ESTABLISHING POLICY SUPPORT ORGANIZATIONS

EXAMINING AND CONTEXTUALIZING APPROACHES TO ESTABLISH POLICY SUPPORT ORGANIZATIONS

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Lay Abstract

Health system policymaking is a challenging task because many factors need to be balanced in policy decisions (e.g., efficiency, equity, and politics). There have been an increasing number of calls emphasizing the need to use the best-available research evidence to inform health system policies and, in response, efforts have been made in many countries to develop and implement approaches to enhance the use of research in the policymaking process. In some instances, organizations have been given sole responsibility for supporting evidence-informed policy, but evidence is limited to inform the process of establishing these organizations. This dissertation addresses this gap in the literature by: I) developing a new conceptual framework for the process of establishing organizations that can support evidence-informed policymaking; ii) identifying approaches that can be used in this process; and iii) developing a model for a proposed Omani knowledge translation department using this framework.

Abstract

There have been an increasing number of calls emphasizing the need to use the best-available research evidence to inform health system policies and, in response, efforts have been made in many countries to develop and implement policy-support organizations (PSOs) to enhance the use of research in policymaking. However, there is a paucity of evidence regarding both the best approaches for the successful establishment of such organizations. Moreover, there are very few attempts to consider how approaches can be applied in particular contexts, and operationalized by policymakers and stakeholders in their efforts to support EIPM through the establishment of PSOs.

This dissertation incorporates a mix of methodological approaches to address this gap. First, in chapter two, a critical interpretive synthesis was used to develop a conceptual framework that can guide the process of establishing a PSO or similar entities. The framework outlines the stages in the process of establishing a policy support organization and the contextual factors at the political-, research- and health-system level that influence this process. Second, in chapter three, the framework from the CIS was used to inform the design of a survey tool and interview guide used in a sequential mixed methods study to enrich the framework by soliciting insights from those with practical experience with developing and operationalizing PSOs in real-world contexts. Specifically, this study provides insights into the approaches and strategies for each stage in the establishment process for a PSO. Lastly, in chapter four, the findings from chapter two and three were used -- along with in-depth one-on-one semi-structured interviews with policymakers, researchers and stakeholders who are familiar with the Omani system -- to develop a model

for an Omani knowledge translation department, which can be used in a future co-design process for activating the department.

The dissertation chapters build on each other and make substantive, methodological, and theoretical contributions. Substantively this dissertation clarifies and defines key concepts that are essential to enable a rich understanding of the process of establishing a PSO. It highlights that the process of establishing such an organization is iterative and can be influenced by multiple contextual factors that affect the individual approach that has been used to support evidence-informed policymaking. Methodologically, this dissertation is the first study of PSOs that uses a mix of conceptual framework generation, insights from a wide range of fields such as organizational development, and empirical approaches that adopt mixed methods to derive fulsome answers to specific questions about establishing PSOs. Theoretically, this dissertation provides a conceptual framework that can be used to inform the process of establishing a PSO in different contexts. The theoretical constructs of this framework were verified and strengthened through direct application in subsequent studies in the dissertation.

This dissertation has many implications for policy and research. Most importantly, for those interested in establishing a PSO, my findings provide a road map for identifying the most appropriate starting point and the factors that might influence the establishment process. In addition, leaders of existing PSOs can use my findings to expand or refine their scope of work. Given that this framework focuses only on PSOs in the health sector, an important next step for research will be to include other sectors and identify any additional insight that can enhance the framework I have developed.

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List of Abbreviations

CIS	Critical interpretive synthesis
CSR	Center of Studies and Research
EIPM	Evidence-informed policymaking
EVIPNet	Evidence-Informed Policy Network
HIC	High-income countries
HiREB	Hamilton Integrated Research Ethics Board
KT	Knowledge translation
KTP	Knowledge translation platform
LMIC	low- and middle-income countries
MeSH	Medical Subject Heading
MOH	Ministry of Health
PI	Principal investigator
PSO	Policy support organization
RERAC	Research and Ethical Review & Approve
SWOT	Strength, weaknesses, opportunities, and threats
WHO	World health organization

Declaration of Academic Achievement

This dissertation presents three original scientific contributions (chapters 2-4), along with introductory and concluding chapters (chapters 1 and 5). Each of the chapters in this dissertation is co-authored, and I, Sultana Al Sabahi, am the lead author for each. Details of specific contributions are provided in the preface to each individual chapter. Overall, I conceived of each chapter with my supervisor, Dr. Michael G. Wilson, and with inputs from members of my supervisory committee, Dr. John Lavis, Dr. Fade El-Jardali and Dr. Kaelan Moat. I completed all data collection and analysis for each chapter. Finally, I drafted all chapters, and each co-author provided feedback that was incorporated into subsequent revisions.

Chapter 1

Introduction

This chapter introduces a Ph.D. dissertation that consists of three original research studies (chapters 2-4). This chapter begins with an overview of evidence-informed policy making (EIPM) and the current state of literature that supports EIPM. In addition, this chapter presents the overarching aims of this dissertation and the specific objectives and methodological approaches of each chapter. This chapter concludes with a discussion on the anticipated substantive, methodological, and theoretical contributions of the dissertation.

EIPM is an approach for policymaking that is intended to ensure that the best available evidence informs policymaking.[1,2] Approaches for supporting EIPM vary and depend on the type of decision being made and the context in which they are made.[3] The central idea of supporting EIPM is to enable those involved in the policymaking process to find and use evidence in a systematic and transparent way to inform policy that is appropriate to different stages of policy-development processes.[1,4]

It is important to highlight that many types of evidence (not just research evidence) can be used to inform policy. Evidence refers to "findings from research and other knowledge that may serve as a useful basis for policymaking".[5] It is a combination of explicit (i.e., the structured, verifiable and replicable evidence) and tacit knowledge (i.e., expertise, opinions, values, tradition, and belief).[6,7] This means that considering evidence in a hierarchy might help with prioritizing evidence about 'what works' (e.g., through effectiveness studies and/or systematic reviews of effectiveness studies). However, it may

neglect the importance of local data and research evidence in clarifying a policy problem (e.g., community-based surveys and administrative database studies), and systematic reviews addressing other types of questions, observational studies, economic and costing studies and qualitative studies that can help understand potential harms, costs and how and why a policy option might work, for whom and in what contexts.[8,9] Moreover, it may also neglect the importance of citizens' experiences, values and preferences, as well as tacit knowledge of those directly involved in or affected by a policy issue, which can be essential for contextualizing the evidence and determining what actions can and should be taken to address a given policy issue.[8]

Using evidence can help policymakers make more rational, systematic, and transparent decisions throughout the policy development cycle, namely agenda setting, policy formulation, policy implementation, and policy evaluation.[3,10-13] More precisely, evidence can help in clarifying a problem, framing viable options to address a problem, identifying implementation considerations (i.e., the potential barriers and windows of opportunities) and developing monitoring and evaluation plans that enable rapid-cycle improvements over time to implemented policies.[10-12] Although the EIPM literature frequently describes the policymaking process as a cycle from agenda-setting, policy formulation, legitimation, implementation, evaluation, policy maintenance, succession, or termination, it is a simplification of what is typically a much more complex and non-linear approach to policymaking.[14,15] Moreover, presenting the process of policymaking in stages can also give the impression that policymakers are fully rational, that power is concentrated, and all policymaking is top-down, which does not reflect the messiness and complicated

nature of the policymaking process in reality (where multiple actors and levels of government interact with each other).[14,16] However, the stage model provides a helpful organizing framework in EIPM, which can be used to analyze and present complex policy-related concepts.

Furthermore, much of the EIPM literature recognizes and acknowledges that evidence is only one determinant for policies within the policymaking process and that policymakers need to consider a broad range of factors related to institutions (e.g., government structures and past policies and regulations), interests (e.g., from professional organizations, patient groups, and private health care providers) and ideas (e.g., research evidence, data, patient and public values, and elite opinions).[17-19] Therefore, understandings of the policy process can be complemented frameworks that can be used to understand government agenda setting and policy decision-making. Kingdon's agenda-setting framework highlights the role of and the interaction between three 'streams' of factors related to problems, politics and policies that influence whether and how governments prioritize some issues over others.[20] Specifically, Kingdon's multiple streams framework is useful to explain how a particular issue made it onto the government's agenda as something that is one of the many issues that it is paying attention to (which the framework refers to as the governmental agenda) or the smaller set of issues that are up for active decision, which is referred to as the decision agenda. Kingdon (2003) outlines three streams problem, policies and politics that, when coupled, help push a particular issue for decision-making consideration. The problem stream focuses on how the problem came to the attention of governmental officials.[21,22] This can occur through changes in indicators,

focusing events, and feedback from the operation of existing programs. The policy stream includes factors that shape the different solutions that could be used to address the problem.[21,22] Policies to consider can emerge from diffusion of ideas in policy area (natural selection), feedback about the policy from the operation of the existing policies, or by communication and persuasion (typically from participants who are highly visible in relation to the policy issue).[21,22] Lastly, issue can come to the forefront on a government's agenda through the politics stream, which can occur through swings in the national mood, change in the balance of organized forces (e.g., interest groups advocating for a government to address a particular issue), and events within government (e.g., a newly elected government with a new mandate and set of priorities). In the process of agenda setting there are visible participant (e.g. Prime minister, Premiers, Ministers, opposition leaders, interest group leaders, and journalist) and invisible participants (e.g. academic specialist, civil servants, political staff of elected official, and analyses).[21,22] Policy entrepreneurs are those who are willing and able play an important role in coupling the three streams together to elevate issues to the decision agenda when a policy window emerges using their resources and visibility in return for the future policy they favor. An open policy window is an opportunity for advocate to push their pet solution or to push attention to their special problems. Windows are opened by events in either problems or political streams and they can be predictable or unpredictable.[21,22] The multiple streams framework reinforces the distinction between two kinds of evidence-based activity relating to; the size of the problem, and the effectiveness of the solution.[14]

Furthermore, the Advocacy Coalition framework can also be used to understand the factors influencing the policymaking process. Advocacy Coalition is "a wide range of actors, including government from all levels, officials, interest organizations, research groups, journalists, and even other countries, who share a belief system about a policy area and over time demonstrate some degree of coordinated activity".[23] This model recognizes that researchers and research production are not external to the policymaking process.[12,14] Instead, they are an integral part of the policymaking process because researchers are key members of advocacy coalitions who can influence policymaking by constructing or reconstructing the evidence differently depending on the context.[12,14]

In addition, the 3I+E framework brings together three of the most common factors to which the political science literature appeals for explaining policy development processes.[24] This framework holds that policy developments and choices are influenced by actors' interests and ideas, as well as by institutions.[25] This framework is useful to understand past policy choices, and to plan for future policy implementation.[24] Interests refer to "agendas of societal groups, elected officials, civil servants, researchers, and policy entrepreneurs".[26] The motivation of different actors to mobilize to support or advocate against a policy is determined by who wins and who loses and by how much.[27] In other words, an interest group will be more likely to mobilize when they face concentrated benefits or costs from a proposed policy, and less likely when they face diffuse benefits or costs.[28] The second factor that influence the policy development is ideas. Ideas can include knowledge or beliefs about "what is" (e.g., research knowledge, research evidence, other types of information, and tacit knowledge), and/or values or mass opinion about "what

ought to be" (e.g., Elite opinion, informed mass opinion following deliberation, and mass opinion).[27] Ideas can influence how different actors in the policy process define a problem, and how they perceive different policy options to be effective, feasible, and acceptable.[24] Lastly, institutions refer to the "rules of the game" within which decisions are made, and it can include government structures which concern about the type of political arrangement of the country (e.g., federal vs. unitary state, and parliamentary vs. presidential system), policy legacies (the impact of previous policies in current policy options), and policy networks (i.e., the ways in which governments and interests interact and the impacts of differing access to authority).[29] Finally, external factors are those located outside the immediate policy community which can be a trigger to policy action, such as the release of major reports; political, economic, and technological changes; and the influence of international organizations, international donors, and court decisions.[25]

Context is also critical in the policymaking process and in EIPM.[1,4,16,30,31] It refers to the environment or setting in which the policy is being developed and implemented.[30] It can include the historical, cultural, political, health system, demographic profile, economy, mass opinions, behaviour, and resource contexts.[4,14] These contextual factors can create challenges in integrating evidence into policy and practice.[4] Since approaches to supporting EIPM are often context specific, they are influenced by the level of polarization, cost-sharing equilibrium (economics), and institutionalized channels of communication (social structuring), individual characteristics, and organizational characteristics.[4,12,14,32] Therefore allowing for context analysis, enables consideration of issues of power in all its

dimensions.[12] Evidence constructs a form of the invisible power that operates behind the scene and expresses through cultural beliefs and social norms.[33]

Given that evidence is only one factor among many that need to be considered in making policy decisions, enhancing the use of evidence in policymaking require a system that enables policymakers to find, appraise, synthesize and contextualize the large volume of available evidence in a timely way.[17,18]

Previous studies focusing on institutionalizing a knowledge translation platform (KTP) highlighted that it is crucial to ensure that the core functions of EIPM become a routine practice with approaches that can be adapted according to local contexts.[34,35] For example, one significant effort to institutionalize EIPM approaches was the launch of the global Evidence-informed Policy Network (EVIPNet) by the World Health Organization (WHO) in 2005. The aim of this initiative was to strengthen health systems and improve the health of populations by consolidating national knowledge translation (KT) efforts and supporting the systematic and transparent use of high-quality research evidence by national policy-makers, researchers, and members of civil society in policy-making.[36] Along with the WHO initiative, several organizations (e.g., McMaster Health Forum, Knowledge to Policy Center, and a variety of other knowledge translation platforms and health policy analysis Units) in a variety of settings (e.g., independent organization, or embedded within government/academic institution) with a similar aim were established around the world. Several studies have reported that situating policy-support organizations (PSOs) within government agencies (e.g., a ministry of health) is advantageous for accessing information, facilitating interaction between policymakers and researchers, and enhancing the

organization's sustainability.[37-41] In contrast, PSOs located within universities have more autonomy and independence but need to balance producing academic outputs and ensuring policy relevance.[37,42] Despite these initiatives to establish PSOs, country or regional-based experiences have yet to be synthesized in a manner that makes these experiences more transferable across different contexts.

In this dissertation, I am calling organized efforts – whether in a department, a unit, a forum, a network, an organization, or an initiative either external from government or embedded within government - to support EIPM a PSO. In using the term PSO, I intend to focus on the organizations that support EIPM by clarifying problems, selecting options, and identifying implementation considerations. These organizations focus on strengthening health systems that are designed to get programs, services and drugs to people who need them, rather than focusing on specific programs, services, and drugs used as part of clinical and public health practices. As such, the organizations which focus on data analysis, clinical practice guidelines, health technology assessment, modeling options and evaluating impact are not the focus of this dissertation.

The literature provides evidence about the different approaches that a PSO might use in supporting EIPM,[32,43] and as well the facilitators and barriers that might affect the different approaches.[44-49] Approaches that can be used could involve: building capacity to support evidence-informed policymaking (e.g., priority-setting exercises, courses and workshops), finding evidence to inform policymaking (e.g., administering clearinghouses and providing rapid response services), sparking action to inform policymaking (e.g., citizen panels and stakeholder dialogues), embeding supports (e.g., adjusting structures and

processes, and routinizing evidence use), and evaluating innovations (e.g., using rapid-learning approaches).[37,38,50-57]

However, there has been less emphasis in the literature on understanding the process and the approaches for establishing a PSO as an entity, including how PSOs prioritize the services to offer and their context-specific approaches to providing them. Therefore, I aimed to develop a full understanding of the processes for establishing PSOs that can be used and adapted across health-, research- and political-system contexts. Throughout the three studies, I used the 3I+E framework (institutions, interests, ideas, and external factors) to organize contextual factors that facilitate or hinder the use of evidence in the policymaking process.

Overview of Studies Included in the Thesis

To achieve this goal, I conducted three original complementary studies that use a mix of methodological approaches. Since we know that the political, social, and economic contexts influence the policymaking process the focus of the first two studies in this thesis was kept wide by including PSOs from different countries to enable a better understanding whether and how contextual factors influence the establishment of PSOs. The third study has a particular focus on Oman, which has a very distinctive political system compared to most of the PSOs studied in the first two studies. Oman is a monarchical regime, where "monarchs not only reign but rule",[58] in which the leadership is directly associated with the Sultan, rather than business or organizational leaders. This makes the power centralized above the ministerial level.[59] This authoritarian regime gives little chance for social or political pluralism, and political parties are banned in Oman.[59] In general, Oman is

considered to be a politically stable country.[60]

To give the Omani citizens the opportunity to participate in the government activities, Majlis A'Shura, the Consultative Council, was established in 1991. The public elects the members of this Council, and they are responsible for reviewing laws before instigation and provide recommendations on laws, policies, plans, and general budget after hearing from the public.[61,62] Oman also has another council called "Majlis A'Dawla" (The State Council), which is considered a financially and administratively independent legal entity. Its Chairman and members are appointed by Royal Decree from Omani nationals of not less than 40 years of age with good social standing and reputation. It is not permitted to combine membership of the "Majlis A'Dawla" with a membership of "Majlis A'Shura" or public office, except under special conditions where a member might be requested for his or her expertise in a particular field.[61] Finally, "Majlis A'Dawla" reviews matters referred to it by the Sultan, drafts laws before promulgation, and prepares studies on development-related issues, including human resources. Membership is for four years, and it is renewable.[61,62] "Majlis Oman" (The Council of Oman) was then formulated and is made up of members of "Majlis A'Dawla" and "Majlis A'Shura". It assists the Government in drawing up the general policies of the State. The Council meets at the request of the Sultan to study and discuss matters raised by him, taking all its decisions on the basis of a majority vote.[61,62]

A systematic review of the political and institutional influences on the use of evidence in public health policy found that compared to de-centralized political systems,

centralized systems are likely to be less open to the uptake of evidence particularly research findings.[63] It has also been reported that concentration of power in centralized systems prevent pluralistic debate and thus the need for evidence to support competing views.[63] Other factors that might hinder the uptake of evidence in centralized systems include, government control over expert advice, hierarchical management of information, and little public oversight.[63] On the other hand, the demand for evidence in federal systems in which policy is made at the provincial level is higher because it is used to justify policy decisions and defend them against opponents' criticisms.[63] The same review further found that due to the lack of autonomy of local bodies that support health and health services research, the use of evidence in the authoritative state is highly influenced by international experts and organizations.[63] However, a comparative study found that the nature of the political system (e.g. democratic or autocratic) is not necessarily a key factor in influencing the use of evidence in policymaking.[64] Therefore, despite Oman having a different political system than many of the PSOs identified in the first two studies, insights from them can still help to guide the establishment of a PSO in Oman.

In chapter two, I used a critical interpretive synthesis (CIS) to develop a conceptual framework to understand the process of establishing a PSO and the political-, research- and health-system contextual factors that influence this process. The CIS methodology allows for flexibility to draw from a wide range of relevant sources and is not constrained by only including pre-specified designs or quality of documents. Since the process of establishing a PSO is not well defined, particularly such entities have different names, using CIS gave

me the flexibility to start with a compass question which was iteratively developed as I made progress in the data collection and analysis.

