, feasible and useful. While methods continue to be developed for the conduct of systematic reviews of complex interventions, and interventions subject to complex implementation processes and contexts, researchers are moving beyond asking whether it is possible to undertake such reviews (18) towards finding methods that will help to ensure that systematic reviews and evidence syntheses of complex health systems interventions produce useful results. Even if an intervention is complex, the manner of approaching the synthesis of evaluations of the intervention need not be (7). As a starting point, researchers can accept that all interventions exist on a spectrum from simple to complex, and that there are no completely simple interventions (7). Petticrew (7) advises that complexity be explored simply, by unpacking the components, or with greater complexity, by looking at the package (that is, the multiple components that make up a single intervention) as a whole. He argues that the choice of a complex or simple analysis depends on what the users/requesters of the review (such as policy-makers) want: do they

want to look only at outcomes (simpler), or do they want to understand processes (more complex)? The following section offers some suggestions of literature that can serve as an entry point to understanding the methods and processes of conducting syntheses of complex interventions.

## 5.5 METHODS PAPERS FOR BEGINNING TO WORK WITH COMPLEXITY IN SYSTEMATIC REVIEWS

Two series of papers focusing on the conduct of systematic reviews of complex interventions have been published in the *Journal of Clinical Epidemiology*. The first series appeared in 2013 (8), and the second in 2017 (19), with the second series offering practical guidance and tools to build on the theoretical guidance of the first. Both of these series are recommended for reviewers seeking to strengthen their approach to reviews of complex interventions.

Petticrew and colleagues (10) provide a simple map by which to begin negotiating the maze that is systematic reviews of complex interventions, acknowledging that it becomes more challenging to synthesize evidence as one moves along the spectrum from simpler to more complex interventions. In response to this challenge, they offer reviewers a pragmatic approach to doing reviews of complex interventions simply. The authors take the reader through the process of a review, starting with clarifying the research question, then identifying the sources of complexity, developing a logic model of the intervention before the review, considering whether to take a simple or complex approach to answering the review question and finally making the choice as to how to handle the analysis.

Petticrew M, Anderson L, Elder R, Grimshaw J, Hopkins D, Hahn R, et al. Complex interventions and their implications for systematic reviews: a pragmatic approach. *J Clin Epidemiol*. 2013;66(11):1209-14. Open access through: <http://www.who.int/alliance-hpsr/resources/publications/hsr-synthesis/en/> (10).

Three additional papers are good companion pieces to that of Petticrew and colleagues (10). Two of these papers, one by Anderson and colleagues (20) and the other by Rohwer and colleagues (21), introduce the use of logic models, and the third, by Lewin and colleagues (9), introduces a tool for assessing the complexity of interventions within systematic reviews.

In their advice to reviewers, Petticrew and colleagues (10) suggest using logic models and unpacking the components and sources of complexity. Although published before the article by Petticrew and colleagues (10), the paper by Anderson and colleagues (20) responds to this advice by carefully explaining to potential reviewers how a logic model may be used in a systematic review. These authors argue that logic models make systematic reviews more transparent, by “making explicit the underlying assumptions about causal relationships and program theory” and by showing the relationships of the parts of the intervention to the whole, making visible the aspects of complexity that might otherwise have been overlooked (20).

Anderson LM, Petticrew M, Rehfuess E, Armstrong R, Ueffing E, Baker P, et al. Using logic models to capture complexity in systematic reviews. *Res Synth Methods*. 2011;2(1):33–42. doi: <https://doi.org/10.1002/jrsm.32> (20).

In a more recent paper, Rohwer and colleagues (21) specifically address the use of logic models in systematic reviews focused on questions from sub-Saharan Africa. In this paper, the authors offer templates of what they refer to as a system-based logic model and a process-orientated logic model. They describe how they came to develop these models, using a combination of searching the literature for models, applying a definition of complexity and combining this definition with their own insight and experience. They then show how they applied the model to systematic reviews of questions from sub-Saharan Africa. Through testing, the authors found that these models “helped to conceptualize the interventions, clarify the research questions, and consider contextual factors. They also guided protocol development by informing the search strategy, inclusion and exclusion criteria, possible sources of heterogeneity, data analysis plans, as well as subgroup and sensitivity analyses.” In other words, the authors found that the process of investigating a complex intervention through a systematic review was simplified through the use of logic models.

Rohwer A, Pfadenhauer L, Burns J, Brereton L, Gerhardus A, Booth A, et al. Series: Clinical Epidemiology in South Africa. Paper 3: Logic models help make sense of complexity in systematic reviews and health technology assessments. *J Clin Epidemiol*. 2017;83:37–47. doi: <https://doi.org/10.1016/j.jclinepi.2016.06.012> (21).

Lewin and colleagues (9) offer an approach to transparently assessing intervention complexity with a tool that explores 10 dimensions of complexity: “(1) the number of active components in the intervention; (2) the number of behaviours of recipients to which the intervention is directed; (3) the range and number of organizational levels targeted by the intervention; (4) the degree of tailoring intended or flexibility permitted across sites or individuals in applying or implementing the intervention; (5) the level of skill required by those delivering the intervention; (6) the level of skill required by those receiving the intervention; (7) the degree of interaction between intervention components; (8) the degree to which the effects of the intervention are context dependent; (9) the degree to which the effects of the interventions are changed by recipient or provider factors; (10) and the nature of the causal pathway between intervention and outcome” (9). The authors also show the utility of their tool across all stages of the review, from formulating the PICO (Population, Intervention, Comparator, Outcome) and review question, developing criteria for including studies, through to interpreting results and drawing conclusions. The paper is supported by five additional files that provide further guidance for using the tool, all of which are freely available.

Lewin S, Hendry M, Chandler J, Oxman AD, Michie S, Shepperd S, et al. Assessing the complexity of interventions within systematic reviews: development, content and use of a new tool (iCAT\_SR). *BMC Med Res Methodol*. 2017;17:76. doi: <https://doi.org/10.1186/s12874-017-0349-x> (9).

## 5.6 EXAMPLE OF HPSR REVIEW OF A COMPLEX INTERVENTION

Leon and colleagues are conducting a systematic review of interventions to improve health systems management through routine health information systems. In their protocol for the review (22), the authors embrace the complexity of this intervention and how this complexity challenges the review process.

The authors recognize that the intervention that is being evaluated – routine health information systems – is a complex system nested within the broader health system. At the outset of the review, the protocol explains the complexity of the intervention, detailing its multiple components and all of the possible factors that might influence the intervention’s outcome. Furthermore, they point out that the original researchers might have chosen any of multiple possible study designs for evaluating these interventions. Drawing on the existing literature, the authors provide three logic models to explain the components of the system, the steps in the system and their understanding of how the intervention might work. This foregrounding of the complexity is then carried through into the methods, where the types of studies, participants, interventions and outcome measures for the review are all guided by the authors’ initial unpacking of the intervention. Working from an assumption of expected heterogeneity, the authors then directly address how this aspect will be handled during synthesis of the evidence. The authors explain that they will carry out a meta-analysis only “when more than one study examines similar interventions provided that: studies use similar methods; studies are similar regarding setting; and studies measure the same outcome in similar ways in comparable populations” (22). They anticipate that they may not be able to pool the data if the settings and interventions evaluated are too heterogeneous, stating up front that a structured synthesis, reporting on the interquartile ranges and ranges of effects for relevant outcomes, may be utilized instead of a meta-analysis. Recognizing that they may not be able to explain what they discover just by analysing the included studies, the authors offer that they will also seek out findings from qualitative and process evaluation studies associated with the included effectiveness studies, to better understand and interpret the context of the effectiveness studies.

## 5.7 BEYOND EFFECTIVENESS REVIEWS

Mirroring the available literature, this chapter has focused on complexity as a challenge to traditional effectiveness reviews. In discussing other methodological approaches, such as qualitative evidence synthesis, the contemporary literature tends to situate these alternative approaches as solutions (23), yet complexity can remain a challenge for these approaches too. As with an effectiveness review, a qualitative evidence synthesis will require a clear focus for the intervention (in order to determine inclusion and exclusion criteria, to ensure that findings from different studies can be related to each other). Unlike effectiveness reviews, however, the narrative and interpretive nature of qualitative evidence synthesis allows more room to explain the differences seen in intervention design, delivery and context, as well as allowing room to explain how primary study participants experienced the different intervention designs, modes of delivery and contexts.

Realist reviews, discussed in a methods commentary elsewhere in this Methods Guide, constitute an approach that embraces complexity, rather than viewing it as a challenge. As described in the commentary, this approach assumes that interventions are shaped and made complex by the context in which they are delivered. Instead of grouping similar interventions for analysis, realist reviews attempt to explain the interactions between context, mechanism and outcome for more loosely defined interventions.

Conducting a review of a complex intervention can offer useful information, provided the review authors are willing to adapt traditional methods to accommodate the complexity. Review authors are also encouraged to consider alternative synthesis approaches that both embrace and help shed light on the outcomes and processes of complex interventions.

Leon N, Brady L, Kwamie A, Daniels K. Routine Health Information System (RHIS) interventions to improve health systems management [protocol]. *Cochrane Database Syst Rev.* 2015;(12):CD012012. doi: 10.1002/14651858.CD012012 (<https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD012012/full>) (22).

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**METHODS**  
COMMENTARY

# **QUASI-EXPERIMENTAL STUDIES IN HEALTH SYSTEMS EVIDENCE SYNTHESIS**

**PETER C. ROCKERS**





### /// KEY POINTS

- Quasi-experimental (QE) studies, involving a nonrandomized, quantitative approach to causal inference, can be incorporated into evidence used to inform health policy decisions.
- Studies using QE methods often produce evidence under real-world scenarios and may have significantly lower costs than experimental studies.
- Use of QE studies in evidence synthesis entails deciding which study designs to include, establishing a robust search strategy, assessing the quality of identified studies and deciding how to include QE effect estimates in meta-analyses.
- Meta-synthesis review is a form of higher-order synthesis focused on a policy area (rather than a discrete policy intervention) and using evidence from multiple sources, including QE evidence not previously included in systematic reviews.
- An interactive meta-synthesis platform may be effective for capturing broad bodies of evidence relevant to meta-synthesis review, which may be too large and diverse to fit easily in a traditional written review product.
- Operators of meta-synthesis platforms can take an active role in producing primary research, especially by identifying priority research questions and facilitating the sharing of raw data amenable to QE analysis.

## INTRODUCTION

Quasi-experimental (QE) studies have a key role in the development of bodies of evidence to both inform health policy decisions and guide investments for health systems strengthening. Studies of this type entail a nonrandomized, quantitative approach to causal inference, which may be applied prospectively (as in a trial) or retrospectively (as in the analysis of routine observational or administrative data) (1). Although experimental designs are usually preferable when they are feasible, QE methods can produce causal estimates of policy impact and in some cases have advantages over experimental designs with respect to external validity, feasibility and cost (2–5). However, only under particular circumstances of design and implementation will QE studies yield unbiased causal effects. Much of the recent focus on QE methods in the field of health policy and systems research (HPSR) has centred on identifying and incorporating high-quality primary research studies into quantitative systematic reviews and meta-analyses (6, 7). This is an important aspect, but the value of QE studies extends beyond their substitutability for experimental studies. Systematic reviews come in a variety of forms, some more quantitative than others (8), and QE studies can provide useful information for most of these forms. Furthermore, actual policy decisions require triangulation of evidence from multiple sources, including primary research studies and systematic reviews (9) – a form of meta-synthesis – and QE studies can contribute importantly to this process.

This Methods Guide presents a broad view of evidence synthesis in the field of HPSR, and a similarly broad view of the role of QE studies within such synthesis is warranted. This commentary briefly discusses four aspects of this role: QE studies in systematic reviews, QE studies in meta-synthesis reviews, meta-synthesis platforms and the production of new QE studies of priority questions.

## QUASI-EXPERIMENTAL STUDIES IN SYSTEMATIC REVIEWS

Quasi-experimental studies offer certain advantages over experimental methods and should be considered for inclusion in systematic reviews of HPSR (4). Studies using QE methods often produce evidence under real-world scenarios that are not controlled by the researcher, whereas experiments are usually implemented under researcher control, a

factor that may introduce external validity concerns. In addition, QE studies based on secondary analyses of administrative data usually have significantly lower costs than would be incurred for similar experimental studies. Finally, policy questions, which may be difficult to investigate experimentally because of feasibility, political or ethical constraints, can often be addressed using a QE design. Like experimental studies and studies with other designs, QE studies can produce valuable information on contextual factors and causal mechanisms that might be synthesized in quantitative or qualitative systematic reviews (10).

The advantages of QE studies in estimating causal impacts are realized only when the relevant methodologies are employed appropriately, resulting in high internal validity. Perhaps because of concerns about study quality – or about reviewers' inability to accurately assess study quality consistently – QE evidence has been screened out of most systematic reviews of HPSR, on the basis of study design criteria (11). This omission can lead to key pieces of evidence being excluded from a review, resulting in an incomplete picture of the body of evidence on an important policy question. In some instances, research questions that are not amenable to experimentation are missed entirely by the systematic review literature, despite the existence of relevant QE evidence. For example, a recent overview of systematic reviews found that no systematic review existed on the impact of decentralized governance on health outcomes (12), a policy that is difficult to test experimentally but for which several QE studies exist (13–16).

When relevant QE studies on a review topic exist alongside studies with other designs, authors of systematic reviews face important decisions on how to handle the different forms of evidence. A recent special issue of the *Journal of Clinical Epidemiology* (JCE) describes the main considerations (3–7, 17–24). First, authors must decide which (if any) QE study designs to include in their review. Whereas the Cochrane Collaboration's Effective Practice and Organisation of Care (EPOC) Group recommends including two QE designs – interrupted time series (ITS) analyses and controlled before-and-after (CBA) studies – the authors of the JCE series identify an expanded list that also includes instrumental variable analyses, regression discontinuity designs and fixed-effects analyses of panel data (6, 19). This expanded list is consistent with the recommendations of the Campbell Collaboration's International Development Coordinating Group (25). Second, authors must

establish a robust search strategy for identifying relevant QE studies. This task is complicated by the fact that indexing based on study design is imprecise in most evidence databases, and using study design search criteria is usually not recommended (22). Third, authors must assess the quality of identified QE studies to determine potential risk of bias. Although relevant tools for this task exist, more work is needed to develop standard guidelines for assessing risk of bias in QE studies (20, 26, 27). In particular, the ROBINS-I (Risk Of Bias In Non-randomized Studies - of Interventions) tool has been developed to assess risk of bias in nonrandomized studies, but it does not yet include guidelines for the full breadth of QE designs (26). Finally, in cases where meta-analysis is being considered, authors must decide whether and how to include effect estimates from QE studies. The authors of the JCE series consider the challenges associated with including QE evidence in meta-analyses, and argue that doing so is usually warranted, but they also caution that a careful modelling approach that accounts for potential risk of bias is necessary (7, 22).

## QUASI-EXPERIMENTAL STUDIES IN META-SYNTHESIS REVIEWS

As described in Chapter 3, concerning HPSR synthesis methods, policy-makers must triangulate evidence from multiple sources when making decisions, including primary research studies and published systematic reviews. The term “meta-synthesis review” is used here to refer to this type of higher-order synthesis, which is focused on a policy area rather than a discrete policy intervention. Synthesis hierarchies have been described elsewhere, but this type of higher-order synthesis has not previously been distinguished and given a name (7–9). Umbrella reviews (28) and overviews of systematic reviews (29) are forms of meta-synthesis that consider evidence from multiple systematic reviews across a policy area. In its more general form, meta-synthesis allows additionally for consideration of primary research studies and other types of evidence that have not previously been included in systematic reviews. The “Evidence & Gap Map” approach developed and used by the International Initiative for Impact Evaluation (3ie) is an example of this more general form of

Quasi-experimental studies offer certain advantages over experimental methods and should be considered for inclusion in systematic reviews of health policy and systems research

meta-synthesis (30). The term “meta-synthesis” as used here differs from an alternative usage that has gained some acceptance, whereby this term refers to a method for synthesis of qualitative primary studies (31). The meta-synthesis review process may yield a formal written product similar to a traditional systematic review or a policy brief, or it may guide policy deliberations more informally.

Narrative synthesis methods may be the most appropriate means of triangulating evidence in meta-synthesis reviews, given the variety of information types to be considered, although more work is needed to strengthen guidance on the application of those methods (32). As with traditional systematic reviews, evidence considered for inclusion in meta-synthesis reviews should be assessed for quality, and studies deemed to be of poor quality should be screened out to minimize potential risk of bias. Evidence from QE studies should be considered as part of the meta-synthesis review process, either through inclusion of QE studies in systematic reviews or through separate analysis. Quasi-experimental methods often allow for investigations of unique research questions that, because of their uniqueness, do not fit the inclusion criteria of a traditional systematic review, but nonetheless contribute importantly to a body of evidence on the policy area in question. In particular, QE studies can complement experimental studies by clarifying mechanisms in the causal pathway that determine a policy’s effectiveness, that is, to “interrogate the causal chain” (33); by contrast, a review of evidence on a mechanism without the context of broader policy considerations will be of limited value.

Research on physician-induced demand provides a useful example on this point (34). In the past few decades, several researchers have used an instrumental variable approach – a QE method that identifies and exploits exogenous variation in an exposure to estimate its causal impact on an outcome through the use of a third (instrumental) variable that is correlated with the exposure but is uncorrelated with the outcome, outside of its effect on the exposure (35) – to estimate the causal impact of physician supply on health service volumes (36, 37) in several settings in the United States where most physicians

are paid through a fee-for-service system. As part of this methodology, certain population characteristics are used as instruments to identify an exogenous form of the physician–population ratio, which is then used in a set of structural equation models to estimate the causal relationship between physician supply and service volumes. There is no obvious policy-relevant interpretation of the point estimates produced by these studies, which limits their value in a traditional quantitative systematic review. However, these studies provide strong evidence that physicians respond to financial incentives by

influencing patient behaviour (38). When considered at the level of meta-synthesis within the broader policy context of provider payment systems, these studies clarify our understanding of a key mechanism in the causal pathway from payment incentives to demand for health services and health spending. By shedding light on an important policy mechanism in this manner, QE studies complement experiments and studies based on other designs. Exploiting the full potential of this complementarity should be a central aim of the meta-synthesis review process.

Box 1 summarizes a recently published overview

### **BOX 1. QUASI-EXPERIMENTAL STUDIES IN SYNTHESIS OF EVIDENCE ON FINANCIAL ARRANGEMENTS FOR HEALTH SYSTEMS**

In a recently published overview of systematic reviews – a form of meta-synthesis review – Wiysonge and colleagues looked at evidence across the policy area of health system financing in low-income countries (39). Quasi-experimental studies played an important role in the body of evidence that they unearthed.

Thirteen of the 15 systematic reviews included in the overview mentioned at least one QE design in their study design inclusion criteria. Eleven of the included reviews were conducted with support from the Cochrane Collaboration's EPOC group, which recommends including ITS analyses and CBA studies. Other QE designs, including instrumental variable analysis, regression discontinuity studies and fixed-effects analyses of panel data, were explicitly mentioned for consideration in only one review (40). As a result, relevant studies that used those designs may have been excluded. For example, a review by Lagarde & Palmer (41) looking at evidence on the impact of user fees did not include a relevant study by Fafchamps & Minten (42) that used a fixed-effect approach to analysing panel data.

Of the primary studies that made it into the included systematic reviews, many used QE methods. Across all 15 systematic reviews, 276 primary studies were considered; 23 (8%) were CBA studies, 51 (18%) were ITS analyses, and 115 (42%) used an experimental design. The review by Lagarde & Palmer (41) included 17 studies, 15 of which used a QE design (either ITS or CBA). A non-EPOC review by Acharya and colleagues (40) examining impacts of insurance schemes included 19 studies, 10 of which used QE designs (four instrumental variable analyses, three CBA studies, two regression discontinuity studies and one fixed-effects analysis of panel data). Only one study included by Acharya and colleagues (40) used an experimental design, whereas the eight remaining studies used propensity score matching, a method that is sometimes categorized as QE, although the appropriateness of this categorization has been debated (2).

None of the included systematic reviews presented a meta-analysis: some authors indicated in their initial protocols an intention to do so but found in the end that the included primary studies did not warrant it (43) or that the diversity of study designs did not allow it (40, 41). There is a need for strengthened guidance on whether and how to pool effect estimates from QE studies and those generated using other study designs (7).

By taking the approach of an overview of systematic reviews, Wiysonge and colleagues (39) excluded from the outset any evidence that had not previously been included in a systematic review. Although this may have served to focus their meta-synthesis, it may also have caused them to miss relevant QE (and other) studies. In particular, their approach is unlikely to catch QE studies that shed light on relevant causal mechanisms but that do not produce effect estimates on the primary relationship of interest. For example, underlying mechanisms related to price and income elasticity of demand for health services are fundamental to understanding the impact of user fees, but evidence on these mechanisms, much of which comes from studies that employ QE methods (44), is unlikely to make it into a systematic review of the type considered, leaving the reader with a potentially incomplete picture of the relevant body of evidence.

of systematic reviews – a form of meta-synthesis – concerning financial arrangements for health systems.

## META-SYNTHESIS PLATFORMS

The breadth of evidence relevant to a meta-synthesis review is often too large and diverse to fit easily in a traditional written review product. An evolving and interactive meta-synthesis platform may be a more effective means of capturing a body of evidence. This concept is similar to the idea of a “living systematic review” as described by the Cochrane Collaboration (45). It is unnecessary to restrict evidence included in such platforms according to methodology. Systematic reviews, primary research studies (including those not included in any systematic review) and, whenever possible, raw data (from primary research studies, as well as data that are otherwise relevant but not yet analysed, including individual patient data when appropriate) all contain potentially valuable information and should be included.

One example of a meta-synthesis platform is the recently developed Access Observatory, which organizes and makes publicly available data and evidence on industry-led and other access-to-medicines programs in low- and middle-income countries (LMICs) (46). Program and policy information included in the Access Observatory is structured according to a taxonomy of commonly used access strategies and a recommended set of measurement indicators. This structure is designed to facilitate evidence synthesis within and across strategies. The Healthy Birth, Growth, and Development—Knowledge Integration platform developed by the Bill & Melinda Gates Foundation similarly fosters meta-synthesis of evidence across strategies that aim to address child growth and development in LMICs; this platform includes an innovative approach to sharing raw data with the public (47).

## PRODUCTION OF NEW QUASI-EXPERIMENTAL STUDIES ON PRIORITY QUESTIONS

Operators of meta-synthesis platforms must rely in large part on evidence produced by independent researchers, but they also have the opportunity to take an active role in the production of primary research, particularly by identifying priority research questions (based on existing gaps in knowledge) and by facilitating the sharing of raw data. One of the

primary barriers to the production of new primary research is the cost of data collection. By warehousing raw data sets and encouraging secondary analysis of these data, platform operators can support the production of important new studies on priority policy questions. In many instances, organizations that collect and own relevant administrative data are those that would benefit most from the potential learnings generated by new primary research; these organizations should therefore have incentives to share data with a reputable meta-synthesis platform. Quasi-experimental methods are well suited for rigorous analysis of retrospective data, and should be prioritized, with the aim of producing new causal evidence of policy impact.

## CONCLUSION

This Methods Guide provides a road map for future efforts to strengthen evidence synthesis for health policy and systems. Quasi-experimental methods should play a central role in those efforts. Studies using such methods can in some cases serve as a substitute for experimental studies and should be considered for inclusion in quantitative systematic reviews. Review authors must make important decisions when considering QE studies, such as which study designs to include, how to assess potential risk of bias, and whether and how to include QE effect estimates in meta-analyses. More work is needed to develop standard guidelines to assist authors with these decisions. Studies using QE methods can also serve as a complement to experiments and other study designs and can deepen our understanding of important policy areas, even when quantitative synthesis is not feasible.

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# 6

## **ADDRESSING HEALTH EQUITY IN SYNTHESSES OF HEALTH POLICY AND SYSTEMS RESEARCH**

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### /// KEY POINTS

- Health equity is recognized as a key priority in devising effective health policy and systems strategies for universal health coverage.
- Evidence synthesis of health policy and systems research (HPSR) plays an important role in understanding health inequities and informing actions to reduce health disparities.
- Equity-focused syntheses can help in documenting the inequities that may be generated by certain health policies and health systems interventions; they can also help in assessing the effects of interventions aimed at reducing inequities across populations.
- An important step in applying an equity lens to HPSR synthesis is a thorough understanding and documentation of the social stratification at stake.
- There is important value in incorporating evidence from a range of studies in HPSR syntheses, particularly to assess real-world impacts on health equity.
- Tools and guidance materials are available to inform the development of equity-focused syntheses, including an equity checklist for reviewers and reporting guidelines for systematic reviews with a focus on health equity.

## 6.1 INTRODUCTION

As the global health community is striving to devise effective strategies for universal health coverage, addressing the challenge of health equity is now recognized as a key priority (1). Progress towards universal health coverage calls for greater action and research tackling complex health systems challenges, not least the reduction of health inequities. The need for improved health systems functioning is especially important in contexts characterized by inequitable access to effective health care services, leading to an avoidable burden of morbidity and mortality among disadvantaged and/or vulnerable populations (2), for instance, refugees and migrant populations (3). Beyond access to health services, equity is also fundamental to improving quality of care and people-centred health services and systems (4, 5).

The World Health Organization defines health equity as “the absence of avoidable or remediable differences among groups of people, whether those groups are defined socially, economically, demographically, or geographically” (6). Health equity means that everyone has a fair and just opportunity to be healthier; however, creating this opportunity requires the removal of obstacles to health, such as poverty and discrimination and their consequences, including lack of access to employment, education, housing, safe environments and health care (7, 8).

Health systems stakeholders increasingly recognize the role of health equity, stressing the importance of a just distribution of the resources needed for health (9). Equity-sensitive measures and evaluations have also gained importance in light of the well documented phenomenon in public health whereby a health policy might disproportionately benefit more advantaged groups and hence increase inequities (10). Documenting these “intervention-generated inequalities” is essential to understanding the effectiveness and implementation of health policies and health systems interventions.

There is growing pressure globally on health policy-makers to conduct health equity audits and to develop policies and programmes targeting disadvantaged

and/or vulnerable groups (11). In turn, equity analyses can inform the adaptation of universal strategies to increase benefits among vulnerable groups.

## 6.2 MOVING TOWARDS EQUITY-SENSITIVE RESEARCH

When health research focuses on the overall effects of health policies and programmes, studies may underline population-level effectiveness, yet fail to determine whether the policies and programmes work for disadvantaged groups (12, 13). To address this knowledge gap, studies in the field of health policy and systems research (HPSR) are increasingly incorporating equity measures and considerations (14). HPSR plays an important role in understanding and contributing to a reduction of health disparities, and it does so in several ways. For example, HPSR studies help stakeholders to understand why coverage of health care is low among disadvantaged communities, particularly in low- and middle-income countries (LMICs) (15). This body of research is also critical to provide evidence for the benefits of improved quality of care, which encompasses appropriate and dignified health care for vulnerable populations, such as elderly or indigenous populations (16). Synthesizing this knowledge is essential for policy-makers and health systems managers who need to make important decisions to improve health equity, as well as for civil society groups advocating for equity. As such, evidence synthesis of HPSR has

a pre-eminent role in providing valid and transparent equity-sensitive evidence for policy-making and health systems strengthening (17, 18).

Some evidence syntheses address inequities by focusing on health policy and systems issues that affect disadvantaged and/or vulnerable populations, whereas other syntheses are methodologically designed to measure and address inequity directly. In health and other societal sectors, recent efforts have focused on the importance of using clearly defined methods to apply an equity lens to evidence syntheses (19–21). While the need for equity-sensitive syntheses to support health systems is increasingly recognized, the challenge lies in operationalizing the approach and effectively applying an equity lens to HPSR synthesis.

Equity is fundamental  
to improving quality  
of care and people-centred  
health services and systems.

## 6.3 APPLYING AN EQUITY LENS

Documenting disadvantages requires an assessment of the population targeted by health policies and health systems interventions – for example, universal versus a vulnerable population – along with the impact of these interventions on different social groups. When policies and health systems interventions are not targeted towards specific groups, syntheses can assess the distribution of effects and benefits across different subpopulations and social stratifiers (such as socioeconomic status or ethnicity) to study the impact on health equity. For instance, a review on the effects of lay health worker interventions in primary and community health care on maternal and child health and the management of infectious diseases suggested that these workers can improve access to health care for low-income groups (22). In turn, equity-sensitive syntheses can also study policies addressing specific social groups, such as “pro-poor policies” targeting socioeconomically disadvantaged populations.

Syntheses of HPSR evidence are also useful to illuminate inequities in access to health care, for instance, maternal and neonatal health care in LMICs (23), as well as inequities in health services coverage, such as inequitable immunization gaps (24). These types of syntheses can in turn inform efforts to achieve horizontal equity (equal health care for equal need) and/or vertical equity (greater health care for greater need) (25). Because they often include studies conducted in a variety of settings and populations, HPSR syntheses are a useful tool to highlight inequities in population health burden (26), for instance, the association between income and morbidity related to mental illness (27). Syntheses of HPSR evidence can also appraise the differential distribution of effects of policies and health systems interventions on health status outcomes, for instance, the effects of interventions on adolescent health status (28).

Of particular relevance to policies and systems interventions, the Campbell and Cochrane Equity and Methods Group (29) categorizes the main equity-focused syntheses as those that:



- assess effects of interventions in disadvantaged population(s);



- assess effects of interventions aimed at reducing inequity and social gradients across populations; and/or



- assess effects of interventions not aimed at reducing inequity but where it is important to understand the effects of the intervention on equity, either positively or negatively (such as an intervention that is targeted at the whole population but that may have effects on equity).

## 6.4 UNDERSTANDING SOCIAL STRATIFICATION

An initial step in applying an equity lens to HPSR synthesis is a thorough understanding and documentation of the social stratification at stake. To support equity-focused research, classifications of disadvantage have been proposed, including the PROGRESS-Plus taxonomy, where PROGRESS stands for Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Socioeconomic status and Social capital; and “Plus” represents additional categories such as age, disability, and sexual orientation (30) (for further discussion, see the methods commentary on methodological advances to support equity-sensitive reviews, elsewhere in this Methods Guide). Yet not all characteristics may be relevant for each HPSR review, and due consideration should be provided a priori to the relevant equity factors (20). They should also be explicitly described at the review protocol stage (25). Understanding social stratification could also be informed by a theoretical framework to unpack the mechanisms and pathways through which health policies and health systems interventions potentially affect health equity (31). Using a framework or logic model would then support the description of assumptions underlying health inequities, which are of the essence in equity-focused syntheses (20, 32).

In addition, there is increasing interest in developing separate logic models for adverse effects of interventions, to foster a better understanding of intervention-generated inequities. These “dark logic models” aim not only to document the potential harms of health policies and interventions but also to identify the mechanisms that underlie these harmful consequences (33).

## 6.5 INCORPORATING EQUITY SENSITIVITY IN STUDY DESIGNS

As health policies and programmes are implemented in real-world contexts (as opposed to experimental settings), HPSR evidence often emanates from nonexperimental studies rather than randomized controlled trials (RCTs). Understanding disadvantage and vulnerability will therefore require a range of types of evidence. This speaks to the need for qualitative and mixed-methods syntheses, as outlined in Chapter 3 of this Methods Guide, concerning the methods of evidence synthesis. In addition, numerous interactions between contextual determinants and social stratifiers have been documented (25), and equity-sensitive HPSR syntheses should appropriately unpack context and assess how it can influence health inequities.

Studies with quasi-experimental (QE) designs are also important for HPSR reviews investigating interventions or exposures the effects of which are not, often for practical or ethical reasons, easily amenable to random-assignment designs. For instance, the effect of national immunization strategies could be assessed using evidence from natural policy experiments. Studies with QE designs are thus useful for assessing the impact of population-level policies on health outcomes and health inequities (34, 35). Furthermore, inferences on the causal effects of health systems interventions and reforms coming from natural experiments can be as valid as those derived from RCTs, without external intervention in the health system (36). Consequently, there is important value in incorporating evidence from a range of QE studies in HPSR syntheses, particularly to assess real-world impact on health equity (36). When doing so, it is important for equity-focused syntheses to provide a rationale for including different study designs, and the latter should be selected according to their fit-for-purpose to address the research question (25). More information on the inclusion of QE studies in evidence syntheses of health systems interventions can be found in the methods commentary on this topic, elsewhere in this Methods Guide.

## 6.6 EQUITY-FOCUSED STEPS IN HPSR SYNTHESIS

### 6.6.1 Search strategies

Social disadvantage and vulnerability are complex issues that require a broad evidence base drawing

on various social, political, cultural and ethical perspectives. Potentially relevant studies may thus be found in a wide range of literature sources, such as books, government publications, policy documents and other grey literature (20). When developing search strategies for equity-sensitive HPSR synthesis, reviewers and information specialists should purposively identify various information sources and databases relevant to health equity, often beyond the health sector (for example, in sociology, economics and political sciences).

### 6.6.2 Data abstraction

It is important for HPSR syntheses to extract and report data on participants' characteristics and specific contextual determinants, in order to allow assessments of health equity. Yet reviewers often do not extract and report sufficient data related to health equity (26). This process is also challenged by missing data, because vulnerable populations might have been excluded from primary studies, or the findings for disadvantaged populations might be underreported or suboptimally reported (37). In this regard, equity-sensitive evidence syntheses are useful to inform knowledge gaps and identify needs for further primary research targeting health inequities.

### 6.6.3 Data synthesis and analysis

Equity-sensitive evidence syntheses often put forth subgroup and sensitivity analyses, to appraise the influence of health policies and health systems interventions across different strata of the population. Although this approach is important to understanding health equity, the results of subgroup analyses should be interpreted with caution, as they may be less reliable than analyses based on all of the people included in the research design (17, 38). As such, a priori specification of subgroup analyses is recommended, to increase their credibility (39).

Qualitative and mixed-methods research can provide useful information for appraising equity considerations. Qualitative data and process evaluation have been used to understand the influence of intervention design, delivery and setting/context, all of which are important to maximize effects for disadvantaged populations (40, 41). Different approaches can be useful in this regard, including meta-ethnography (42), framework synthesis (43) and realist reviews (44) (see Chapter 3 in this Methods Guide, on evidence synthesis methods, as well as the methods commentary on realist reviews).

Furthermore, HPSR syntheses applying an equity lens can be useful in identifying hypotheses for subgroup analyses to be undertaken in subsequent research. For instance, a review by Glenton and colleagues helped in identifying which subgroup analyses could be conducted in updates of the Cochrane review of effectiveness of lay health worker programmes (45).

#### 6.6.4 Quality assessment

Systematic reviews and other forms of evidence syntheses also include an assessment of the risk of bias and/or critical appraisal of the included studies. An equity lens can be applied here to understand the influence of equity concerns on the quality of the evidence base. For example, disadvantaged populations may be excluded from trials or may not participate, and their absence may affect generalizability (46). Also, internal validity may be compromised by issues such as differential dropout across gender or sociodemographic factors.

### 6.7 GUIDANCE TO SUPPORT EQUITY-SENSITIVE SYNTHESSES

A variety of tools and guidance material exist to inform the development of equity-focused syntheses. The Equity Checklist for Systematic Review Authors (29) is intended for use by systematic review authors planning and conducting reviews with a focus on health equity. The Equity extension of the Preferred Reporting Items for Systematic Reviews and Meta-Analysis statement (known as PRISMA-E) (47) includes reporting guidelines for systematic reviews with a focus on health equity. PRISMA-E helps to ensure transparency and completeness of the reporting of equity-focused review findings.

Ueffing E, Tugwell P, Welch V, Petticrew M, Kristjansson E; Campbell and Cochrane Equity Methods Group. Equity checklist for systematic review authors version 2012-10-04. London: Cochrane Group; 2012 (<https://methods.cochrane.org/sites/methods.cochrane.org/files/public/uploads/EquityChecklist2012.pdf>) (29).

Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, et al.; PRISMA-Equity Bellagio Group. PRISMA-Equity 2012 extension: reporting guidelines for systematic reviews with a focus on health equity. *PLoS Med.* 2012;9(10):e1001333. doi: <https://doi.org/10.1371/journal.pmed.1001333> (47).

To provide additional guidance on applying an equity lens to HPSR evidence syntheses, this chapter is complemented by the following resources:

- ➔ references to key papers outlining detailed recommendations on developing and reporting equity-sensitive reviews, including good practices to assess health equity (see section 6.8, below);
- ➔ a methods commentary on methodological advancements to support equity-sensitive health system reviews, elsewhere in this Methods Guide; and
- ➔ references to applied examples of equity-focused HPSR syntheses (see section 6.9, below).

### 6.8 OVERVIEW OF SELECTED PAPERS

Tugwell and colleagues address the assessment of health equity effects in evidence syntheses, including recommendations for applying an equity lens to systematic reviews:

Tugwell P, Petticrew M, Kristjansson E, Welch V, Ueffing E, Waters E, et al. Assessing equity in systematic reviews: realising the recommendations of the Commission on Social Determinants of Health. *BMJ.* 2010;341:c4739. doi: <https://doi.org/10.1136/bmj.c4739> (19).

In a 2013 article, Welch and colleagues provide guidance on how to conduct equity-focused systematic reviews:

Welch VA, Petticrew M, O'Neill J, Waters E, Armstrong R, Bhutta ZA, et al. Health equity: evidence synthesis and knowledge translation methods. *Syst Rev.* 2013;2:43. doi: <https://doi.org/10.1186/2046-4053-2-43> (20)

In a more recent paper, Welch and colleagues explain and elaborate on each item included in the PRISMA-E statement, while providing empirical applications of the items in question:

Welch V, Petticrew M, Petkovic J, Moher D, Waters E, White H, et al.; PRISMA-Equity Bellagio group. Extending the PRISMA statement to equity-focused systematic reviews (PRISMA-E 2012): explanation and elaboration. *J Clin Epidemiol.* 2016;70:68-89. doi: <https://doi.org/10.1016/j.jclinepi.2015.09.001> (25)

## 6.9 APPLIED EXAMPLES OF EQUITY-FOCUSED HPSR SYNTHESSES

Listed below are examples of syntheses of health policy and systems knowledge that have applied an equity lens, focusing, for instance, on specific social groups, the distribution of effects or equity indicators.

Use of systematic reviews to synthesize and understand inequities generated by health policies and health systems interventions:

Main C, Thomas S, Ogilvie D, Stirk L, Petticrew M, Whitehead M, et al. Population tobacco control interventions and their effects on social inequalities in smoking: placing an equity lens on existing systematic reviews. *BMC Public Health*. 2008;8:178. doi: <https://doi.org/10.1186/1471-2458-8-178> (48).

Syntheses of HPSR targeting disadvantaged and/or vulnerable groups:

Meng Q, Yuan B, Jia L, Wang J, Yu B, Gao J, et al. Expanding health insurance coverage in vulnerable groups: a systematic review of options. *Health Policy Plan*. 2011;26(2):93-104. doi: <https://doi.org/10.1093/heapol/czq038> (49).

HPSR syntheses studying equity indicators and measures:

Asante A, Price J, Hayen A, Jan S, Wiseman V. Equity in health care financing in low- and middle-income countries: a systematic review of evidence from studies using benefit and financing incidence analyses. *PLoS One*. 2016;11(4):e0152866. doi: <https://doi.org/10.1371/journal.pone.0152866> (50).

Equity considerations in review-derived products such as summaries of systematic reviews:

Oxman AD, Schönemann HJ, Fretheim A. Improving the use of research evidence in guideline development: 12. Incorporating considerations of equity. *Health Res Policy Syst*. 2006;4:24. doi: <https://doi.org/10.1186/1478-4505-4-24> (51).

## 6.10 CONCLUSION

As a trusted source of evidence for policy and systems decision-making, HPSR synthesis has a critical role in shining a light on health inequities and their associated factors. Equity-sensitive syntheses can provide a valuable source of knowledge that is anchored in real-world implementation challenges. Such contextualized findings are of the essence at a time when decision-makers are grappling with complex evidence to inform new policies and reforms and move towards universal health coverage.

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## FUTHER READING

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**METHODS**  
COMMENTARY

# **METHODOLOGICAL ADVANCEMENTS TO SUPPORT EQUITY-SENSITIVE HEALTH SYSTEM REVIEWS**

**VIVIAN A. WELCH | PETER TUGWELL |  
JENNIFER PETKOVIC**



### /// KEY POINTS

- This commentary summarizes recent methodological advances that address five issues of concern in systematic reviews aiming to synthesize effects on health equity.
- Systematic review authors should define what is meant by health equity, and reviews of interventions must describe and define the basis on which a population will be considered disadvantaged, for example, using the PROGRESS-Plus mnemonic.
- Taking a theory-based approach to systematic reviews allows researchers to explore health equity in the context of a review.
- New methods have been developed for effective display of complex synthesis results of indicators of health equity, including the harvest plot.
- Several models and methods are available to account for the influence of context (such as social environment) on outcomes and health equity.
- Particular analysis methods may be required to understand how context and populations interact with intervention effectiveness.

## INTRODUCTION

Following a definition originally proposed by Margaret Whitehead, the PRISMA-Equity Bellagio group defines health equity as “the absence of avoidable and unfair inequalities in health” (1). Increasingly, there is recognition that evidence syntheses, including systematic reviews, need to explicitly assess the potential effects of interventions on health equity to appropriately inform health system decisions. This factor is particularly relevant where data on average health effects are insufficient for decision-making and distribution of health benefits is an important consideration. Yet according to studies of policy-makers, lack of data about health equity is an important limitation of systematic reviews (2, 3).

The 2012 equity extension of the Preferred Reporting Items for Systematic reviews and Meta-Analyses (known as PRISMA-E) provides a checklist for authors who are reporting equity-focused systematic reviews (1), and in 2013, the same author group published a paper on how to synthesize evidence on health equity (4). Since then, there have been several methodological advances for systematic reviews aiming to synthesize effects on health equity. This methods commentary highlights five methodological issues addressed by these advancements and describes additional tools that will allow systematic review authors to take health equity into account, with examples of good practice.

Evidence syntheses need to explicitly assess the potential effects of interventions on health equity to appropriately inform health system decisions.

## POTENTIAL PROBLEMS IN DEFINING HEALTH EQUITY AND DISADVANTAGE

First, it is important that systematic review authors define what is meant by health equity, yet very few do so (5). Health equity is a normative concept, because it requires a judgment about fairness and social justice. Thus, in any systematic review, there is a need to provide an operational definition, by defining health equity as a relative difference in health outcomes between the most and least disadvantaged populations. If no comparative data are available, then improvement in health of a disadvantaged group may be considered as potentially effective in reducing health inequities, even without comparative data. One example of the latter approach was a review of school feeding for disadvantaged children, in which the authors defined school feeding as potentially effective at reducing health inequities if it improved the health of the poorest children, even though no comparative data were available for children with higher socioeconomic status (6).

For reviews where sufficient data do exist to compare health outcomes between the most and the least disadvantaged, providing only relative measures or only absolute measures may cause policy-makers to over- or under-estimate the effects on health inequities. A review of reporting of effects on health inequities, which included 138 studies, found that 88% of the studies reported only a relative effect measure, with only 9% reporting an absolute measure of health inequities (7). As noted in an explanatory article, the PRISMA-E statement recommends that both absolute and relative measures of effects on health inequities be reported (8).

Systematic reviews of interventions must also describe and define the basis on which a population will be considered disadvantaged. For the purpose of defining which populations are more or less disadvantaged, authors may use the mnemonic PROGRESS-Plus, where PROGRESS stands for Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Socioeconomic status and Social capital, and “Plus” refers to other attributes such as age, sexual orientation and temporary situations associated with health inequities (9). However, there is substantial variability in the methods used to assess some of these indicators (for example, the variables included in asset indices, such as car and home ownership and characteristics of the home such as windows and floors, may differ from one country to another). Grouping participants into quintiles according to

asset indices has been proposed to allow grouping of studies where socioeconomic status has been measured with different tools (10). However, some primary studies do not assess the socioeconomic and employment status of participants. In these cases, the systematic review authors may decide to accept a proxy measure for disadvantage, such as nutritional status (for example, high prevalence of severe stunting) or other indicators known to be associated with social disadvantage.

## LOGIC MODELS AND THEORIES OF CHANGE TO SHOW ASSUMPTIONS ABOUT HEALTH EQUITY

Taking a theory-based approach to systematic reviews is a second methodological advancement allowing researchers to explore health equity in the context of a review (11). Logic models can help to show how an intervention is expected to influence health equity through a series of activities.



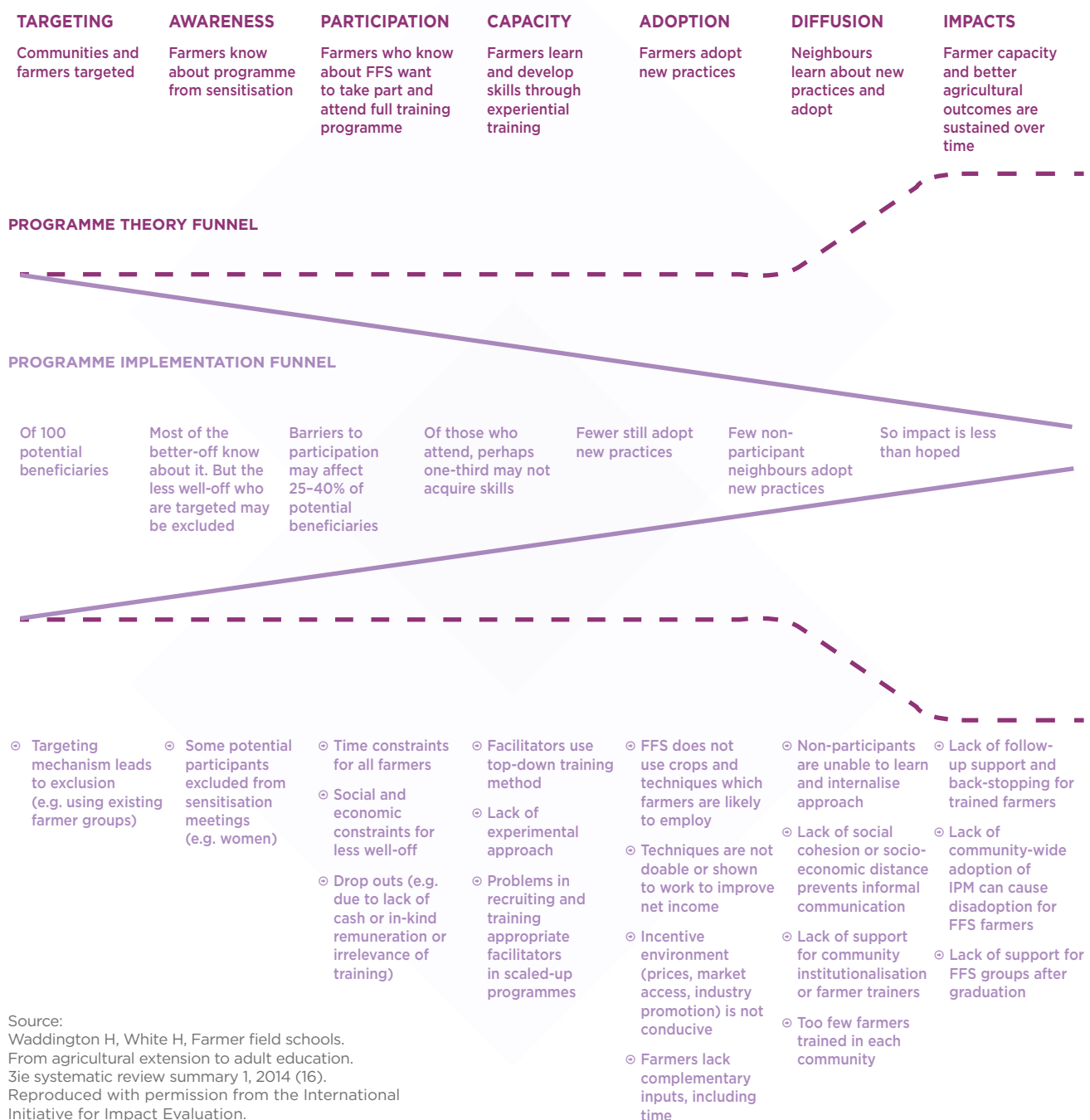
For example, in a recent Campbell review of deworming in children, health equity was included as an outcome in the logic model (12). Recent guidance on developing a logic model for the purpose of a systematic review provides examples of how the equity aspects may be modified using evidence from the review process (13).

Theories of change go beyond logic models by laying out the causal processes connecting activities to outcomes and assumptions about these steps. For example, a review of approaches to promote handwashing and changes in sanitation behaviour

developed a theory-of-change framework to illustrate the causal links and explain how elements of the intervention are expected to lead to short- and long-term outcomes (14).

For health systems interventions, a tool known as the funnel of attrition may be useful to pinpoint reasons for lower coverage and more limited reach of an intervention than expected, and to identify ways of overcoming barriers to improved coverage (15). The funnel of attrition (see example in Figure 1 (16)) identifies entry points for improving implementation of programs by assessing who knows about the program, attends sessions, acquires knowledge,

**FIGURE 1.** Example of a theory-based systematic review, using a funnel of attrition to assess programme implementation (FFS, farmer field schools; IPM, integrated pest management).



changes attitudes, changes behaviour and achieves intended outputs and outcomes. Assessment of where the largest gaps occur can inform the choice and design of tailored implementation interventions to overcome these barriers.

## GRAPHICAL AND VISUAL METHODS TO DISPLAY HEALTH EQUITY OUTCOMES

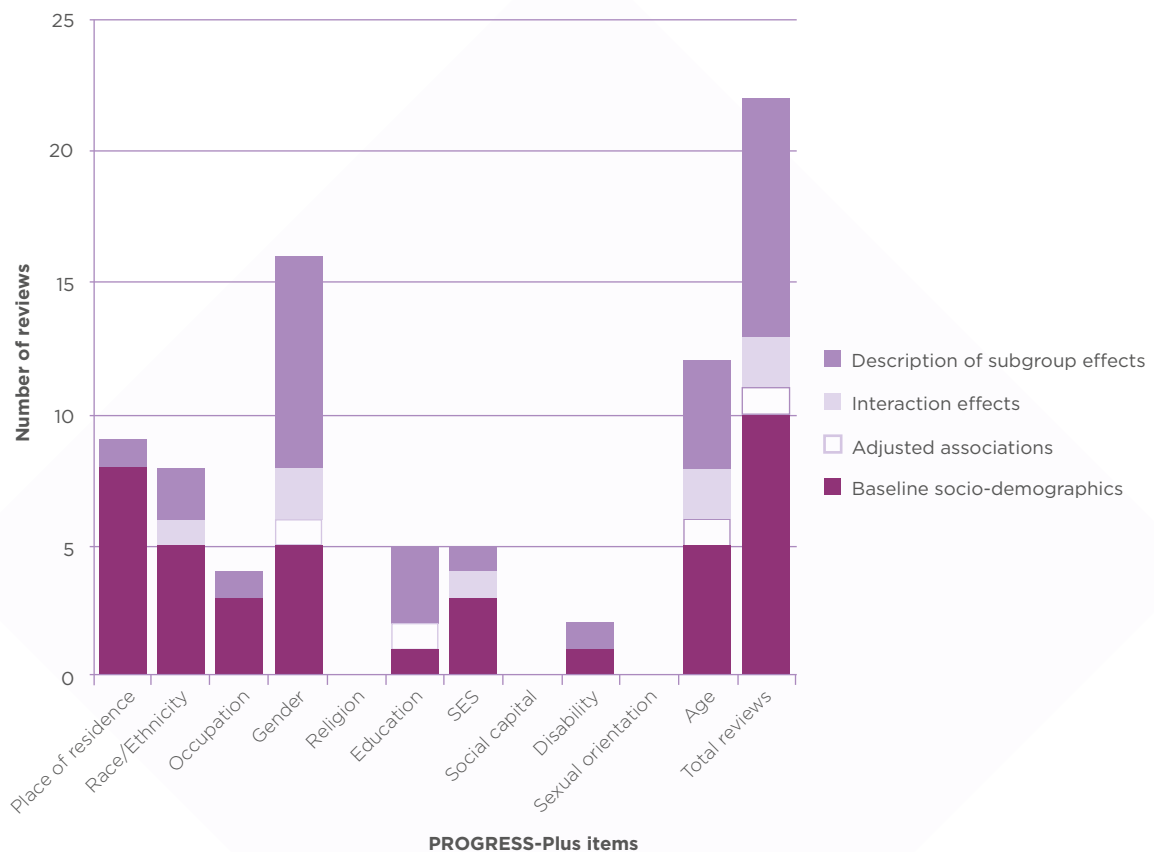
A third issue of concern relates to effective display of complex synthesis results of indicators of health equity. Additional methods of synthesis have been developed to provide suitable display options. For example, the harvest plot was developed to show the number of studies with a positive or negative gradient in health effects (17), and has been used to show whether intervention effects differ across characteristics associated with disadvantage such as sex/gender, occupation, education and socioeconomic status (18). A survey of systematic reviewers and users showed that the users found

harvest plots aesthetically pleasing, although their comprehension of the information conveyed was sometimes poor (19). Thus, when any of these additional synthesis methods are applied, clear, plain-language summaries of the findings must accompany the graphical presentation (for an example of a graphical representation, see Figure 2).