In chapter three, I used a sequential mixed method approach by combining elements of quantitative (survey) and qualitative (in-depth one-on-one interviews) research approaches to develop a broad as well as in-depth understanding of the phenomenon of establishing PSOs. In phase one of this study, I surveyed PSOs from different countries, that had different features, and existed in different contexts. Next, I used the survey findings to refine the sample frame and the interview guide for the second phase of the study. In the second phase, interviews with PSO leaders focused on: I) identifying insights about the process of establishing a PSO; ii) identifying the critical junctures in the life of PSOs; and iii) identifying the approaches that PSOs have used to ensure organizational sustainability in the long term. Both the survey and the interview guide were informed by chapter two findings.

In chapter four, I adopted Stake's (1995) case study approach. According to Stake, "[a] case study is both the process of learning about the case and the product of our learning."[65,66] Accordingly, the case in this study is the development of a model to operationalize a department of Knowledge Translation in the Omani Ministry of Health. This case provides an extraordinary learning opportunity. Given the past role that I held (i.e., an employee of the MOH) and the future role that I will have (i.e., leading the department), I have a unique opportunity to use multiple sources of evidence for the analysis, including documents and key informant interviews. Because of this learning opportunity, Stake (1995) classifies such cases as a typical case. The data for this study was

collected through one-on-one in-depth interviews with policymakers, researchers, and stakeholders who had in-depth knowledge of the Omani health and research systems.

Finally, in chapter five I provide reflections and overarching conclusions that are drawn from findings in each of the three chapters. Specifically, I provide an overview of the principal findings of the thesis, a summary of the substantive, methodological and theoretical contributions, a summary of the key strengths and potential limitations of the thesis and the main implications for policy and research.

Anticipated Substantive, Methodological and Theoretical Contributions of the Dissertation

The notion of establishing organizations or entities that support policymakers better to inform health system policies with the best available evidence has been of interest to many countries and international organizations. To the best of my knowledge, the process of establishing PSOs has never been the focus of any existing study within the literature. Up until this point, each country and organization has been capitalizing on existing expertise and experiences, and therefore the main substantive contribution of this dissertation, is that it provides evidence and insight to inform this process. Therefore, substantially this dissertation clarifies and defines key concepts that are essential to enable a rich understanding of the process of establishing a PSO. It is a unique initiative trying to address a management related concept (i.e., organization establishment) using a combination of multiple qualitative and quantitative methods. Chapter two in this dissertation generates the first road map for establishing PSO. It harness the large quantity

of the literature related to organizations and initiatives that support EIPM into a conceptual framework that can be used as practical guidance to those interested in establishing a PSO by identifying the most appropriate starting point and the potential facilitators and barriers that are not contexts specific. The framework can also be informative for established PSOs where leaders of such PSOs can use my findings to expand or refine their scope of work. Chapter three complements chapter two by offering more detailed approaches for each stage in the process of establishing a PSO based on the experiences of existing PSOs from around the world. The last study (chapter four) offers a practical example for how the framework and the approaches can be used while planning for establishing a PSO.

The methods in this thesis are selected strategically to achieve a broad and deep understanding of the process of establishing a PSO by moving from a general and descriptive focus to a specific and explanatory focus. The three studies provide a combination of mixed, quantitative, and qualitative methods that complement each other. While the critical interpretive synthesis approach might not be considered as a new approach, its use to develop a framework for the process of establishing a PSO is an important contribution to the literature. Particularly, the organizations' establishment were mainly studied in the management field rather than health policy. Another methodological contribution of this thesis is the creation of an opportunity to verify and strengthen the theoretical constructs of the framework through direct application in subsequent studies in the dissertation. The use of a mixed-method approach (survey and interview) in chapter three to verify the framework developed in chapter two is important for generating more in-depth insights form PSO leaders to make it more rich and fruitful. Triangulating multiple

methods and sources to inform the process of establishing a PSO also provides confidence that the framework is robust, applicable, and transferable across contexts. Finally, the use of an intrinsic case study approach in chapter four is central to developing an understanding of the situation in Oman, to propose a model for operationalizing the knowledge translation department in the Omani Ministry of Health, and to identify the potential barriers and windows of opportunities. Using a potential case (since the department is not functioning yet) in the qualitative case study design is a unique methodological feature of this study. In particular, using this potential case provides the opportunity to compare the factors that might affect the process of establishing a PSO from the perspective of established organizations' leaders and prospective organization leaders and stakeholders.

Lastly, the dissertation provides theoretical contributions to the understanding of the process of establishing a PSO. The conceptual framework identifies the four main stages in the process of establishing a PSO: awareness, development, assessment, and maturation. The framework also identifies the political, research, and health system contextual factors that might influence these stages. In chapter three, the framework is used to develop the interview guide. This help me solicit more in-depth insight from real-world example PSOs based on their establishment story, critical juncture(s), and their sustainability approach. The framework proves its usefulness as a good tool to organize the process of establishing a PSO around the four stages identified. The approaches and strategies identified in chapter three enrich my framework with the solicited real-world experiences.

Research Reflexivity

It is important to outline my motivations to conduct this research. Before starting my Ph.D., I worked at the Ministry of Health in Oman for six years, and a year before starting my Ph.D., I was nominated to be the head of a new knowledge translation department. Therefore, I was motivated to identify the best possible approaches that can be used to operationalize this department. Being an insider-researcher (studying a group to which I belong) has many advantages, such as having an in-depth understanding of the culture being studied, knowing the politics of the institution, knowing how to best approach people, not altering the flow of social interaction unnaturally, and having an established intimacy which promotes both the telling and the judging of truth.[67,68] Overall, insider-researchers have an exceptional depth of knowledge as compared to an 'outsider' that would require a long time to acquire.[68]

At the same time, there are challenges associated with being an insider-researcher, such as potential challenges in being objective in the research process, role duality (i.e., employee and researcher), gaining access to sensitive information, and making wrong assumptions about the research process based on the researcher's prior knowledge.[68,69] Therefore, it is important to be aware of these challenges and to address them in the research design, data collection process and the in the analysis and interpretation of the data. Being an insider-researcher helped in identifying the policy documents more efficiently, selecting the participants to be interviewed, and in coordinating the interview process. My familiarity with the Omani context could also affect the approach to how participants were selected and how the data was analysed and interpreted However, my thesis supervisor and PhD

committee members were outsider-researchers in the study focused on Oman (chapter 4) and were heavily involved in developing the research method and the interview guide for it. In addition, I was aware of this self-interest in the field, and I kept myself open to identifying all potential options, including those that were not as applicable to the Omani context. While doing the third study (chapter four), I kept myself open to see the changes and progress that have been made in the Ministry regarding their knowledge, attitudes, and practices of evidence-informed policymaking. Although I gained much knowledge through my doctoral training and thesis work about evidence-informed policymaking, I was aware that this model is very context-specific, and all comments made by participants during the interview were valued and considered seriously. Finally, participants were given a chance to provide feedback on the results.

Concluding Comments

The goal throughout this Ph.D. dissertation was for the research chapters to build on each other. Specifically, the insights gained from the CIS were used to inform the data collection tools and the analysis of the second study. Similarly, the findings from the first and second studies (chapters two and three) were utilized to inform the model developed for Oman to operationalize the knowledge translation department. The hope is that this work will inform the establishment of organizations working in a variety of health-system contexts that support EIPM to be informed by high-quality evidence from the literature and real-world experiences. In addition, I also hope that this finding will push forward the scholarly discourse around PSO organizations and ignite curiosity in other researchers to

seriously think further about identifying the best approaches to evaluate the impact of these organizations on the health system policies.

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Chapter 2

Preface

This chapter provides a conceptual framework that can guide the process of establishing a policy support organization (PSO) or similar entities, which was developed through a critical interpretive synthesis. The framework outlines the stages in the process of establishing a policy support organization and the contextual factors at the political, research and health system level that influence this process.

I was responsible for conceptualizing the area of focus of the study, designing the study and executing the data collection and analysis. The included studies were identified from a search strategy executed from October 2018 to December 2018, and the analysis and development of the framework was completed between March 2019 to June 2019. Dr. C. Marcela Vélez assisted with assessing documents for eligibility and inclusion in the review. My supervisor (Dr. Michael G. Wilson) contributed to analysis, synthesis and development of the theoretical framework, which was an iterative process. I drafted the thesis chapter and committee members (Dr. John N. Lavis, Dr. Fade El-Jardali and Dr. Kaelan Moat) provided feedback on drafts, which were incorporated into the final version of the chapter.

Examining and Contextualizing Approaches to Establish Policy Support Organizations—A Critical Interpretive Synthesis

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Key messages:

- Policy support organizations are increasingly seen as essential for supporting the use of research to inform health system policymaking, and establishing a PSO has four interconnected stages, which include awareness (for the need for evidence-informed policy), development, assessment, and maturation.
- The process of establishing a PSO is iterative and influenced by contextual factors related to political, health and research systems, which determine the availability of the resources and the trust between researchers and policymakers that are needed to support the establishment of a PSO.

Abstract

In response to worldwide calls for the need to support evidence-informed policymaking (EIPM), more countries are increasingly interested in enhancing their efforts to use research to inform policymaking. In order to inform the efforts of those asked to lead the support of EIPM, our aim is to develop a conceptual framework to guide the process of establishing a policy support organization (PSO). We conducted a critical interpretive synthesis. We systematically searched OVID EMBASE, PsychInfo, HealthStar, CINAHL, Web of Science, Social Science Abstract, Health Systems Evidence, and ProQuest Dissertations & Theses Global databases for documents reporting the establishment of PSOs and the contextual factors that influence these organizations. We assessed the eligibility of the retrieved articles and synthesized the findings iteratively. Of the 12,890 documents identified from the searches, we included 52 documents in the synthesis. Our findings suggest that a PSO establishment process has four interconnected stages: awareness, development, assessment, and maturation. The process of establishing a PSO is iterative and influenced by contextual factors in political, research, and health systems, which determine the availability of the resources and the trust between researchers and policymakers. The contextual factors have an impact on each other, and the challenges that arise from one factor can be mitigated by other factors. Our framework provides those interested in establishing a PSO with a road map for identifying the most appropriate starting point and factors that might influence the establishment process. Leaders of such PSOs can use our findings to expand or refine their scope of work. Given that this framework focuses only on PSOs in the health sector, an important next step in the research

would be to include other sectors of social systems and identify any additional insight that can enhance the framework we have developed.

Introduction

There are consistent calls worldwide to ensure the use of research evidence in health-system policymaking to strengthen health systems and to address the quadruple aim of enhancing patient experiences, improving population health with manageable per capita costs, and positive provider experiences.[1-3] Using research evidence can help policymakers make more rational, systematic, and transparent decisions throughout the policy development cycle, namely concerning agenda setting, policy formulation, policy implementation, and policy evaluation.[2,4-7] More precisely, evidence can help to clarify a problem, to frame viable options to address a problem, to identify implementation considerations (i.e., the potential barriers and windows of opportunities), and to develop monitoring and evaluation plans that enable rapid-cycle improvements over time to implemented polices.[4-6] Despite the advantages of evidence-informed policymaking (EIPM) and the worldwide call to increase the use of research evidence in policymaking, several barriers constrain the use of research evidence in health-system policymaking processes.

One of the challenges that policymakers face in using evidence is related to the complex nature of the policy process, in which research evidence is only one factor among many that needs to be considered in policy decisions.[8-11] Other factors include institutional constraints, interest-group pressure, values, and external events (e.g., economic recessions).[8-11] Another challenge is that research evidence can be difficult to use and the results are often packaged and presented in a way that appears to be unhelpful for the types of decisions policymakers face.[11-13] Studies have also found mutual mistrust between

researchers and policymakers and indicate that policymakers have a tendency to place little value on research evidence as an input into policy decisions.[9,13] In addition to these common barriers, a study conducted in 2014 reported that poor access to high-quality and relevant research and lack of timely research outputs are further obstacles to the use of research evidence in policymaking.[14]

There are different mechanisms used to overcome these barriers and support the use of research evidence in policymaking.[15-17] For example, knowledge producers or intermediary groups can make it easier for policymakers to find research evidence when a demand for it arises (e.g., through easy-to-search one-stop-shops or clearinghouses for relevant and high-quality research evidence) and to use the evidence they find (e.g., by preparing user-friendly summaries of policy-relevant systematic reviews).[18] Knowledge users can support the processes and structures that are needed to facilitate the demand for evidence from policymakers (e.g., by creating routine processes in the policy development process to use key sources to find and use research evidence).[18] Furthermore, many have highlighted the importance of mechanisms that support knowledge producers (i.e., researchers and academics) and knowledge users (i.e., managers and policymakers) to work more closely together.[19,20] For example, knowledge producers and users can have meaningful partnerships that enable them to jointly ask and answer relevant policy questions, such as by way of convening stakeholder dialogues where policymakers, stakeholders, and researchers can combine the best available evidence with their collective insights to spark action to address pressing policy challenges.[18] Lastly, such approaches

from knowledge producers and users can be integrated and embedded in a knowledge translation platform (KTP) to enable more comprehensive efforts to support EIPM.[18,21]

A KTP is a form of organized effort (i.e., organization or network) to bring research and policy communities together. A KTP has five primary objectives: (I) identifying policy needs and priorities; (ii) harvesting local evidence and experience (e.g., by building a database of locally produced evidence) and harmonizing it with global knowledge to guide policy development and implementation; (iii) brokering among policymakers and researchers on key issues; (iv) packaging evidence for target audiences; and (v) strengthening the capacities of researchers to generate better evidence and of policymakers to better find and use research evidence.[22] This type of approach has been operationalized by the World Health Organization (WHO) through the Evidence-Informed Policy Networks (EVIPNet), which has the goal of supporting the process of translating research evidence into policy and action in a number of low and middle–income countries (LMICs).[21] Despite the fact that EIPM initiatives have different forms and have been called different names,[9,23] little is known about the different approaches to establish such organized efforts.

In this synthesis, we are calling the organized effort (this could be a department, a unit, a forum, a network, an organization, or an initiative either external from government or embedded within government) to support EIPM a policy support organization (PSO), and our aim is to develop a conceptual framework that can guide the process of establishing a PSO or similar entity. As more countries are increasingly interested in enhancing their efforts to use research to inform policymaking, a trend has emerged where a particular

group, initiative, department, network, or organization is asked to lead efforts to support EIPM at the system level. However, despite the increased interest in establishing PSOs, we are not aware of an existing synthesis of evidence or a conceptual framework that focuses on the different approaches used to establish such organizations in different contexts and takes into consideration the establishment process, the organizational attributes or features, and the contextual factors that affect the process.

This study seeks to address this gap by undertaking a critical interpretive synthesis (CIS) to develop a conceptual framework for establishing a PSO.

Methods

Design

We conducted a CIS, which is a synthesis approach designed to analyze a broad range of relevant sources and use analytical outputs to develop a conceptual framework.[24-27] CIS is a particular form of systematic review that draws on both traditions of qualitative research inquiry and on systematic review methodology.[28] A CIS is best suited to study an emerging phenomenon that is currently difficult to define,[29,30] which is the case with the processes for establishing PSOs. In conventional systematic reviews, the researcher formulates a precise question that is tightly focused, allowing for pre-identification of the review parameters and the selection criteria. Developing a narrow research question is useful when the phenomenon of interest and relevant populations, interventions, and outcomes are all well specified.[31] In contrast, CIS methodology allows for flexibility to draw from a wide range of relevant sources and is not constrained by including only pre-

specified designs or quality of documents. Instead, the relevance of the article is the most critical judgment for article inclusion.[24,26] An additional strength of the CIS approach is that it allows researchers to formulate an initial compass question that can be further iteratively modified and defined as the synthesis progresses.[26,32]

Our initial compass question was as follows: "What are the key features (infrastructure, activities, outputs, outcomes, and impacts) of the organization, initiative, or network that support evidence-informed policymaking by clarifying problems, selecting options, and identifying implementation considerations, and how are these key features related to political, health, and health research–system contexts, particularly as they help to support evidence-informed health policymaking?" This question was iteratively refined as the literature search, review, and analysis proceeded. The finalized compass question is as follows: "What is the process of developing a PSO, what are the main features/attributes of PSOs, and what are the contextual factors influencing this process?"

Eligibility Criteria

We included documents that focus on one or more PSOs (i.e., organizations, initiatives, and networks that support evidence-informed health policymaking by clarifying problems, selecting options, and identifying implementation considerations) as well as documents that focus on organizational attributes and contexts. We excluded documents that focused on clinical practice or clinical-practice guidelines, public-health practice, health-technology assessments, and knowledge translation of decision making in other sectors (not health).

Search Strategy

To identify relevant literature, we employed a two-step search strategy in October 2018. First, we conducted a preliminary search in Google Scholar for potentially relevant documents in addition to screening documents familiar to members of the research team that had already been highlighted as relevant to the topic. This search identified 38 documents that highlighted 56 different PSOs. Twenty-eight PSOs were excluded after consulting the research team because they did not fit within the inclusion criteria, mainly because they focus on clinical-practice guidelines and health-technology assessments instead of health-system policies. Of the remaining 28 PSOs, 22 were found to have a web page. The websites of relevant organizations were scanned for descriptors used to discuss PSOs. These descriptors were then utilized to inform the second step, which was the development of a comprehensive database search strategy.

Using these descriptors, we worked with a librarian at the McMaster Health Sciences Library to develop an explicit and structured approach to search the indexed and grey literature, using nine databases to cover the broadest possible spectrum of articles related to the establishment of a PSO. The search strategy used a combination of Medical Subject Heading (MeSH) terms (e.g., decision making and policymaking) and keywords developed for OVID MEDLINE and adapted for other databases as necessary. The search terms were derived by identifying synonyms for five domains relevant to the compass question: the input/what the organization uses, the target/what the organization targets, the connection between the input and the target/what the organizations do, the focus of the organization, and the organization descriptor (e.g., unit, department, network, organization,

forum, or platform). The Boolean operators OR were used to combine the MeSH terms and keywords within each concept while AND was used to make the connection across the concepts.

We developed and piloted ten search strategies to test for their sensitivity. This included testing all synonyms individually for sensitivity, and synonyms that expanded the results to an unmanageable number (e.g., 40,000+) were refined by scanning the first three pages of search results. If nothing relevant was found, the synonym was dropped. If some relevant articles were identified within the first three pages of search results, the synonym was included, but limited to title only. The final search strategy for Ovid Medline is summarized in Appendix 1 and has been adjusted to further search OVID EMBASE, PsychInfo, HealthStar, CINAHL, Web of Science, Social Science Abstract, Health Systems Evidence, and ProQuest Dissertations & Theses Global. These searches were then supplemented by a hand-search of each included document's bibliography and the WHO website to identify any additional relevant literature.

Selection of Documents

We used referencing software (Endnote version 9) to manage the retrieved documents and to remove duplicates. To ensure the included documents met the synthesis criteria, two reviewers independently reviewed a randomly generated sample of 20% of the retrieved documents at two stages. First, the principal investigator (PI) reviewed the titles and abstracts of all documents retrieved and classified them as potentially relevant or not relevant (to be excluded), and the second reviewer independently reviewed the title and abstract of 20% of the retrieved documents. The PI conducted a 30-minute meeting with

the second reviewer to explain the topic, the inclusion and exclusion criteria, and the strategy to screen the documents. The eligibility criteria were tested by each reviewer independently assessing the first 5% of the search results. Following discussion to reconcile any area of discrepancy, both reviewers then assessed the remaining documents in the sample. Next, the PI reviewed the full text of each document that had been classified as potentially relevant and the second reviewer reviewed 20% of the sample. A Kappa statistic was calculated for the documents reviewed by both reviewers. All discrepancies were resolved by extensive discussion to establish consensus. By reaching a sufficient level of agreement, the same inclusion and exclusion criteria were then used to review the remaining 80% of the retrieved documents by the PI.