## CONTEXT AND HEALTH EQUITY

A fourth issue of concern is that the context in which an intervention is provided may influence who is disadvantaged and may also influence the effectiveness of the intervention on health equity. Various models have been developed to show the situation of an individual in the social environment for the purposes of understanding how an intervention affects different individuals in different contexts. For example, the Dahlgren and Whitehead “rainbow” model situates each individual

**FIGURE 2.** Example of graphical representation of evidence on health equity in a review of reviews of physical activity (SES, socioeconomic status).

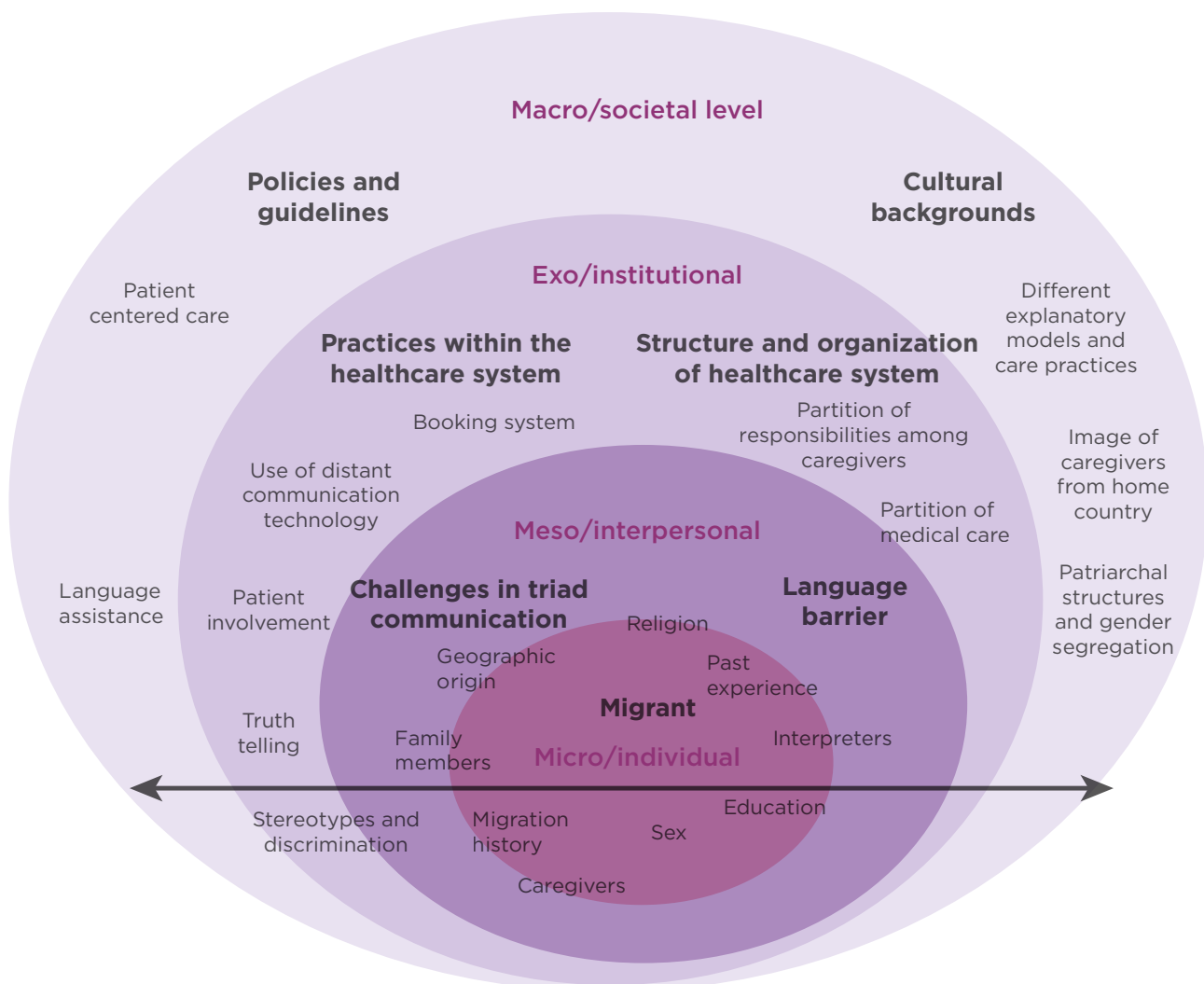


Source: Humphreys DK, Ogilvie D, Synthesising evidence for equity impacts of population-based physical activity interventions: a pilot study, 2013 (18).  
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within the social and ecological environment (20), and has been adapted to particular situations and populations, such as migrants (21), as shown in Figure 3. As the Dahlgren and Whitehead model illustrates, the context in which interventions take place may influence their generalizability to other settings, and may also influence results. A variety of methods to describe context and setting have been developed for use in reviews (discussed in detail in Chapter 4 of this Methods Guide). For example, the Integrated Health Technology Assessment for Evaluating Complex Technologies (INTEGRATE-HTA) consortium developed a tool known as the Context

and Implementation of Complex Interventions (CICI) framework (22). Certain elements of this framework, such as the socioeconomic environment, are highly relevant to assessing equity issues in intervention effectiveness. This tool can be used in systematic reviews to consider how the socioeconomic, legal and political environment may influence differences in effects for disadvantaged populations, as defined by PROGRESS-Plus (23). Other work is ongoing to define attributes of the implementation context that may support investigation of the role of context in equity-focused reviews (24).

**FIGURE 3.** A socioecological model of challenges in caring for migrants. The arrow extending throughout the four levels suggests that factors or challenges at different levels extend into and interact with each other (20).



Source: Nkulu Kalengayi FK et al., "It is a challenge to do it the right way": an interpretive description of caregivers' experiences in caring for migrant patients in Northern Sweden, 2012 (21). Copyright 2012 under the terms of the Creative Commons Attribution License: <https://creativecommons.org/licenses/by/2.0/>.

## ANALYSIS METHODS TO ASSESS EFFECTS ON HEALTH EQUITY

Different analysis methods may be required to understand how context and populations interact with intervention effectiveness, an issue that may be especially important in equity-relevant systematic reviews. The methods available range from simple to more sophisticated. For example, a simple tabular approach was used to identify components of effective interventions in a Cochrane review of school feeding (6). A more sophisticated approach is qualitative comparative analysis (QCA), which was originally developed in the fields of history and the social sciences and has been shown to be useful in identifying the specific elements of a multicomponent intervention that contribute to greater effectiveness; however, the QCA approach is suitable only when there are sufficient studies for analysis (25, 26). For example, in a review of community engagement methods, QCA was useful in identifying intervention designs that were more effective for disadvantaged

populations (25). Other methods to assess how interventions influence health equity include realist reviews (27), meta-ethnography and framework synthesis, all of which seek to understand how intervention components interact with context and populations to effect changes in health outcomes. Additional information on these methods is provided in Chapter 3 of this Methods Guide, which concerns the methods of evidence synthesis, as well as the methods commentary on realist reviews.

## CONCLUSION

With increasing interest in systematic reviews focused on assessing effects on health equity, continued innovation in methods can be anticipated, as well as further exemplar reviews applying these methods. The ultimate hope is that application of these methods will improve the relevance of systematic reviews for decision-making, with a focus on health equity.

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# **PRESENTING AND INTERPRETING EVIDENCE SYNTHESES FOR HEALTH POLICY AND SYSTEMS**

**ELIE A. AKL | ÉTIENNE V. LANGLOIS**





### /// KEY POINTS

- Authors of systematic reviews can use the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system to assess the level of certainty in quantitative evidence and the GRADE-Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) approach to assess the level of confidence to be placed in qualitative evidence.
- SUPPORT summaries, Summary of Findings tables and Evidence to Decision tables are examples of approaches for presenting synthesized evidence.
- The authors of evidence syntheses should discuss how their findings can support and improve health policies and systems, and should also identify future research needs.
- The authors of evidence syntheses should be explicit and forthcoming about the limitations of their work.

## 7.1 INTRODUCTION

Reviewers of health policy and systems research (HPSR) need to summarize and communicate their findings in ways that will be understandable to decision-makers. They also need to support policy-makers and health system stakeholders in interpreting summaries in the context of their respective health systems. This chapter reviews and discusses:

- summarizing and presenting the findings of an HPSR review;
- using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system to assess the certainty of the evidence from reviews of quantitative research;
- using the GRADE-Confidence in the Evidence from Reviews of Qualitative research (GRADE-CERQual) approach to assess confidence in the evidence from reviews of qualitative research;
- communicating the implications of the findings for future research; and
- discussing the limitations of the review.

## 7.2 SUMMARIZING AND PRESENTING THE FINDINGS OF AN HPSR REVIEW

Health systems stakeholders often highlight the need for clarity, simplicity and brevity when the findings of systematic reviews are summarized and presented (1). In particular, the provision of evidence summaries is reported to facilitate policy-makers' use of review findings (2).

One example of a suitable method is the SUPPORT summary, a template developed to present a detailed summary of the main findings of a review, including an assessment of the applicability of the evidence to low- and middle-income countries (LMICs), the potential impacts on equity and economic considerations (3, 4). In the field of HPSR, these SUPPORT summaries have been used for various purposes, for instance, to summarize systematic reviews of ways to organize, finance and govern the delivery of effective health care interventions for policy-makers in LMIC settings (4, 5). An interesting example is

the SUPPORT summary entitled “Does integration of primary healthcare services improve healthcare delivery and outcomes?” (6).

Another form of evidence summary is the Plain Language Summary (PLS). A PLS describes findings from a systematic review in everyday language that will be understandable to a nonresearch audience (7). The PLS example provided in Box 7.1 was developed for a systematic review on contracting out to improve the use of clinical health services and health outcomes in LMICs (8).

Another approach to summarizing and presenting the findings of an HPSR review is the Summary of Findings (SoF) table, discussed below, in Section 7.3.

## 7.3 USING GRADE TO ASSESS THE CERTAINTY OF THE EVIDENCE FROM REVIEWS OF QUANTITATIVE RESEARCH

Systematic reviews must not only synthesize the available evidence addressing the question of interest, but also assess the certainty of the findings. The GRADE system is the most commonly used methodology for rating certainty of the collected evidence, sometimes referred to as the quality of the evidence. Traditionally, the focus has been on rating the certainty of quantitative data (9), including the effects of health policy and system interventions. The ratings are based on a transparent assessment

of risk of bias in included studies, as well as indirectness, imprecision, inconsistency, publication bias, large effect and dose-response. The Journal of Clinical Epidemiology has published a series of papers on GRADE, providing guidance for each step in the application of this methodology (9).

Until recently, GRADE ratings of evidence from randomized studies started as high certainty, and GRADE ratings

of evidence from nonrandomized studies started as low certainty (given that nonrandomized studies are often characterized by residual confounding and selection bias).

Authors  
of systematic reviews  
of health policy and  
systems research can  
use a range of methods  
and tools to summarize  
and communicate their  
findings in ways that  
will be understandable to  
decision-makers.

## **BOX 7.1. THE PLAIN LANGUAGE SUMMARY FOR A SYSTEMATIC REVIEW ON CONTRACTING OUT OF SERVICES**

**Review title:** Contracting out to improve the use of clinical health services and health outcomes in low- and middle-income countries

### **What is the aim of this Review?**

This Cochrane Review aims to assess the effects of contracting out healthcare services. Cochrane researchers searched for all relevant studies to answer this question. Two studies met their criteria for inclusion in the Review.

### **Key messages**

Contracting out healthcare services may make little or no difference in people's use of healthcare services or to children's health, although it probably decreases the amount of money people spend on health care. We need more studies to measure the effects of contracting out on people's health, on people's use of healthcare services, and on how well health systems perform. We also need to know more about the potential (negative) effects of contracting out, such as fraud and corruption, and to determine whether it provides advantages or disadvantages for specific groups in the population.

### **What was studied in the Review?**

When governments contract out healthcare services, they give contracts to non-governmental organisations to deliver these services.

Contracting out healthcare services is common in many middle-income countries and is becoming more common in low-income countries. In many of these countries, government-run services are understaffed or are not easily accessible. Private healthcare organisations, on the other hand, often are more widespread and sometimes are well funded by international donors. By contracting out healthcare services to these organisations, governments can make healthcare services accessible to more people, for example, those in rural and remote areas.

However, contracting out might be a more expensive way of providing healthcare services when compared with services provided by governments themselves. Some governments may find it difficult to manage non-governmental organisations and to ensure that contractors deliver high-quality, standardised care. The process of giving and managing contracts may create opportunities for fraud and corruption.

### **What are the main results of the Review?**

The review authors found two studies that met the criteria for inclusion in this Review. One study was from Cambodia. This study compared districts that contracted out healthcare services versus districts that provided healthcare services that were run by the government. The second study was from Guatemala. This study assessed what happened before and after preventive, promotional, and basic curative services were contracted out. These studies showed that contracting out:

- probably makes little or no difference in children's immunisation uptake, women's use of antenatal care visits, or women's use of contraceptives (moderate-certainty evidence);
- may make little or no difference in the number of children who die before they are one year old, or who suffer from diarrhoea (low-certainty evidence); and
- probably reduces the amount of money people spend on their own health care (moderate-certainty evidence).

Included studies did not report the effect of contracting out on fairness (equity) in the use of healthcare services nor on side effects such as fraud and corruption.

### **How up-to-date is this Review?**

The review authors searched for studies that had been published up to April 2017.

Source:  
Odendaal WA et al., Contracting out to improve the use of clinical health services and health outcomes in low- and middle-income countries, 2018 (8).  
Reproduced with permission from John Wiley & Sons, Inc.

The latest GRADE guidance builds on the availability of new tools that assess confounding and selection bias, such as the Risk Of Bias In Non-randomized Studies - of Interventions (ROBINS-I) (10). As a consequence, the rating of evidence from both types of studies now starts as high certainty. The researcher then considers the five domains that might lower certainty (risk of bias, inconsistency, indirectness, imprecision, publication bias) and the two domains that might increase certainty (large effect, dose-response).

A Summary of Findings (SoF) table is an efficient tabular presentation of the evidence and the rating of its certainty. An SoF table summarizing the effectiveness of a health policy or health systems intervention reports both the size of the benefits and adverse effects and the certainty of the evidence (1). SoF tables have been associated with improved understanding and rapid retrieval of key information (11). Table 7.1 shows part of an SoF table for a Cochrane systematic review on interventions to improve antibiotic prescribing practices for hospital inpatients (12).

**TABLE 7.1.** Part of an SoF table for an assessment of the evidence for quantitative data (with one categorical outcome and one continuous outcome).

**Patient or population:** adults or children undergoing inpatient antibiotic prophylaxis or treatment  
**Settings:** mainly high-income countries (North America or Western Europe)  
**Intervention:** any intervention targeting healthcare professionals that aimed to improve antibiotic prescribing to hospital inpatients  
**Comparison:** usual care (varied across studies)

**EFFECTIVENESS: PRESCRIBING OUTCOMES FROM RCTS**

OUTCOMES	ABSOLUTE EFFECT		NO. OF PARTICIPANTS (No. of studies)	CERTAINTY OF THE EVIDENCE (GRADE)	COMMENTS
	Without intervention	With intervention			
Proportion of participants who were treated according to antibiotic prescribing guidelines Follow-up to end of study	43 per 100	58 per 100	23,394 participants (29 RCTs)	⊕ ⊕ ⊕ ⊕ High	We have graded the certainty of evidence as high because heterogeneity was explained by prespecified effect modifiers (see below). The intervention effect varied between the studies, but the direction of effect was consistent. Restricting the analysis to studies at low risk of bias gave a similar result (RD 11%, 95% CI 10% to 12%)
	Difference: 15 more participants per 100 (95% CI 15 to 23) received appropriate treatment following intervention				
Duration of all antibiotic treatment	11.0 days	9.1 days	3318 participants (14 RCTs)	⊕ ⊕ ⊕ ⊕ High	
	Difference: 1.95 fewer days per participant (95% CI 2.22 to 1.67)				

Source: Davey P et al., Interventions to improve antibiotic prescribing practices for hospital inpatients, 2017 (12). Reproduced with permission from John Wiley & Sons, Inc.

**TABLE 7.2.** Part of an Evidence Profile for assessment of the evidence for quantitative data.

QUALITY ASSESSMENT							EFFECT			GRADE QUALITY OF THE EVIDENCE	IMPOR-TANCE
Number of participants (studies)	Design	Risk of bias	In-consistency	Indirec-tness	Im-precision	Other consid-erations	With ACT subsidy	No ACT Subsidy	Absolute diffe-rence (95% CI)		
<b>ACT USE (PERCENTAGE OF CHILDREN UNDER 5 YEARS OF AGE RECEIVING ACT ON THE SAME DAY OR FOLLOWING DAY OF FEVER ONSET)</b>											
2,662 (1 study)	Cluster RCT	No serious risk of bias	No serious inconsistency	No serious indirectness	No serious imprecision	None	30.3% (19.4% to 41.2%)	5.3%	25% (14.1% to 35.9%)	⊕ ⊕ ⊕ ⊕ High	CRITICAL
<b>ACT AVAILABILITY (PERCENTAGE OF OUTLETS STOCKING ACTS FOR CHILDREN UNDER 5 YEARS OF AGE)</b>											
1 study reported in 2 articles	Cluster RCT	No serious risk of bias	No serious inconsistency	No serious indirectness	No serious imprecision	None	32.4% (22.5% to 41.8%)	<0.5%	31.9% (26.3% to 37.5%)	⊕ ⊕ ⊕ ⊕ High	CRITICAL
<b>ACT AVAILABILITY (PERCENTAGE OF OUTLETS STOCKING AT LEAST ONE ACT FOR PATIENTS OF ANY AGE)</b>											
1 study	Non-ran-domised cluster trial	Serious	No serious inconsistency	No serious indirectness	Serious	None	72.7% (65.5% to 79.8%)	0.5%	72.2% (65.0% to 79.3%)	⊕ Very low	CRITICAL

Source: Opiyo N et al., Subsidising artemisinin-based combination therapy in the private retail sector, 2016 (13). Copyright 2016 under the terms of the Creative Commons Attribution Non-Commercial 4.0 International Licence (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>).

An Evidence Profile represents an expanded version of the SoF table that includes details of the rating of the certainty of the evidence (specifically, risk of bias



in the included studies, inconsistency, indirectness, imprecision and publication bias); an example is provided in Table 7.2.

Guidance is also available on how to narratively summarize the effect across different studies in the absence of a single effect estimate (14). As an example, Table 7.3 shows part of an SoF table that narratively summarizes the findings of a Cochrane systematic review on the topic of shared care compared with usual care for patients with chronic conditions (15).

## 7.4 USING GRADE-CERQUAL TO ASSESS CONFIDENCE IN THE EVIDENCE FROM REVIEWS OF QUALITATIVE RESEARCH

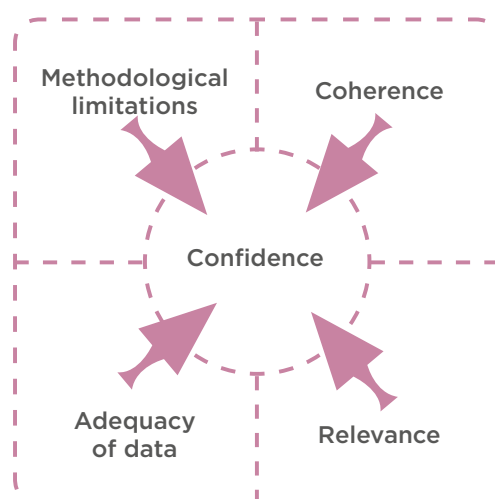
A separate approach is available for assessing confidence in the findings of a qualitative evidence synthesis: GRADE-CERQual (16). GRADE-CERQual is a transparent approach for making an overall assessment of confidence for each review finding on the basis of four components: methodological limitations, coherence, adequacy of data and relevance (16, 17) (Figure 7.1). The GRADE-CERQual series published in the journal Implementation Science consists of seven papers that provide guidance on how to apply this approach (18). The GRADE-CERQual assessments, and associated explanations, are key information to be included in an Evidence Profile and an SoF table, as exemplified in Table 7.4, which summarizes evidence on the views,

**TABLE 7.3.** Part of an SoF table for a narrative summary of the evidence.

Shared care compared with usual care for patients with chronic conditions			
<b>Patient or population:</b> adults with chronic conditions <b>Settings:</b> primary care and community settings <b>Intervention:</b> shared care defined as joint participation of primary care physicians and specialty care physicians in planned delivery of care, informed by an enhanced information exchange over and above routine discharge and referral notices <b>Comparison:</b> usual care			
OUTCOMES	IMPACTS	NUMBER OF STUDIES (PARTICIPANTS)	CERTAINTY OF THE EVIDENCE (GRADE)
<b>CLINICAL OUTCOMES:</b> physical health	Results show probably little or no difference in clinical outcomes related to physical health but a tendency towards improved blood pressure management in the few studies conducted to examine blood pressure outcomes in shared care studies for hypertension (one study, N = 490), diabetes (seven studies, N = 2184), chronic kidney disease (one study, N = 181) and stroke (one study, N = 186) (mean difference (MD) 3.47, 95% confidence interval (CI) 1.68 to 5.25)	<b>16</b> <b>(6977)</b>	 <b>Moderate</b>
<b>CLINICAL OUTCOMES:</b> mental health	Shared care results in improved response to depression treatment (risk ratio (RR) 1.40, 95% confidence interval (CI) 1.22 to 1.62; six studies, N = 1708) and greater recovery from depression (RR 2.59, 95% CI 1.57 to 4.26; 10 studies, N = 4482) in studies examining the 'stepped care' design of shared care interventions (10 studies, N = 4482). Shared care has moderate effects on mean depression scores (standardised mean difference (SMD) -0.29, 95% CI -0.37 to -0.20; six studies, N = 3250)	<b>18</b> <b>(6243)</b>	 <b>High</b>

Source: Smith SM et al., Shared care across the interface between primary and specialty care in management of long term conditions, 2017 (15). Reproduced with permission from John Wiley & Sons, Inc.

**FIGURE 7.1.** Making an overall assessment of confidence in review findings, using the GRADE-CERQual approach.



Source: Lewin S et al., Applying GRADE-CERQual to qualitative evidence synthesis findings-paper 2: how to make an overall CERQual assessment of confidence and create a Summary of Qualitative Findings table, 2018 (17). Copyright 2018 under the terms of the Creative Commons Attribution Non-Commercial 4.0 International License (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>).

**TABLE 7.4.** Part of an SoF table for a qualitative evidence synthesis.

SUMMARY OF REVIEW FINDING	STUDIES CONTRIBUTING TO THE REVIEW FINDING	CERQual ASSESSMENT OF CONFIDENCE IN THE EVIDENCE	EXPLANATION OF CERQual ASSESSMENT
<b>SOCIOCULTURAL</b>			
Sociocultural barriers sometimes hindered mothers from receiving care in hospitals. For instance women preferred not to be examined by male health providers, or for cultural reasons preferred a particular position in which to deliver, or for religious reasons did not divulge information that was needed for their care	Blum 2006; Khalaf 2009; Thorsen 2012	Low confidence	Due to moderate concerns about adequacy; and moderate concerns about relevance
<b>PROFESSIONAL ASSOCIATIONS</b>			
Health workers had conflicting views on the role of professional councils. For instance, some viewed professional councils as advocates for their members, while others viewed them as a regulatory body with punitive functions	VSO 2012	Very low confidence	Due to moderate concerns about methodological quality; and moderate concerns about relevance; and severe concerns about adequacy

Source: Munabi-Babigumira S et al., Factors that influence the provision of intrapartum and postnatal care by skilled birth attendants in low- and middle-income countries: a qualitative evidence synthesis, 2017 (19). Copyright 2017 under the terms of the Creative Commons Attribution Non-Commercial 4.0 International License (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>).

experiences and behaviours of skilled birth attendants and those who support them, and identification of factors influencing the delivery of intrapartum and postnatal care in LMICs (19).

## 7.5 COMMUNICATING THE IMPLICATIONS OF THE FINDINGS FOR FUTURE RESEARCH

Authors of systematic reviews should communicate their findings with a view to improving health policies and systems. For a full discussion of using evidence synthesis findings in policy and practice, see Chapter 9 of this Methods Guide.

Authors of evidence syntheses can also use their findings to identify further research needs. For example, the Cochrane Handbook for Systematic Reviews of Interventions states that the conclusions of the review “should help people make well-informed decisions about future healthcare research” (20). The Evidence-Based Research Network has called upon doctoral students, supervisors and senior researchers to use systematic reviews “to anchor more effectively questions for additional primary research” (21). More generally, there have been calls for systematic assessment of existing evidence to always precede any investment in additional research (22, 23).

Robinson and colleagues developed a framework to identify research gaps from systematic reviews (24). The framework characterizes research gaps using the following information:

### ➤ **PICO elements**

(Population, Intervention, Comparator, Outcomes);

### ➤ **settings**

### ➤ **identification of the reason(s)**

why the gap exists as insufficient or imprecise information, biased information, inconsistency or unknown consistency, and not the right information.

There is increasing interest in using evidence gap maps to promote evidence-informed policy and strategic research agendas (25). Miake-Lye and colleagues identified several methods for developing evidence gap maps (26). They also identified 31 definitions of gap maps, two thirds of which stated the purpose as identification of “gaps or future research needs,” and 58% of which referenced a stakeholder engagement process or user-friendly product (26). Figure 7.2 shows

an evidence gap map for the availability of evidence on cataract in LMICs (27). The empty cells in the “health systems” section of the gap map show a clear need for greater HPSR in this field.

Authors who formally grade the evidence generated by their reviews (for example, using the GRADE approach, as described in Sections 7.3 and 7.4) can use their grading as a guide in developing research recommendations (28). In fact (and in accordance with the definition of certainty of evidence), the lower the certainty, the more likely that further research will change the effect estimate for health policy and system interventions (29). Therefore, a team could develop research recommendations based on the factors that affected the assessment of certainty of the evidence, as follows (30):



➤ **Risk of bias:** design and conduct methodologically sound studies.



➤ **Inconsistency:** conduct studies in relevant subgroups, or, when feasible, conduct an individual participant data meta-analysis.



➤ **Indirectness:** conduct studies that better fit the PICO question of interest.



➤ **Imprecision:** conduct additional and larger studies to reach optimal information size.



➤ **Publication bias:** investigate and identify unpublished data; performing large studies may help to resolve this issue.

A similar approach would apply to developing research recommendations based on qualitative evidence, according to the GRADE-CERQual approach (17).

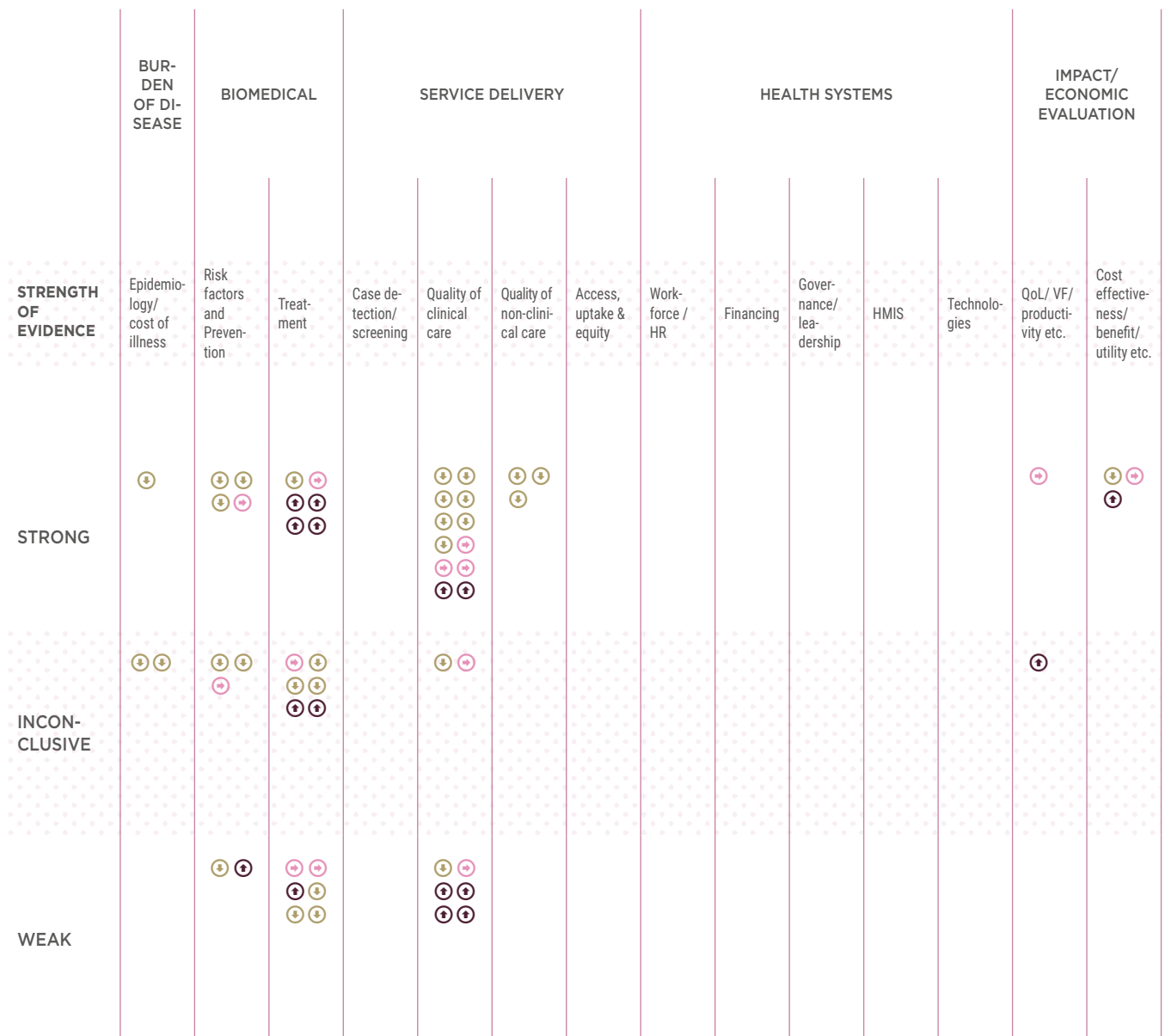
The assessments of certainty and confidence can also be used in the Evidence to Decision (EtD) framework of the DECIDE project (conducted by the GRADE Working Group), a tool for developing guidelines in a structured, systematic and transparent way (31). Further information about the EtD framework and its application in health systems strengthening is provided in Chapter 9, on fostering the use of evidence synthesis findings in policy and practice.



**FIGURE 7.2.** Evidence gap map for the availability of evidence in relation to strength of evidence and by sector.

**Methodological quality of the review**

⬇️ Low confidence   ⬆️ Medium confidence   ⬆️ High confidence



**Methodological quality of the review**

⬇️ Low confidence   ⬆️ Medium confidence   ⬆️ High confidence

Source: Virendrakumar B et al., Availability of evidence on cataract in low/middle-income settings: a review of reviews using evidence gap maps approach, 2016 (27).  
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## 7.6 DISCUSSING THE LIMITATIONS OF THE REVIEW

The authors of evidence syntheses should be explicit and forthcoming about the limitations of their work. Those limitations can typically be classified into two categories: the limitations of the included studies and the limitations of the systematic review process. Addressing the limitations of the included studies is part of the standard process of conducting a systematic review. It entails critically appraising and assessing the methodological limitations (for example, risk of bias) of those studies and devising a plan for addressing them in the analysis (for example, by conducting a sensitivity analysis that excludes studies with severe methodological limitations). Similar principles apply to syntheses of qualitative evidence. Responsibility for avoiding or minimizing the limitations of the systematic review process lies with the reviewers. At a minimum, the reviewers should acknowledge any limitations in the discussion section of their report. To determine the potential limitations of a review, authors can use the items of the AMSTAR-2 tool, designed for critical appraisal

of systematic reviews that include randomized or nonrandomized studies of health care interventions (32). Finally, authors' reflexivity (making conflicts of interests, prior beliefs and prejudices transparent) is gaining attention in qualitative evidence synthesis (33), but applies as well to quantitative reviews.

## 7.7 CONCLUSION

Authors of systematic reviews of HPSR can use a range of methods and tools to summarize and communicate their findings in ways that will be understandable to decision-makers. They can use the GRADE system and the GRADE-CERQual approach to assess the quality of quantitative and qualitative evidence, respectively. They can help policy-makers and other stakeholders to interpret summaries within their own context by presenting the synthesized evidence using SUPPORT summaries, SoF tables and EtD tables. Finally, systematic review authors should be explicit and forthcoming about the limitations of their work and endeavour to identify future research needs.

### METHODS PAPERS FOR PRESENTING AND INTERPRETING HPSR EVIDENCE SYNTHESSES

- Guyatt G, Oxman AD, Akl EA, Kunz R, Vist G, Brozek J, et al. GRADE guidelines: 1. Introduction—GRADE evidence profiles and summary of findings tables. *J Clin Epidemiol.* 2011;64(4):383–94. Open access through: <http://www.who.int/alliance-hpsr/resources/publications/hsr-synthesis/en/> (9)
- Robinson KA, Saldanha IJ, McKoy NA. Development of a framework to identify research gaps from systematic reviews. *J Clin Epidemiol.* 2011;64(12):1325–30 (24). Open access through: <http://www.who.int/alliance-hpsr/resources/publications/hsr-synthesis/en/>.
- Rosenbaum SE, Glenton C, Wiysonge CS, Abalos E, Mignini L, Young T, et al. Evidence summaries tailored to health policy-makers in low- and middle-income countries. *Bull World Health Organ.* 2011;89(1):54–61. doi: 10.2471/BLT.10.075481 (<http://www.who.int/bulletin/volumes/89/1/10-075481.pdf>) (5).
- The GRADE-CERQual series, published as a supplement in *Implementation Science*, consists of seven papers providing guidance on how to apply the CERQual approach: Applying GRADE-CERQual to qualitative evidence synthesis findings [journal supplement]. *Implement Sci.* 2018;13 Suppl 1 (<https://implementationscience.biomedcentral.com/articles/supplements/volume-13-supplement-1>) (18).

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# **ADDRESSING CHALLENGES IN THE CONDUCT OF POLICY-RELEVANT EVIDENCE SYNTHESSES**

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ÉTIENNE V. LANGLOIS**



### /// KEY POINTS

- Several challenges exist in conducting evidence synthesis in health policy and systems research.
- Available primary evidence may be limited in terms of study design, and it may be necessary to seek out indirect evidence.
- Reviewers in low- and middle-income countries may face challenges in accessing suitable data.
- Despite policy-makers' desire for evidence related to their local context, reviewers will typically be able to provide only the best available evidence, not necessarily the best possible evidence.
- The use of rapid reviews or a rapid response service may help to improve the timeliness of evidence synthesis.
- Ethical considerations include disclosure of financial and nonfinancial conflicts of interest.
- Reviewers must have the ability to enhance the policy relevance of the evidence synthesis findings.

## 8.1 INTRODUCTION

A number of contextual and methodological challenges exist in conducting systematic reviews and other forms of evidence synthesis in the area of health policy and systems (1), particularly in low- and middle-income countries (LMICs). Some of the key challenges pertain to the methods of evidence syntheses in health policy and systems research (HPSR), along with the need for appropriate resources and skills to conduct them. This chapter discusses challenges related to six issues:

- limited primary evidence
- access to data
- use of local knowledge in policy-relevant reviews
- timeline of reviews
- ethical considerations
- strengthening of capacity for evidence synthesis in HPSR

## 8.2 LIMITED PRIMARY EVIDENCE

It is typically challenging to control health systems interventions or to randomize the units of study when assessing a health policy or health systems intervention. As a result, studies eligible for inclusion in HPSR systematic reviews include quasi-experimental (QE) designs, such as natural experiments. Last has defined natural experiments as “naturally occurring circumstances in which subsets of the population have different levels of exposure to a supposed causal factor, in a situation resembling an actual experiment where subjects would be randomly allocated to groups” (2). Natural experiments can be used to assess policy interventions where there is a divergence in law, policy or system intervention between nations, regions or other political, jurisdictional or social units (3). Unfortunately, for the purposes of systematic reviews, natural experiments and other QE studies are more challenging than randomized controlled trials in terms of identification, assessment for eligibility, risk-of-bias assessment and analysis. Consequently, authors will need advanced epidemiological and statistical skills.

In his methods commentary elsewhere in this volume, Peter Rockers discusses the role of QE studies in evidence synthesis for health policy and systems; previous publications from this author and

his colleagues are also available (4). The Journal of Clinical Epidemiology has published a series on using QE study designs in effectiveness reviews of health systems interventions. That series discusses issues in utilizing such designs for both primary research and evidence synthesis, including a classification taxonomy, risk-of-bias assessment, identification, data collection, synthesis and production of the review (5).

Another common challenge in health policy and systems evidence synthesis is that evidence directly addressing the question of interest may be lacking; however, indirect evidence may be available. In such cases, and instead of conceding with the absence of evidence, systematic review authors might opt to include indirect evidence (for example, from a setting other than the specific setting of interest). The authors would need to consider how the indirectness of the evidence (also referred to as applicability of findings) might affect their confidence in the final results (6).

The interdependent, interconnected, contextual and dynamic nature of health systems requires evidence that goes beyond “effectiveness” to encompass factors such as feasibility, applicability, values and preferences. These aspects have been typically assessed in SUPPORT summaries and, more recently, in Evidence to Decision tables (for more information about these tools, see Chapter 7 in this Methods Guide, concerning the presentation and interpretation of evidence syntheses). Indeed, policy-makers are often interested in data on those factors, typically generated by qualitative studies. Synthesizing qualitative data raises its own challenges and requires specific skills, as outlined in Chapter 3, which introduces qualitative evidence synthesis and mixed methods.

## 8.3 ACCESS TO DATA

Some of the major challenges faced by systematic reviewers in LMICs are the lack of access to databases and full-text research papers and the lack of fast and reliable internet connectivity (7, 8). Reviewers from low-income countries can benefit from the Hinari Access to Research in Health Programme, which enables them to access one of the world's largest collections of biomedical and health literature (9). Another solution is to partner with researchers from



other institutions (whether from LMICs or high-income countries [HICs]) who may have access to needed databases and relevant software. Similarly, as part of their work, systematic reviewers can access published systematic reviews in the field of HPSR through two databases: Health Systems Evidence (10) and PDQ-Evidence (11).

HPSR systematic reviewers also face challenges in accessing context-sensitive and local evidence, whether unpublished or published, in local journals or non-indexed databases. Such evidence may be needed to inform local decisions – for instance, economic evaluations and national census data – and reviewers would need to partner with local entities (such as ministries of health) to ensure access to the required information.

## 8.4 USE OF LOCAL KNOWLEDGE IN POLICY-RELEVANT REVIEWS

Meeting the expectations of policy-makers remains an important challenge, especially in LMICs (12). Indeed, policy-makers expect to be able to guide their policies with local evidence reflecting their own context. Yet local evidence may be unavailable in numerous LMIC settings, and even when such evidence is available, it may be deemed of lower quality.

An important source of local knowledge when conducting policy-relevant systematic reviews is the grey literature (such as government reports). The choice to include such documents raises the challenges of identifying them and then synthesizing them with other sources of evidence. Another challenge is assessing the quality and validity of these documents when they report studies with nontypical designs. This particular challenge can be weighted during selection of the evidence synthesis approach; for instance, a scoping review does not typically involve critical appraisal of the included studies (13).

Although efforts are in place to improve reporting of grey literature sources – for instance, through the World Health Organization programme reporting standards for the design, implementation, monitoring and evaluation of health programmes in the context

of sexual, reproductive, maternal, newborn, child and adolescent health (14) – the quality of this literature remains a challenge for reviewers synthesizing local and context-specific knowledge.

Systematic reviewers must clearly temper expectations at the beginning of the process, by helping policy-makers to understand that the systematic review will aim to provide the best available evidence, not necessarily the best possible evidence. Indeed, the evidence may turn out to be scarce or of relatively low quality, particularly if derived from nonrandomized studies. One option to enhance the evidence available would be to use indirect evidence from other similar settings, for instance neighbouring districts or countries facing similar policy challenges, and/or triangulating the evidence with data reflecting comparable health systems arrangements. One such example is a review of health financing policies in different settings in sub-Saharan Africa (15). This approach has led to a wide array of systematic reviews pooling data and information about health policy and systems in various LMICs (9, 16, 17).

The Cochrane Effective Practice and Organisation of Care (EPOC) group has developed guidance on conducting reviews that addresses certain aspects related to LMIC contexts (18). For example, the group hosts a collection of databases, websites and journals relevant to LMICs (19). It also offers search filters for MEDLINE (Ovid), EMBASE (Ovid), PubMed and the Cochrane Central Register of Controlled Trials (also known as CENTRAL)

to help identify studies relevant to LMICs (20).

Capacity-strengthening efforts should address skills that are relevant to health policy and systems research syntheses.

## 8.5 TIMELINE OF REVIEWS

Conducting systematic reviews of health policy and systems evidence is a time-consuming process that has reportedly not aligned well with pressing policy-making timelines. As such, rapid reviews have emerged as a potential solution to provide relevant, actionable evidence in a timely and cost-effective manner. The Alliance for Health Policy and Systems Research (AHPSR) has published a practical guide to conducting rapid reviews (21). In addition to addressing the approaches and methods of performing rapid reviews, the guide discusses

the demand-driven process, engagement of policy-makers to increase the policy relevance of such reviews, and the cost and efficiency of the process, as well as the likelihood of uptake in policy-making and health systems strengthening.

Establishing a “rapid response service” may help with responding to queries from policy-makers or health systems managers in a timely way (21). Recent evidence suggests that rapid response services are both feasible and acceptable to policy-makers and researchers (7, 22). However, a full systematic review might still be preferable over a rapid review for the purpose of health policy-making, for example, when decision-makers are assessing the effectiveness of policy options and want to avoid the risk of missing relevant studies, particularly if available time allows.

Reviewers and policy-makers should define some operational procedures that will make possible the timely generation of good evidence, as well as its uptake for policy-making (21). Engaging policy-makers to generate and maintain an evolving list of policy questions would be beneficial for these procedures. This list could guide reviewers on policy-makers’ needs, to allow prioritized policy questions to be scheduled and addressed in a timely manner. Reviewers would also be well advised to develop the skill of horizon scanning, so that they can predict beforehand the kind of evidence that policy-makers will require for any upcoming policy decision (see also Chapter 9 in this Methods Guide, about fostering the use of evidence synthesis in policy and practice).

## 8.6 ETHICAL CONSIDERATIONS

Several ethical considerations arise in the conduct of HPSR in general, and systematic reviews in particular (23). Although these considerations apply to clinical systematic reviews, they are particularly relevant in HPSR reviews, given their potential impact. One consideration for systematic reviewers is whether to include studies with known ethical insufficiencies. Another consideration relates to managing and reporting conflicts of interest in situations where nonfinancial conflicts (such as allegiance to specific policy options or health systems configurations) may be just as critical as financial conflicts (24).

The composition of the review team may also present challenges. For example, if a member of the review team is an author on one of the studies ultimately selected for inclusion, there may be concerns about

objectivity in judging study eligibility, assessing the quality of one’s own study and interpreting results (25). As such, the review team should consider excluding individuals with conflicts of interest from specific steps of the process. Conflicts of interest are a particular challenge for embedded HPSR evidence synthesis involving policy-makers who may have a specific interest in a particular policy option (26). Researchers also need to be made aware of the ethical risks of being drawn into the policy-making process and losing their scientific objectivity.

Finally, there may be ethical challenges related to reporting. For example, a recent study found that one fifth of systematic reviews in HPSR did not include a statement disclosing conflicts of interest (27), in spite of the fact that 93% of health policy and services journals require disclosure of authors’ financial and nonfinancial conflicts of interest (28). Authors of HPSR systematic reviews should be transparent about their own financial and nonfinancial conflicts of interest, as well as their institutional conflicts (for example, working for an institution that is invested in specific health programmes and thus having an interest in portraying only the positive studies).

## 8.7 STRENGTHENING OF CAPACITY FOR EVIDENCE SYNTHESIS IN HPSR

In addition to the generic skills needed to conduct systematic reviews, conducting HPSR syntheses requires the ability to enhance the policy relevance of review findings (see Box 8.1). For example, moving from a policy issue to a question amenable to systematic review often requires a deliberate dialogue between reviewers and policy-makers. Reviewers often lack the skills and frequently the will to engage and negotiate with policy-makers on translating a policy issue or concern into a standard review question; they may also be reluctant to discuss the feasibility of the review and the appropriateness of its scope.

Reviewers and review teams wishing to embark on syntheses of HPSR ideally need to strengthen these skills at the individual, team, organizational and system levels, as suggested by Oliver and colleagues (12). To achieve these objectives, review teams are advised to develop a detailed plan for capacity-building, covering the skill set needed, the timeframe available, the experts to involve, the resources required and potential sources of support. In parallel,

### BOX 8.1. SKILLS NEEDED TO CONDUCT A SYSTEMATIC REVIEW IN THE FIELD OF HPSR

- Identifying relevant stakeholders (particularly policy-makers) and inviting them to be part of the process
- Sensitizing stakeholders about the use of evidence to inform decision-making
- Identifying the priority issues for which policy-makers have information needs
- Negotiating with policy-makers on how best to translate the policy issue into a standard review question
- Agreeing on a conceptual framework
- Identifying databases (and other sources of evidence) that index studies on a specific topic or from a specific region and building a suitable search strategy
- Abstracting relevant data on setting and context
- Assessing the quality of studies with nonrandomized designs, such as natural experiments and other QE designs
- Synthesizing data, using the conceptual framework
- Dealing with heterogeneity introduced by the complex and varying nature of health systems across countries and regions
- Adopting a problem-solving approach with appreciation of the complexity of health systems and the influence of players outside the health field
- Packaging and communicating evidence appropriately for relevant audiences

Source: Gough, Oliver & Thomas (28).

review teams and institutions seeking to influence health policy and systems need to regularly evaluate their capacity development initiatives and refine relevant plans accordingly.

Healy and colleagues suggested that it would be beneficial for scattered research groups in LMICs to have regional mechanisms that would concentrate research capacity (22). The AHPSR has established centres for systematic reviews in LMICs, including Bangladesh, Chile (before the country was classified as an HIC), China, Lebanon, South Africa and Uganda (29).

The centre in Lebanon, for instance, developed reviewers' capacities to engage stakeholders through policy dialogues and priority-setting exercises. One of the policy dialogues led to development of a review question to address the coordination of health services among humanitarian agencies during a humanitarian crisis (30, 31); for a more detailed discussion, see the impact story concerning policy-responsive systematic reviews in addressing the situation of Syrian refugees in Lebanon, elsewhere in this Methods Guide. Certainly, the process of engaging policy-makers can be complex and costly because of the unpredictable nature of policy-making. To this end, many researchers omit the

engagement of policy-makers in the co-construction of review questions and the co-production of research evidence.

Review teams in LMICs can also take advantage of capacity-strengthening activities provided by various networks and collaborations that focus on evidence synthesis and/or evidence-to-policy, for instance, the African Evidence Network (32), Cochrane (33), the Campbell Collaboration (34) and the AHPSR (35).

The need to enhance capacities to conduct systematic reviews in LMICs has also led to the establishment of the Global Evidence Synthesis Initiative (GESI). GESI has built a network of review centres in LMICs, which are committed to the development and use of research synthesis to enhance public policy and practice (36). The GESI Secretariat is coordinating capacity-strengthening activities through series of workshops and webinars. GESI also aims at fostering intersectoral systematic review by engaging reviewers from nonhealth sectors, such as agriculture, crime and justice, economic development, education, food security, social protection and water sanitation. One of the objectives of these collaborative endeavours is to support multisectoral actions required to advance the Sustainable Development Goals.

Box 8.2 lists various approaches to strengthening capacities in evidence synthesis in LMICs at both the institutional and the systems level (12).

Capacity-strengthening efforts should address

skills that are relevant to HPSR syntheses, such as identifying and integrating evidence from various study designs, including natural experiments, QE studies and qualitative studies.

### **BOX 8.2. APPROACHES FOR STRENGTHENING CAPACITY IN EVIDENCE SYNTHESIS**

#### **AT THE INSTITUTIONAL LEVEL:**

- Increasing awareness that systematic reviews and other forms of evidence synthesis are as valuable as primary research studies
- Encouraging the conduct of evidence synthesis in and for LMICs, so that local reviewing capacity is not wasted
- Creating among policy-makers a demand for and support of evidence synthesis
- Disseminating findings to stakeholders through mechanisms such as policy dialogue
- Producing systematic reviews that are policy relevant

#### **AT THE SYSTEM LEVEL:**

- Building collaborations with stakeholders
- Training stakeholders in finding the evidence and using it in policy-making
- Disseminating synthesized evidence in a language and format that stakeholders can access and use

Source: Oliver and colleagues (12).

## **8.8 CONCLUSION**

This chapter has reviewed a number of contextual and methodological challenges in conducting systematic reviews and other forms of evidence synthesis in the area of health policy and systems. Although authors of HPSR reviews have limited control over some of

these challenges (such as limited primary evidence), they can use others (such as the timeline of reviews) as opportunities to improve their processes and their services, and to build the necessary capacity to do so.

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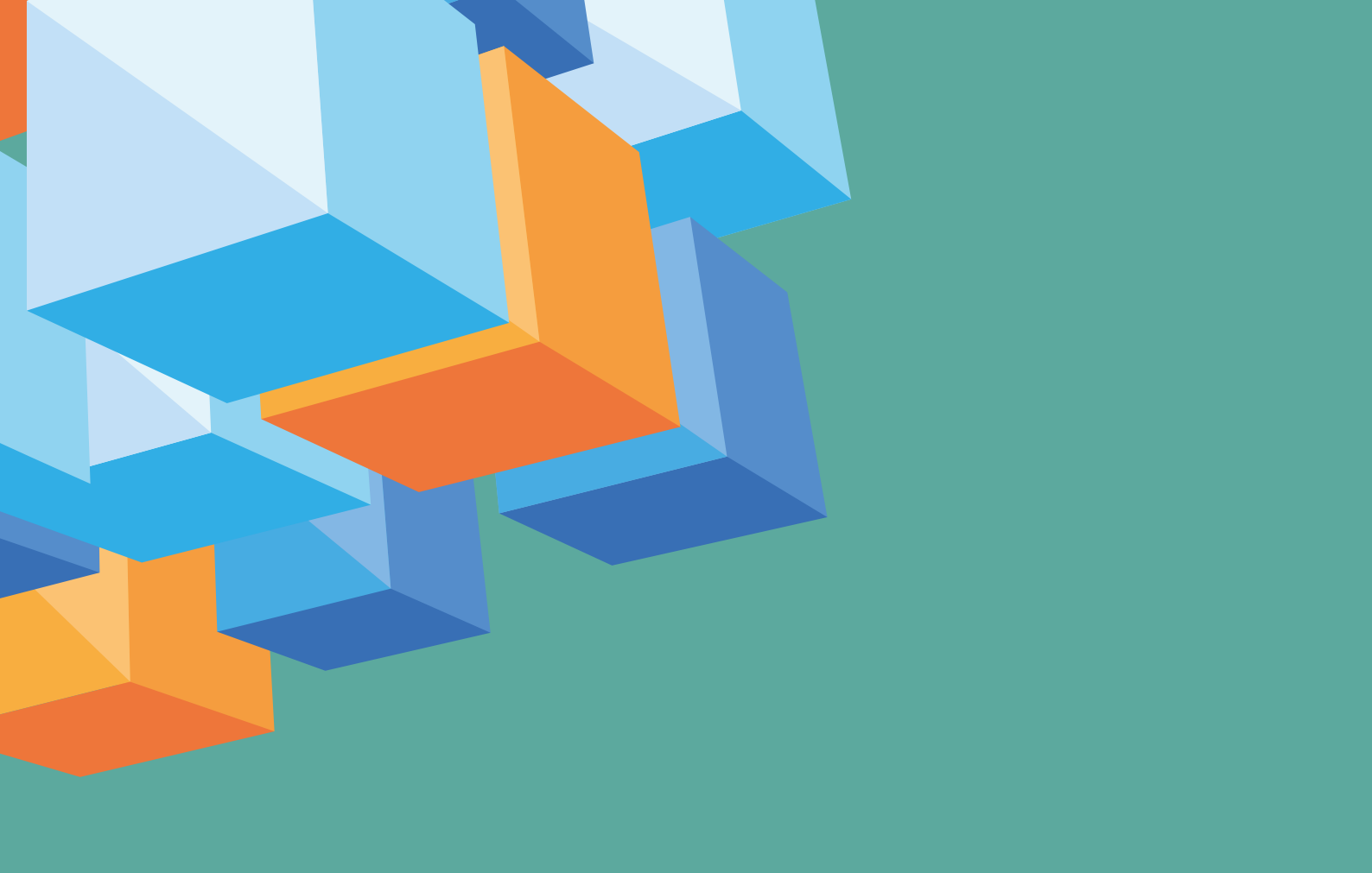




# **FOSTERING THE USE OF EVIDENCE SYNTHESIS FINDINGS IN POLICY AND PRACTICE**

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### /// KEY POINTS

- Evidence syntheses are crucial for guideline development processes, to quantify the benefits and harms of health policies and health systems interventions and to understand whether they are acceptable, ethical, accessible, feasible and affordable.
- Health policy and systems research syntheses are extremely valuable for those involved in policy-making and local health systems strengthening.
- Despite the need and strong rationale for the use of evidence syntheses, the health policy and systems community has been slow to use syntheses to inform their decisions.
- Numerous factors influence the use of review findings in policy-making and health systems strengthening, including the presentation of the synthesis, end-users' attitudes and behaviours, and their engagement in the synthesis process.
- Key approaches to enhancing the uptake of review findings include engaging decision-makers, enhancing the policy relevance of evidence syntheses, improving the format of evidence syntheses, using frameworks to support the uptake of reviews and embedding syntheses in complex policy and systems.