Data Extraction and Analysis

We developed and piloted a standardized data extraction form that included data about the documents (the year published, document type, methods employed, countries included, and concepts covered), the PSO covered in the paper (organization name and attributes, including leadership, governance, human resources, financial arrangements, linkages, infrastructure, program, and services), and contextual factors related to the political, health, and research systems. The extraction form was designed to conceptually map the process of developing a PSO and the influence of the contextual factors on this process and on the organizational attributes. The 3I+E framework, which outlines how factors related to institutions, interests and ideas shape policy decisions was used to arrange the contextual factors related to the political system. In addition, a taxonomy of health-system governance, financial and delivery arrangements from Health Systems Evidence

(www.healthsystemsevidence.org) was used to organize findings about health and research system contexts. Although the frameworks were used when extracting data, findings were further grouped into themes based on what emerged from the literature. The Cochrane knowledge translation (KT) framework was also used to organize the findings about the program and services, which includes six themes: prioritizing and co-producing evidence syntheses, pushing and supporting implementation, facilitating pull, exchanging knowledge and evidence, improving the EIPM climate, and ensuring sustainable KT processes.[33]

After reading the included full-text documents and extracting findings using the form, data was synthesized interpretively using the constant comparative analysis approach throughout analysis to ensure that the emerging synthesized constructs are grounded in the data. We started by identifying the common themes and concepts, giving greater attention to themes emerging from multiple documents that helped to understand the process of establishing a PSO and how the contextual factors influenced this process. These themes and concepts were then used to develop conceptual constructs that highlight the main stages for establishing a PSO and the contextual factors that influence this process. Finally, the identified constructs were integrated to produce a synthesized argument (conceptual framework) about the establishment of PSOs in relation to the contextual factors and the organizational attributes. This was done with continuous consultation with other members of the research team who have extensive expertise with supporting policymakers in identifying conceptual gaps and finalizing conceptual framework. During all stages of data extraction and analysis, the PI kept a memo to track changes in the compass question and

any modifications in identifying documents or synthesizing the results.

Results

Our search retrieved 12,890 documents. After removing duplicates and screening titles and abstracts, we identified 176 full-text articles for further appraisal, of which 52 documents were eligible for synthesis inclusion (Figure 1). The Kappa statistics on the samples for the first step (i.e., screening titles and abstracts of all retrieved articles) and the second step (i.e., reviewing the full text of the articles that had been initially classified as potentially relevant) were 0.62 and 0.82, respectively, and both scores reflect substantial agreement between the two reviewers.

The number of included documents increased over time (2003–2010, *n* = 8; 2011–onward, *n* = 44). All WHO regions were represented in the documents, although the organizations predominantly studied were from the African (*n* = 31) region. Organizations from other regions were less frequently studied, including the Americas (*n* = 13), Southeast Asia (*n* = 10), Europe (*n* = 7), and Eastern Mediterranean and the Western Pacific (*n* = 6). Documents also focused on a mix of low-income (*n* = 27), middle-income (*n* = 30), and high-income countries (*n* = 17) (note that several documents focused on countries from more than one income classification). Most of the documents (*n* = 41) were journal articles, with the rest being commentaries (*n* = 5), reports (*n* = 4), meeting abstracts (*n* = 1), and media articles (*n* = 1). Of the 52 included documents, 38 were empirical studies. Of these, many employed at least two data-collection methods (*n* = 19), with document analysis (mainly unpublished internal documents, e.g., policies, meetings notes, and archives) being the most common method utilized (*n* = 28), followed by interviews (*n* = 20), surveys (*n* =

10), non-systematic reviews (mainly using published documents) (*n* = 5), and systematic reviews (*n* = 3). Of the 83 organizations mentioned in the 52 included documents, the most common settings for PSOs were within government (*n* = 32) or academic institutions (*n* = 28), while those situated as independent organizations were less common (*n* = 15). Slightly less than half of the documents focused PSOs from at least two different settings (*n* = 22) and about one third of the documents focused on PSOs in more than one country (*n* = 18).

Conceptual Framework for Establishing a PSO

We developed a framework that outlines the process of establishing a PSO. Figure 2 presents this framework, which includes four main stages in the establishment process: awareness, development, assessment, and maturation. Each of the stages has unique components as well as connections to the other stages. Although the framework is arranged in a sequential way, it is important to emphasize that the process of establishing a PSO is iterative (this is indicated by the double-headed arrows between the stages), and different organizations may go back and forth between different stages even after reaching the maturation stage, given that the process could be repeated when the organization introduces a new service or program or when an organization goes through an assessment that requires major changes. In addition, some organizations may skip one or more steps depending on what is already in place. For example, if the concept of EIPM is well established, less work will be needed in the awareness stage, while others might skip the assessment stage when there is not enough capacity to do the assessment. Furthermore, as highlighted in the far left in Figure 2, the process of establishing a PSO is influenced by contextual factors that are related to the political, health, and research systems. The following sections provide a

description of the components and features of each stage, the corresponding contextual factors, and the link between the stages.

Awareness Stage: Providing a Foundation for Why a PSO is Needed

The awareness stage provides the foundation for establishing a PSO by identifying the motivation that would push the idea of establishing a PSO forward. Two main motivations were identified for this purpose (see Table 1). The first motivation is having a supportive climate for EIPM, which is needed to build awareness among policymakers and researchers about how evidence can inform policymaking.[34-43] The second motivation is identifying the fragmentation between policy and research communities and the need to address it.[42,44] A supportive climate or an identified and an agreed upon need to bridge the gap between policy and research communities can each individually drive the need to establish a PSO, as well as act synergistically to provide a stronger case. The level of awareness built from this synergy subsequently affects the development stage. For example, countries that do not have widespread awareness may need to initially focus on developing and implementing programs that help to further build awareness while also supporting EIPM. These programs might include capacity building workshops, establishing priority-setting processes, and providing opportunities for exchanges between policymakers, stakeholders, and researchers that create opportunities to help bring the policy and research communities together.

Development Stage: Understanding the Situation and Specifying the Organization's Attributes

The development stage is the actual implementation of a PSO. This stage is the first point where KT activities start to be more organized and attributed to a specific organization (e.g., department, unit, forum, or network). This stage involves identifying the organization's features by first understanding the situation and then specifying the organization's attributes (see Table 2). At the early stage of establishing a PSO, different approaches can be used to either understand who is doing what, why, and where (i.e., situation analysis approach),[22,34,36,37,39,45] or to provide a proof of concept for efforts to support EIPM among research and policy communities.[36,45] While a situation-analysis approach is better for assessing the relationship between the research and policy communities,[22,34,36,37,39,45] a proof of concept approach is critical for demonstrating the potential benefit of establishing the organization.[36,45] These two approaches might play a different role in different countries and can complement each other. For example, a situation analysis can be used to identify the niche, threats, and opportunities for a newly proposed organization in countries where other organizations that support EIPM in different ways already exist (e.g., health technology–assessment units that provide decision support for whether to provide funding for specific programs, services, and drugs, but not about the system arrangements that are needed to get them to those in need).[22,34,36,37,39,45] In addition, the same approach can be used to understand policymakers' priorities and identify the potential collaborators in countries where EIPM initiatives are dispatched.[36,37] In

contrast, a proof of concept can be helpful in providing direct evidence about or experience with how a PSO can play a critical role in achieving these priorities.[36,45]

Once the organization understands the situation, the next step is to identify its attributes, which (as we outline in Table 2) include defining the following: I) strong leadership[22,36,42,44,46-53]; ii) clearly defined organizational structure[22,36,39,42,44,46,52,54-58]; iii) sustainable financial arrangements[35,43,46,54,56,58]; iv) capable human resources[15,17,22,48,54-56,59-63]; v) sufficient infrastructure[17,35,37,38,47,48,57,60,61,64-66]; vi) strategic organizational linkages[17,22,35,36,38,45,46,49,51,54-57,60,61,67-71]; and vii) targeted programs and services.[22,35-39,43,44,46,49-51,53,56,57,61,63,67-69,71-75] In specifying these attributes, it is important consider them in the frame of the PSO working as a platform that brings together policymakers, stakeholders, and researchers to support EIPM. Such partnership building and co-creation can underpin all of the attributes of the PSO to maximize the organization's ability to support EIPM. For example, the leader of the organization should be of high credibility, skills, and expertise in both the research and policy communities.[22,36,42,44,46-53] At the same time, processes for selecting what programs and services to offer may consider involving policymakers and researchers, especially since this stage will shape subsequent stages in the organization's evolution—particularly its sustainability.

Assessment Stage: Monitoring and Evaluating the Organization

The assessment stage consists of monitoring and evaluating either specific programs and services provided by the PSO and/or its overall performance. As we outline in Table 3, we found three different approaches for monitoring and evaluating PSO activities: convening meetings/focus groups or conducting interviews;[34,70] conducting

surveys;[34,35,37] and engaging external experts/agencies.[42,62,70] Among the few documents that discuss assessment, the focus was mainly on evaluating a specific activity and its corresponding product(s). Some organizations conducted an assessment on a regular basis (e.g., annually), while others did so at key junctures (e.g., at the end of a donor funding cycle or specific project or after a training workshop). Some documents reported the importance of assessing the impact of a PSO (or similar interties) in health policy and the policymaking process.[35,40,51,66] Others further reported that such entities had an impact on health policies and the policymaking process.[48,53,54,67] However, none of these documents were explicit about what exactly was assessed (or should be assessed) nor were they explicit about how the impact was assessed.

Maturation Stage: Approaching Sustainability

The maturation stage focuses on ensuring long-term sustainability. Four different approaches were identified to attain sustainability: institutionalization of the PSO (i.e., the EIPM activities become an integral and sustainable part of a formal system to make the EIPM practice standard) [35,37,38,40,41,43,46,54,55]; having a clear legal mandate[39,43,55]; having sustainable funding[35,43,46]; and having appropriate capacity to support EIPM (see Table 4).[35,62] Although no single document addressed all four approaches, the evidence strongly supports that none of these approaches can solely drive the organization toward the maturation stage. Instead, it is clear from the included documents that all of these components are important for an organization's stability.

Contextual Factors

There are facilitators and barriers that influence the establishment of a PSO at the political, research, and health–system levels. The political level influences the process of establishing a PSO by determining the availability of resources needed to establish a PSO, the trust between researchers and policymakers, and the ideas about EIPM. On the other hand, the research and health systems influence the establishment of a PSO only by determining the availability of resources needed to establish a PSO and the trust between researchers and policymakers. Tables 1–4 highlight the influence of each contextual factor at each stage in the development of a PSO, and we summarize the main points of influence in relation to political, research, and health systems below.

Political System

There has been a diffusion of ideas about KT and EIPM at the national and international levels through conferences, training workshops, and funds for research projects that have a KT component.[42,49,56,61] Diffusion of these ideas have been reported to play a major role in changing the ideas about EIPM by shifting the beliefs of policymakers regarding the importance of research in policymaking and creating consciousness about the need for stronger linkages between policy and evidence.[38,42] Therefore, the diffusion of ideas plays a role in increasing awareness and building a supportive climate for establishing a PSO.

At the same time, policymaking processes, existing institutions (e.g., planning and research departments), and existing policies influence the establishment of PSO by creating incentives and providing resources to establish a PSO.[39,42,43,45,49,54,56,65] For instance, if

existing policymaking practices emphasize the importance of using research—and policymakers have experience and expertise in doing so—incentives and resources are provided (e.g., through a supportive climate for establishing a PSO with the presence of the necessary experience and expertise to operationalize a PSO).[49,54,55] In addition, government structures that enable and support collaboration (e.g., through pre-existing collaborations with research institutions) facilitate the establishment of PSOs by increasing the trust between policymakers and researchers and promote the availability of resources through collaboration and networking.[35,40,55,60,66,69] Trust is established through regular communication between researchers and policymakers. Regular communication allows policymakers to request evidence from researchers easily. At the same time, communication allows researchers to better understand government's priorities. While government structure (i.e., federal versus unitary) was expected to be an important factor influencing the establishment of PSOs, our study did not have any findings that support or reject this expectation.

Committed interest groups (e.g., high-level policymakers, health professionals, academic institutions, government agencies, and stakeholders) who express support and advocate for EIPM have been found to be an essential facilitator for establishing a PSO.[15,16,35,39,53,55,64,69] The interest of policymakers has been found to be particularly influential when managers within government are highly qualified and value the role of research in policymaking.[50] This appreciation can foster a supportive climate throughout government departments for establishing a PSO.

Research System

Research systems also influence the establishment of PSOs by influencing the trust between researchers and policymakers and by influencing the availability of resources for a PSO. Availability of research infrastructure (e.g., access to online databases), capable researchers, and funding for local research are important inputs and resources for establishing a PSO.[39,42,47,67] On the other hand, the establishment of a PSO can be hindered if the research system is primarily shaped by the priorities of funders and researcher with implications of little or no uptake of research outputs for decision making.[39,42,47,53,67] Moreover, a lack of communication between the research and policy communities can lead to mistrust between the two communities and make policymakers more skeptical of using the findings or other services provided by researchers (e.g., because of a perception that researchers do not understand their priorities).[40,55,69,70] The sources of funding mainly shape trust between policymakers and researchers. Namely, policymakers are less likely to trust research funded by for-profit organizations.

Health System

Health-system arrangements can facilitate or hinder the establishment of a PSO by influencing the trust between researchers and policymakers and by influencing the availability of resources for a PSO. Having ongoing collaborations and networking between relevant government departments and researchers enhances their mutual trust, which can create a more supportive climate for establishing a PSO.[42,55,74] In addition, well-established trust between the research and policy communities can facilitate the PSO's ability to run its programs and services using a collaborative approach, which further enhances trust and the

production of relevant outputs that can be used to inform policy. However, maintaining trust and making resources available for a PSO becomes more challenging in a health system that is highly dependent on donors because of the deviation between policy authority (i.e., the government) and implementation facilitators (i.e., the donors).[60,66] In a situation where a PSO is planned to be embedded within a government organization, the PSO can draw on existing infrastructure and more efficiently mobilize resources to establish it and support its functions.[60,35,69]

Linkages Between Stages

As depicted in Figure 1 and across Tables 1–4, the four stages for establishing a PSO are interconnected, with the actions taking place in one stage affecting the other stages. Most of the connections are centralized around the development stage, given that all actions that take place in this stage have an impact on the other stages. The development stage contributes to the awareness stage in two main ways. First, understanding the situation helps to identify the motivations (e.g., the fragmentation between research and policy communities or raising awareness) needed to create a supportive climate for establishing a PSO.[22,34,36,37,39,45] In the example, the fragmentation might then be addressed through the PSO's governance approach involving policymakers and researchers[22,36,42,46,52,55] and by building collaboration with other organizations to run different activities and programs.[22,35,36,38,46,49,54-57,61,67,68] Second, the programs and services offered by a PSO can subsequently enhance the climate for the use of evidence in policymaking (i.e., it can create a positive feedback loop).[34,38,40,48,56]

The development stage is also connected to the assessment stage, where some of the organization's attributes might be adjusted after assessing the organization's performance.[43,54,56] At the same time, the way the organization's attributes are specified (particularly its governance approach, human resources, linkages, and financial arrangements) determines the organization's ability to conduct monitoring and evaluations, the results of which can be used to inform the PSO's continued evolution.[42,43,54,56,62,70]

The maturation stage is connected to multiple aspects of the development stage, including having strong institutionalized leadership,[38,42,53] having a clearly defined organizational structure and mandate,[39,43,52,55,59] identifying sustainable sources of funding,[35,46,54,58] and incentivizing human resources to avoid staff turnover.[22,47,53,54,56,67] The way these aspects are defined at the development stage strongly affects the organization's ability to sustain itself in the long term. For example, the location of the organization (independent or attached to a pre-existing organization) at the early stage would affect the institutionalization of EIPM efforts and the availability of the funds for the PSO activities. Specifically, a PSO attached to a pre-existing organization might have greater availability of funds, which could support more substantial early efforts to support EIPM. This can then accelerate the process of institutionalizing the types of services and supports provided by the PSO.

Discussion

Principal Findings

Based on the large and growing volume of evidence in the field, we developed a conceptual framework to inform the process of establishing a PSO. Our findings suggest that a PSO undergoes four stages on the pathway toward becoming sustainable, which are as follows: I) awareness (providing the foundation for why a PSO is needed); ii) development (i.e., the actual implementation of a PSO); iii) assessment (assessing performance and making adjustments); and iv) maturation (advancing the organization toward sustainability and institutionalization). While each stage has its unique features and contributes toward the establishment of a PSO, the entire process is iterative and movements between the stages should be expected.

Although the four stages are interconnected and the activities that take place in one stage influence the other stages, the development stage is central in the process of establishing a PSO and is the one stage that has a direct effect on all of the other stages. Despite an organization's age, some may not go through each of the four stages. However, among the organizations discussed in the literature we identified, the development stage—the actual stage of implementing a PSO—was never skipped. In contrast, the awareness stage was bypassed in many countries where a widespread awareness of EIPM already existed. Similarly, the assessment stage was skipped when there was insufficient capacity and/or skills to do the work. We also found that assessments of PSO mainly focused on evaluating the processes and outputs of a PSO with little evidence available on evaluating their impact on supporting EIPM. This might be because the policy process is complicated

and research is only one factor among many others that influence it, which makes conclusions about the impact of a PSO supporting evidence use difficult to determine.[8-11] Therefore, even if a PSO succeeds in supporting policymakers with the best available evidence, it would be hard to discern the exact influence of research from the other factors. Regardless, the documents we included emphasize the importance of evaluations, which can provide insight about how to strengthen PSO activities through formative evaluations. Summative evaluations can also help to document any impacts, either indirect (e.g., by measuring effects on behavioural intentions to use research evidence) or direct (e.g., though qualitative studies that gather insights about whether and how PSO activities supported evidence use in efforts to strengthen health systems).[48,53,54,67]

Moreover, the four stages should not be viewed in isolation from important contextual factors that can hinder or facilitate the establishment of a PSO. Our findings indicate that the process of establishing a PSO is influenced by contextual factors in political, research, and health systems, which determine the availability of the resources and the trust between researchers and policymakers. The political system further determines the importance placed on EIPM, which is central enabling the process of establishing a PSO. The contextual factors have an impact on each other, and the challenges that arise from one factor can be mitigated by the other factors. For example, lack of capacity can be mitigated by the collaboration between policymakers and researchers and the technical support from national and international organizations that support EIPM. Similarly, weak infrastructure to support EIPM and lack of funding can be strengthened by

attaching the PSO into a pre-existing organization to capitalize on the available financial, human and other resources (e.g., offices, internet access, administrative facilities).

Findings in Relation to Other Studies

To the best of our knowledge, this is the first comprehensive literature review examining and contextualizing approaches to establish PSOs. The ever-growing number of studies undertaken to inform efforts to support evidence-informed policymaking differ in important ways from what we have done here. First, many examine the process for a specific approach to supporting evidence-informed policymaking (e.g., rapid response, clearinghouses, or policy brief) and demonstrate the steps of conducting that particular approach.[40,52,70,76,77] However, none have focused on how to assign that particular approach or activity to an organization that is solely focusing on supporting EIPM. In addition, the majority of the documents do not distinguish between type of decisions (e.g., clinical, public health, and health-system topics) that are the focus of this work. Second, one document focuses on identifying the steps in developing knowledge-translation platforms, but it[78] I) is not based on a comprehensive literature review; ii) is limited to the experiences of European countries; iii) does not identify the specific factors that influence each step; and iv) focuses on operationalization and launching rather than the entire process. Third, some work has been done on the process of institutionalization, but is very specific to units performing one particular service (i.e., rapid response service), compared to our focus on an organization that can perform multiple KT activities to support EIPM.[43]

Lastly, the contextual factors that influence the establishment of a PSO are not well addressed in the literature, which limited our ability to make a better distinction about their

impact on the different stages of the framework. While literature is available on the contextual factors that affect KT in general or specific knowledge translation approaches or activities,[15-17] there is less emphasis given to factors affecting the establishment of PSOs. The level of state centralization and democratization; the influence of external donors and organizations in the health-system policies; the organization and function of bureaucracies; the infrastructural resources, research, and KT funding; the framing of evidence in relation to social norms and values; and the quality and quantity of researchers targeting health systems are among the factors that have been reported to influence research utilization in general.[79-81] Some of these factors intersect with our finding as factors that influence the establishment of a PSO—particularly, the political factors (i.e., ideas, interest, and institutions), quality and quantity of health-system research, availability of resources (i.e., infrastructure, human resources, and financial resources), and the role of funders.

Strengths and Limitations

A key strength of this CIS is that it uses systematic and transparent methods in a way that allow for flexibility to enable a rich interpretive analysis and to generate a conceptual framework. This highlights another strength, which is that we were able to develop a new conceptual framework for the process of establishing a PSO, filling an important conceptual gap in the literature that can be used by policymakers, researchers, and stakeholders from different countries to guide their efforts in establishing PSOs.

A potential limitation is that our synthesis focused only on organizations that support policymakers at the health-system level and not on those that support the production and use of other types of decision supports for policymaking (e.g., clinical-

practice guidelines, health-technology assessments, or public-health practice). The potential limitation stems from the possibility of having missed relevant insights from these areas. However, we identified a large set of relevant documents (n = 52) that provided substantial insight into an area that is not as far advanced conceptually as these other areas. Given this, the tradeoff between breadth and depth in the more specific domain of PSOs that focus on strengthening health systems is important to advancing our thinking in the field. Another potential limitation is that while we attempted to identify patterns in PSO features, activities, products, contextual factors, setting (i.e., government, academic, independent), WHO regions, or World Bank classification (i.e., high, middle, low-income countries), this was not possible. Specifically, most of the studies that included more than one organization presented results in an aggregated format, which did not allow for an in-depth analysis of linked organizational features and contextual factors. In addition, the few studies that presented individual cases either did not provide enough contextual background or they did not explain the role of contextual factors in shaping the organization.

Implications for Policy and Research

We have identified several policy implications for those supporting EIPM based on the results of our CIS. Our framework provides those interested in establishing a PSO a road map for identifying the most appropriate starting point. It also helps in identifying the factors that might influence the establishment process that varies according to the context in which a PSO is to be established. For example, establishing a PSO in a country where sufficient awareness about EIPM already exists will likely not require substantial effort invested into the first stage. Instead, the focus in such situations should be shifted to the

second stage for evaluating the situation and identifying the organization's attributes. Furthermore, our findings can be informative for established PSOs. Leaders of such PSOs can use our findings to expand or refine their scope of work, such as by selecting a new programs or services to provide, and refining monitoring and evaluation plans to include assessments of the impact of their work (if this was not previously included in the scope of monitoring and evaluation efforts).

Given that this framework focuses only on PSOs in the health sector, an important next step for research would be to include other sectors from social systems and identify any additional insight that can enhance the framework we have developed. This CIS also identifies that assessments of PSO performance are not well established; therefore, future research should focus on identifying approaches for evaluating the impact of PSOs. One approach to do so could be through a before-and-after quasi-experimental design with a set of indicators to assess the impact of a PSO in informing policies with the best available evidence and whether informing policies by evidence has any impact on the efficiency of the policymaking process and, ultimately, on strengthening the health system. For already established PSOs, evaluations of impact could be conducted using qualitative methods (e.g., interviewing policymakers, researchers and stakeholders about whether and how programs and services offered by the PSO had an impact on evidence use in policymaking) or conducting multiple theory-informed case studies with clearly defined indicators and with a sampling strategy that would ensure that counterfactual cases are included in order to provide insights about the organization impact.

Conclusion

This CIS has developed a conceptual framework for establishing PSOs and, in doing so, makes an important contribution to the literature related to supporting EIPM. The framework outlines the main features in the process of establishing a PSO, the main organizational attributes that have to be specified during the process, and the contextual factors that might affect this process. The four stages identified in this framework should be carefully considered in relation to the country-specific needs and readiness in adopting an EIPM approach to determine what is required in each stage and which stage would be the best starting point, given local contexts.

Figure 1: PRISMA flow chart for the review search strategy

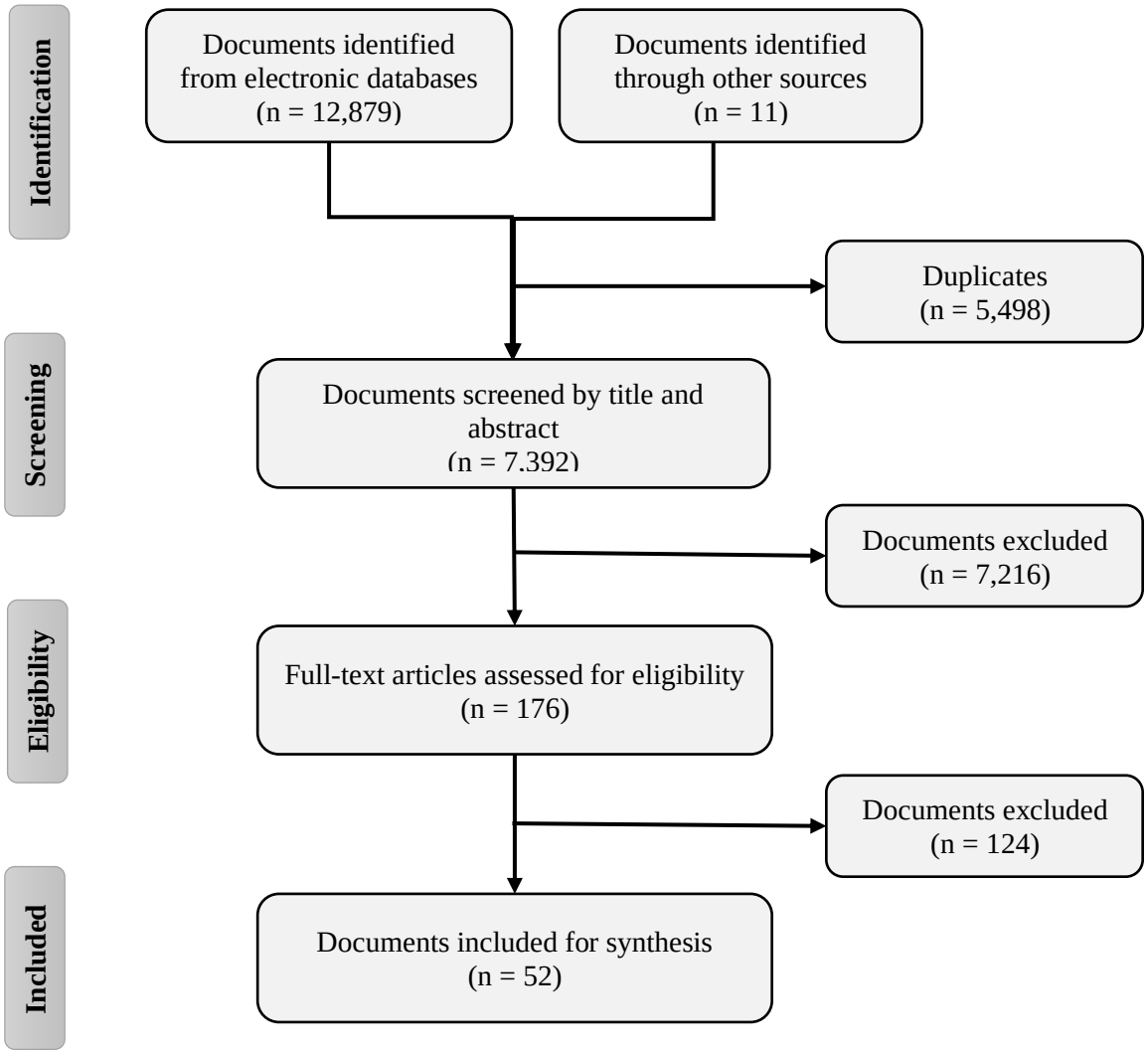

Figure 2: Four stage conceptual framework for the establishment of a policy support organization (PSO)

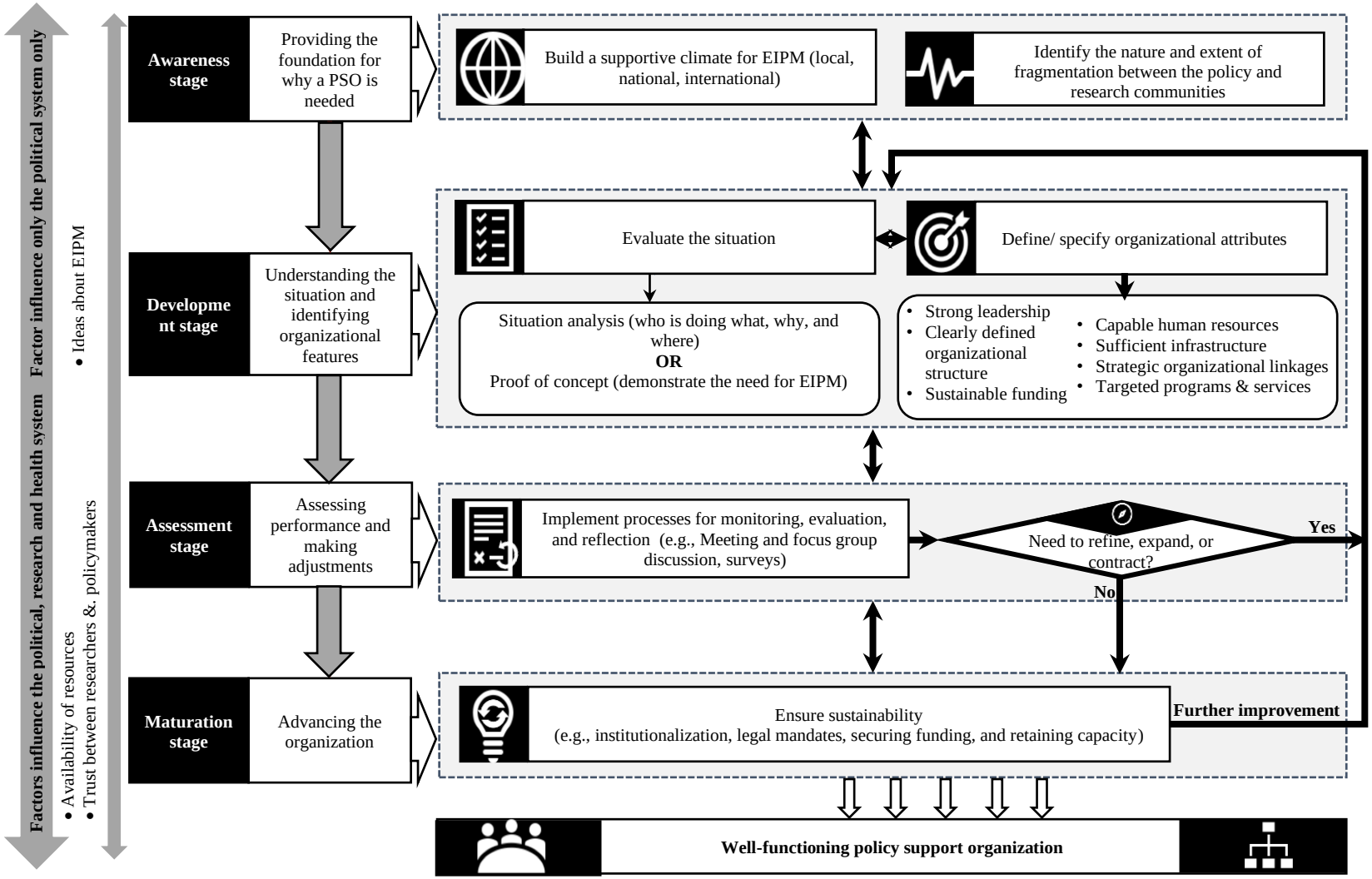

Table 1: Description of the awareness stage and contextual factors relevant for establishing a policy support organization (PSO)

Description of the stage	Contextual factors acting as mechanisms of influence on stages of establishment	Link to the other stages
This stage has two main features that motivate the establishment of a PSO; availability of supportive climate and identifying the fragmentation in the system. • Having a **supportive climate** at the national and/or global level is an essential driver in starting to implement a PSO.[34-43] • Identifying the problem of **fragmentation and poor connection** between the policy and research community as well as realizing the **need for stronger linkages** between evidence and policy are strong motivations to establish a PSO with a focus on EIPM.[42,44]	**Political system - Availability of resources** o Availability of aligned support from interest groups and policymakers creates a supportive climate to advocate for establishing a PSO.[15,35,40,55,69] o Stakeholder conceptualization of the length and cost of EIPM processes influences the climate for establishing a PSO,[16] and therefore efforts to clarify the potential outcome of EIPM can help enable a supportive climate for establishing a PSO. **Political system - Trust between policymakers and researchers** o Existence of cordial relationship between research and policy communities increases trust over time and minimizes the fragmentation between the two communities. This is important for maintaining or enhancing relationships between the two communities, and for a supportive climate for establishing a PSO.[55,56,74] o A positive view about the value of research by policymakers creates a supportive culture to establish a PSO, and therefore efforts to address negative or uncertain views about the value of evidence should be the initial focus in creating awareness about the need for a PSO.[16,35,40,56] **Political system - Ideas about EIPM** o Government involvement in international activities that continually call for knowledge translation (KT) proposals to funding opportunities can further contribute to a supportive climate to establish a PSO.[42,55] **Research system - Availability of resources** o Availability of capacity for finding and using research evidence helps to address the fragmentation between the policy and research communities (e.g., by conducting more relevant research) and to foster a climate that is supportive of establishing a PSO (e.g., by conducting more activities targeting policy makers to increase their awareness of EIPM).[35,55,69] **Research system - Trust between researchers and policymakers** o Research evidence needs to be interpreted to help identify its relevance, applicability and credibility for policy development,[38,55] and, therefore, presenting research findings in a user-friendly format is important for supporting the use of evidence in local contexts. **Health system - Availability of resources** o Existence of policy-development and/or planning units within government institutions contribute to framing the expectation of informing policy using evidence.[50,56,66] **Health system - Trust between researchers and policymakers** o Establishing a PSO in a health system that is highly reliant on external funding (e.g., donors or external organizations) is more challenging because it is less trusted and more likely to be fragmented.[60,66] o In a tiered health system, the competition between private and public sectors might complicate the establishment of a PSO, and therefore it is important to start with identifying common priorities to minimize the fragmentation and increase the trust between the policy and research communities.[56,60,82]	**Stage 2 – Development** ***Targeted programs and services*** • Increasing awareness is one of the ongoing activities of a PSO to create a supportive climate for any new service the organization may provide.[34,38,40,48,56] • Building the capacity of policymakers for EIPM further contributes to building a supportive culture for EIPM.[34,37,45,46,49,55,62,68] ***Clearly defined organizational structure*** • A governance approach that involves researchers and policymakers can address fragmentation over time.[22,36,42,46,52,55] ***Strategic organizational linkage*** • Collaboration across research and policymaker communities improves the contact between them.[22,35,36,38,46,49,54-57,61,67,68] ***Evaluating the situation*** • Conducting situation analyses is an important process to convene various stakeholders in order to increase their awareness about the need to further engage and invest in EIPM.[22,34,36,37,39,45]

Table 2: Description of the development stage and contextual factors relevant for establishing a policy support organization (PSO)

Description of the stage	Contextual factors acting as mechanisms of influence on stages of establishment	Link to the other stages
The two main features of this stage are understanding the existing context for establishing a PSO and defining the organizational attributes. • ***Understanding the existing context for establishing a PSO:*** Some organizations: ○ conduct a **situation analysis** before establishing a PSO to understand who is doing what, why, and where [22,34,36,37,39,45]; ○ other organizations use **a proof of concept approach** by applying some of the proposed KT activities to demonstrate the need for a PSO, thereby garnering support for EIPM.[36,45] • ***Specifying organizational attributes:*** During this stage the PSO defines seven core attributes ***1. Strong leadership:*** PSO leadership should: ○ have **high credibility** among both policymakers and researchers to facilitate linkage and build trust; ○ have **skills and expertise** in both research and policymaking; and ○ be **institutionalized** to avoid organizational collapse if/when the key people leave.[22,36,42,44,46-53] ***2. Clearly defined organizational structure*** ○ **Governance structure** should include a multi-disciplinary, multi-sectoral team to enhance transparency and independence.[22,36,39,42,44,46,52,54-58] ○ **Legal frame and mandates** should clearly define the PSO roles and responsibilities to avoid duplication of effort, maximize productivity, and increase the organization access to resources.[39,43,52,55,59] ○ **Location/ ownership/ hosting organization** of the PSO can either be within a governmental or academic institution, or stand on its own.[15-17,34-37,40-44,46,48-56,58-62,64-66,68-70,72-75,77,78,82-84] ***3. Sustainable funding*** ○ The **funding source** for a PSO might come from international organizations, donors, government, project-based funding from a research funder or another stakeholder group, endowments, or other sources.[22,35-37,40,44,46,50,52,54-56,58-60,67,69,77,85] ○ **Lack of sustainable funding** can slow the development process, and PSOs may have to change host institutions and/or	**Political system - Availability of resources** ○ Anchoring a PSO to a pre-existing institutional structure facilitates its establishment by pooling needed financial and human resources, sharing infrastructure, and helping to foster support from policymakers, stakeholders and researchers. For these reasons, institutionalizing the PSO within a pre-existing structure is recommended even if initially started as an independent project.[35,49,50,52-56,70] ○ The governance approach of the hosting organization that allows for mobilizing funds for program and project implementation can facilitate the establish of a PSO, but this requires being fully aware of the administrative formalities of the hosting organization.[35,40,55,60,66,69] ○ Having appropriate political support from policymakers and stakeholders facilitates the establishment of PSOs by mobilizing needed resources and resolving any conflicts between the research and policy communities,[15,35,40,55,69] and this requires processes to identify policymakers' interest and any potential resistance to establishing a PSO. **Political system - Trust between researchers and policymakers** ○ Existence of a cordial working relationship between research and policy communities coupled with regular communication facilitates the establishment of a PSO by allowing researchers to understand policymaker interests and allowing policymakers to have a trusted contact when they have specific research questions.[55,56,69,74] **Political system - Ideas about EIPM** ○ A high level of awareness among target users about the PSO's programs and services facilitates the establishment of the organization as it increases their interest to support the organization (technically or financially) and/ or to integrate it in their organization in the case of PSOs that have started as a pilot or small project.[35,56] ○ Conceptualization of the length and cost of EIPM processes among policymakers and stakeholders influences their commitment in providing needed supports and resources to	**Stage 1–- Awareness** ***Building a supportive climate for EIPM*** • A proof of concept raises awareness and helps foster a supportive climate for EIPM by demonstrating the practicality and efficiency of EIPM.[36,45] ***Identifying fragmentation*** • A situation analysis can help identify fragmentation between policy and research communities that needs to be addressed.[22,34,36,37,39,45] • Fragmentation between the policy and research communities can be addressed through an organizational linkage that provides common ground for regular communication between the two communities to bridge the gaps in the evidence-to-policy process.[22,35,36,38,46,49,54-57,61,67,68] **Stage 3 - Assessment** ***Evaluation and reflection*** • After a period of donor funding is completed, organizations need to assess their situation and performance, which represents a good opportunity to make an

significantly rely on contracts at the end of a donor funding cycle.[35,43,46,54,56,58]