## 9.1 INTRODUCTION

There is increasing interest globally in the uptake of health policy and systems research (HPSR) by knowledge users, particularly health system decision-makers, civil society, patients and other end-users. This book has introduced the notion that evidence-informed decision-making requires evidence syntheses addressing a range of issues, including the effectiveness of health systems interventions, how and in what settings these interventions work, and their cost-effectiveness.

Synthesis of findings, which can include global knowledge and/or locally contextualized evidence, is of the utmost importance to policy and practice. This principle is well exemplified by guideline development processes. Guidelines require state-of-the-art systematic reviews to quantify the benefits and harms of health policies and interventions (1). However, to ensure those interventions work in real-world contexts, they must be acceptable, ethical, accessible, feasible and affordable. Guidelines should thus reflect the needs of end-users and the varied contexts in which recommended interventions will be implemented. Using qualitative evidence syntheses has emerged as a key approach for obtaining information about contextual factors, as well as for driving implementation in diverse country settings and complex health systems (2, 3).

As one example, the WHO Recommendations on Antenatal Care for a Positive Pregnancy Experience (4) exemplify the value of qualitative evidence syntheses in decision-making related to guidelines. For these recommendations, qualitative evidence was used initially to understand what women want, need and value during pregnancy and antenatal care (5). The findings of two qualitative evidence syntheses further helped to identify factors that influence women's access to antenatal care (6) and the provision of good-quality antenatal services by health care providers (7). This evidence base helped in informing acceptability, feasibility and implementation considerations in the guideline. Other real-world examples of the usefulness of health systems research syntheses to support guidance development are presented in the impact story concerning evidence synthesis in the development

of health systems guidance, presented elsewhere in this Methods Guide.

Besides their role in the development of World Health Organization (WHO) guidance for worldwide application, HPSR syntheses are invaluable for those involved in policy-making and local health systems strengthening. In the context of low- and middle-income countries (LMICs), HPSR syntheses have proven useful in planning, developing and implementing health policies and programmes, for instance, health financing intended to progress towards universal health coverage (8) and promotion of respectful maternity care in country-specific programmes (9). Another example, from Chile, is described in a policy perspective elsewhere in this Methods Guide. In that contribution, two decision-makers affiliated with the country's Ministry of Health and a researcher from Pontificia Universidad Católica de Chile present their experience in using systematic reviews to strengthen policy-making and reduce inequities in access to cardiovascular disease treatment.

Engaging knowledge users is a key factor in the uptake of review findings in health policy and systems decision-making.

Despite the need and strong rationale for the use of evidence syntheses, the health policy and systems community has been slow to use syntheses to inform decisions (10–12), which has led to wastage of HPSR efforts. In LMICs, the inability of decision-makers to effectively use syntheses on health systems interventions is cited as a major obstacle to health systems strengthening and improvement in health outcomes (13).

## 9.2 FACTORS INFLUENCING THE USE OF REVIEW FINDINGS IN HEALTH SYSTEMS

Numerous factors influence the use of review findings in policy-making and health systems strengthening, including the presentation and summary of the synthesis, end-users' attitudes and behaviours, and their engagement in the synthesis process. For example, a recurrent barrier to the uptake of syntheses is the format and presentation of systematic review findings. Lack of user-friendliness, inaccessible language and dense layout have frequently been identified as impediments to the utility of syntheses

(10). Evidence also suggests that decision-makers do not have sufficient time and/or capacity to assess and use syntheses, or they may question the relevance and applicability of review findings to their health system settings (14). Lack of policy-relevant syntheses – for instance, contextualized or equity-sensitive findings – has indeed been identified as a barrier to uptake of evidence syntheses by decision-makers (15).

To address these challenges, the following sections outline key approaches and related insights to enhancing the uptake of review findings in health policy-making and health systems strengthening:

- engaging decision-makers
- enhancing the policy relevance of evidence syntheses
- improving the format of evidence syntheses
- using frameworks to support the uptake of reviews
- embedding syntheses in complex policy and systems.

### 9.3 ENGAGING DECISION-MAKERS

Recent evidence suggests that engaging end-users in the research cycle stimulates the uptake of research findings in health decision-making (16, 17). In the field of evidence synthesis, similar experiences underline that partnerships and various forms of

engagement between reviewers and decision-makers can also facilitate the use of reviews in policy and systems decisions (11). As such, there is increasing interest in the coproduction of evidence syntheses, including the active engagement of decision-makers in planning, conducting and using review findings to inform policy and practice (18–20).

Early and ongoing engagement between researchers and health system managers and policy-makers can support the use of review findings by stimulating demand and promoting ownership of evidence syntheses (21, 22). A scoping review on engaging policy-makers, health system managers and policy analysts in the synthesis process (23) outlines various engagement approaches. The authors of this scoping review identify four main phases of the evidence synthesis process when engagement can take place: conception and design of research, search and data collection, data synthesis and interpretation, and knowledge dissemination and application. Knowledge users can be engaged as key informants across the different stages, with roles that may include serving as advisors or as members of an expert panel, a steering group or the evidence synthesis team itself (Box 9.1).

There are still only limited empirical data on the effectiveness of interventions stimulating and encouraging decision-makers to use syntheses of HPSR evidence in decision-making. Yet incentives to foster collaborations between decision-makers and researchers have yielded promising results globally (16, 22, 23).

#### BOX 9.1. ROLES OF KNOWLEDGE USERS IN EVIDENCE SYNTHESIS



##### ADVISORS

Provide high-level recommendations and advice on the design and method of the evidence synthesis project and are typically engaged at various stages of the synthesis process.



##### EXPERT PANEL

Provides specialized input/opinion on the topic and is typically engaged at a specific stage of the synthesis process.



##### STEERING GROUP

Provides strategic decisions on the direction of the research project, and is consulted at various stages of the synthesis process.



##### TEAM MEMBERS

Included as part of the evidence synthesis team.

Source:  
Adapted from Tricco and colleagues (23).

For instance, a “buddying” approach in South Africa showed the importance of standardized practices in appraising and using HPSR reviews in health policy-making (Box 9.2) (16). This experience suggests that institutional support and incentives for research uptake are important factors in using review findings to enhance policy and systems decisions (24). Successful efforts to promote the use of HPSR syntheses thus require attention to organizational settings and procedures, as well as incentives, governance and enabling environments (24, 25).

Engaging end-users in evidence synthesis remains a nascent approach, and there is a need for robust evaluations of engagement mechanisms. While there is increased recognition that the researcher-user interface needs to be strengthened, additional knowledge is needed on effective approaches to doing so. For example, engaging end-users in evidence synthesis might have potential unintended adverse consequences associated with, for instance, the biases of decision-makers who are heavily

involved in specific health programmes or policies. In addition, coproduction of evidence syntheses by researchers and knowledge users requires additional time and funding. Furthermore, even when engagement does occur, the value of health systems evidence syntheses may not be fully recognized, and there is a need to strengthen capacities to access, appraise and use systematic reviews in the context of health decision-making (26).

Timely engagement is also critical, and there is increasing interest globally in producing rapid reviews (27) and establishing rapid response services, whereby researchers respond to queries from policy-makers or health system managers in the form of rapid evidence products (28). For many policy- and decision-making institutions, rapid reviews have increased the uptake of evidence to inform time-sensitive system-level decision-making (29). The demand-driven feature of rapid reviews also contributes to their usability to strengthen local health systems and respond to pressing policy

### BOX 9.2. USING SYSTEMATIC REVIEWS TO INFORM HEALTH POLICY-MAKING IN SOUTH AFRICA: LESSONS FROM A “POLICY BUDDYING” APPROACH

In South Africa, Stellenbosch University developed an initiative entitled “Policy BUilding Demand for evidence in Decision making through Interaction and Enhancing Skills” (Policy BUDDIES). The objective was to enhance the capacity of subnational policy-makers to ask for, demand and use systematic review evidence to inform policy-making. The project promoted policy-makers’ greater uptake of findings from systematic reviews, by particularly focusing on insufficient communications between researchers and policy-makers as the main barrier to evidence uptake. In addressing this issue, the principal investigators considered a process of evidence-informed policy-making from three aspects: producer-push (research production), user-pull (demand for evidence) and exchange (deliberate dialogues between researchers and policy-makers). The approach focused on encouraging dialogue between researchers and policy-makers through a buddying evidence-based health field expert (the “buddy”) was linked and programme coordinators, level.

The buddies provided support existing systematic reviews SUPPORT summaries, existing Through regular communication buddies also enhanced their own environment and research needs, evidence into policy-making. In turn, policy-makers engaged with the buddies to identify and prioritize research questions towards evidence uptake into policy development and implementation.



to refine questions and search for and summaries of reviews (such as policy briefs and related resources). with the designated policy-maker, understanding of the policy-makers’ and assisted them in integrating research questions towards evidence uptake into policy development and implementation.

In South Africa, the engagements supported by the Policy BUDDIES project contributed to the policy debate on decentralization of antiretroviral initiation/maintenance, whereby researcher buddies summarized, presented and discussed findings from systematic reviews with policy-makers. The collaborative process also contributed to improving the guidelines on prevention of mother-to-child transmission of HIV, whereby researcher buddies appraised the existing guidelines and discussed the appraisal with policy-makers. In addition, the buddying process supported the development of a policy framework for medication adherence for chronic diseases, including both HIV and non-communicable diseases.

Source: Adapted from Langlois and colleagues (16).

decisions. The Center for Systematic Reviews on Health Policy and Systems Research (SPARK) at the American University of Beirut built a rapid response service of this type with support from the Alliance for Health Policy and Systems Research. A summary of this experience and the lessons learned in promoting the use and impact of HPSR syntheses is presented in the impact story concerning policy-responsive systematic reviews in the context of Syrian refugees in Lebanon, elsewhere in this Methods Guide.

## 9.4 ENHANCING THE POLICY RELEVANCE OF EVIDENCE SYNTHESSES

There is increasing interest in enhancing the policy relevance of evidence syntheses, with a view to stimulating their usefulness in health policy and systems decision-making. One avenue to enhancing relevance is to address contextual determinants, particularly for complex policy and systems issues such as governance or human resources for health. When the information is available from primary studies, HPSR syntheses should extract and report data on contextual determinants and health systems settings, as proposed in Chapter 4 of this Methods Guide, concerning the context of HPSR reviews. Reporting data on implementation and scale-up processes will increase the relevance of syntheses of health policies and health systems interventions and their application in real-world settings. For instance, health systems guidelines increasingly showcase “implementation considerations” that are informed by contextual aspects included in syntheses of health systems evidence. Furthermore, improving the consideration and description of health systems interventions in systematic reviews is likely to enhance their uptake by end-users and reduce avoidable waste in health research (30).

Decision-makers require a wide array of knowledge to address complex and multifaceted aspects of policy and systems decisions (31). They increasingly demand and use knowledge from policy and programme evaluations (32), implementation research and delivery science (33), and tacit knowledge of health system stakeholders (16). As a result, there are calls for multiple approaches and methods for evidence syntheses of different sources of policy-relevant knowledge. Enhancing the policy relevance of HPSR syntheses often requires the integration of quantitative and qualitative findings. Further guidance on this approach is outlined in

Chapter 3 of this Methods Guide, concerning the methods of HPSR synthesis.

Oliver, Dickson & Bangpan have produced guidance to stimulate the policy relevance of evidence syntheses of health policy and systems evidence (20). Recommendations to evidence synthesis producers include suggestions to convene advisory groups with members drawn from policy and practice and to draw policy input from the review protocol and draft report. These authors also argue that decision-makers’ requirements for the use of evidence can be addressed by knowledge brokers, rapid review methods and publicly available libraries (20). The policy relevance of evidence syntheses can also be enhanced by strengthening researchers’ capacities to address complex policy processes, including greater experience in working at the interface of evidence and policy (16).

The experience of using systematic reviews to support policy-making in the context of chronic disease management in Chile (described in the policy perspective elsewhere in this Methods Guide) shows how addressing implementation considerations and providing contextualized information is essential to enhance the policy relevance and applicability of evidence syntheses.

## 9.5 IMPROVING THE FORMAT OF EVIDENCE SYNTHESSES

Reviewers of HPSR questions should make their findings as accessible as possible, through user-friendly messages and formats. These include, for instance, one-page summaries with key messages tailored to the relevant audience (11). Decision-makers have identified a need for user-friendly presentation of contextual factors affecting a review’s local applicability and information about the benefits, harms/risks and costs of health interventions (34). For syntheses of the effectiveness of health systems interventions, decision-makers have expressed their need for more information on the positive and adverse effects of interventions and less information on review methodology, for instance (35).

In addition, researchers should consider approaches and tools to improve the quality of syntheses and promote their integration in policy- and decision-making, including the SUPPORT tools (36), policy briefs and summaries of evidence syntheses addressing local applicability of review findings, as well as take-home messages for decision-makers.

Such review-derived products can then be used as the basis for engaging users of synthesis findings (14). Other user-friendly formats include summary tables, plain language summaries, interactive summaries of findings (37), evidence gap maps (38), podcasts and videos (39). Readers are also referred to the synthesis and analysis by Perrier and colleagues (40), who focus on interventions that encourage the use of evidence syntheses by health policy-makers and managers, including tailored messages combined with access to a registry of evidence syntheses for health departments.

## 9.6 USING FRAMEWORKS TO SUPPORT THE UPTAKE OF REVIEWS

Chapter 7 of this Methods Guide, which concerns the presentation and interpretation of evidence syntheses, introduces various approaches to communicating the implications of review findings for policy and practice. Systematic reviews can feed essential information into tables designed to support decision-making. One example is the DECIDE Evidence to Decision (EtD) framework, a tool for developing guidelines in a structured, systematic and transparent way (41). The EtD tables document what a guideline development panel can use to inform its judgements, considering both evidence for desirable and undesirable health effects and evidence for contextual factors such as resource use, equity, acceptability and feasibility (41). These different types of information will require various types of systematic reviews (for example, meta-analyses for health effects, meta-syntheses for acceptability). In developing a synthesis section on implications for practice, the review authors can highlight the ways in which contextual factors may affect how the reader will interpret and act upon the evidence. In turn, policy-makers can use the EtD framework in considering the findings of a review within their own context. The WHO recommendations on optimizing health worker roles for maternal and newborn health through task shifting (known as OptimizeMNH) represents an excellent example of use of the EtD framework (42). Recent guidance was also produced for developing EtD tables of strong relevance to health system decision-making, specifically the Grading of Recommendations Assessment, Development and Evaluation (GRADE) EtD framework for health system and public health decisions (43).

Another approach to enhancing the utility of health

evidence lies in living systematic reviews, defined by Elliott and colleagues as “high quality, up-to-date online summaries of health research that are updated as new research becomes available” (44). Living systematic reviews can be helpful in narrowing the evidence-to-practice gap and offer great potential in the evolution of health systems guidance towards “living recommendations” or “living guidelines”. Living guidelines represent an optimization of the guideline development process to allow updating of individual health systems recommendations as soon as new relevant evidence becomes available (45). Akl and colleagues argue that living guidelines have the potential to provide timely advice for decision-makers, yet they also acknowledge several challenges, such as setting the thresholds for changing recommendations, the potential approaches to publication and dissemination, and methodological advancements in the major pillar of such guidelines, the living systematic review (45).

## 9.7 EMBEDDING SYNTHESSES IN COMPLEX POLICY AND SYSTEMS

Although research – including the findings of evidence synthesis – is only one element considered in health decision-making (34), greater use of evidence syntheses to inform health policy and systems decisions is recommended. In particular, formally structured incentives and facilitators, such as policy networks (34), collaborative structures (16) and databases targeted to policy-makers (46), may positively influence the uptake of syntheses. Redman and colleagues further argue that the process of using review findings is influenced by the organizational capacity and catalytic mechanisms promoting the uptake of research in policy and practice (24).

Embedding decision-makers within systematic review teams and processes might also increase the uptake of syntheses in decision-making (20). Embedded evidence synthesis is conducted in partnership with decision-makers and integrated in real-world health systems settings, with the aim of understanding context-specific factors (21, 23, 47). Although embedding decision-makers in evidence synthesis processes may foster the policy relevance of findings and their uptake in decision-making, there are challenges with this approach, not least pertaining to political processes, resource allocation, and optimal models, level and intensity of engagement. Nonetheless, there is increasing interest in research

and practice for embedded evidence synthesis and a corresponding need for robust evaluations of different models of embedding evidence synthesis in policy and practice (23).

Finally, greater strengthening of individual and institutional capacity is required to support the uptake of syntheses in health policy and systems decisions. This translates into a need for additional teaching and training resources and initiatives, particularly in LMICs, to support reviewers and decision-makers in promoting, appraising and using HPSR syntheses. Capacity-strengthening efforts should also focus on building incentives and systems that are conducive to the integration of review findings in health policy-making and health systems strengthening.

uptake of review findings include engaging decision-makers, enhancing the policy relevance of evidence syntheses, improving the format of evidence syntheses, using frameworks to support the uptake of reviews and embedding syntheses in complex policy and systems. Donnelly and colleagues (48) introduce four principles to support the conduct of policy-relevant syntheses and the uptake of synthesis findings in decision-making, summarized in Figure 9.1.

Evidence synthesis can serve as a strong knowledge base for decision-making, at a crucial time when stakeholders worldwide are developing and implementing policies that aim to expand universal health coverage and to progress towards the Sustainable Development Goals.

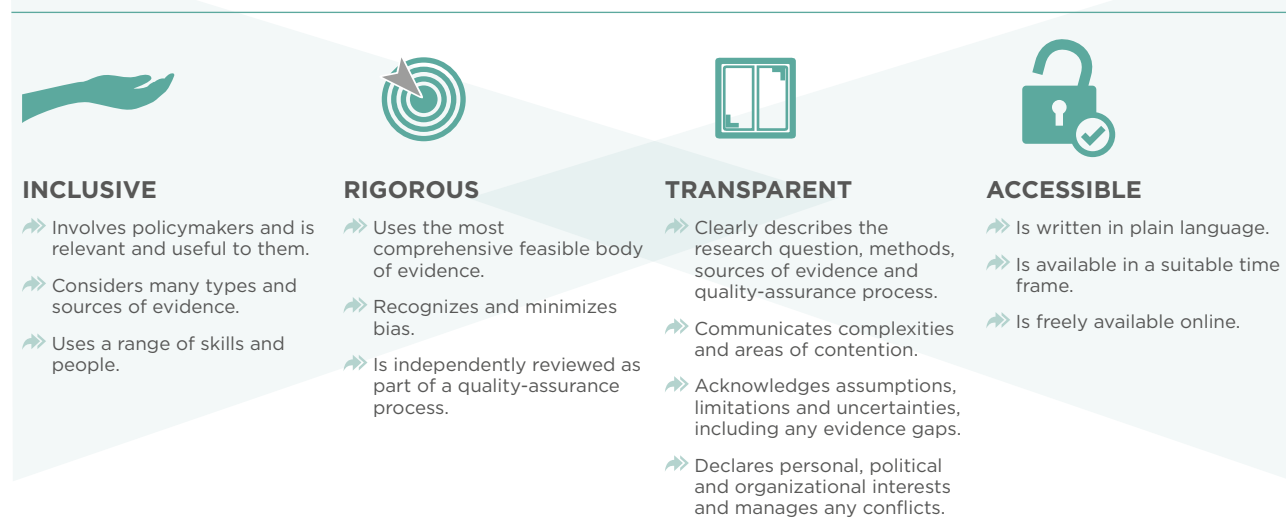
## 9.8 CONCLUSION

This chapter advocates for greater use of synthesis findings to support policy-making and health systems strengthening. Key approaches to enhancing the

**FIGURE 9.1.** Four principles for synthesizing evidence

### FOUR PRINCIPLES

These features help researchers, policymakers and others to commission, do, share, appraise and use evidence syntheses.



Source: Donnelly CA et al., Four principles for synthesizing evidence, 2018 (48).  
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## SUGGESTED READING

Listed here are case examples of how evidence syntheses can be applied in policy and practice, from within this Methods Guide and the published literature:

### Impact stories (elsewhere in this Methods Guide)

- Using evidence synthesis in the development of health systems guidance
- Policy-responsive systematic reviews: the case of Syrian refugees in Lebanon

### Policy perspective (elsewhere in this Methods Guide)

- Systematic reviews to support policy-making: the case of cardiovascular disease management in Chile

### Scientific articles

- Tricco AC, Zarin W, Rios P, Nincic V, Khan PA, Ghassemi M, et al. Engaging policy-makers, health system managers, and policy analysts in the knowledge synthesis process: a scoping review. *Implement Sci.* 2018;13:31. doi: <https://doi.org/10.1186/s13012-018-0717-x> (23).
- Perrier L, Mrklas K, Lavis JN, Straus SE. Interventions encouraging the use of systematic reviews by health policymakers and managers: a systematic review. *Implement Sci.* 2011;6:43. doi: <https://doi.org/10.1186/1748-5908-6-43> (40).

### Briefing note

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**IMPACT**  
STORY

# **USING EVIDENCE SYNTHESIS IN THE DEVELOPMENT OF HEALTH SYSTEMS GUIDANCE**

**SIMON LEWIN | CLAIRE GLENTON**



### /// KEY POINTS

- Decisions on which interventions or policy options to implement to strengthen health systems should be informed by the best available evidence, but the impacts of health systems interventions are often complex and challenging to assess.
- Health systems guidance can support decisions regarding appropriate evidence-informed options and implementation strategies for health systems.
- Systematic review environments and guidance developers have been exploring how to broaden the range of evidence syntheses used to inform the development of health systems guidance, including in relation to its scope, the outcomes included, the acceptability and feasibility of interventions, the equity impacts and implementation considerations.
- A description is provided of the wide range of evidence syntheses that informed the development of health systems guidance on optimizing health worker roles and antenatal care for a positive pregnancy experience.
- Key challenges in using evidence syntheses in the development of health systems guidance include identifying teams that can perform syntheses on complex questions, developing better guidance on integrating findings from different types of syntheses, and identifying optimal ways of presenting such findings to those involved in developing and using health systems guidance.

## INTRODUCTION

Decision-makers aiming to strengthen health systems face a number of challenges relating to the complexity of these systems. These challenges are tied to the relationships between the health system and other sectors; to the wide range of service users, service providers and other stakeholders, with their varied needs and expectations; and to the large numbers of services offered across settings and levels of care. Implementing health systems interventions is therefore often complex, and the impacts of these interventions are often challenging to assess. Nevertheless, people still need to make decisions about which interventions or policy options to implement in which settings. These decisions should be informed by the best available evidence, including evidence from systematic reviews (sometimes called evidence syntheses) and from local evidence (1).

Guidance developers, such as the World Health Organization (WHO), aim to support health systems decisions by providing guidance based on the best available evidence. Such guidance has been defined as “systematically developed statements produced at global or national levels to assist decisions about appropriate options for addressing a health systems challenge in a range of settings and to assist with the implementation of these options and their monitoring and evaluation” (2). This is analogous to evidence-informed clinical guidelines in the clinical context. Although evidence-informed clinical guidelines have a long history, health systems guidance is a more recent development. This type of guidance is a response to requests from governments and other stakeholders for evidence-informed options and implementation strategies related to governance, financial or delivery arrangements for health systems. These options and strategies would include, for example, mechanisms for decentralizing health care, ways of providing incentives to health care providers, strategies for role expansion or task-shifting, and ways of delivering in-service training to health care providers.

Ideally, guidance developers use systematic reviews of evidence to underpin the policy options or

recommendations in their guidance. When dealing with health systems interventions, systematic review environments, including Cochrane’s Effective Practice and Organisation of Care (EPOC) Group, have for several years explored whether and how the effectiveness of these interventions should be evaluated through a broader base of evidence than randomized trials alone (3–5). Efforts have also been made to provide broad overviews of what is known about the effects of different health system arrangements in low-income countries, based on the findings of up-to-date systematic reviews (6–9). In addition, these environments, along with guidance developers (including the WHO), are increasingly acknowledging the need to address both the effectiveness of these interventions and a range of other considerations. These considerations include how different stakeholders value different outcomes, impacts on equity, the acceptability of a health system intervention to key stakeholders, its feasibility and implementation considerations (2, 10, 11). Over the past seven years, the Cochrane EPOC Group, the WHO and others have together explored how these

wider issues can be addressed in guidance development. This work has included examining how the evidence base could be expanded to include other types of synthesized evidence, in addition to effectiveness, such as evidence from qualitative research (12). Qualitative research explores how people perceive and experience the world around them. In the context of guidance development, qualitative evidence can be used to assess

how different stakeholder groups value different outcomes, the acceptability and feasibility of health systems interventions and the potential impacts of these interventions on equity across populations (12).