4. Capable human resources

- **Staffing/ hiring:** PSOs need a multidisciplinary team with different areas of content and methodological expertise, and external consultants might be involved to fill some gaps.[15,17,22,48,54-56,59-63]
- **Capacity building:** All PSOs need to continually build and strengthen the capacities of researchers to generate better evidence, and of policymakers to better enable them to find and use research evidence.[15,22,37,61]
- **Rewarding:** PSOs often suffer from staff turnover due to the low salaries, high workload, and job insecurity, which can be avoided by providing incentives.[22,47,53,54,56,67]

5. Sufficient infrastructure

- **Facilities:** Institutional infrastructure (offices, equipment, meeting space) influences the practice norms and expectations, and opportunities for skills development and application.[38]
- **Technology:** A PSO needs technology to function adequately, which includes; personal computers, a functional internet connection, and access to databases (e.g., for identifying research evidence).[17,35,37,38,47,48,57,60,61,64-66]

6. Strategic organizational linkage

- PSOs tend to build connections with local, national, and international organizations for the purpose of building capacities, pooling resources, enhancing trust between researchers and policymakers, and conducting joint research and KT activities.[17,22,35,36,38,45,46,49,51,54-57,60,61,67-71]

7. Targeted programs and services

- **Improving climate/ building demand**
- PSOs continually increase awareness and build demands for their activities and products to improve the climate for EIPM.[34,38,40,48,56]
- **Prioritization and co-production**
- Many PSOs embed priority-setting exercises and co-production of relevant research as an essential part of their work.[16,35,44,62,71-73,83]
- **Packaging and disseminating evidence and support for implementation;** PSOs support the uptake of evidence by disseminating research finding (e.g., seminars, media, meetings, publications, and conference) and packaging research in formats

establish a PSO[16] and, therefore, efforts to clarify the potential outcomes of EIPM can enhance the climate for establishing a PSO.

Research system - Availability of resources

- Having capable human resources that can understand and use research is essential for establishing a PSO, and having the appropriate incentive(s) to attract and retain such skillful capacities is essential for organizational sustainability.[35,47,53,55,56,60,66,69]
- Availability and diversity of financial resources to conduct research and/or KT activities facilitates PSO establishment and helps to expand organizational scope.[35,42,47,53,69] This is particularly important for organizations that are not institutionalized and that are heavily dependent on donors and short-term grants (e.g., to avoid collapsing/contracting by the end of the donor's fund).
- Availability of relevant, applicable, accessible, and easy to read research and health information can determine the scope of work the organization can do and how fast the work can be accomplished.[35,38,40,53,55,69]
- Existence of a research department and clear mandate to link research to policy facilitates the establishment of PSOs by enhancing the interaction between researchers and policymakers and/or by building new connections where needed.[42,50,56,66,82]

Research system - Trust between researchers and policymakers

- Having interaction between researchers and policymakers helps in pooling resources through finding or conducting relevant research and identifying research grants with KT components.[35,38,40]
- Potentially sensitive research findings (e.g., in relation to political priorities) might hinder buy-in for establishing a PSO but this can be mitigated by the organization addressing any potential resistance to research findings by engaging in a collaborative tone and clearly highlighting how they can be helpful to informing government priorities.[15,16,55,69]
- The credibility of researchers (and therefore the research they produce) facilitates the establishment of PSOs by strengthening the relationship between researchers and policymakers, which

adjustment in the organization location, sources of funding, and activities.[43,54,56]

Stage 4 – Maturation

Ensure sustainability

- Institutionalization of a PSO within a pre-existing institutional structure is an essential factor to ensure its sustainability.[35,37,40,41,43,46,55]
- A legal framework of a PSO that is framed to reduce duplication of effort, maximize productivity and enhance understanding of stakeholder needs is important for the long-term survival of a PSO.[39,43,55]
- Securing stable long-term funds for a PSO through institutionalization in a pre-existing institutional structure is an important factor to ensure PSO sustainability.[35,43,46]
- Identifying an appropriate approach to retain the human resources needed in a PSO (e.g., providing financial and/or non-financial incentives) is essential to ensure organizational sustainability.[35,62]

that suit users' needs such as; systematic review, tailored summary, and policy briefs.[22,35-39,43,44,46,49-51,53,56,57,61,63,67-69,71-75] ○ **Facilitating user 'pull' for research evidence** by: 1) building the capacity of target users; 2) providing a rapid response service; and 3) administering online clearinghouses or one-stop shops for evidence.[16,17,22,34-40,44,45,49,50,52-54,56,61,62,65,70-74,77,85] ○ **Exchange:** PSOs conduct deliberative dialogues to exchange ideas with partners, learn about their evidence needs, identify tacit knowledge and actions that can be taken by different groups to address health-system issues, and contextualize global evidence.[22,35,36,39,46,49-53,56,60,61,67,69,71-75] ○ **Sustainable KT processes** involve building capacity for different types of functions (e.g., preparing evidence briefs, convening policy dialogues and providing a rapid response services), raising funds, and monitoring and evaluating the impact of the PSO's work on policy change.[16,34-37,39,44,49,54,61,72,74]	then improves organizational linkages and ability to pool human resources that can be used to produce and use.[38] **Health system - Availability of resources** ○ Having highly-qualified managers within an MOH facilitates the establishment of PSOs, because such managers are more likely to value research evidence, be willing to use evidence in decision-making, and recognize and support research processes within the MOH that encourages the usage of research during policy development.[38,40,50,55] **Health system - Trust between researchers and policymakers** ○ Competition between the private and public sector in a tiered/ mixed health system may slow the process of establishing a PSO (e.g., by making it harder to pool needed resources and engage all relevant stakeholders),[56,60,70,82] which lends further support to the need to start the establishment process with identifying common priorities among stakeholders across different sectors.

Table 3: Description of the assessment stage and contextual factors relevant for establishing a policy support organization (PSO)

Description of the stage	Contextual factors acting as mechanisms of influence on stages of establishment	Link to the other stages
Monitoring and evaluation of a PSO could be conducted either regularly or at key junctures to assess the overall performance of the organization or to assess specific activities and its corresponding product(s). Several approaches to monitoring and evaluation in a PSO were identified, which include: • **Convening meetings/focus groups or conducting interviews** designed to solicit feedback after the initial planning of the service [34,70]; • **Conducting surveys** to evaluate the outcome of PSO activities (e.g., quantitative surveys of changes in knowledge, attitudes, and practice among participants in training workshops)[34,35,37]; and • **Engaging external experts/ agencies** to evaluate PSO programs and services.[42,62,70]	**Political system - Availability of resources** ○ Monitoring and evaluation are essential in the process of developing a PSO, and this stage is influenced by the availability of resources, particularly human and financial resources, that can be mobilized to evaluate the organization and identify any needed adjustments,[35,42,47,53,55,69] and therefore identifying funding resources that are easy to mobilize and utilize is important. ○ The level of complexity of the administrative formalities of the hosting organization for a PSO might influence the ability to evaluate a PSO as it can make the tracking process harder and more complicated.[55] It is important to have a clear organizational structure, legal mandate, resources and task descriptions for the organization to be able to efficiently evaluate its performance in a robust way. ○ The clarity of the hierarchical consultative and decision-making chains within the hosting organization facilitates the assessment of a PSO and enhances the ability to point to specific areas that need to be changed to improve the organization,[60,66] but this also requires being fully aware of the administrative formalities of the hosting organization. **Political system - Trust between researchers and policymakers** ○ Involvement of researchers in the policymaking process facilitates the assessment of a PSO by identifying their needs and to design, implement and evaluate activities to meet those needs.[56,70] **Political system - Ideas about EIPM** ○ The openness of policymakers to change (e.g., to hear the limitations of the organization as a way to change for the better performance) can facilitate monitoring and evaluation of a PSO.[15,16,35,55,69] **Research system - Availability of resources** ○ External collaboration with research institutions or similar organizations facilitates a neutral assessment processes for a PSO, and the process is stronger if these institutions share similar context or are at least familiar with the local context.[42] **Research system - Trust between researchers and policymakers** ○ No evidence identified **Health system - Availability of resources** ○ No evidence identified **Health system - Trust between researchers and policymakers** ○ No evidence identified	***Stage 2 – Development*** ***Sustainable funding*** • After a period of donor funding is completed, organizations need to assess their situation and performance, which represents a good opportunity to make an adjustment in the organization's location, sources of funding, and activities.[43,54,56] ***Capable human resources*** • PSOs might hire an external expert/consultant to fill particular gaps such as reviewing a brief or evaluating PSO outcomes in a neutral way.[42,62,70] ***Strategic organizational linkage*** • Collaboration and networking between PSOs and other organizations (particularly external agencies) might be utilized for the purpose of monitoring and evaluation purpose.[42,62,70]

Table 4: Description of the maturation stage and contextual factors relevant for establishing a policy support organization (PSO)

Description of the stage	Contextual factors acting as mechanisms of influence on stages of establishment	Link to the other stages
The maturation stage reflects the organization's stability where it can be considered as sustainable in the long term. The following are some of the features identified as being important for ensuring sustainability: • **Institutionalization** of PSO within a pre-existing institutional structure to facilitate the ability to overcome challenges.[35,37,38,40,41,43,46,54,55] • Having a formal **legal mandate** (i.e., legislation, ministerial order, term of reference) to reduce duplication of effort, maximize productivity and enhance understanding of stakeholder needs.[39,43,55] • Having a **sustainable source of funding** to reduce the threat of ending some or all of the organization's activities when one or more sources for external funding stops.[35,43,46] • Having mechanisms to **retain needed capacities** (e.g., providing financial and/or non-financial incentives).[35,62]	**Political system - Availability of resource** ○ Anchoring a PSO to a pre-existing institutional structure facilitates its establishment by pooling needed financial and human resources, sharing infrastructure, and helping to foster support from policymakers, stakeholders and researchers. For these reasons, institutionalizing the PSO within a pre-existing structure is important even if initially started as an independent project.[35,49,50,52-56,70] However, the impact of this is influenced by the strength of the anchored organization's infrastructure, governance, and ability to mobilize the resources to fund and implement programs and projects.[35,40,66,69] ○ To ensure the sustainability of PSO, the payment scheme should be attractive enough to retain staff.[35,47,53,55,56,69] ○ The conceptualization of the length and cost of EIPM processes by policymakers and stakeholders influences their commitment to providing needed supports and resources in the long-term,[16] which makes it important to demonstrate the potential effectiveness of the PSO in improving resource allocation and other aspects of providing health services. **Political system - Trust between researchers and policymakers** ○ A high commitment of policymakers and political support within the government enhances PSO sustainability as this support increases the likelihood of the organization to be institutionalized and to gain support from other local and international organizations.[15,35,40,55,69] **Political system - Ideas about EIPM** ○ PSO sustainability is enhanced when policymakers and stakeholders value the role of research in policymaking, which in turn helps build increased awareness among policymakers about the services offered.[38,40,50,55] **Research system - Availability of resources** ○ Weak productivity of research (particularly local evidence) due to financial or human resources challenges would influence the sustainability of PSO.[47,53,69] **Research system - Trust between researchers and policymakers** ○ Maintaining a trusting relationship between policymakers and researchers is important for PSO sustainability because it forms the foundation of all PSO activities, builds stronger inter-organizational links over time, and ensures credibility and neutrality of the PSO.[39,42,47] **Health system - Trust between researchers and policymakers** ○ Highly qualified managers with a research background within the MOH is important for sustaining the value placed on using research in decision-making, which can enhance the sustainability of PSO as it supports ongoing demanding for and use of PSO services.[40,50] **Health system - Availability of resources** ○ Having an focus on evidence-to-policy processes within a government's mandate facilitates PSO sustainability because of the pressure the mandate can create on policymakers to utilize research and developing evidence-informed policies (and to draw on the PSO's services in the process).[42]	***Stage 2 – Development*** ***Strong leadership*** • Institutional leadership is important to avoid organizational collapse if/when the key people leave.[38,42,53] ***Clearly defined organizational structure*** • The PSO governance approach, clarity of its legal mandates, and its location are critical to defining organization sustainability.[39,43,52,55,59] ***Sustainable funding*** • Lack of sustained funding can slow the development process,[35,46,54,58] and jeopardize the organization's sustainability.[43,54,56] ***Capable human resources*** • Any issues with low salaries, high workload, and job insecurity should be resolved to retain the qualified staff in order to ensure long-term sustainability.[22,47,53,54,56,67]

Appendix 1: The search strategy for four databases

Medline, Healthstare, Embase, PsycINFO
Database: OVID Medline Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present
Search Strategy:
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1 (KT adj2 (translat* or support or inform or based or implement* or analysis or formulat* or develop* or disseminat* or utili*or application or synthes* or transfer or exchange or diffus* or uptake)).ti,ab. (518)
2 (knowledge adj2 (translat* or support or inform or based or implement* or analysis or formulat* or develop* or disseminat* or utili*or application or synthes* or transfer or exchange or diffus* or uptake)).ti,ab. (22384)
3 (evidence* adj2 (translat* or support or inform or based or implement* or analysis or formulat* or develop* or disseminat* or utili*or application or synthes* or transfer or exchange or diffus* or uptake)).ti,ab. (145986)
4 (research* adj2 (translat* or support or inform or based or implement* or analysis or formulat* or develop* or disseminat* or utili*or application or synthes* or transfer or exchange or diffus* or uptake)).ti,ab. (73072)
5 polic*.ti,ab. (233636)
6 exp Policy Making/ (23629)
7 Decision Making/ (85010)
8 policy mak*.ti,ab. (22273)
9 policy-mak*.ti,ab. (22273)
10 decision mak*.ti,ab. (117071)
11 decision-mak*.ti,ab. (117071)
12 decisionmak*.ti,ab. (1049)
13 (institut* or centre or center or platform* or committee or unit or observatory or directorate or forum or council or Think tank* or Thinktank*).ti,ab. (1382591)
14 health.ti,ab. (1585698)
15 medical.ti,ab. (1019646)
16 policymak*.ti,ab. (9849)
17 1 or 2 or 3 or 4 (232296)
18 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 16 (405188)
19 14 or 15 (2387866)
20 13 and 17 and 18 (6035)
21 13 and 17 and 18 and 19 (4469)
22 limit 21 to English language (4273)

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Chapter 3

Preface

This chapter moves away from the broader conceptual understanding of the approaches in establishing a policy support organization (PSO) as presented in chapter two. It focuses in part on using the framework to help inform a mixed-method study which involved a survey and in-depth interviews with PSO leaders to gather insights from their experience in establishing a PSO. The theoretical framework developed in chapter 2 is used to inform the survey tool, the interview guide, and the analysis presented in this chapter. This chapter provides insight into the most common approaches and strategies that have been used in each stage in the process of establishing a PSO and the contextual factors at the individual, organization, and system level that influence this process.

I developed the study design with my supervisor, Dr. Michael G. Wilson, and I was responsible for all data collection and analysis, which took place between June 2019 and September 2019. The members of my supervisory committee each provided feedback on drafts of the chapter, which were incorporated into the paper.

Examining and Contextualizing Approaches to Establish Policy Support Organizations – A mixed Method Study

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Key Messages:

1. Availability of resources (e.g., financial resources, or champion(s) who believe in the importance of EIPM) and identifying the gap in the system are good motivations to drive the establishment of a policy support organization.
2. Conducting a situation analysis is an essential strategy in the process of establishing a policy support organization to raise awareness about the importance of evidence-informed policymaking, gain support from policymakers, researchers, and stakeholders, identify the gap in the system, and understand who is doing what, how and why.
3. Institutionalization of evidence-informed policymaking culture is essential for the sustainability of a policy support organization.

Abstract

In response to the significant global attention and the large body of literature focused on supporting evidence-informed policymaking (EIPM), there has been an increase in the number of policy support organizations (PSOs) that have been created to foster the systematic use of research evidence in health system policymaking. Our aim was to identify approaches for establishing a PSO or a similar entity by soliciting insights from those with practical experience developing and operationalizing PSOs in real-world contexts using a sequential mixed-methods approached. We first conducted a survey to identify the views and experiences of those who were directly involved in establishing PSOs that have been developed and implemented across a variety of political, health, and research system contexts. We used the survey findings to develop a purposive sample of PSO leaders and refine a guide to interview them. We received 19 completed surveys from the leaders of PSOs in countries across the World Health Organization (WHO) regions operating in different settings (e.g., as independent organizations, within universities, and as part of governmental departments) and conducted interviews with 15 senior managers from nine PSOs. Our findings provide in-depth insights about approaches and strategies across the four stages of establishing a PSO: 1) building awareness of the PSO, 2) developing the PSO, 3) assessing the PSO to identify potential areas for enhancement, and 4) supporting maturation to build long-term sustainability. Our findings provide rich insights into establishing a PSO from leaders who have undertaken the process. As a result, the stages of establishment we present here—and the insights the PSO leaders give—can offer

important guidance for those who are considering establishing a PSO or who are already in the process of doing so.

Introduction

Policymaking is a complex process in which evidence is one factor among many that shape policymakers' decisions and actions.[1] Policies informed by evidence are likely to be more effective and less expensive than those formulated without it.[2] Evidence can play an important role in clarifying a problem, framing viable options to address a problem, identifying implementation considerations, and developing monitoring and evaluation plans that enable rapid-cycle improvements to implemented polices over time.[3-5] Furthermore, evidence can also be used to understand the contextual factors that influence the selection of particular policy options.[3]

Despite the importance and benefits of evidence-informed policymaking (EIPM), several barriers constrain the use of research evidence in health system policymaking processes, including limited access to high-quality and relevant research evidence and poor communication between policymakers and researchers. These are combined with the complex nature of policymaking, where evidence needs to be considered alongside institutional factors, pressure from interest groups, and often, competing political and societal values.[6,7]

EIPM has gained global attention over the last decade, and a large body of literature from both the academic and policy communities has emerged around how to address the challenges of supporting EIPM. Accordingly, there has been an increase in the number of policy support organizations (PSOs) that have been created to link research to policy and to foster the systematic use of research evidence in health systems policymaking.[8-10] The World Health Organization's (WHO) efforts to establish such organizations started in 2005

when it created the global Evidence-Informed Policy Network (EVIPNet) to promote the systematic and transparent use of health research evidence in policymaking.[11,12]

A PSO can stand alone or be part of a government or academic institution.[9,12-14] Each of these forms has a set of advantages and disadvantages. Standing alone, a PSO might have the advantage of neutrality and the independence to successfully broker among different stakeholders; however, being independent might affect the organization's financial stability.[9,12-14] Being part of a government is advantageous for understanding the policymaking process and for strengthening the capacity of policymakers to access, assess, adapt, and apply research evidence. However, this proximity to policymakers may compromise the organization neutrality which is essential in EIPM.[9,12-14]

The literature reports that a PSO may offer various services: facilitating meetings among multiple stakeholders, identifying and documenting local researchers, synthesizing and packaging research evidence, aligning research topics with policy needs, and strengthening researchers' and policy-makers' capacity to, for example, access, assess, adapt, and apply research evidence.[9,12-14]

Although the literature provides insight into PSOs' features and some country-specific examples of establishing PSOs,[15-18] it has placed less emphasis on deriving context-specific insights that can be used to generate themes that may be more broadly applicable across a range of settings. Recently, we developed a conceptual framework regarding the process of establishing PSOs based on critical interpretive synthesis.[19] However, there is a need to build on this work to integrate these theoretical findings with real-world experiences; this will provide additional insight into approaches for establishing PSOs and

identifying contextual factors that influence their founding and their features. To achieve this goal, we conducted a sequential mixed-methods study to solicit real-world insights from multiple policy-support organizations that exist in different settings and have different features.

Methods

We used a sequential mixed-methods approach by combining elements of quantitative (survey) and qualitative (key informant interviews) research to develop a broad and in-depth understanding of the phenomenon of establishing a PSO. We first conducted a survey to identify the views and experiences of those directly involved in establishing PSOs that were developed and implemented across a variety of political, health, and research system contexts. We used the survey findings to refine a sample and interview guide for the qualitative interview study that we conducted in the second phase of the study. The interviews focused on 1) identifying insights about the process of establishing a PSO, 2) identifying the critical junctures in the life of PSOs, and 3) identifying the approaches that PSOs have used to ensure long-term organizational sustainability. Taken together, the quantitative and qualitative components yield a better mapping of the current features and contexts of different PSOs, in-depth understanding of their story of the establishment, and provided us with an opportunity to identifying different approaches for establishing PSOs that were not country-specific, which wouldn't have been possible through each method in isolation.

Phase One: Survey

We developed and piloted a questionnaire with two PSOs operating in different political, health, and research system contexts. The goal of the pilot study was to test the clarity of the questions and estimate the time needed to complete the questionnaire. The questionnaire covered five domains: 1) the political, health, and research system contexts in which the PSO operates; 2) the focus/scope of the PSO's work; 3) the PSO's activities and products; 4) the PSO's attributes; and 5) the PSO's establishment phase. Twenty-eight of the 37 questions we asked were closed-ended. The full survey is provided in Appendix 1.

Sampling and Recruitment

We used purposive and snowball sampling techniques to identify the study population. We purposively sampled the PSOs to secure a sample representing different political, health, and research system contexts and demographic variables. The principal investigator (PI) generated a list of 57 potentially relevant organizations, which were identified through electronic searches of peer-reviewed articles and organizations' websites. The research team reviewed the list and applied inclusion criteria, which resulted in 23 organizations being included in the sample. The inclusion criteria specified that the PSO had to perform at least one of the following functions: 1) produce systematic reviews or other types of syntheses of research evidence in response to policymakers' requests, 2) identify and contextualize research evidence in response to policymakers' requests, and 3) plan, commission, or carry out evaluations of health policies in response to policymakers' requests. We excluded the PSOs if they received core funding from industry, if they only

produced or provided health or healthcare utilization data, or if they did not primarily focus on translating research evidence in order to support health system policymaking. In addition, we used social media to recruit organizations that were interested and eligible. The PI created a video to invite eligible organizations to participate in the study. The research team tweeted the video with a link to the survey. Finally, we asked participants to name similar organizations that would be eligible for the study.

Data Collection and Analysis

We used LimeSurvey to administer the survey. We sent the survey link by email with an invitation letter and consent form (Appendix 2) to the directors or senior managers of each eligible organization. We sent three reminders to non-respondents one week, two weeks, and three weeks after we made initial contact.

We summarized the survey data using simple descriptive statistics. We analyzed the open-ended questions using a qualitative descriptive approach. The analysis was oriented toward summarizing the informational contents of that data regarding PSO features. Initially, we grouped the written comments by question to offer a comprehensive summary of the findings. While staying close to the data and to the surface of the words and events, we further coded and modified the summarized findings under each question in the course of our analysis to reflect the emerging themes and the research objectives.

Phase Two: Interviews

We conducted semi-structured interviews using an interview guide (Appendix 3) with prompts focused on the establishment, critical juncture(s), and sustainability of the

participants' organizations. We used the survey findings to inform the interview guide and iteratively revised it as needed to allow us to explore emerging themes and to validate assumptions or statements that other participants made.

Sampling and Recruitment

We purposively sampled PSOs to ensure a mix of those with different features of interest (e.g., knowledge production vs. translation; extent of engagement with policymakers, stakeholders, and researchers, etc.) that were located in high-income countries (HIC) vs. low- and middle-income countries (LMIC) and that were new vs. old. Based on these criteria, we selected 10 PSOs. Once we generated the final list, the PI conducted three meetings with two research members who were familiar with the history of these organizations to provide additional context for use as prompts during the interviews.

Data Collection and Analysis

We contacted all the participants via email, which also included an invitation letter and consent form (Appendix 4), to schedule a time for a telephone, Skype, or face-to-face interview. The aim was to conduct one interview for each PSO. However, in instances where the initial interviewee for a PSO was not able to speak about all of the areas of interest or recommended an additional contact to provide further details, we scheduled one additional interview per organization.

In an earlier study, we developed a framework that outlines the process of establishing PSOs.[19] The framework includes four main stages: awareness, development,

assessment, and maturation. The awareness stage provides the foundation for establishing a PSO by identifying the motivation that would advance the idea of establishing a PSO toward the development stage; here, the focus is on the actual implementation of a PSO. The assessment stage consists of monitoring and evaluating either specific programs and services the PSO provides or its overall performance. Finally, the maturation stage focuses on ensuring sustainability in the long-term.

With this framework, we analyzed the data using the constant comparative approach.[20] We began open coding by classifying information into five main sections, which included the four stages in the framework as well as the contextual factors that facilitate or hinder establishment. For each section, we assigned a number of codes to each respondent's interview. We then organized these codes into categories, and the categories into larger themes, which we then iteratively refined. Where relevant, we incorporated the findings from the open-ended survey questions into this analysis to develop the themes. After we completed the analysis, we conducted member-checking by sending a draft of the results to the participants, who we asked to review our findings and provide feedback.

Results

Survey Findings

A total of 19 surveys were completed, 14 of which were from the 23 organizational leaders who we directly invited to participate; the other five surveys were from our promotion of the survey on Twitter. The sample of participating organizations, although

not perfectly balanced, is based on different geographical regions in the world (based on the WHO regions) and from countries of different economic levels (Appendix 5).

The participating organizations worked in different political, health, and research system contexts (Appendix 5). Although most of the organizations provided service at more than one jurisdictional level, the main focus of all the organizations was at the national and sub-national levels. In addition, most of the organizations operated in health systems that were mainly centralized (7/17), mainly publicly funded (12/18), and predominantly publicly delivered (11/18). Although over two-thirds of the organizations reported having centralized funds for health system research, only half of the funding organizations prioritized knowledge translation (KT) activities and required collaboration with researchers and policymakers. Neither the health system nor the research system arrangements seemed to influence the jurisdictional level at which the organizations could provide service.

Organizational Characteristics

PSOs have unique features (Appendix 6) that are critical enablers of their activities. Most of the PSOs indicated they were independent organizations (7/15) or part of a university (5/15), with the smallest number embedded within a government (3/15). However, slightly less than one-third of the organizations classified themselves as a government department and/or as having links with government institutions, which could be the reason for reporting the government as the most common source of funding (11/15). Having an executive board was the most common governance approach (9/15) across all the regions, and 80% (12/15) of the organizations had links with different organizations

(the most frequent collaborations being with governments and academic institutions). PSOs budgets ranged from $10,000 to $1.25 billion; however, we suspect that those who reported very high budgets misinterpreted the question and provided the budget of the larger organizations in which they were embedded. Most of the organizations indicated that the most common background training their staff had was in health services research and in population and public health research (13/15). For needed research, most PSOs had access to more than one database. About two-thirds of the organizations had a strategic plan, and only-half of them monitored and evaluated their impact and updated their work, albeit irregularly. Another misinterpretation of the question may have occurred in relation to organizational age, which was reported as ranging from 3–71 years, with those PSOs in larger organizations likely having reported that age instead of when their unit was established. In terms of establishing their organizations, participants reported that lessons from other organizations were helpful (8/15); one-third conducted a situation analysis (5/15); and only one used a readiness assessment tool (1/15).

Organizational Focus, Activities, Products, and Target Audience Engagement

Across the different WHO regions, all of the organizations provided services in multiple domains and engaged in a wide array of activities (Appendix 7). More than 80% (14/17) of the organizations reported engaging in the four main areas of policy development (clarifying problems, framing options, identifying implementation considerations, and supporting monitoring and evaluation). The most common activities in pursuit of this work were supporting learning about how to make evidence-informed decisions (14/16) and synthesizing research evidence (15/16). The data reflected that slightly more than two-

thirds of the organizations formulated recommendations, and among those that did, the most popular approach was through formal and informal consensus (6/10). These activities coincided with the different products they produce (Appendix 8), with the most common being evidence briefs (14/16), rapid syntheses or rapid reviews (12/16), and databases of research evidence (10/16). Using these activities and products, the PSOs usually targeted distinct audiences using different strategies (Appendix 9). In particular, health system policymakers were often engaged in PSO activities, such as reviewing report drafts (15/16) and being members of the organizations' governance (14/16). Despite the international call for engaging citizens in producing research and developing policies and programs, the PSOs targeted this audience with the least frequency.

How the Survey Informed the Second Phase of the Study

The survey results clearly indicated that PSOs varied in their contextual features, organizational attributes, focus, activities, products, and target audience. We did not observe any special trend or pattern to dominate organizations from a particular region, economic level, or setting. However, the results emphasized the importance of selecting organizations that had a rich story to contribute to answering the main research question about the organization establishment approach. Accordingly, after completing the survey analysis and carefully reading the participants' answers to the open-ended questions, we generated a list of the participating organizations that included their main distinctive characteristics to guide the purposeful sampling of the participants to be interviewed. The study did not aim to make a comparison between organizations with different features,

settings, or contexts—our aim was to gain in-depth insight from the full spectrum of PSOs about their establishment approaches.

Qualitative Interview Findings

We completed 11 interviews with 15 senior managers from nine organizations. The interview length varied from 45 to 90, minutes with an average of 60 minutes. Ten of them were conducted via Skype, and one was face-to-face. We interviewed participants from organizations in five of the six WHO regions: three from the Americas, two from Africa, two from the Eastern Mediterranean, one from Europe, and one from the Western Pacific region. There were none from South-East Asia.

We organize our findings below according to the four stages of developing a PSO (awareness, development, assessment, and maturation) that we used to structure our interview guide.[19] In each section, we outline the common approaches, strategies, and actions that we identified for each stage. This is followed by an analysis of the contextual factors that participants identified as being important for establishing a PSO, including a SWOT (i.e., strength, weaknesses, opportunities, and threats) analysis.

Awareness Stage: Fostering the Conditions Needed to Establish a PSO

Our interviews revealed three common approaches that respondents identified as being helpful to raising awareness about the need for establishing a PSO. We provide an overview of each approach in Table 1 along with illustrative quotes from the interviews. The first approach is related to establishing a supportive climate among policymakers and researchers to advocate for the importance and the advantages of using evidence in

policymaking. The participants reported that conducting workshops, distributing information about KT (books, CDs, or pamphlets), and conducting one-on-one meetings with policymakers or large-group meetings with researchers and policymakers to raise awareness about EIPM were good starting points to establish a supportive climate for EIPM. The participants highlighted that these initiatives mainly focused on clarifying the concept of EIPM in order to reach a consensus about what has to be done to support the use of evidence in policymaking and to build buy-in from policymakers.

Second, the participants focused on activities for making adequate resources (i.e., human resources, financial resources, and infrastructure) available to help researchers and policymakers determine the feasibility of establishing such an organization. Through participants sharing their stories about establishing a PSO, we found that the establishment was derived either by the availability of the financial resources from local, national, or international organizations or by the availability of champion(s) who believed in the importance of EIPM and had the interest, skills, and experience needed to found such an entity—or both. The participants mentioned that attracting resources and highlighting this could increase policymakers' willingness to accept the idea of establishing a PSO.

Lastly, the participants described activities to address the gap between research and policy communities and support the use of research evidence in policymaking. They highlighted two types of gaps in the system. The first was the gap between the producers and users of the research evidence. Participants stated that poor communication between the policy and research communities is mainly caused by the lack of awareness about the existence of evidence that might be useful for formulating policies. At the same time,

participants highlighted that researchers produced evidence that was of academic interest more than it was focused on the policymakers' needs. The second gap was related to what was offered as support for informing policymaking using evidence. For example, several participants pointed out that there was enough work using evidence for developing clinical practice guidelines, health technology assessment, and public health practice but not for informing decisions about the health systems that got the programs, services, and products to people who needed them. They emphasized that highlighting these gaps and the benefits of addressing them were used as a justification to express the need for establishing a PSO and gain support from the national and international organizations.

Development Stage: Understanding the Situation and Defining the Organizations' Activities

The participants identified three different approaches as part of the development stage for a PSO, which we present in Table 2 along with illustrative quotes from the participants. The first approach focuses on understanding the situation for establishing the PSO. Most of the participants reported that they conducted a situation analysis before establishing their PSO using different tools (e.g., SWOT analysis, stakeholder power analysis, feasibility assessment, situation analysis using WHO guideline). They conducted situation analyses to identify the target audience, key players who might have had an interest in the organization's work and could advocate for it, competitors, model organizations, individuals who had power and could influence the process of establishing a PSO (whether in terms of material resources or political power), capacity constraints, priorities for the PSO, and potential partners. Furthermore, the participants reported that

they conducted situation analyses to understand policymakers' and researchers' views and experiences of supporting the use of evidence in policymaking.

Some of the organizations complemented the situation analysis with a proof of concept to provide a concrete example for the target audience about what the organization could do and how the audience could benefit from its services. Most of the participants reported that they used the findings from the situation analysis to create the organization's perspectives and plans.

Second, they used strategic development to guide the subsequent steps for establishing the PSO. The participants who conducted a situation analysis reported their findings were useful for carefully framing the organization's perspectives. They also reported that they constructed a temporary steering committee that formulated the organization's vision, mission, and objectives. For some organizations, the members of the steering committee were structured in a way that allowed it to draw on the pre-existing expertise within the hosting organization. For example, one of the participants from a PSO that is part of a university constructed a temporary steering committee that involved experts from the business school to help develop the business plan, budget, and identify potential risk factors. Other organizations selected members such that representatives from the policy and research communities were engaged in order to create an avenue for their communication during the early stages of the organization's establishment.

Lastly, the participants described their approaches for implementing start-up activities for their PSO, the most common of which were to build the researchers' capacity to synthesize evidence in a user-friendly format and the policymakers' capacity to access,

appraise, synthesize and use evidence. Workshops, meetings, face-to-face courses, and online courses were the most common methods they used for this capacity-building. They also emphasized the importance of applying for all available funding opportunities at the national and international levels. Therefore, they reported that building the PSO staff's ability to apply for grants was highly useful for attracting more funds. In addition, they noted training for conducting or leading the PSO's different activities (e.g., writing policy briefs or rapid syntheses, facilitating stakeholder dialogues, administering a database/clearinghouse for research evidence) as also being crucial for implementing start-up activities. They explained that building capacity typically took the form of mentorship by an expert (e.g., the PSO leader, an in-house expert, or someone from another organization or country), workshops, courses, and by providing scholarships for graduate students engaged in the PSO.

Assessment Stage: Identifying Opportunities for Enhancing the PSO

Once a PSO is developed and starts to function on a regular basis, the next step must focus on assessing the quality of its work and performance to support continued enhancement of the PSO. As outlined in Table 3, we identified three common approaches participants used to guide the assessment stage. First, the participants emphasized the need to create a plan to know what to assess when, how, and why. They identified this as being essential to track the organization's performance (either by comparing the organization's performance with its previous year's achievements, or by comparing it with other similar organizations, or both) to identify areas and mechanisms for improvement. They consistently linked robust assessment to the organization's reputation and trustworthiness

in order to sustain the demand for PSO services. Some of the participants noted that their organizations had a clear assessment plan as part of its strategic plan, in which they set key performance indicators for each goal they wanted to achieve each year, including tracking the number of products (e.g., policy briefs, systematic reviews and rapid syntheses completed, policy dialogues and citizen panels convened, capacity-building workshops provided), the number of grants received, the number of collaborations built, and media coverage.

After creating an assessment plan, the second approach involves implementing the assessment activities to identify what is working and what needs to be improved. They indicated that organizational assessment took place annually (by the end of each financial year), after specific activities (e.g., the end of a project, after a training workshop, after a policy dialogue, or after a citizen panel), or by the end of the funding term in cases where the organization started as a pilot project funded by international organization. They frequently reported that the PSO staff conducted the assessment. One of the participants mentioned that the PSO invited an external team (from a neighboring country with a similar organization) to assess its organization to avoid bias and to be more objective. However, the participant found the experience to be challenging. Tt was hard to explain exactly how the system worked because the impact on decision-making was not apparent to someone without intimate knowledge about how the PSO's local policymaking processes worked. For aspects related to target audience feedback, most of the participants used surveys and interviews.

Third, following the phases of assessment, the participants emphasized the need to use the results to identify changes that could position the organization to enhance its impact and to ensure long-term sustainability. The most frequently reported change to a PSO was to move toward institutionalizing the organization (e.g., from being a pilot project to being institutionalized in a pre-existing organization), expanding the organization's audience (e.g., involving the media), and expanding the organization's scope of work (e.g., from health systems to health and social systems). They highlighted that these efforts were critical junctures in the organization's work that led to a significant shift in its success (success was subjectively defined based on each organization's leader's view, experience, and objectives.).

Maturation Stage: Building Long-Term Sustainability

Participants from all of the organizations reported facing a challenge that threatened their sustainability. In discussing these challenges, we identified three common approaches that they used (or planned to use) to position their PSOs to be more sustainable in the long-term (see Table 4). The first approach was sustaining sufficient funding from the hosting organization or other national or international organizations. All of the participants highlighted the importance of ensuring financial stability for their PSOs. Most of them obtained government support using different methods. Some of them had an agreement with their government to contribute to the PSO's annual budget for a predetermined amount of work (e.g., systematic reviews, policy briefs, policy dialogue). Others started offering courses related to KT through contracts with their governments to train their staff to provide internal support to policymakers and/or by offering in person or online courses to local and

international participants to raise funds through course fees. Still others sought funding through contracts with stakeholders to provide regular services (e.g., rapid syntheses, stakeholder dialogue, and citizen panels) or project-based contracts to offer specific services.