This impact story discusses two examples of how a wide range of evidence syntheses can be used to inform the development of health systems guidance: (1) the WHO guidance on optimizing health worker roles and (2) the WHO guidance on antenatal care for a positive pregnancy experience. Although the focus here is on experiences at the global level, the approaches used and lessons learned are also applicable to decision-making processes at national and subnational levels, as discussed in the Conclusion.

Syntheses  
of health systems research  
play a critical role in  
the development of health  
systems guidance,  
including in helping  
to understand the broader  
health and social context  
for the guidance

## INCLUDING EVIDENCE FROM A WIDE RANGE OF SYNTHESSES: WHO RECOMMENDATIONS ON OPTIMIZING HEALTH WORKER ROLES FOR MATERNAL AND NEWBORN HEALTH THROUGH TASK-SHIFTING

In 2010, the WHO began developing guidance regarding the optimization of health worker roles for maternal and newborn health through task-shifting (a project known as OptimizeMNH) (13). Task-shifting involves social, behavioural and organizational change and may have varying levels of feasibility as well as acceptability to different stakeholders. For instance, task-shifting is sometimes seen as second-class care for the poor and in some settings has met with resistance from professional organizations. These considerations are generally not captured in syntheses that focus on the effectiveness of task-shifting interventions but can be explored in syntheses of other kinds of research.

The guidance Technical Team therefore decided early on that guidance on this complex set of interventions would require evidence on the wide range of considerations mentioned above. A number of syntheses were therefore commissioned on the following topics:

- ➔ the effectiveness of the task-shifting interventions to be covered by the guidance, based on evidence from randomized and nonrandomized studies;
- ➔ factors affecting the implementation and scale-up of these interventions, including their acceptability and feasibility, based on evidence from qualitative studies and from other sources, such as programme descriptions and evaluations (this last type of evidence is not discussed further here, but it is described elsewhere (14)).

The inclusion of a wider range of evidence than is typical for guidance processes raised a number of challenges. First, it was necessary to identify systematic reviewers who had experience with these different types of syntheses. Although capacity to undertake syntheses on the effectiveness of interventions is now substantial globally, far fewer

people have experience in undertaking systematic reviews of qualitative research (also known as qualitative evidence syntheses), particularly in the area of health systems and policy. For this work, it was fortunate that the Technical Team included a number of review authors, from a range of settings, with experience in syntheses both of effectiveness and of qualitative research. It was also possible to draw on a wider network of review authors linked to Cochrane.

Second, a method was needed for assessing how much confidence to place in the evidence from the qualitative evidence syntheses. For findings from systematic reviews of the effectiveness of interventions, the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach is now used widely. Drawing on the GRADE experience and qualitative research principles, a novel approach was developed for findings from qualitative evidence syntheses: the GRADE-CERQual (Confidence in the Evidence from Reviews of Qualitative research) approach (15). This approach allows a consistent and transparent assessment of confidence in each finding from a qualitative evidence synthesis.

Third, a way to present these different types of evidence to members of the Guidance Development Group was needed. For this, the newly developed GRADE Evidence to Decision (EtD) framework (16, 17) was used. This framework provided a structure for presenting evidence from systematic reviews of effectiveness on the desirable and undesirable health effects of each intervention, as well as evidence from qualitative evidence syntheses on the acceptability and feasibility of the intervention to stakeholders. In addition, the framework allowed presentation of the research evidence and other types of information regarding each intervention's resource use and its possible impacts on equity (Table 1). However, because both the framework and the use of qualitative research were new to most Guidance Development Group members, time was spent at the beginning of the final Guidance Development Group meeting explaining these processes. In subsequent meetings for other guidelines, at least one webinar has been included before the final Guidance Development Group meeting, to discuss the frameworks and the processes for assessing the evidence.

**TABLE 1.** Criteria included in the GRADE EtD framework for health systems and public health recommendations and decisions.

EtD FRAMEWORK CRITERION	EXPLANATION OF THE CRITERION	SOURCES OF EVIDENCE FOR THE CRITERION
Priority of the problem	To what extent is the problem a priority?	<ul style="list-style-type: none"> <li>Qualitative evidence syntheses on stakeholders' views of the problem and related health issues</li> <li>Data on the relative size of the problem, for example from routine sources or studies of disease burden</li> </ul>
Benefits and harms	<p>How large are the anticipated benefits or positive effects of the intervention?</p> <p>How large are the anticipated harms or negative effects of the intervention?</p>	<ul style="list-style-type: none"> <li>Systematic reviews of intervention effectiveness</li> </ul>
Certainty of the evidence	What is the certainty of the evidence for benefits and harms?	<ul style="list-style-type: none"> <li>Systematic reviews of intervention effectiveness</li> </ul>
Outcome importance	How do people value the main outcomes? Is there important uncertainty or variability?	<ul style="list-style-type: none"> <li>Qualitative evidence syntheses on stakeholders' views and values of the health issue and the interventions to address it</li> <li>Survey data on the values that stakeholders place on different outcomes</li> </ul>
Balance of effects	Do the benefits and harms favour the intervention or the comparison?	<ul style="list-style-type: none"> <li>Guideline Development Group judgement</li> </ul>
Resource use	<p>How large are the resource requirements (costs)?</p> <p>What is the certainty of the evidence of resource requirements (costs)?</p> <p>Do the cost-effectiveness data favour the intervention or the comparison?</p>	<ul style="list-style-type: none"> <li>Systematic reviews of cost-effectiveness studies</li> <li>Modelling of the cost-effectiveness of different interventions</li> </ul>
Equity	What would be the impacts of the intervention on gender, health equity and human rights?	<ul style="list-style-type: none"> <li>Systematic reviews of intervention effectiveness</li> <li>Qualitative evidence syntheses on stakeholders' views of the health issue and interventions to address it</li> <li>Studies focusing specifically on gender, health equity and human rights in relation to the health issue and interventions</li> </ul>
Acceptability	Is the intervention acceptable to key stakeholders?	<ul style="list-style-type: none"> <li>Qualitative evidence syntheses on stakeholders' views of the health issue and interventions to address it</li> </ul>
Feasibility	Is the intervention feasible to implement?	<ul style="list-style-type: none"> <li>Qualitative evidence syntheses on stakeholders' views of the health issue and interventions to address it</li> <li>Systematic reviews of programme evaluations (that is, evaluations of large-scale implementations of the interventions of interest)</li> </ul>

Source: Alonso-Coello P et al., GRADE Evidence to Decision (EtD) frameworks: a systematic and transparent approach to making well informed healthcare choices. 1: Introduction, 2016 (16). Adapted with permission from BMJ.

Table 2 shows an example of a recommendation from OptimizeMNH, including the contributing evidence from different types of syntheses of health systems research (18–21). The lessons learned from this experience are described elsewhere (10), and this approach has now been applied in several other WHO guidance processes (22, 23). Other WHO guidelines

have since also used aspects of this approach (24, 25). A chapter describing how qualitative evidence can be used to inform guidelines has also been made available in the WHO Handbook for Guideline Development (12), and the principles described there are applicable for guidance processes at both national and international levels.



**TABLE 2.** Example of a recommendation from the OptimizeMNH guidance.

GUIDANCE QUESTION: SHOULD LAY HEALTH WORKERS PROVIDE CONTINUOUS SUPPORT DURING LABOUR IN THE PRESENCE OF A SKILLED BIRTH ATTENDANT?		
<b>SUMMARY OF THE EVIDENCE IN THE GRADE EtD FRAMEWORK</b>	<p><b>Benefits and harms, certainty of the evidence and balance of effects:</b></p> <p>May have important benefits in relation to the need to augment labour with oxytocin and the number of caesarean births (low- to moderate-certainty evidence)</p>	<p><b>Source of evidence:</b></p> <p>Systematic review of the effectiveness of continuous support in labour (18)<sup>a</sup></p>
	<p><b>Resource use:</b></p> <p>The incremental resources needed to implement this intervention are likely to be small in relation to the potential benefits</p>	<p><b>Source of evidence:</b></p> <p>Discussions with people with experience of implementing the intervention and discussions within the Guidance Development Group</p>
	<p><b>Acceptability:</b></p> <p>Mothers appreciate the support from lay health workers, and midwives appreciate this contribution to their workloads. Midwives acknowledge lay health workers' skills in communicating with mothers, but some midwives dislike their new, more medical relationship with mothers, and this may lead to "turf battles" with lay health workers</p>	<p><b>Source of evidence:</b></p> <p>Qualitative evidence syntheses on factors affecting the implementation of lay health worker programmes and midwife task-shifting programmes (19, 20)</p>
	<p><b>Feasibility:</b></p> <p>Requires little additional training, supervision and supplies for lay health workers</p>	<p><b>Source of evidence:</b></p> <p>Discussions within the Technical Team and the Guidance Development Group</p>
<b>WHO RECOMMENDATION</b>	<p>We recommend the use of lay health workers to provide continuous support during labour, in the presence of a skilled birth attendant. However, appropriate attention must be paid to the acceptability of the intervention to other health care providers</p>	
<b>JUSTIFICATION FOR THE RECOMMENDATION</b>	<p>The provision of continuous support by lay health workers is probably effective and feasible, may have few undesirable effects and may reduce inequalities by extending care to underserved populations, although there may be acceptability issues. The role of the lay health worker in this context is to provide social support in the form of comfort and reassurance, and not to provide medical care</p>	

<sup>a</sup> This review has since been updated by Bohren and colleagues (21). Source: Adapted from WHO (13). This guidance used an early version of the GRADE EtD framework, and not all of the criteria outlined in Table 1 were included. In addition, the priority of the problem was not included as a criterion, because discussions on the priority of the problem were concluded at the scoping stage of the guidance.

## USING EVIDENCE FROM HEALTH SYSTEMS SYNTHESSES TO FRAME GUIDANCE: WHO RECOMMENDATIONS ON ANTENATAL CARE FOR A POSITIVE PREGNANCY EXPERIENCE

In 2015, the WHO began developing guidance on antenatal care, including on health systems interventions to improve the utilization and quality of antenatal care. Women's uptake of antenatal care services is affected by how they and their families view these services and the value that they place on them. However, many providers delivering antenatal care take a biomedical perspective and do not always address the wider needs of women. This perspective can also be reflected in the development of clinical guidelines and health systems guidance.

To ensure that the perspectives of women informed the development of the WHO guidance on antenatal care, the WHO first commissioned a scoping qualitative evidence synthesis to identify, at the scoping stage of the guidance, what women want, need and value in pregnancy and the processes and outcomes of antenatal care provision that healthy pregnant women see as important (26). This synthesis found that women want and need a positive pregnancy experience, including maintenance of physical and sociocultural normality, maintenance of a healthy pregnancy for mother and baby, and effective transition to a positive experience of labour and birth. This synthesis had a broad impact across the guidance process. First, the findings informed decisions on the wider aims of the guidance and on critical outcomes to be considered in making recommendations. In particular, the concept of a "positive pregnancy experience" became the central focus of the guidance, to ensure that person-centred health and well-being was prioritized. Linked to this, the outcome "positive pregnancy experience" was included for most guidance questions, ensuring that each intervention was evaluated against this key issue for women. Second, the scope of the guidance was widened to include interventions intended to improve access to antenatal care and to enhance the quality of the pregnancy experience, including community-based antenatal care such as home visits, interventions to facilitate continuity of care and women-held antenatal care records (23).

Following the scoping stage of the guidance, the WHO commissioned a second qualitative evidence synthesis on factors that might influence the uptake of routine antenatal services by pregnant women (27). This synthesis focused on women's views and experiences of antenatal care and on the factors that women see as important in influencing their uptake of such care. The findings showed that women saw a range of factors as influencing their uptake of antenatal care, including the indirect costs of services, the extent to which staff treated them with kindness and were not rude or abusive, and the support they received from peers. The findings of this synthesis were incorporated into the GRADE EtD framework for the guideline to address issues related to the acceptability and feasibility of the interventions to women and other stakeholders.

## CONCLUSION

Syntheses of health systems research play a critical role in the development of health systems guidance, including in helping to understand the broader health and social context for the guidance; defining its scope; identifying the outcomes that are critical to stakeholders; assessing the health effects, impacts on health equity, acceptability and feasibility of interventions; and identifying key implementation considerations and research gaps. Findings from qualitative evidence syntheses are now more widely used in developing guidance, supported by new approaches to assess how much confidence to place in such findings (28) and how to incorporate these into structured EtD frameworks (12, 16, 17). Key challenges for those involved in producing and using syntheses of health systems research in this context include identifying teams that can perform evidence syntheses on these complex questions, in response to policy needs; developing better guidance on ways of bringing together the findings of syntheses of effects and of the acceptability and feasibility of interventions; and identifying optimal formats for presenting such findings to those involved in Guidance Development Groups and those adapting and using health systems guidance in their local setting. Table 3 provides suggestions on how some of these challenges might be addressed.

**TABLE 3.** Key challenges in producing and using syntheses of health systems research to inform health systems guidance, and how these challenges can be addressed.

CHALLENGE	HOW THE CHALLENGE CAN BE ADDRESSED
<p>Identifying teams that have the capacity and experience to undertake syntheses on complex health systems questions in response to policy needs</p>	<ul style="list-style-type: none"> <li>◦ Support training and other capacity-strengthening initiatives, focusing on low- and middle-income environments where there may be fewer groups with skills in this area. These initiatives need to be embedded within supportive structures (29).</li> <li>◦ Support “learning by doing” through mentoring and partnering with experienced review authors.</li> <li>◦ Support the development of centres of expertise that include review authors with a range of different methodological and content area expertise.<sup>a</sup></li> <li>◦ Explore mechanisms for fostering engagement between policy-users and those conducting syntheses (29).</li> </ul>
<p>Developing better guidance on ways of bringing together the findings of syntheses of effects and of the acceptability and feasibility of interventions</p>	<ul style="list-style-type: none"> <li>◦ Test and further develop the range of available approaches, which include developing logic models, analysing programme theory, using matrix tables to juxtapose findings from different syntheses and testing hypotheses derived from qualitative evidence syntheses in subgroup analyses within reviews of effects (30). This testing will allow the development of more detailed guidance that is informed by practice.</li> </ul>
<p>Identifying optimal formats for presenting synthesis findings to those involved in Guidance Development Groups and those adapting and using health systems guidance in their local setting</p>	<ul style="list-style-type: none"> <li>◦ Implement and further refine the GRADE EtD framework (16), in particular in relation to health systems questions (17, 31).</li> <li>◦ Explore and refine methods to help stakeholders at national and subnational levels to use and contextualize global health systems guidance (and the underlying evidence) for their settings. Tools such as workbooks to support contextualization (32, 33) and evidence-informed policy briefs (34) may be helpful.</li> </ul>

<sup>a</sup> The Global Evidence Synthesis Initiative is developing a network of systematic review centres in low- and middle-income countries, with the aim of enhancing capacity to synthesize evidence and to use synthesized evidence to support practice and policy in these settings (35).

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**IMPACT**  
STORY

**POLICY-RESPONSIVE  
SYSTEMATIC REVIEWS:**  
THE CASE OF SYRIAN  
REFUGEES IN LEBANON

**FADI EL-JARDALI | ELIE A. AKL | LAMA BOU-KARROUM  
| RACHA FADLALLAH**





### /// KEY POINTS

- Lebanon is currently hosting 1.1 million Syrian refugees, the highest per capita refugee population in the world.
- These refugees face a high burden of disease, and the obligation to address their health needs has put substantial pressure on the Lebanese health care system, particularly in terms of access, cost and quality.
- To help inform the provision of health services for refugees in Lebanon, a team at the Center for Systematic Reviews on Health Policy and Systems Research (SPARK) applied the following knowledge production and translation tools: priority-setting, systematic reviews, development of a briefing note (knowledge translation) and convening of a national policy dialogue (knowledge uptake).

## INTRODUCTION

The world in general and the Middle East and North Africa (MENA) region in particular are witnessing the highest level of population displacement on record (1). Turkey, Lebanon, Jordan, Iraq and Egypt are hosting about 5 million Syrian refugees (2). Lebanon, a middle-income country in the MENA region, is hosting 1.1 million refugees, equivalent to one Syrian refugee for every four Lebanese citizens, the highest per capita refugee population in the world (3). Syrian refugees in Lebanon face a high burden of communicable and noncommunicable diseases. According to a recent survey, 50% of Syrian refugees reported having chronic health conditions, and 70% reported needing medical care for their children (3). Refugees' primary reasons for seeking medical care in Lebanon included communicable diseases (40.3%), noncommunicable diseases (13.7%), gynecological problems (12.1%) and injuries (9.1%) (3). As this crisis has shifted from the acute humanitarian response to a more chronic, protracted phase, the management of noncommunicable diseases has become more important.

The large influx of refugees and the obligation to address their health needs has put substantial pressure on the Lebanese health care system, particularly in terms of access, cost and quality. The Lebanese government is giving Syrian refugees access to most basic health care services mainly through the network of Primary Health Care (PHC) Centers and other public sector institutions.

The PHC Centers provide Syrian refugees with a comprehensive package of outpatient services, including medical consultations, laboratory tests, immunizations, essential drugs, dental and oral health care, antenatal care and other reproductive health services, and management of chronic diseases. The PHC Centers are subsidized by the United Nations High Commissioner for Refugees (UNHCR), and Syrian refugees pay only minimal fees for care through these Centers. In addition, the UNHCR covers 75% of treatment costs in secondary and tertiary hospitals, with the refugees covering the remaining 25%. Complete coverage is provided for victims of sexual

violence, torture or gender-based violence (4, 5). In addition to the government and UNHCR, many local and international nongovernmental organizations are involved in providing humanitarian assistance and health care services to refugees in Lebanon.

Providing health services to this large number of refugees is a real challenge, given the current capacity of the system and the pre-existing economic crisis. There are also concerns about how provision of health care to refugees is affecting access to and quality of care provided to the host community (5, 6).

## THE APPROACH

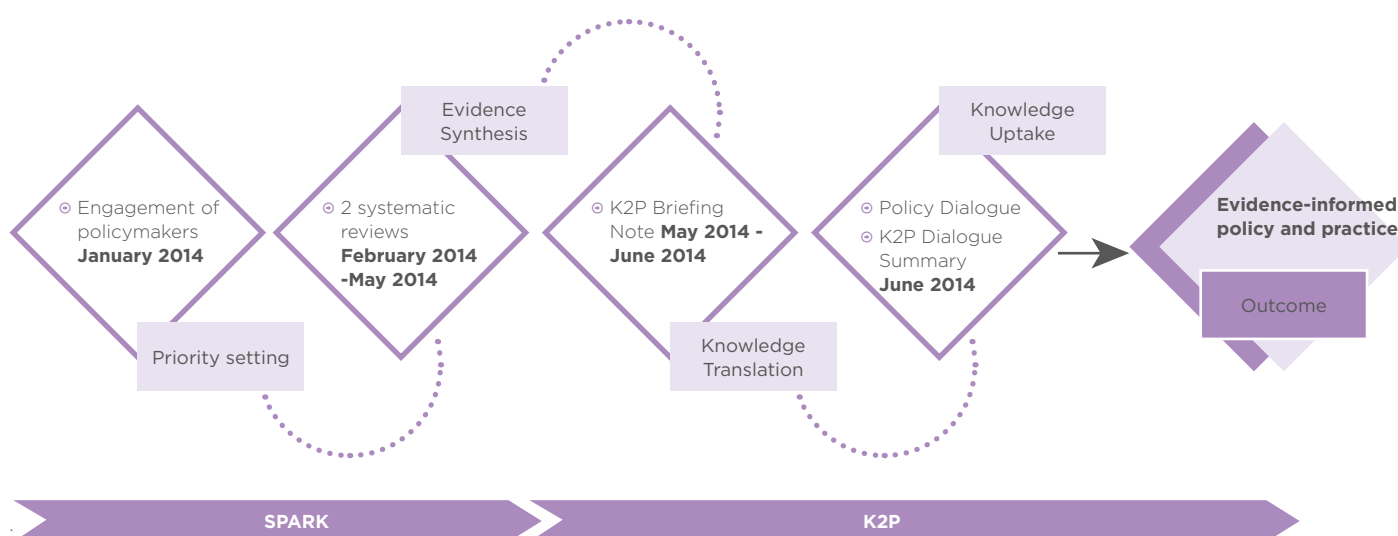
The Center for Systematic Reviews on Health Policy and Systems Research (SPARK) at the American University of Beirut (AUB) in Lebanon aimed to contribute to enhancing the provision of health services for refugees in Lebanon by informing the decisions of policy-makers (7). The mission of SPARK is to produce high-quality systematic reviews that respond to health policy and systems

priority issues at the national and regional levels. SPARK follows the impact-oriented framework for evidence-informed health policies and practices (Figure 1) to guide its work (8). This framework aims to engage policy-makers throughout the process, from setting priorities to knowledge uptake and impact assessment. SPARK collaborates with the Knowledge to Policy (K2P) Center within the Faculty of

Health Sciences at AUB for its knowledge translation activities (9). The K2P Center draws on synthesized evidence and context-specific knowledge by producing briefs and conducting policy dialogues to affect policy agendas and encourage action. To help inform the provision of health services for refugees in Lebanon, the following knowledge production and translation tools were applied: (1) priority-setting meeting, (2) conduct of systematic reviews to address the questions identified in the priority-setting step (evidence synthesis), (3) development of a briefing note (knowledge translation) and (4) convening of a national policy dialogue (knowledge uptake).

An integrated level of engagement helped secure buy-in from and commitment of all the major stakeholders and increased the likelihood that the evidence would be used in policy-making.

**FIGURE 1.** Impact-oriented framework for evidence-informed health policies and practices, as applied to the case of Syrian refugees in Lebanon.



## THE PRIORITY-SETTING MEETING

SPARK held a priority-setting exercise in January 2014 in response to the issue of the health of Syrian refugees in Lebanon. The objective was to engage policymakers and stakeholders in framing the problem and in prioritizing questions for a systematic review tackling this topic. It was felt that engaging policymakers in the priority-setting step would increase their utilization of the resultant research evidence. To ensure that the most relevant stakeholders were represented in the priority-setting exercise, policymakers, stakeholders and researchers working in the provision and/or financing of health services for refugees in Lebanon were invited to participate. Fifty-four participants from multidisciplinary backgrounds joined the priority-setting exercise; they included representatives from the Ministry of Public Health (MOPH), Lebanese National Council for Research, World Health Organization (WHO) Country Office, United Nations Development Programme, UNHCR, United Nations Relief and Works Agency for Palestine Refugees in the Near East, International Organization for Migration and UK Department for International Development, in addition to academics and researchers from AUB and other universities in Lebanon.

The participants split into two groups to discuss the health of Syrian refugees in Lebanon, focusing mainly on the issue of health services provision. Each round

table discussion was moderated by one facilitator who aimed to achieve consensus among participants on a common priority topic. The participating policymakers and stakeholders prioritized the issue of limited coordination between organizations and agencies providing health services to refugees. They agreed that the lack of coordination was hindering their work and leading to both duplication and gaps in delivery of those services, as well as inequitable distribution of resources that was not based on the needs of the refugees. The participants actively engaged in framing the review question, defining the PICOS (Population, Intervention, Comparator, Outcome and Setting) of the review and specifying the objectives.

## EVIDENCE SYNTHESIS

Over the period February to May 2014, SPARK conducted two systematic reviews addressing the prioritized question: a systematic review of effectiveness (10) and a systematic review of published mechanisms and models of coordination (11). To expedite the systematic review process, a large team of skilled full-time researchers was convened to complete the screening in a timely manner. For the second review, no quality assessment was conducted, because the aim was to describe existing models of coordination. Importantly, only the preliminary key findings of the review (and not the peer-reviewed

manuscripts themselves) were used to feed into the knowledge translation product described below.

A number of challenges were encountered in conducting evidence synthesis in the area of refugee crisis. First, the initial scoping review highlighted the scarcity of evidence specific to the context of Syrian refugees. Therefore, the scope was broadened to capture indirect evidence from other humanitarian crises; in addition, all types of study designs were included. Second, it was surmised that pertinent evidence was not being published in the peer-reviewed literature, so additional evidence was sought in the grey literature and at the websites of organizations and agencies providing health services and humanitarian assistance to refugees.

## KNOWLEDGE TRANSLATION

SPARK partnered with the K2P Center to translate the findings of the systematic reviews and to promote uptake of the evidence that was produced. The K2P Center aims at strengthening and influencing policy and promoting evidence-informed decision-making at the national and regional levels.

The key findings of the two systematic reviews were incorporated into a briefing note (12). In addition to these key findings, the briefing note gathered and synthesized global and local research evidence, contextualizing the evidence according to the Lebanese health system. The briefing note described the priority issue, synthesized global and context-specific evidence, and offered evidence-based recommendations for action.

## KNOWLEDGE UPTAKE

In June 2014, the K2P Center convened a policy dialogue, entitled “Promoting access to essential health care services for Syrian refugees in Lebanon” and informed by the briefing note described in the previous section. The aim was to allow focused and informed discussions about this high-priority issue to support policy action. The briefing note was circulated to participants before the dialogue, so that it could serve as the starting point for discussions and deliberations.

The dialogue was attended by 28 stakeholders, policy-makers and decision-makers involved in providing and/or financing health services for refugees in Lebanon. The participants included representatives

from relevant Lebanese government ministries (MOPH and Ministry of Social Affairs), representatives of UN agencies (WHO, UNHCR), representatives of international organizations (International Committee of the Red Cross, Médecins du Monde, International Medical Corps), representatives of local nongovernmental organizations (including Amel and Caritas Lebanon Migrant Center), directors of PHC Centers and district-level doctors, as well as researchers and academics. The recommendations provided in the briefing note were discussed, revised and agreed upon by the diverse stakeholders who participated. The dialogue summary report provides details on the stakeholders’ deliberations and recommendations (13).

## THE OUTCOMES

### Policy impact

On the basis of the evidence-based recommendations presented in the briefing note (10) and the next steps agreed upon during the policy dialogue, the Lebanese MOPH recruited a refugee health coordinator. The MOPH asked SPARK to develop terms of reference for the coordinator, informed by context-specific and global evidence (see Box 1).

The coordinator reconvened all of the stakeholders who participated in the policy dialogue to form a Health Steering Committee. This committee is responsible for implementing and monitoring a national Health Response Strategy and for coordinating and monitoring the flow of aid, to ensure that funding is needs based. The national strategy and its implementation plan were influenced by the deliberations of the policy dialogue. A new mechanism of coordination was set in place to ensure successful implementation of the strategy. The coordinator developed the Health Response Strategy, with guidance from a number of officials and policy-makers in the MOPH; this document was released in late 2015 (5) and then updated in 2016 (14). By developing this national strategy, the MOPH assumed a leadership role in coordinating and guiding health response efforts.

### Impact beyond initial aim

Both SPARK and the K2P Center were invited by the Lancet-AUB Commission on Syria: Health in Conflict to support and contribute to its work. The Commission chose SPARK and the K2P Center as strategic partners, given their previous experiences

## BOX 1. TERMS OF REFERENCE FOR THE REFUGEE HEALTH COORDINATOR

- 1 Assisting MOPH in playing a major role by coordinating and establishing effective partnerships and communication with local and international agencies, donors and academic institutions and conducting monitoring and evaluation.
- 2 Helping in developing refugee health information system at MOPH.
- 3 Developing the action plan and timelines for the implementation of recommendations that came out of the policy dialogue in June 2014.
- 4 Helping provide guidance to agencies and nongovernmental organizations and other stakeholder organizations involved in health assistance (including reporting requirements for MOPH).
- 5 Assisting MOPH in developing a long-term planning process for addressing the health needs of refugees.
- 6 Ensuring agreement on the basic division of responsibilities among agencies, in accordance with their respective mandates and capacities.
- 7 Ensuring consultation with authorities, other ministries and nongovernmental organizations on matters regarding the planning and implementation of health-related assistance.
- 8 Assisting in overseeing the development of a comprehensive strategic plan for responding to the health needs of Syrian refugees in Lebanon.
- 9 Acquiring knowledge about the experiences of other ministries of health (e.g., Turkey and Jordan) in responding to the health needs of refugees.

in identifying and responding to research priorities related to the Syrian refugee crisis in Lebanon. Specifically, these two centres will contribute to evidence synthesis and knowledge translation. The Lancet-AUB Commission on Syria aims to raise the profile of the Syrian crisis in global health and to mobilize a stronger international response through its work (15). SPARK conducted a rapid scoping review (16) to support the Commission's first policy paper (17).

## REFLECTIONS ON THE PROCESS

Implementation of the impact-oriented framework to guide work on the health of Syrian refugees has revealed several challenges and generated some key lessons.

First, although the process may seem straightforward, it builds on years of preparatory work, which has included increasing the awareness of policy-makers, stakeholders, civil society organizations and media on the importance of evidence in policy-making; building their capacities in accessing and using evidence; and raising demand for evidence. Work on

evidence-informed policy-making was initiated two years before launching SPARK and the K2P Center. Specifically, policy-makers and stakeholders were surveyed about the barriers and facilitators to the use of evidence in decision-making (18). A series of workshops was also conducted with policy-makers to sensitize them and enhance their awareness of the importance of evidence and the role of systematic reviews and knowledge translation tools in promoting evidence-informed policy-making. In addition, all key policy-makers and stakeholders were invited to the official launch of SPARK and the K2P Center. These activities helped to enhance the receptiveness and buy-in of policy-makers and stakeholders.

Second, there was a realization of how the existing political context can influence the receptiveness of policy-makers to evidence-informed policy-making. In the case of Lebanon, the MOPH plays a key role in health policy-making, and its senior and middle-level officials have strong input into decision-making. Therefore, these senior and middle-level officials at the MOPH and other health-related ministries were strategically targeted. Ministers change frequently, but middle-level managers rarely do; this continuity of personnel decreases the need to build relationships

and capacities of new contacts and policy-makers in senior positions. Access to policy-makers was further facilitated by the relatively small size of Lebanon (population 4.4 million) and the relatively small number of policy-makers in the country's various ministries and its parliament.

Third, adopting a holistic knowledge approach facilitated evidence-informed policy-making and practice. The unique collaboration between SPARK and the K2P Center allowed coverage of the spectrum from priority-setting to systematic review production, knowledge translation and knowledge uptake. It also allowed leveraging of common resources, capacities and expertise, which enhanced the feasibility and effectiveness of this approach to evidence-informed health policy-making.

Fourth, the case of Syrian refugees posed unique challenges. The magnitude of the refugee crisis, its social, health and economic implications, and the multiple stakeholders involved emphasized the need to convene policy-makers and stakeholders and to come up with timely solutions to address the crisis. This presented an ideal window of opportunity

for SPARK to take the lead. A deliberate choice was made to engage key national policy-makers, stakeholders, professional associations, national and international nongovernmental organizations, funding bodies, and representatives of the public across the entire process, from defining priorities, to framing the review questions, to setting the outline for the briefing note, to contextualizing policy recommendations in the policy dialogue, and finally to assessing impacts (through follow-up with key stakeholders). This integrated level of engagement helped secure buy-in from and commitment of all the major stakeholders and increased the likelihood that the evidence would be used in policy-making.

Finally, it is worth noting that a key challenge facing the implementation of this process was the need to respond to policy-makers in a timely way. Accordingly, SPARK and the K2P Center have recently scaled up their capacity by building rapid response services to cater to the requests of policy-makers in a timely manner (rapid response services are described in more detail in Chapter 8 of this Methods Guide, concerning challenges in the conduct of policy-relevant evidence synthesis).

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**POLICY**  
PERSPECTIVE

**USING SYSTEMATIC  
REVIEWS TO SUPPORT  
POLICY-MAKING:**  
THE CASE OF  
CARDIOVASCULAR DISEASE  
MANAGEMENT IN CHILE

**CRISTIAN A. HERRERA | CRISTIÁN MANSILLA |  
TOMÁS PANTOJA**





### /// KEY POINTS

- Health policy-making aims to ensure that decision-making is informed by the best available research evidence.
- To support a decision about telemedicine for treatment of stroke, the Ministry of Health in Chile requested a rapid evidence summary concerning the effects and potential unintended consequences of this approach to stroke care.
- The findings of the systematic review showed that using telemedicine for thrombolytic therapy in patients with ischemic stroke carried no greater risk of intracranial bleeding than on-site thrombolysis.
- Evidence from systematic reviews can be used at several steps of the policy-making process, such as clarifying the problem, framing options to address the problem or addressing how an option would be implemented.

## INTRODUCTION

Health policy-makers often require access to the best available evidence, presented in a systematic, easily understandable and transparent way, to better inform their decision-making processes. As outlined in this Methods Guide, evidence-informed health policy-making is an approach that aims to ensure that decision-making is informed by the best available research evidence (1).

In 2014, the Chilean Ministry of Health (MoH) created a special unit to identify evidence to inform decisions about health policy and systems issues. This unit was modelled on the Evidence-Informed Policy Networks (EVIPNet) (2), an approach supported by the World Health Organization that promotes country-level partnerships among policy-makers, researchers and civil society. The goal of EVIPNet is to facilitate both policy development and implementation using the best scientific evidence available, through country-level teams that are coordinated at the regional and global levels. In Chile, the EVIPNet unit promotes the use of evidence to inform the policy-making process at the MoH (3).

The example of telestroke care illustrates the role of systematic reviews in informing health policy-making in the context of the Chilean health system and a rapid response service created within the EVIPNet unit of the MoH.

## SYSTEMATIC REVIEWS TO INFORM TELESTROKE POLICY-MAKING IN CHILE

In Chile, stroke is the main cause of death (4) and the leading cause of disability-adjusted life years (also known as DALYs) in people older than 74 years of age (5). According to the National Health Survey for 2016–2017, 2.6% of the population over 15 years of age reported having suffered a stroke, a proportion that reached 8.2% among people over 65 years of age, with more than 70 new cases estimated to occur each day; as such, stroke represents a high burden on the health system (6).

The MoH has been working to improve access to treatments, such as thrombolysis (7), for patients with stroke. Implementation of this policy of improved access has required reorganization of the health system to meet the recommendation that the intervention be administered within six hours of the stroke. Improving access to treatment is particularly relevant in rural and remote areas, where neurologists

and specialized equipment (for example, computed tomography [CT] scanners) are often not available. In this context, it is not unusual for patients with ischemic stroke to present for hospital care beyond the six-hour treatment window that will yield the best clinical outcomes.

As part of its strategy to address this problem, the MoH planned to use telemedicine to improve clinical service delivery, whereby thrombolytic therapy would be administered to patients in facilities with a CT scanner but no neurologist on staff, through remote assistance from neurologists in other hospitals. However, safety concerns were raised, given that a specialist would not be directly monitoring the patient, leading to a potential increase in the risk of intracranial haemorrhage.

To inform this decision on telemedicine for stroke, and being aware of the EVIPNet unit within the MoH, policy-makers asked for a rapid evidence summary (RES), to be completed within 20 working days, concerning evidence of the effects and potential unintended consequences of incorporating telemedicine as a component in the treatment of stroke, especially for rural and remote areas without easy access to a neurologist. In this particular case, the policy-makers were already quite far along in the decision-making process, because telemedicine was already in use nationwide in other clinical areas, such as cardiology. However, they wanted to know – within a short time frame – what the evidence said about telemedicine for stroke before moving to this new service.

In the response to the RES request, four systematic reviews comparing the results of telemedicine versus on-site treatment for patients with ischemic stroke were identified (8–11). Two of these reviews consider the broad management of patients with acute ischemic stroke (8, 9), whereas the other two focus on the application of thrombolytic therapy (10, 11). Only one of the systematic reviews included a meta-analysis (10), and none of them evaluated the quality of the evidence of effect estimates for the reported outcomes. Nonetheless, the findings showed that use of telemedicine for the application of thrombolytic therapy in patients with ischemic stroke seemed to carry no greater risk (in terms of mortality rate and rate of intracranial bleeding) than on-site thrombolysis.

The RES results were presented using the SUPPORT summaries format (12). The key messages in the first

page, along with the Summary of Findings tables in the following pages, were useful in guiding dialogue with the policy-makers. For most of the outcomes, certainty about the evidence (presented using the Grading of Recommendations Assessment, Development and Evaluation [GRADE] system) was considered low or very low. However, despite this limitation, the policy-makers valued the essentially new quantitative data on the effects and risks of the intervention included in the RES, because they were already facing a somewhat uncertain scenario. Also, the discussion centred on various implementation considerations, such as the type of technology needed for such procedures (videoconference or telephone), the appropriate background of the specialist guiding the thrombolytic therapy and the cost of scaling up this technology at the country level; these relevant issues were contextualized in the RES because most of the evidence came from high-income countries. Although the RES could not provide specific evidence about financial or economic considerations, cost was a crucial contextual component of the decision. Subsequently, in the context of low certainty of evidence and limited information about costs, the MoH decided to implement a pilot telestroke program for patients with acute ischemic stroke in two low-complexity hospitals, supported remotely by a neurologist based in a high-complexity hospital, using videoconference technology. This pilot program was expected to provide new local evidence to inform a future decision about scaling up the intervention.

## CHALLENGES FOR STRENGTHENING EVIDENCE-INFORMED POLICY-MAKING IN CHILE

Future challenges in using systematic reviews to inform health policy decisions are related to evaluation of the certainty that policy-makers attribute to the existing evidence, addressing uncertainty regarding the effectiveness or safety of specific interventions, and the timely incorporation of new evidence that might change the current decision. In this particular case, monitoring and evaluation of the existing pilot program would be an important step in the development and implementation of a country-level policy for the use of telemedicine in patients with stroke.

## Systematic reviews and other types of evidence synthesis could play a pivotal role in building capacity for the use of research evidence and in creating long-term collaborations.

Strengthening the path for evidence-informed policy-making in Chile faces some challenges. First, the institutionalization of an evidence-to-policy function within the MoH needs to be further advanced. Second, more staff should be trained, so that there will be capacity to respond to requests from policy-makers, such as requests to develop an RES, which have been increasing over time. Third, there is a need for coordination with other areas of the MoH that are also working in the area of evidence or health information, for instance, health technology assessment teams (including economic evaluations) and clinical guidelines developers (including clinical epidemiology), along with the areas of health data analysis, statistics, epidemiology and knowledge generation more broadly. Although each of these areas may have a different focus, they all have a common aim of informing managerial and policy-making processes. Finally, capacity for the use of research evidence in the MoH could be boosted by increasing collaboration with other actors such as researchers in universities, nongovernmental organizations (including patient organizations) and other knowledge brokers, at both the national and international level. Systematic reviews and other types of evidence synthesis could play a pivotal role in building this capacity and in creating long-term collaborations.

## CONCLUSION

The use of telemedicine for treatment of patients with acute ischemic stroke in Chile is one example of how research evidence from systematic reviews can inform a health policy decision. Evidence can be used at several steps of the policy-making process, such as clarifying a problem (13), framing options to address a problem (14) or addressing how an option would be implemented (15). In this case, evidence from systematic reviews was used to determine the safety of a delivery arrangement (telemedicine) designed to address a specific problem (lack of access to urgent treatments for patients with stroke) to facilitate planning for its implementation in the health system. Lessons learned from this case can be useful to foster the development of evidence-informed policy-making initiatives elsewhere.

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**ANNEX A**

**RESOURCES FOR  
CONDUCTING, REPORTING,  
ASSESSING AND USING  
SYNTHESES**



This annex is a compendium of available resources to support the conduct, reporting and assessment of syntheses of health policy and systems evidence. The URLs included herein are up to date as of September 2018. The content of this document is conceived as a living resource and will be updated as new resources (or updates of existing resources) become available. The up-to-date version is available at the following website:

<http://www.who.int/alliance-hpsr/resources/publications/hsr-synthesis/en/>

**TABLE A1. MANUALS, BOOKS AND GUIDANCE DOCUMENTS**

RESSOURCE	SUMMARY	PRIMARY USERS
<p>Centre for Reviews and Dissemination. Systematic reviews: CRD's guidance for undertaking reviews in health care. Heslington, York (UK): University of York; 2009</p> <p><a href="https://www.york.ac.uk/crd/guidance/">(https://www.york.ac.uk/crd/guidance/)</a>.</p>	<p>This guidance, written for those who have an understanding of health research but are new to systematic reviews, walks through the reasons for, methods of and steps in conducting a review. It also addresses more specialized topics, including reviews for clinical tests, public health interventions and economic evaluations.</p>	<p>Provides <b>researchers (especially junior reviewers)</b> with a stepwise guide to conducting reviews.</p>
<p>Higgins JPT, Green S, editors. Cochrane handbook for systematic reviews of interventions version 5.1.0 [updated March 2011]. The Cochrane Collaboration; 2011</p> <p><a href="https://training.cochrane.org/handbook"> (https://training.cochrane.org/handbook)</a>.</p>	<p>This handbook is designed to help review authors make informed decisions about their methodology by walking them through the rationale, preparation, conduct and maintenance of reviews. There is a focus on reviews of the effects of interventions, so this publication may be particularly useful for authors of Cochrane reviews.</p>	<p>Provides <b>researchers (especially those looking to conduct reviews on the effects of interventions)</b> with thorough guidance on review steps.</p>
<p>Joanna Briggs Institute reviewers' manual: 2014 edition. Adelaide: University of Adelaide, Joanna Briggs Institute; 2014</p> <p><a href="http://joannabriggs.org/assets/docs/sumari/reviewersmanual-2014.pdf"> (http://joannabriggs.org/assets/docs/sumari/reviewersmanual-2014.pdf)</a>.</p>	<p>This manual offers comprehensive guidance on conducting reviews, specifically reviews for the Joanna Briggs Institute. It walks through the process of planning, conducting and writing a review of qualitative, quantitative and economic evidence.</p>	<p>Provides <b>researchers</b> with a comprehensive set of steps in conducting a review of health care interventions, with a focus on conducting reviews for the Joanna Briggs Database of Systematic Reviews and Implementation Reports.</p>
<p>The Joanna Briggs Institute reviewers' manual 2015. Methodology for JBI scoping reviews. Adelaide: University of Adelaide, Joanna Briggs Institute; 2015</p> <p><a href="http://joannabriggs.org/assets/docs/sumari/Reviewers-Manual_Methodology-for-JBI-Scoping-Reviews_2015_v2.pdf"> (http://joannabriggs.org/assets/docs/sumari/Reviewers-Manual_Methodology-for-JBI-Scoping-Reviews_2015_v2.pdf)</a>.</p>	<p>This manual offers a supplement to the 2014 edition of the Joanna Briggs Institute Reviewers' Manual. It represents the latest work and methodological development on scoping reviews</p>	<p>Provides <b>researchers</b> with a comprehensive set of steps in conducting a scoping review of health care interventions, with a focus on conducting reviews for the Joanna Briggs Database of Scoping Reviews.</p>
<p>Armstrong R, Waters E, Jackson N, Oliver S, Popay J, Shepherd J, et al. Guidelines for systematic reviews of health promotion and public health interventions. Version 2. Melbourne: Melbourne University; 2007</p> <p><a href="http://ph.cochrane.org/sites/ph.cochrane.org/files/public/uploads/Guidelines%20HP_PH%20reviews.pdf"> (http://ph.cochrane.org/sites/ph.cochrane.org/files/public/uploads/Guidelines%20HP_PH%20reviews.pdf)</a>.</p>	<p>These guidelines offer assistance with the key aspects of conducting a review of health promotion/public health interventions. This document complements sections 3-11 of the Cochrane reviewers' handbook.</p>	<p>Supports <b>researchers conducting reviews of health promotion and public health interventions</b> in the conduct of their reviews.</p>
<p>How to conduct systematic reviews of health policy and systems research in low- and middle-income countries. Santiago: Pontificia Universidad Católica de Chile, School of Medicine, Health Policy and Systems Research Unit; 2011</p> <p><a href="http://www.who.int/alliance-hpsr/projects/alliancehpsr_handbooksystematicreviewschile.pdf"> (http://www.who.int/alliance-hpsr/projects/alliancehpsr_handbooksystematicreviewschile.pdf)</a>.</p>	<p>This handbook assists researchers conducting reviews about health systems issues in low- and middle-income countries (LMICs). It targets researchers synthesizing evidence in this field who have basic knowledge of review methodology. It offers a range of information, resources and tools, based on current research about addressing the challenges in the process of conducting reviews of health policy and systems research (HPSR).</p>	<p>Provides methodological guidance to <b>researchers conducting reviews on health systems in LMICs</b>.</p>



<p>Petticrew M, Roberts H. Systematic reviews in the social sciences: a practical guide. Malden (MA): Wiley-Blackwell; 2005.</p>	<p>This book, aimed at social science researchers, offers a guide to planning and conducting a review, with a focus on reviews of effectiveness. There is also discussion of reviews for those who want to use and understand them, but are not themselves conducting any reviews.</p>	<p>Provides an overview of the purpose and process of conducting a review for <b>social sciences researchers</b> and <b>users of reviews</b>.</p>
<p>Cochrane Effective Practice and Organisation of Care (EPOC) Group; <a href="https://epoc.cochrane.org/resources">https://epoc.cochrane.org/resources</a></p>	<p>This resource provides guidance on conducting effectiveness reviews of health systems. Some resources are intended for all Cochrane systematic review authors, while other resources are specific for EPOC systematic reviews.</p>	<p><b>Researchers writing a Cochrane EPOC systematic review.</b></p>
<p>Canadian Agency for Drugs and Technologies in Health (CADTH) Information Services. Grey Matters: a practical tool for searching health-related grey literature. Ottawa: CADTH; 2015.  <a href="https://www.cadth.ca/resources/finding-evidence/grey-mattersv">https://www.cadth.ca/resources/finding-evidence/grey-mattersv</a></p>	<p>This checklist is used to : i) ensure the retrieval of all relevant health technology assessment (HTA), government, and evidence-based agency reports that may not be indexed in bibliographic databases such as MEDLINE; ii) document the grey literature search process, thereby increasing transparency and the potential for reproducibility; iii) ensure that grey literature searching is done in a comprehensive way, according to international standards.</p>	<p>This checklist is intended for <b>librarians; information specialists; and researchers</b> who are producing systematic reviews, HTAs, drug assessments, or economic evaluations</p>
<p>Standards for Systematic Reviews. Patient-Centered Outcomes Research Institute (PCORI); 2016  (<a href="https://www.pcori.org/research-results/research-methodology/methodology-standards-academic-curriculum/category-11">https://www.pcori.org/research-results/research-methodology/methodology-standards-academic-curriculum/category-11</a>)</p>	<p>This resource provides learning modules (video, audio and handouts) to support the conduct of a systematic review for a patient-centered outcomes research project.</p>	<p>Provides methodological guidance to <b>researchers conducting reviews on patient-centered outcomes research</b></p>
<p>Waddington, H, White, H, Snilstveit, B, Hombrados, JG, Vojtkova, M, Davies, P, Bhavsar, A, Eysers, J, Perez Koehlmoos, T, Petticrew, M, Valentine, JC, Tugwell, P, 2012, How to do a good systematic review of effects in international development: a tool kit. Journal of Development Effectiveness 4 (3) 359-387  <a href="https://www.tandfonline.com/doi/abs/10.1080/19439342.2012.711765">https://www.tandfonline.com/doi/abs/10.1080/19439342.2012.711765</a></p>	<p>This resource provides a 'how to' guide to undertake systematic reviews of effects in international development, i.e. synthesis of literature relating to the effectiveness of particular development interventions.</p>	<p>Provides methodological guidance to <b>researchers conducting reviews on patient-centered outcomes research</b></p>
<p>The Collaboration for Environmental Evidence. 2013. Guidelines for Systematic Review and Evidence Synthesis in Environmental Management. Version 4.2. Environmental Evidence.  <a href="http://www.environmentalevidence.org/wp-content/uploads/2014/06/Review-guidelines-version-4.2-final.pdf">http://www.environmentalevidence.org/wp-content/uploads/2014/06/Review-guidelines-version-4.2-final.pdf</a></p>	<p>This resource provides guidance to conduct systematic reviews of environmental evidence.</p>	<p>Provides methodological guidance to <b>researchers conducting reviews in environmental management</b></p>
<p>Bosch-Capblanch X. Handbook for supporting the development of health system guidance: supporting informed judgements for health system policies. Geneva: Swiss Centre for International Health; 2011.</p>	<p>This handbook, commissioned by the World Health Organization, describes the processes, approaches and outputs for developing health systems guidance.</p>	<p>Provides <b>decision-makers</b> with guidance using more user-friendly and less technical language.</p>

<p>France EF, Ring N, Noyes J, Maxwell M, Jepson R, Duncan E, et al. Protocol-developing meta-ethnography reporting guidelines (eMERGe) [study protocol]. BMC Med Res Methodol. 105;15:103. doi: <a href="https://doi.org/10.1186/s12874-015-0068-0">https://doi.org/10.1186/s12874-015-0068-0</a>.</p>	<p>This resource aims to create an evidence-based meta-ethnography reporting guideline articulating the methodological standards and depth of reporting required to improve reporting quality.</p>	<p><b>Users of evidence syntheses</b>, such as patient groups, health service managers, policy-makers and clinicians.</p>
<p>Gilson L, editor. Health policy and systems research: a methodology reader. Geneva: World Health Organization, Alliance for Health Policy and Systems Research; 2012 (<a href="http://www.who.int/alliance-hpsr/alliancehpsr_reader.pdf">http://www.who.int/alliance-hpsr/alliancehpsr_reader.pdf</a>).</p>	<p>This reader supports the development of HPSR in LMICs, showcasing the diverse range of such research.</p>	<p>Provides <b>researchers, research users, teachers</b> and <b>students</b> with guidance on conducting research in HPSR.</p>
<p>Methods guide for effectiveness and comparative effectiveness reviews. Rockville (MD): Agency for Healthcare Research and Quality; 2014 (<a href="https://effectivehealthcare.ahrq.gov/topics/ceer-methods-guide/overview">https://effectivehealthcare.ahrq.gov/topics/ceer-methods-guide/overview</a>)</p>	<p>This methods guide aims to improve the transparency, consistency and scientific rigour of comparative effectiveness reviews.</p>	<p>Serves as a resource for <b>researchers</b> interested in conducting comparative effectiveness reviews.</p>
<p>Guide to knowledge translation planning at CIHR: integrated and end-of-grant approaches. Ottawa (ON): Canadian Institutes of Health Research; 2015 (<a href="http://www.cihr-irsc.gc.ca/e/45321.html">http://www.cihr-irsc.gc.ca/e/45321.html</a>).</p>	<p>This guide includes resources and learning modules developed to improve knowledge translation projects. It is designed to be used by developers and funders of these projects.</p>	<p>Provides <b>researchers and knowledge users</b> who are developing project proposal guidance with information on how to improve their research and knowledge translation approach.</p>

## TABLE A2. DATABASES

RESSOURCES	SUMMARY	PRIMARY USERS
<p>Health Evidence <a href="http://www.healthevidence.org/">http://www.healthevidence.org/</a></p>	<p>This registry of systematic reviews provides assessments of public health interventions. Interventions included in the database focus primarily on disease prevention, health protection and health promotion.</p>	<p>Provides <b>decision-makers</b> with a comprehensive registry to identify reviews of public health interventions.</p>
<p>PDQ-Evidence <a href="http://www.pdq-evidence.org/en/">http://www.pdq-evidence.org/en/</a></p>	<p>This database offers systematic reviews and overviews of reviews that address explicit questions about health systems or population health. These include questions about delivery, financial and governance arrangements, implementation strategies and public health.</p>	<p>Allows <b>health systems decision-makers</b> to efficiently survey the best available evidence about health systems and population health, and helps researchers conducting reviews of health systems/population health to identify existing reviews.</p>
<p>SUPPORT Collaboration: structured summaries of systematic reviews <a href="http://www.supportsummaries.org/">http://www.supportsummaries.org/</a></p>	<p>The SUPPORT Collaboration has prepared structured summaries of relevant reviews of maternal and child health interventions, as well as summaries of ways to effectively organize, finance and govern the delivery of effective interventions. Each SUPPORT summary provides a detailed summary of the main findings of its review and an assessment of the relevance of the review to LMICs.</p>	<p>Provides <b>decision-makers</b> with easily accessible and succinct summaries of reviews concerning maternal and child health and health systems.</p>