Next, they noted attracting and retaining staff with the right skills as being a challenge. They consistently mentioned the need to have incentives to retain staff (e.g., competitive salaries to avoid losing talent to competitor organizations or offering tenure positions for faculty). The participants from PSOs embedded in academic institutions expressed the importance of linking the PSO with programs provided through the university (e.g., master's and PhD programs) as an opportunity to engage and retain skilled individuals and as a mechanism to address staff shortages by hiring students as part-time employees. This was dependent, however, on whether there were staff at the PSO who could supervise these graduate students.

Lastly, they identified institutionalizing the PSO by embedding its work in the target organizations' norms, cultures, and processes as essential to sustain demand from policymakers. Although they reported that institutionalization played an important role in the PSOs' sustainability, each conceptualized this differently. Some participants approached institutionalization by attaching or embedding the PSO into a pre-existing institution. They reported this approach to be useful in ensuring access to the basic needs the organization needed to function (e.g., physical space, technology, and staff salaries). The reputation of the hosting organization also added value to the PSO. Other participants focused on institutionalizing the organization's work by making it part of the regular work

of the target audience to sustain their use of the organization's services. For example, some organizations incorporated the types of products the PSOs produced (i.e., not peer-reviewed manuscripts, such as rapid syntheses, policy briefs, and/or thematic analyses of stakeholder dialogues) as part of their annual performance reviews for faculty members. The participants also reported the importance of institutionalizing collaborations and networks by making them formal (e.g., signed contracts or memoranda of understanding) and less dependent on a particular individual in order to avoid the discontinuity that can result from staff turnover.

We did not find that any one approach was dominant. However, being mindful of how to hire and retain staff and having the flexibility to quickly readjust the organization's priorities to accommodate the continual changes in the health system were the most common strategies the participants recommended to approach sustainability. Our findings highlight that PSO sustainability is an issue regardless of the organization's age, which emphasizes the importance of taking maturation into consideration as early as possible, given that it is heavily dependent upon the actions that take place in the earlier stages (e.g., raising awareness about EIPM and the organization's work, the organizational arrangements, and the quality of the organization's works).

Contextual Factors

Our interviews revealed a group of contextual factors that facilitated or hindered the establishment of PSOs throughout the four stages. Some of the factors were internal at the individual or organizational level, whereas others were external (e.g., at the system

level). Table 5 provides a full list of these factors in a SWOT analysis format to distinguish between the internal and the external facilitators and barriers.

We found that the interest of policymakers and researchers in working together and supporting EIPM is an important factor that facilitates establishing PSO. The interest from a champion who is positioned to advocate for EIPM and establishing PSOs is vital in raising awareness about the importance of EIPM, highlighting gaps between the research and policy community and demonstrating the importance of addressing the gaps. While the champion can be a researcher, policymaker, or stakeholder, essential characteristics include having excellent communication skills, experience and expertise in the research and policy field, a strong reputation and trustworthiness. Diffusion of ideas about EIPM at the national and international level influence the awareness and the establishment approach. Ideas about the establishment approach are often influenced by the publication of a major report (locally, nationally, or internationally) such as the publication of WHO guidelines and/or a situation analysis to establish a knowledge translation platform. In addition, institutional arrangements (e.g., collaboration, existence of a research centre, having a mandate to incorporate research and collaborate with researchers) was reported as influencing the establishment approach. However, when participants were asked about the role of the government structure (federal or unitary) in establishing PSOs, most of them were unable to speak about its influence or did not view it as playing an important role in establishing the PSO.

We found that the strengths and opportunities of some organizations were the weaknesses and threats of others. Therefore, the organizations were capitalizing on their

facilitators to mitigate the barriers they faced. For instance, among the organizations that had a strength in the form of the availability of start-up funds (from governments, international organizations, the hosting organization, or a combination of different sources), many also faced the barrier of not having clear objectives, scope, or approaches to enhance the use of research in policymaking. In contrast, PSOs without sufficient start-up funds expressed that they had clear objectives and a strategic plan framed by skillful personnel who were ready to lead the PSO. Consequently, this helped attract funds from local and international organizations. Similarly, many of the PSOs operating in a context of limited awareness about the importance of EIPM among policy and research communities indicated that they capitalized on the international climate and publication of major reports (e.g., SUPPORT tools for evidence-informed health policymaking [STP]) that highlight how evidence could better inform the health system.

Because a PSO's work is based on collaboration between different organizations and communities, it is important to consider facilitators and barriers that emerge at the individual, organizational, and systemic level. A PSO should try to mobilize its weaknesses and any threats to its strengths and opportunities by considering the different strategies highlighted in the four stages. Although each factor listed in Table 5 has been mentioned more than two organizations, no single facilitator nor barrier was reported by all of the organizations.

Discussion

Principal Findings

In our interviews with PSOs leaders, we derived in-depth insights into the approaches and strategies they used to establish a PSO. Our findings revealed that the process of establishing PSO is iterative, and it is a non-linear process. The PSO leaders highlighted that awareness about EIPM could be raised through activities that establish a supportive climate for a PSO (e.g., training workshops and meetings), availability of resources to support EIPM (e.g., hosting organization, national or international organizations), and identifying the gap between research and policy communities. In addition, we found that understanding the situation, developing a strategic plan, and implementing the plan are very effective approaches to start developing a PSO. Our findings also revealed that PSO activities could be assessed at any time by conducting interviews or surveys for the target audience. A significant change might follow the assessment in the organizations setting, activities, or target audience. Finally, to ensure organizational sustainability, participants emphasized the importance of ensuring sufficient funding; sustaining appropriate capacities (by finding the right personnel, retaining them, and enhancing their skills) and institutionalizing the organization by embedding its work in the target organizations' norms, cultures, and processes.

We found that the key barriers to this process included a lack of funding, a lack of human resources, and the division of policy authorities. The key facilitators included awareness and government interest in EIPM and the availability of support from national and international organizations as well as at the individual, organizational, and systemic

level. It is important to acknowledge that there were differences in the approaches and strategies used across contexts—those working on establishing PSOs should be mindful of how these factors might differ in their own context.

By incorporating insight from the PSOs' leaders from around the world, our findings offer unique contributions to the literature. We have provided lessons for establishing PSOs that are not country- or region-specific.[21-27] Our study was inspired by the existing literature that focused on identifying approaches to support EIPM (e.g., setting priorities, building capacities, and providing rapid response services) and the factors that might influence these approaches.[21-27] Our study builds on this literature by providing insights about the process for establishing the organizations that support EIPM. While the literature highlighted the role of the government structure in the use of evidence in the policymaking process,[28,29] our study was unable to provide evidence that supports any particular conclusion regarding the role of government structures in establishing PSOs. This might have three possible explanations which will need further investigation. First, there is a possibility that participants were not aware of the exact role of the government structure in establishing PSOs, either because they do not consider it as an important factor, or because it was not obvious enough to be considered as an important factor. The second potential explanation is that the diffusion of ideas about the importance of EIPM and establishing a KTP was mainly pushed by international organizations (many of the participants mentioned the support from the international organization). As a result, the some may have viewed government structures as not relevant given the more important influence from international organizations that influenced the actions of those structures.

The last potential explanation is that the government structure was not an important factor for establishing PSO.

Strengths and Limitations

A key strength of our study was the use of a sequential mixed-methods approach. Conducting the survey first allowed us to document general PSO characteristics and then use those characteristics to purposively select a sample of PSOs that would provide rich insights from different regions of the world. This included PSOs operating in different settings, those that have demonstrated sustainability over the long-term, and that have been recently established. In addition, our approach allowed us to confirm, triangulate, and derive additional insights from the survey findings, creating a much richer data set. A potential limitation is the small sample size, which did not allow us to reliably identify patterns in establishment approaches across different contexts, regions, or organizational settings. However, this was unavoidable, given the limited number of PSOs that exist. Another limitation is that by talking only to PSO's leaders, we excluded the experiences and voices of others in the organization with less power or those outside the PSOs, which could provide a more comprehensive view of activities, processes, and SWOT. The last potential limitation of the study is that failed PSOs (e.g., PSOs that did not reach maturation stage) were not explored, which means we miss the counterpoint to what is required to succeed in establishing and institutionalizing PSOs.

Implications for Policy and Research

The main implication of our findings is that they provide rich insights about the

process of establishing a PSO from leaders who have undertaken the process. As a result, the stages of establishment presented in this paper—and the insights about them from leaders of PSOs—can provide important guidance for those who are considering establishing a PSO or who are already in the process of doing so. For example, our findings revealed the importance of conducting a situation analysis. Those who are interested in establishing a PSO should consider undertaking a similar process to enable them to develop the most appropriate strategy according to the context in which they work. In addition, our finding can be informative for leaders of PSOs to expand or refine their scope of work, such as by selecting a new program or service to provide and refining their monitoring and evaluation plans to include assessments of the impact of their work.

Future research could include conducting 1) a larger-scale study to identify patterns in PSO establishment approaches (e.g., by including organizations that support the use of evidence more broadly in the health sector such as public health practice, clinical practice guidelines, and health technology assessment, engaging organizations from other non-health sectors (e.g., environment), and using snowball sampling), 2) co-design studies that document and provide in-depth insights about the establishment of one or more PSOs, and 3) evaluations of the impact of PSOs on supporting EIPM. They could apply broader categories and themes to a specific context to determine whether they can be useful in understanding the process, and whether these themes can facilitate cross-context comparisons of setting up PSOs.

Table 5: Common approaches and strategies for the awareness stage of establishing a PSO

Common approaches	**Establishing supportive climate**	**Making adequate resources available**	**Addressing the gap in the system**
Strategies	• Government, universities, civil society organizations and NGOs demonstrate interest in providing research that can be used in policymaking (e.g., working together to identify the problems facing the health system). • Researchers prepare a vision and mission to expand the contribution of research in policymaking. • Governments demonstrate interest in supporting EIPM (e.g., support building capacities in health system research and considered this support as an investment for the government to achieve its goal). • International organizations create awareness about and demonstrate the need for EIPM through meetings, conferences and publications.	• International organizations provide financial and/or technical support for starting EIPM initiatives. • Governments and/or the hosting organization provide monetary and/or non-monetary (e.g., building, access to the internet and electronic databases) support for establishing the PSO. • The hosting organization demonstrates the availability of the appropriate expertise to lead the initiative. • The hosting organization has a mandate to build collaboration within the organization and/or across other organizations to strengthen the health system that it seeks to support.	• The following strategies were identified as being used by participants to provide justification to local, national and international organizations to support establishing a PSO: o increase the awareness about the fragmentation between research and policy communities; o demonstrate the potential benefits in creating a platform that would bring together policymakers and researchers and allow them to incorporate the perspectives of civil society; o demonstrate the added value from the proposed initiative compare to the other already existing; and o highlight the gap that needs to be addressed.
Example / illustrative quotation(s)	*'There was an interest from the government and universities on how to increase the research capacities that will help in providing research that the government can use'* (Participant 1).	*'The MOH provide money to stimulate research that can be better used by government through the involvement of all universities in the state'* (Participant 1).	*'There was a gap, there were people support public health and clinical decision but nothing about the health system, so there was a gap in terms of what is offered. This creates demand and needs for a group like us to fill this gap'* (Participant 2).

Table 6: Common approaches and strategies for the development stage of establishing a PSO

Common approaches	**Understanding the situation**	**Setting the perspectives strategically**	**Implementing start-up activities**
Strategies	• Demonstrate a proof of the effectiveness of EIPM by running some activities that immediately inform government priorities and involve both researchers and policymakers. • Understand who is doing what, how, and why by conducting a SWOT, feasibility analysis, situation analysis, future perspective analysis, policy analysis, or stakeholder power analysis. • Interview and/or survey policymakers to understand their needs and the barriers facing them in using research. • Understand the administrative formalities and the requirements that are needed to be met for approval by the hosting organization.	• Identify a model initiative and the pioneers in the area to learn from them and get their support and guidance during the process of establishing a PSO. • Develop a steering committee or board of directors that has representatives with different expertise (e.g., health, management, finance). • Set organizational governance or mechanisms of working in a way that allows for engaging policy and research communities more effectively (e.g., having the flexibility to engage/invite the appropriate partners based on the need of the different activities and projects). • Develop a strategic plan with a clear vision, a mission, an operational plan, and strategic objectives to guide the next steps for developing the organization. • Clearly define the organization branding. • Set target(s) and indicators of success.	• Raise awareness, about PSO activities and how it can support EIPM, across policy and research communities. • Build the capacities of researchers to synthesize evidence in a user-friendly format and for building the capacity of policymakers to access, appraise, synthesize and use evidence. For example, this can be achieved through workshops, face-to-face or online courses, and disseminating materials and guidelines on how to develop a policy brief and conducting a systematic review. • Build the capacities of the organization's core team through mentorship and Master's and PhD programs. • Build collaboration and networking with people and/or other organizations that have an interest and willingness to support efforts to advance the PSO's work. • Engage those with authority and interest in the PSO throughout all stages of PSO development. • Apply for all available funding opportunities at the national and international level.
Example / illustrative quotation(s)	*'We started by identifying a priority topic that will resonate with all policymakers and created our first KT products (i.e., briefing note and policy dialogue). This was the*	*'We constructed a temporary steering committee which worked on the business plan, budgeting, identifying risk factors, developing the governance*	*'When we shared the vision and the mandate of the institution with the champions from [the] MOH, they bought the idea and supported it, they provided an*

	proof of concept about what we can do particularly for the skeptics who thought we may have a hidden agenda' (Participant 3).	*model, identifying the value, the vision and the mission'* (Participant 2).	*avenue for interactions and provided an opportunity for engagement'* (Participant 4).

Table 7: Common approaches and strategies for the assessment stage of establishing a PSO

Common Approaches	**Planning for assessment**	**Implementing assessment activities**	**Identifying needed changes (critical juncture)**
Strategies	• If the organization does not already have one, develop a strategic plan that guides the organization maturation and expansion and be clear what the organization wants to achieve. • Set a regular monitoring and evaluation approach for the strategic plan and the annual plan. • Use a transparent approach for the different activities of the organization. For example, publishing a handbook on how the organization conducts rapid evidence syntheses to highlight how its work is systematic and transparent. • Develop a template for evaluating each activity. • Set key performance indicators to assess the organization process and outcomes.	• Conduct surveys and interviews or allow for regular feedback with those using or engaged in the programs and services provided by the PSO to assess the quality of the work. • Engage external experts who are familiar with the local context to evaluate the PSO. • Use a tracking system to determine the impact of the PSO on policy issues that it supported. • Use an organizational retreat to reflect on the PSO's work and identify changes needed.	• Possible changes identified by participants included: o changing the location of the organization or institutionalizing it (e.g., within a government or another host institution); o expanding the scope of the target audience to broaden the reach of the PSO (e.g., from policymakers at the Ministry of Health to parliamentarians); o expanding the scope of the organization's focus (e.g., from health only to other sectors); o adding new programs and services to the PSO's set of activities; and o publishing about the PSO's model and the quality and importance of its work (e.g., based on findings from monitoring and evaluation).
Example / illustrative quotation(s)	*'We were clear about what we wanted to do, for what reason, what the end result would be, and how we would measure it. We are working on how to measure the impact'* (Participant 2).	*'There is an ongoing quality control mechanism by continually reviewing and revising the programs'* (Participant 5).	*'As we progressed, we saw that another category of policy maker that are very vital to the policymaking process are parliamentarians. Now we include them in our engagement to guide them to make evidence informed legislations'* (Participant 4).

Table 8: Common approaches and strategies at the maturation stage of establishing a PSO

Common Approaches	**Sustaining sufficient funding**	**Sustaining appropriate capacities**	**Approaching institutionalization**
Strategies	• Maintain trusting relationships with government partners. • Use the organization's programs and services as a source of self-funding (e.g., by offering courses and workshops for a fee). • Secure long-term funding through projects from external sources (i.e., diversify funding to avoid relying on funding from a single hosting organization). • Advocate for a fixed budget for KT components in all grant proposals to contribute to sustaining the use of PSO's services (e.g., through dedicated budgets for disseminating findings, preparing briefing notes and convening policy dialogues.	• Provide incentives to attract and retain the human resources needed to maintain and advance the PSO. • Obtain fixed staff positions from the hosting organization to avoid turnover and the loss of skilled staff. • Maintain a high reputation of the PSO's team and work (e.g., credibility of the staff and transparency in work). • Continue raising awareness and sensitizing policymakers about the PSO's work, particularly in times of political instability, to ensure continued demand.	• Re-adjust the organization's priorities to accommodate changes to the health system. • Institutionalize the PSO within an existing organization to leverage existing infrastructure and resources. • Institutionalize collaborations and networks to avoid continual change in the direction of the work. • Incorporate the types of products produced by PSOs (i.e., those that are not peer-reviewed manuscripts) as part of the annual performance review for faculty members.
Example / illustrative quotation(s)	*'We thought that if the Ministry didn't help us with funding then we probably wouldn't be able to continue, so we invested in a lot of energy in ensuring that the relationship with the Ministry was solid'* (Participant 1).	*'We have a sustainability plan, which has a focus on how we attract and retain staff, and how we ensure that the skills are inside the organization'* (Participant 5).	*'Moving the unit to the health technology department gave it a better opportunity to grow because it became more stable, institutionalized, and had concrete resources from the public budget'* (Participant 6).

Table 9: Contextual factors that influence the establishment process

	Strengths	Weaknesses
Internal	• Awareness about the fragmentation in the system and the importance of EIPM to address this fragmentation between research and policy communities. • Strong relationships between the hosting organization government, academia, and/or societal groups. • Extensive experience of a hosting organization with research and running different projects. • Mandate of the hosting organization to incorporate evidence and/or work in collaboration with other sectors and institutions. • Availability of the appropriate skillful human resources to lead the PSO and its programs and services. • Institutionalization of the PSO. • Close working relationships with those making policies to facilitate communication. • Availability of start-up funds from governments, international organizations, the hosting organization, or a combination of different sources. • Strong reputation of the PSO leader in the research and or policy communities, which facilitates communication and the understanding the needs of both sides.	• Lack of clarity in the organization objectives, scope, and or approaches to enhance the use of research in policymaking. • Having different expectations about the organization work from the research and policy communities. • Insufficient funding, particularly at the start-up phase. • Language issue in non-English speaking countries as most of the available resources to be synthesized are in English, and few people are interested to invest in learning other languages to support policymakers. • Poor infrastructure, particularly internet connection and access to electronic databases. • Lack of sufficient human resources with the appropriate skills to support EIPM. • High staff turnover. • Staff overloaded with administrative work. • Lack of awareness about the existence of the organization and the type of services can be provided.
	Facilitators	***Barriers***
	Opportunities	**Challenges/ Threats**
External	• Publication of major reports that highlight how the health system could be better informed by evidence. • Government interest in EIPM and willingness to invest in the initiative (e.g., providing money and interest in collaborating and using the services provided). • Previous regulations and policies that recommend strengthening the health system through EIPM and collaboration between research and policy communities. • Government awareness and experience with EIPM (i.e., the readiness of the political environment for such initiative) and willingness to work with researchers. • High demand of evidence from different policy agencies. • Existence of other organizations that support the use of evidence but in other areas (e.g., for technical decisions about which drugs and technologies to fund). • Existence of strong health research system (i.e., fund, skilled researchers, electronic databases, research about the local context, collaboration with other research entities). • Support from those with authority from the policy and/or research community to advocate for the PSO. • Availability of financial and technical support from national and or international organizations. • Reputation of the hosting organization (e.g., to give the PSO the trust and neutrality).	• Political instability (e.g., elections, frequent change in the governments, war). • Negative experience of policymakers with researchers (e.g., in how evidence has been synthesized and presented to them) and/or lack of interest in collaborating. • Division of policy authority among multiple departments, organizations, or political levels that do not typically collaborate. • Lack of awareness of the importance of the benefits of EIPM among policy and research communities. • Week health research system (i.e., lack of fund, skilled researchers, electronic databases, research about the local context, collaboration with other research interties) particularly health system research. • Limited dissemination and communication of research findings. • The need for a shift from prioritizing opinion from experts and/or interests to systematically and transparently synthesized research evidence • Limited political commitment. • Cumbersome administrative processes to receive approval from a hosting organization.