<p>Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre) Evidence Library</p> <p><a href="http://eppi.ioe.ac.uk/cms/">http://eppi.ioe.ac.uk/cms/</a></p>	<p>This database offers reviews within the following major areas: education and social policy, health promotion and public health, international health systems and development, and social welfare.</p>	<p>Allows <b>decision-makers</b> to identify reviews within the scope of health systems and health policy.</p>
<p>Epistemonikos</p> <p><a href="https://www.epistemonikos.org/en/">https://www.epistemonikos.org/en/</a></p>	<p>This multilingual database of research evidence and knowledge translation products provides rapid access to systematic reviews (and overviews) in health. The database is not a comprehensive health research database and includes only primary studies that have been included in a review.</p>	<p>Allows <b>decision-makers</b> to identify reviews of clinical or health policy questions.</p>
<p>International Initiative for Impact Evaluation (3ie): Synthesis and Reviews Programme</p> <p><a href="http://www.3ieimpact.org/en/about/what-3ie-does/systematic-reviews-programme/">http://www.3ieimpact.org/en/about/what-3ie-does/systematic-reviews-programme/</a></p>	<p>This programme offers various resources, including funding for reviews (to examine evidence on social or economic development interventions in LMICs), a database of systematic reviews and protocols, evidence gap maps, training and support for systematic review authors (in partnership with the Campbell Collaboration) and quality assurance services (e.g., design clinics).</p>	<p>Provides training and resources for <b>researchers</b> to conduct reviews on social or economic development interventions in LMICs, and offers <b>decision-makers</b> a database of such reviews.</p>
<p>Campbell Collaboration Library of Systematic Reviews</p> <p><a href="https://www.campbellcollaboration.org/library.html">https://www.campbellcollaboration.org/library.html</a></p>	<p>This library offers systematic reviews of the effects of social interventions in crime and justice, education, international development and social welfare.</p>	<p>Provides <b>decision-makers</b> with a comprehensive database of reviews on the effects of social interventions prepared under the Campbell Collaboration. Also allows <b>researchers</b> to search protocol or title registrations to reduce duplication of efforts.</p>
<p>Cochrane Library</p> <p><a href="https://www.cochranelibrary.com/">https://www.cochranelibrary.com/</a></p>	<p>This library, consisting of the Cochrane Database of Systematic Reviews (CDSR), the Database of Abstracts of Reviews of Effects (DARE), the Cochrane Central Register of Controlled Trials (CENTRAL), the Cochrane Methodology Register, the Health Technology Assessment (HTA) Database and the National Health Service Economic Evaluation Database (NHS EED), summarizes, appraises and interprets the results of medical research.</p>	<p>Provides <b>decision-makers</b> with a comprehensive database of medical reviews, assessments and economic evaluations. Also allows <b>researchers</b> to search protocol or title registrations to reduce duplication of efforts.</p>
<p>PROSPERO International prospective register of systematic reviews</p> <p><a href="https://www.crd.york.ac.uk/PROSPERO/">https://www.crd.york.ac.uk/PROSPERO/</a></p>	<p>This international database of prospectively registered systematic reviews in health and social care offers a comprehensive listing of reviews, along with key features from their protocols.</p>	<p>Allows <b>researchers</b> to register reviews so as to reduce duplication of efforts.</p>
<p>Systematic Review Data Repository (SRDR)</p> <p><a href="https://srdr.ahrq.gov/">https://srdr.ahrq.gov/</a></p>	<p>This online tool can be used for extraction and management of data for a systematic review or meta-analysis. It is also an open and searchable repository of systematic review data</p>	<p>Provides <b>organizations</b> and <b>researchers</b> with a central database of systematic reviews and meta-analyses.</p>

**TABLE A3. CHECKLISTS AND TOOLS TO PLAN, CONDUCT, REPORT AND ASSESS EVIDENCE SYNTHESSES**

RESSOURCE	SUMMARY	PRIMARY USERS
<p>Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA statement</p> <p><a href="http://www.prisma-statement.org/PRISMAStatement/">http://www.prisma-statement.org/PRISMAStatement/</a></p>	<p>The PRISMA statement is a 27-item reporting checklist that assists review authors in ensuring the transparent and complete reporting of reviews and meta-analyses.</p>	<p>Provides <b>researchers</b> with a checklist of reporting items to follow when conducting a review.</p>
<p>Moher D, Shamseer L, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, et al.; PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. <i>Syst Rev.</i> 2015;4:1. doi:</p> <p><a href="https://doi.org/10.1186/2046-4053-4-1">https://doi.org/10.1186/2046-4053-4-1</a>.</p>	<p>PRISMA-P is a 17-item checklist that assists in the preparation and reporting of robust protocols for reviews.</p>	<p>Provides <b>researchers</b> with a checklist of reporting items to follow when preparing a review protocol.</p>
<p>Beller EM, Glasziou PP, Altman DG, Hopewell S, Bastian H, Chalmers I, et al.; PRISMA for Abstracts Group. PRISMA for abstracts: reporting systematic reviews in journal and conference abstracts. <i>PLoS Med.</i> 2013;10(4):e1001419. doi:</p> <p><a href="https://doi.org/10.1371/journal.pmed.1001419">https://doi.org/10.1371/journal.pmed.1001419</a></p>	<p>PRISMA for Abstracts is a checklist that offers a framework that review authors can use to condense their study into the essential components of an abstract.</p>	<p>Provides researchers conducting reviews with a checklist of reporting items to produce a comprehensive abstract.</p>
<p>Welch V, Petticrew M, Tugwell P, Moher D, O'Neill J, Waters E, et al.; PRISMA-Equity Bellagio group. PRISMA-Equity 2012 extension: reporting guidelines for systematic reviews with a focus on health equity. <i>PLoS Med.</i> 2012;9(10):e1001333. doi:</p> <p><a href="https://doi.org/10.1371/journal.pmed.1001333">https://doi.org/10.1371/journal.pmed.1001333</a></p>	<p>PRISMA-Equity is a set of reporting guidelines for equity-focused reviews that assists reviewers in identifying, extracting and synthesizing evidence on equity.</p>	<p>Provides <b>researchers conducting equity-focused reviews</b> with a checklist to assist in following a comprehensive methodology.</p>
<p>Tong A, Flemming K, McInnes E, Oliver S, Craig J. Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. <i>BMC Med Res Methodol.</i> 2012;12:181. doi:</p> <p><a href="https://doi.org/10.1186/1471-2288-12-181">https://doi.org/10.1186/1471-2288-12-181</a></p>	<p>The ENTREQ statement is a set of guidelines to encourage transparency in reporting syntheses of qualitative research. The tool assists researchers in reporting the stages most commonly associated with the synthesis of qualitative health research.</p>	<p>Provides a set of criteria/guidelines for <b>researchers conducting qualitative syntheses</b>.</p>
<p>Wong G, Greenhalgh T, Westhorp G, Buckingham J, Pawson R. RAMESES publication standards: meta-narrative reviews. <i>BMC Med.</i> 2013;11:20. doi:</p> <p><a href="https://doi.org/10.1186/1741-7015-11-20">https://doi.org/10.1186/1741-7015-11-20</a></p>	<p>This set of standards provides guidance on the required items to be reported in the write-up of a meta-narrative review. However, these standards do not provide detailed guidance on how to conduct such a review.</p>	<p>Provides a set of reporting standards for <b>researchers conducting meta-narrative reviews</b>.</p>
<p>Wong G, Greenhalgh T, Westhorp G, Buckingham J, Pawson R. RAMESES publication standards: realist syntheses. <i>BMC Med.</i> 2013;11:21. doi:</p> <p><a href="https://doi.org/10.1186/1741-7015-11-21">https://doi.org/10.1186/1741-7015-11-21</a>.</p>	<p>This set of standards provides guidance on the required items to be reported in the write-up of a realist synthesis. However, these standards do not provide detailed guidance on how to conduct such a synthesis.</p>	<p>Provides a set of reporting standards for <b>researchers conducting realist syntheses</b>.</p>

<p>Stroup DF, Berlin JA, Morton SC, Olkin I, Williamson GD, Rennie D, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group. JAMA. 2000;283(15):2008-12. doi: 10.1001/jama.283.15.2008.</p>	<p>This checklist provides specifications for the reporting of meta-analyses of observational studies, to enhance the usefulness of such studies.</p>	<p>Provides a checklist for reporting items for <b>researchers conducting meta-analyses</b>.</p>
<p>The Cochrane Collaboration tool for assessing risk of bias <a href="https://handbook-5-1.cochrane.org/chapter_8/table_8_5_a_the_cochrane_collaborations_tool_for_assessing.htm">https://handbook-5-1.cochrane.org/chapter_8/table_8_5_a_the_cochrane_collaborations_tool_for_assessing.htm</a></p>	<p>This tool walks users through possible sources of bias in randomized trials and provides various criteria by which users can judge the level of risk of bias through a checklist of bias domains.</p>	<p>Provides <b>researchers conducting reviews of randomized trials</b> with a checklist to assess the risk of bias in studies included in a review.</p>
<p>Whiting P, Savović J, Higgins JPT, Caldwell DM, Reeves BC, Shea B, et al.; ROBIS group. J Clin Epidemiol. 2016;69:225-34. doi: <a href="https://doi.org/10.1016/j.jclinepi.2015.06.005">https://doi.org/10.1016/j.jclinepi.2015.06.005</a></p>	<p>ROBIS is currently aimed at four broad categories of reviews mainly within health care settings: interventions, diagnosis, prognosis and etiology. The tool is completed in three phases: assess relevance (optional), identify concerns with the review process and judge the risk of bias. ROBIS is the first rigorously developed tool designed specifically to assess the risk of bias in systematic reviews.</p>	<p>Intended primarily for <b>guideline developers, authors of overviews of systematic reviews</b> ("reviews of reviews") and <b>review authors</b> who might want to assess or avoid risk of bias in their reviews.</p>
<p>ROBINS-I tool (Risk Of Bias In Non-randomized Studies - of Interventions) (previously called A Cochrane Risk Of Bias Assessment Tool: for Non-Randomized Studies of Interventions (ACROBAT-NRSI)) <a href="http://www.bristol.ac.uk/population-health-sciences/centres/cresyda/barr/riskofbias/robins-i/">http://www.bristol.ac.uk/population-health-sciences/centres/cresyda/barr/riskofbias/robins-i/</a></p>	<p>Tool for evaluating risk of bias in estimates of the comparative effectiveness (harm or benefit) of interventions from studies that did not use randomisation to allocate units (individuals or clusters of individuals) to comparison groups.</p>	<p><b>Researchers</b> undertaking systematic reviews that include non-randomised studies.</p>
<p>Sanderson S, Tatt ID, Higgins JP. Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: a systematic review and annotated bibliography. Int J Epidemiol 2007;36:666e76.) <a href="https://academic.oup.com/ije/article/36/3/666/653571">https://academic.oup.com/ije/article/36/3/666/653571</a></p>	<p>This resource provides guidance to assess the quality and susceptibility to bias in observational studies.</p>	<p><b>Reviewers</b> undertaking systematic reviews that include observational epidemiological studies.</p>
<p>Critical Appraisals Skills Programme (CASP). Critical appraisal tools <a href="https://casp-uk.net/casp-tools-checklists/">https://casp-uk.net/casp-tools-checklists/</a></p>	<p>This resource provides eight critical appraisal tools designed to be used when reading research, these include tools for systematic reviews, randomised controlled trials, cohort studies, case control studies, economic evaluations, diagnostic studies, qualitative studies and clinical prediction rule.</p>	<p>Supports <b>stakeholders</b> in reading and assessing research and enables <b>users of research evidence</b> to reach their own judgements.</p>

<p>Cochrane Methods. MECIR (Methodological Expectations for Cochrane Intervention Reviews).</p> <p><a href="https://methods.cochrane.org/mecir">https://methods.cochrane.org/mecir</a></p>	<p>The Methodological Expectations of Cochrane Intervention Reviews (MECIR) are methodological standards to which all Cochrane Protocols, Reviews, and Updates are expected to adhere. They are divided into sections for the conduct of, and reporting the reviews of interventions.</p>	<p>These expectations are intended for both internal and external audiences. They provide <b>authors and users of the Cochrane Library</b> with clear and transparent expectations of review conduct and reporting.</p>
<p>The Grading of Recommendations Assessment, Development and Evaluation (GRADE) guidelines</p> <p><a href="http://www.gradeworkinggroup.org/">http://www.gradeworkinggroup.org/</a></p>	<p>When used for systematic reviews, the GRADE approach defines the quality of a body of evidence in terms of the extent to which the researcher or user can be confident that an estimate of effect or association is close to the quantity of specific interest. Essentially, this approach provides guidance for rating the quality of evidence and grading the strength of recommendations in health care.</p>	<p>Allows <b>researchers</b> to appraise the quality of evidence of the studies to be included in a review.</p>
<p>Glidewell L, editor. Applying GRADE-CERQual to qualitative evidence synthesis findings. <i>Implement Sci.</i> 2018;13 Suppl 1</p> <p><a href="https://implementationscience.biomedcentral.com/articles/supplements/volume-13-supplement-1">https://implementationscience.biomedcentral.com/articles/supplements/volume-13-supplement-1</a></p>	<p>This supplement provides guidance on how to assess and use qualitative evidence in policy and practice.</p>	<p>Provides <b>decision-makers</b> with a means of using qualitative evidence to understand various socioeconomic contexts, health systems and communities.</p>
<p>A Measurement Tool to Assess Systematic Reviews (AMSTAR)</p> <p><a href="http://amstar.ca/index.php">http://amstar.ca/index.php</a></p>	<p>AMSTAR is a series of 11 items used to assess the methodological quality of systematic reviews. The instrument may also be used as a guide when conducting a review.</p>	<p>Allows <b>users of evidence</b> to appraise the quality of reviews, and provides <b>researchers</b> with a tool to assist in planning high quality reviews.</p>
<p>AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. <i>BMJ.</i> 2017;358:j4008. doi:</p> <p><a href="https://doi.org/10.1136/bmj.j4008">https://doi.org/10.1136/bmj.j4008</a>.</p>	<p>AMSTAR2 is an update of the original AMSTAR tool. It is a critical appraisal tool for systematic reviews that include nonrandomized and/or randomized studies of health care interventions.</p>	<p>Provides <b>public health practitioners and health professionals</b> involved with program or policy decision-making with a practical tool to assess the quality of systematic reviews.</p>
<p>Montgomery P, Underhill K, Gardner F, Operario D, Mayo-Wilson E. The Oxford Implementation Index: a new tool for incorporating implementation data into systematic reviews and meta-analyses. <i>J Clin Epidemiol.</i> 66(8):874-82. doi:</p> <p><a href="https://doi.org/10.1016/j.jclinepi.2013.03.006">https://doi.org/10.1016/j.jclinepi.2013.03.006</a>.</p>	<p>The Oxford Implementation Index is a checklist of implementation data to be extracted from primary trials. The checklist is divided into four categories; intervention design, actual delivery by trial practitioners, uptake of the intervention by participants and contextual factors.</p>	<p>Provides a framework to help <b>systematic reviewers</b> to assess implementation data across primary trials.</p>
<p>Lewin S, Hendry M, Chandler J, Oxman AD, Michie S, Shepperd S, et al. Assessing the complexity of interventions within systematic reviews: development, content and use of a new tool (iCAT_SR). <i>BMC Med Res Methodol.</i> 2017;17:76. doi:</p> <p><a href="https://doi.org/10.1186/s12874-017-0349-x">https://doi.org/10.1186/s12874-017-0349-x</a>.</p>	<p>This tool comprises 10 dimensions for assessing and categorizing levels of intervention complexity in systematic reviews. "The tool may be helpful in planning subgroup analyses to explore effect modification by key differences in intervention complexity."</p>	<p>Provides <b>review authors</b> with a tool to characterize complex interventions in a uniform framework.</p>

<p>Saan MC, Boeije HR, Sattoe JNT, Bal MI, Missler M, van Wesel F. Recording and accounting for stakeholder involvement in systematic reviews. <i>Health Info Libr J.</i> 2015;32(2):95-106. doi: <a href="https://doi.org/10.1111/hir.12099">https://doi.org/10.1111/hir.12099</a>.</p>	<p>The Tool for Recording and Accounting for Stakeholder Involvement (TRASI) records and accounts for stakeholder involvement in systematic reviews, specifically in searching for and retrieving studies; there is also potential for further applications.</p>	<p>Aids <b>researchers</b> in systematically and transparently accounting for decisions taken; also supports <b>information specialists and librarians</b> in shaping the search strategy to match the objectives of the review.</p>
<p>EQUATOR Network: Enhancing the QUALity and Transparency Of health Research <a href="https://www.equator-network.org/about-us/">https://www.equator-network.org/about-us/</a></p>	<p>This internationally coordinated initiative aims to improve the quality of research publications by promoting the accurate and transparent reporting of health research studies using robust reporting guidelines.</p>	<p>Provides <b>researchers</b> with robust reporting guidelines.</p>
<p>McGowan J, Sampson M, Salzwedel DM, Cogo E, Foerster V, Lefebvre C. PRESS peer review of electronic search strategies: 2015 guideline statement. <i>J Clin Epidemiol.</i> 2016;75:40-6. doi: <a href="https://doi.org/10.1016/j.jclinepi.2016.01.021">https://doi.org/10.1016/j.jclinepi.2016.01.021</a></p>	<p>Peer Review of Electronic Search Strategies (PRESS) is an evidence-based guideline for systematic reviews, health technology assessments and other evidence syntheses. It is designed to improve the quality and comprehensiveness of the literature search.</p>	<p>Provides librarians with a checklist of items to follow when reviewing search strategies.</p>
<p>Equity checklist for systematic review authors versopm 2012-10-04 <a href="https://methods.cochrane.org/sites/methods.cochrane.org/files/public/uploads/EquityChecklist2012.pdf">https://methods.cochrane.org/sites/methods.cochrane.org/files/public/uploads/EquityChecklist2012.pdf</a></p>	<p>This checklist defines equity-focused reviews as those that can assess effects of interventions targeted at disadvantaged populations, can assess effects of interventions aimed at reducing social gradients and can assess effects of interventions not aimed at reducing inequity but where it is important to understand the effects of the intervention on equity.</p>	<p>Intended for use by systematic review authors planning and conducting reviews with a focus on health equity</p>
<p>JLA guidebook. Version 17. Southampton (UK): James Lind Alliance; 2018 <a href="http://www.jla.nihr.ac.uk/jla-guidebook/">(http://www.jla.nihr.ac.uk/jla-guidebook/)</a>.</p>	<p>This guidebook is a step-by-step guide to the processes involved in a Priority Setting Partnership (PSP), using the James Lind Alliance approach. It helps PSPs to work effectively through tried-and-tested methods to ensure useful and credible outcomes.</p>	<p>Intended for use by <b>health research funders</b>, to make them aware of issues that matter most to stakeholders.</p>
<p>Akl EA, Fadlallah R, Ghandour L, Kdouh O, Langlois E, Lavis JN, et al. The SPARK Tool to prioritise questions for systematic reviews in health policy and systems research: development and initial validation. <i>Health Policy Syst Res.</i> 2017;15:77. doi: <a href="https://doi.org/10.1186/s12961-017-0242-4">https://doi.org/10.1186/s12961-017-0242-4</a>.</p>	<p>This tool is designed to prioritize questions for systematic reviews in health policy and systems research (HPSR). It supports evidence-informed policy-making and reduces research waste.</p>	<p>Useful for <b>groups or institutions funding or conducting systematic reviews</b> in HPSR.</p>
<p>Cochrane Priority Setting Methods Group. <i>Cochrane methods: priority setting</i>. London: Cochrane <a href="http://priority.cochrane.org/">(http://priority.cochrane.org/)</a>.</p>	<p>This platform contains information on various methods of priority setting for research.</p>	<p>Informs <b>Cochrane entities</b> about methods for setting a research agenda for systematic reviews.</p>

## TABLE A4. SOFTWARE

RESSOURCE	SUMMARY	PRIMARY USERS
<p>Covidence [a Cochrane technology platform]  <a href="https://www.covidence.org/">https://www.covidence.org/</a></p>	<p>This software can be used for each step of the review process, from citation screening to data abstraction and export. The first review is free, and a subscription is required for all subsequent reviews.</p>	<p>Provides <b>reviewers</b> with a screening and data extraction platform to conduct reviews.</p>
<p>DistillerSR  <a href="https://www.evidencepartners.com/products/distillersr-systematic-review-software/">https://www.evidencepartners.com/products/distillersr-systematic-review-software/</a></p>	<p>This software has a five-step process whereby the reviewer can upload references, create forms, assign reviewers, screen citations, and monitor and export data. The first review is free, and a subscription is required for all subsequent reviews.</p>	<p>Assists <b>researchers, regulatory bodies, government agencies and medical device companies</b> in conducting more efficient and effective reviews.</p>
<p>EPPI-Reviewer  <a href="http://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk/cms/er4">http://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk/cms/er4</a></p>	<p>This software assists in managing the entire review process from reference management to synthesis. Supports both quantitative and qualitative analysis. It is free for Cochrane authors, and a subscription is required for all other users.</p>	<p>Provides <b>reviewers</b> with an online tool to conduct the entire review process.</p>
<p>GRADEpro GDT [software for Summary of Findings tables, health technology assessment and guidelines]  <a href="https://gradepro.org/">https://gradepro.org/</a></p>	<p>This software is designed for creating Summary of Findings tables and health technology assessments, as well as for developing guideline recommendations. It is freely available for all users.</p>	<p>Assists <b>researchers and guideline developers</b> in generating documents used to make recommendations for public health and health policy decisions.</p>
<p>OpenMeta-Analyst (OMA)  <a href="http://www.cebm.brown.edu/openmeta/">http://www.cebm.brown.edu/openmeta/</a></p>	<p>This software is designed for conducting meta-analysis of binary, continuous or diagnostic data. It is a free, open source tool.</p>	<p>Provides <b>researchers and statisticians</b> with a platform for conducting meta-analysis.</p>
<p>Rayyan QCRI  <a href="https://rayyan.qcri.org/">https://rayyan.qcri.org/</a></p>	<p>This software is a semiautomated title and abstract screening tool. It is freely available for all users and has a mobile application.</p>	<p>Provides <b>review authors</b> with a platform for conducting title and abstract screening.</p>
<p>Review Manager (RevMan)  <a href="http://community.cochrane.org/tools/review-production-tools/revman-5">http://community.cochrane.org/tools/review-production-tools/revman-5</a></p>	<p>This software is used for preparing and maintaining Cochrane reviews. It assists in the preparation of protocols and full reviews. Meta-analysis of the data can be performed, and results can be presented graphically. License purchase is required for use with non-Cochrane reviews.</p>	<p>Provides <b>review authors</b> with a platform for preparing and maintaining reviews.</p>



**TABLE A5. MISCELLANEOUS RESOURCES**

RESSOURCE	SUMMARY	PRIMARY USERS
<p>Cochrane Canada Live (webinar archive)</p> <p><a href="http://ccc.cochrane.org/cochrane-canada-live-webinar-archive">http://ccc.cochrane.org/cochrane-canada-live-webinar-archive</a></p>	<p>The Cochrane Collaboration's webinar series serves as a mode of training for the planning and reporting of systematic reviews. The webinars focus on a wide range of topics relevant to users with beginner or advanced knowledge of the Cochrane Collaboration, Cochrane Reviews and the Cochrane Library. Topics include critical appraisal, the GRADE (Grading of Recommendations Assessment, Development and Evaluation) system and rapid reviews.</p>	<p>Provides <b>researchers</b> conducting reviews with a series of tutorials about the process of planning and reporting a review.</p>
<p>SUPPORT Tools for evidence-informed health policymaking: Health Research Policy and Systems, Volume 7, Supplement 1 (edited by Oxman and Hanney)</p> <p><a href="https://health-policy-systems.biomedcentral.com/articles/supplements/volume-7-supplement-1">https://health-policy-systems.biomedcentral.com/articles/supplements/volume-7-supplement-1</a></p>	<p>This resource describes the processes that ensure relevant research is identified, appraised and used appropriately to inform health policy-making. The SUPPORT Collaboration informs users about the processes and nuances of evidence-informed health policy-making, and advises on topics such as using research evidence to clarify a problem and using research evidence to balance the pros and cons of policies.</p>	<p>Aids <b>decision-makers</b> in understanding how to appropriately use research evidence to inform policy-making.</p>
<p>Rapid Evidence Assessment Toolkit index</p> <p><a href="http://webarchive.nationalarchives.gov.uk/20140305122816/http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment">http://webarchive.nationalarchives.gov.uk/20140305122816/http://www.civilservice.gov.uk/networks/gsr/resources-and-guidance/rapid-evidence-assessment</a></p>	<p>This online tool helps in reviewing the available research evidence on a given policy issue, as comprehensively as possible within a limited time.</p>	<p>Provides <b>researchers</b> with the tools needed to plan and conduct reviews</p>
<p>SR Tool Box</p> <p><a href="http://systematicreviewtools.com/">http://systematicreviewtools.com/</a></p>	<p>The SR Tool Box is a community-driven, searchable, web-based catalogue of tools that support the systematic review process across multiple domains. Users can perform a simple keyword search to locate tools, or a more detailed search to select various criteria to find specific types of tools and submit new tools to the database.</p>	<p>Helps <b>reviewers</b> find appropriate tools according to how those tools support the systematic review process.</p>
<p>EROS: Early Review Organizing Software</p> <p><a href="http://www.eros-systematic-review.org">http://www.eros-systematic-review.org</a></p>	<p>EROS was created to overcome obstacles related to the early stages of all systematic reviews. It is a web-based software system designed to assist with the initial phases of a systematic review: reference management, screening and quality assessment.</p>	<p>Allows <b>review authors</b> to save time by organizing the initial phase of a systematic review, allowing a balanced distribution of workload and reduction of human error in quality assessment.</p>





# EVIDENCE SYNTHESIS FOR HEALTH POLICY AND SYSTEMS: A METHODS GUIDE

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Progress towards universal health coverage and the Sustainable Development Goals requires valid and relevant evidence to support key policy and systems decisions. Decision-makers need a wide array of knowledge pertaining to the effectiveness of health systems interventions and policies, how and in what settings these interventions work and their cost-effectiveness, as well as stakeholders' perceptions and views of health system challenges and policy options. Evidence synthesis is a fundamental approach to collating and assessing such knowledge, and represents a cornerstone of the evidence-informed approach to decision-making.

This Methods Guide provides a rationale for synthesizing evidence from health policy and systems research (HPSR) to support health policy-making and health systems strengthening. It introduces key challenges in synthesizing HPSR evidence and provides guidance on addressing these issues, including suggestions for framing a synthesis question, assessing context-sensitive evidence, understanding complexity, addressing health equity, selecting the appropriate synthesis approaches for HPSR questions, presenting the evidence and making sense of the findings for health policy and systems decision-making.

This Guide examines various synthesis methods – quantitative, qualitative and mixed methods – and provides practical guidance to engage decision-makers in evidence synthesis, enhance the policy relevance of syntheses and foster the uptake of review findings in policy and practice.