Appendix 1: Survey Tool

Thank you for agreeing to complete this questionnaire.

We hope it will produce valuable information about how to establish a policy-support organization.

Please do not hesitate to contact us at the following email address if you have any questions about this study: alsabahs@mcmaster.ca

For the purpose of this questionnaire, we are seeking the input from those who lead policy-support organizations, which we define as organizations that support evidence-informed policy decision-making about health systems.

Policy-support organizations could be referred to by many names, including government support unit, research center, research observatory, think tank, or networks (e.g. EVIPNet). In addition, we refer to organizations as a cluster of people who are brought together for a common purpose within formalized entities. They embody a wide range of activities and can be classified as governmental or non-governmental, private or public and for-profit or non-profit. Policy-support organizations can also be embedded as part of a larger organization. For the purpose of this survey, we ask you to respond specifically in relation to the functions of the policy-support organization with which you work and not the larger organization that it may be a part of.

This questionnaire should only take approximately 15-20 minutes to complete with questions focused on the following five areas:

1) The political-, health- and research-system context in which your organization operates;
2) The focus /scope of your organization's work;
3) The activities and products generated from your organization;
4) Your organization's attributes; and
5) The establishment phase of your organization

To begin, please provide the name of your organization and a very simple description of its work. Please also provide a name, phone number, and email of someone in your organization that can be contacted for additional information in case we would like to follow up on this survey with a telephone interview or a site visit.
Name of the organization:
Brief description of your organization work:
Name of person that can be contacted for additional information:
Phone:
Email:

Section One: Context

A. Political system

1. Which political jurisdiction(s) does your organization principally provide supports within? *Please choose all that apply*.
    a. National/federal
    b. Provincial/ sub-national
    c. Local
    d. Other - *please specify* _____

B. Health system (This section related to the broader health system in the national or sub-national level)

2. In terms of **governance**, which of the following best describes the health system which your organization support
    a) Centralized (i.e., administered by a central agency at the national or sub-national level) *If selected, please briefly describe what makes it a centralized system:*
    b) Decentralized (i.e., administered by regional- or community-level agencies). *If selected, please briefly describe what makes it a decentralized system:*
    c) Other - *Please specify* _____
3. In terms of **financing**, which of the following best describes the health system your organization support
    a) Mainly publicly financed
    b) Mainly privately financed
    c) A mix of public and private financing
    d) Other - *Please specify* _____
4. In terms of **delivery** of care, which of the following best describes the health system your organization support. (predominantly indicate more than 50% of the health services)
    a) Predominately public delivery (i.e., hospitals and other sites are publicly run by the state)
    b) Predominately private for-profit delivery (i.e., few private not-for-profit healthcare organizations exist)
    c) Predominately private not-for-profit delivery (i.e., private for-profit healthcare organizations are limited to select sectors or types of treatments)
    d) Mix of private for-profit and private -not-for-profit delivery (i.e., large roles for both within the system)
    e) Other - *Please specify* -

C. Research system in which your organization operates

5. Is there any centralized funding source for health-system research? *(funding could be from private, public, or donor agencies)*
    a. Yes – *please specify the source and the amount* _____
    b. No
6. Do the funding agencies prioritize (even partially) activities related to knowledge

translation and evidence-informed policymaking? *(Activities could include building capacities, support finding and/or synthesizing research evidence, convening deliberations)*

a. Yes – *please provide examples if relevant:* _____
b. No

7. Do the funding agencies require collaboration/partnerships between researchers and policymakers in their grants focused on health-system topics?
    a. Yes – *please provide examples if relevant:* _____
    b. No
8. Do the funding agencies require collaboration/partnerships between researchers and citizens/patients in any grants focused on health-system topics?
    a. Yes – *please provide examples if relevant* _____
    b. No

Section Two: Focus/ scope of organization's work

9. Please specify the domains in which your organization provides service *(please choose all that apply)*

a. Clarifying health-system problems
b. Framing options to address health-system problems
c. Identifying implementation considerations
d. Supporting monitoring and evaluation of programs and policies at the system level
e. Other, please specify _____

10. Please identify the target audience of your organization and the mechanisms used to engage them *(please choose all that apply)*

How do you engage the selected groups?	Not applicable	Health-system policymakers	Social-system policymakers	Policymakers in central agencies (e.g., executive branch)	Managers of regions, central delivery agencies and/or healthcare institutions	Stakeholders (e.g., professional organizations or disease-focused groups)	Citizens/ patients	Other target users
Organizational governance								
Working groups or project steering committees								
Conduct interviews to identify insights (e.g., about views and preferences with a policy issue)								
Reviews of draft reports								

As participants in other activities (e.g., citizen or stakeholder deliberations)	
Other: please specify	

Section Three: Activities and products of the organization

11. Please select the types of activities that your organization is engaged in *(please select all that apply)*

a. Support learning about how to make evidence-informed decisions (or how to support others in doing so)
    i. Provide online courses
    ii. Provide face-to-face courses/ workshops
    iii. Other – please specify
b. Support finding and/or synthesizing research evidence
    i. Provide searchable repositories/databases of data and evidence
    ii. Conduct rapid synthesis/rapid reviews of research evidence (e.g. in days, weeks or months)
    iii. Conduct systematic reviews of primary research
    iv. Conduct overviews of systematic reviews
    v. Create evidence/policy briefs about a health-systems issues, options and/or implementation considerations that draw on any or all of the above
    vi. Other – please specify:
c. Support action for evidence-informed policymaking
    i. Convening deliberations with citizens/patients
    ii. Convening deliberations among system leaders (e.g., policymakers, stakeholders and researchers)
    iii. Convening communities of practice
    iv. Other – please specify:
d. Embed supports for findings and using research evidence in partner organizations
    i. Supportive audits of policies and practices related to finding and using research evidence
    ii. External reviews of reports or policies
    iii. Adapting resources to the needs of the organization
    iv. Other – please specify:
e. Evaluate approaches to support evidence-informed decision making (if you select this option please provide an example) _____

12. Please fell up the row beside each products that your organization produces

Type of product	How long have you been providing this service?	How many have you produced in the last 12 months?	If you use a different name to refer to this product, please specify
Rapid syntheses or rapid review			
Evidence or policy briefs			
Citizen friendly syntheses or summaries of research			
Analysis or summaries of deliberations with citizen/patients and/or system leaders			
Database of research evidence			
Information about the health system in which you work			
Tools for application (e.g., algorithms, flow charts, checklists)			
Videos (e.g., that provide insights about research evidence, from system leaders or information/education about supporting evidence-informed policy)			
Other, please specify: make more space here			

13. In any of your products do you make recommendations (as opposed to state what's known about alterative courses of action or policy options)?
    a. Yes
    b. No (skep Q15)
14. If your organization formulates recommendations, please specify the methods used (select all that apply)
    a. Subjective review
    b. Informal consensus
    c. Formal consensus (e.g., consensus conference, nominal group technique, delphi technique)
    d. Graded according to the quality of the evidence and/or the strength of the recommendation (using an explicit rating scheme)
    e. Other - *please specify* _____
15. By referring to the activities and products you highlighted in question 11 and 12, briefly describe the process of running one of the activities and its corresponding product you have had the most positive experiences (you could choose the one that you are most proud of, or the one that you think made a significant impact) within the last 12 months, and summarize the resources needed for to undertake this activity (e.g. time, staff, budget)

Section Four: organization's attributes

A. Organizational structure

16. Is your organization embedded within a larger organization such as a university or

ministry?

a. Yes – Please specify:
b. No (i.e., your organization stand in its own)

17. How is your organization governed?
    a. Through executive board
    b. Advisory committee
    c. Other - *please specify* _____
18. What term would best describe your organization type?
    a. Government department/ unit
    b. Research center in academic institution
    c. Independent research center
    d. Research observatory or observatory
    e. Think tank
    f. Evidence-Informed Policy Network (EVIPNet) or similar platform
    g. Disease-specific association
    h. Professional association
    i. International agency
    j. Other - *please specify* _____

B. Financial arrangement

19. What is the estimated annual budget of your organization (in US dollars): _____
20. What is/are the funding source(s) for different activities at your organization?
    a. Government
    b. Grants from research-funding agencies
    c. Philanthropic donations
    d. International agencies
    e. Biomedical or other for-profit companies
    f. Other - *please specify:* _____

C. Human resources (reminder: if your policy-support organization is embedded in a larger organization, please talk only about the staff involved in the former which is focused on supporting evidence-informed health-system decision-making)

21. How many staff work at your policy-support organization? _____
22. Of the staff listed for question 21, how many are:
    a. Full-time employees?
    b. Part-time employees?
23. What are the types of training that full-time employees working at your organization have?
    a. Policy analysis
    b. Health economics
    c. Health services research
    d. Clinical epidemiology
    e. Informatics / library science

f. Biostatistics
g. Population and public health research
h. Other types of social science
i. Other, please specify _____

D. Infrastructure:

24. Type of information system your organization has access to:
    a. Electronic databases (e.g. Medline)
    b. Database that index local studies or reports
    c. Local data sets (e.g. with administrative data and routine health indicators, national surveys)
    d. Other - *please specify*: _____
25. Briefly describe the basic infrastructure of your organization, how this facilitates or hinder your work, and what do you think is the most important change which it will happen will make a significant improvement in your work? *Infrastructure refers to the basic conditions (facilities and technology) that allow an organization's work to proceed—for example, reasonable space in a building, computer and internet access, archiving system, and adequate space for running a dialogue and meetings.*

E. Inter-organizational linkages: *Inter-organizational linkages refer to having regular contact with other institutions, organizations and groups for strategic importance to the organization's work.*

26. Apart from the organization where your organization is embedded (if any), does your organization have a formal relationship with any of the following organization(s)? (please select all that apply)
    a. Government institution(s)
    b. Academic institution(s)
    c. Other local/ provincial organization(s)
    d. Other international organization(s)
    e. Other organizations, *please specify:* _____
27. Has your organization mentored (or continue to) any other organization(s)?
    a. Yes (*please specify the mentored organization*)
    b. No
28. Does your organization have any 'sister' centres?
    a. Yes (*please specify*)
    b. No
29. Briefly describe any relationship(s) that are particularly important or valuable to your organization: (in addition to your description, you could also share a relevant document(s) by sending them to (alsabahs@mcmaster.ca) or provide a like to particular web page)

F. Program and services management

30. Does your organization have a strategic plan? (strategic plan is *a document that states the organization goals, the actions needed to achieve those goals and mobilizing resources to execute the actions)*

a. Yes → briefly describe the components of the plan?
b. No

(please share any relevant document(s) by sending them to (alsabahs@mcmaster.ca) or provide a like to particular web page)

G. Process management

31. Does your organization collect data systematically about the use of your product by target users to monitoring and devaluation the organization performance/ impact?
    a. Yes → briefly describe how?
    b. No
32. Does your organization update its products? *(Example of products include rapid syntheses, evidence briefs, friendly syntheses, summaries of research, summaries of deliberations, and database of research evidence)*
    a. Update regularly
    b. Update irregularly
    c. Do not update

Section Five: Establishment

33. In what year was your organization established? _____
34. Were examples from other countries helpful to establish this organization?
    a. Yes → which country or organization
    b. No
35. Did you conduct situational analysis?
    a. Yes → please briefly describe the situational analysis conducted
    b. No
36. Did you use a readiness assessment tool? *(By readiness assessment tool we mean a tool that is used to evaluate whether an organization is ready to implement the change or not. The tool should have a specified psychometric and has been tested for its validity and reliability.)*
    a. Yes → please name the tool
    b. No

Additional Questions

37. Are there other organisations like yours that you would suggest that we should include in our study?

Thank you for participating in this survey!

Appendix 2: Invitation Letter and Consent Form for Survey Participants

Title of study: Examining and developing approaches to establishing health policy support organizations (Phase 1 – survey)

Principal investigator: Sultana Al Sabahi, MSc PhD (candidate)

Co-investigator(s)/supervisors: Michael G. Wilson, PhD

[Insert date]

Dear Sir/Madame,

You are being invited to participate in a research study to examine and develop approaches to establish health policy-support organizations1. Specifically, you are being invited to participate in a survey to identify the views and experiences of those who were directly involved in the development and implementation of health policy-support organizations that have been developed and implemented across a variety of political-, health- and research-system contexts. The questionnaire covers fife domains: 1) the political-, health- and research-system context in which the organization operates; 2) the focus /scope of the organization's work; 3) the organization activities and products; 4) the organization's attributes; and 5) the establishment phase of the organization. Your involvement would mean engaging in filling about eight pages questionnaire which will be sent to you by email to complete it at your convenience time and return it within a week from the original date of mailing.

Your participation in this research study is voluntary. You may refuse to participate in the research study and you may choose to withdraw from the study at any time. The benefit to you of participating in the research study is that you can help jurisdictions, including your own, understand how to establish a health policy-support organization.
Your responses will be treated as confidential. Questionnaires will be given personal identifiers. The primary investigator will ensure that the responses are kept on a security

1 "health policy-support organizations" refers to the organization, initiatives, and networks which support the evidence-informed health policymaking by clarifying problems, selecting options, and identifying implementation consideration.

protected computer, and the digital files of the survey are destroyed 10 years after the last publication of our findings.

Your anonymity as a research study participant will be safeguarded. Confidential information will not be reported in a way that could identify either individual respondents or individual departments or organizations. We will make the summary of our findings publicly available for use by others interested in establishing health policy-support organization.

Please check yes or no to the questions below to indicate whether you consent to participate in our study and, if so, whether you are willing to have your name and position appear in the study acknowledgements. We would be pleased to provide you with additional information about our study and your potential participation. We will be utilizing this process to aid in the selection of jurisdictions for interviews. Should you be willing to be contacted at a later date for this aspect of the study, please check the box below.

Request for consent	Yes	No
1. I am willing to participate in the survey.		
2. I am willing to have my name and position appear on the study acknowledgement list as one of the respondents.		
3. Please contact me. I would like additional information about the study and/or my participation.		
4. I am willing to be contacted about the potential of my organization participating in the second phase of this research, which includes an interview.		
I will receive a signed copy of this form. Signed: _____ Date: _____ Please email to alsabahs@mcmaster.ca		

Thank you for your valuable contribution to our research study. This study is led by the Sultana Al Sabahi (Ph.D. candidate) under the supervision of Michael Wilson. If you have any question about the study, please feel free to contact me at Tel: +1 (905) 525-9140 x22521/ e-mail: alsabahs@mcmaster.ca or contact Michael at Tel: +1 (905) 525-9140 x22121/ e-mail: wilsom2@mcmaster.ca
If you have any questions regarding your rights as a research participant you may contact the Office of the Chair of the Hamilton Integrated Research Ethics Board (HiREB) at +1 905 521 2100 extension 42013.

Sincerely

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Appendix 3: Interview Guide

Ethical considerations:
A description of the study will have been presented during the recruitment phase. A signed confirmation of commitment to participate will be obtained prior to engaging in the questions. Any ethical issues arising will be addressed prior to the first question and will be documented by the Interviewer.

Process:
Interviews will be recorded on a digital audio device or computer, transcribed, and uploaded into a qualitative software program. Hand written notes will also be made by the interviewer into her field notebook.

Date:
Time:
Place:
Interviewer:
Interviewee:
Position of Interviewee:

In this interview, I am going to ask you three things: 1) the process of starting your organization; 2) critical junctures in the life of your organization; and 3) how you approach sustainability to ensure your organization continues to thrive.

Questions

Do you have any questions for me before proceeding to the interview?
Can you give me a brief description of the organization?

Establishment: refers to process of starting or beginning this organization

1. Could you describe the process of starting up your organization? For example, could you describe:
    - What was the reason or motivation for establishing your organization?
    - What values underpinned the establishment of the organization?
    - Who are the people involved in establishing the organization?
    - What activities took place at the time of establishment (e.g. training, hiring, adjustment in the organization structure, raising funds, building networks and collaborations)?
    - How was the scope of work initially determined?
    - Did you conduct a situation analysis?
        - If yes, can you tell me more about it?
    - Did the political system play any role in facilitating or hindering the establishment of this organization? This could include factors related to

political institutions, interest groups operating in the health system and ideas about the health system
    - For example, for institutions:
        - Were there any roles or regulations in place that made your work easier or more complicated at the time of establishing the organization?
        - Did government structures (being unitary or federal government) play any role in facilitating or hindering the establishment of this organization?
    - For interests:
        - Was there a specific individual, group, or organization that advocated for or against the establishment of the organization?
    - For ideas:
        - Were there examples from other organization/ countries used as a model to shape this organization?
        - Were there any other ideas, including, norms, belief, national mood, that influenced the establishment of the organization?
- Did the nature of health system arrangements within which your organization works play any role in facilitating or hindering the establishment of this organization? Explain how
    - Governance arrangements (e.g., policy, organizational, commercial and professional authority in the system and/or approaches to consumer or stakeholder involvement)
    - Financial arrangements (e.g., how the system is financed, organizations are funded, providers are remunerated, products and services are purchased and consumer incentivized)
    - Delivery arrangement (e.g., how care is designed to meet consumers' needs, by whom care is provided, where care is provided and with what supports is care provided)
- Did the research system play any role in facilitating or hindering the establishment of this organization? Explain how in relation to:
    - Existence of a centralized fund for the health-system research
    - Prioritization (even partial) of activities related to knowledge translation and evidence-informed policymaking from funding agencies?
    - Requirement for collaboration or partnerships between researchers, policymakers, stakeholders and/or citizens/patients

2. What were the main opportunities you had to establish this organization?
    - at the system level
    - organization level
    - individual level
3. What were the main challenges?
    - at the system level
    - organization level

- individual level

4. knowing what you know now, what would you do differently in establishing such an organization, and what advice would you give to others who are seeking to establish a similar organization?

Critical juncture(s) critical junctures in the life of your organization

A critical juncture is a point in time where an organization makes a significant change in the work it does or the way it does it.

5. Could you give me a list of the landmark or critical turning points for your organization? For example, this could include adding a new activity or doing it in a different way, or restructuring the organization?
6. From this list, let's pick two to three of them and help me understand why, how and the ways in which it was significant?
    - For the why; could you outline the reason(s) for making this shift
    - For the how; could you describe the way the change is done, the people involved, the adjustments made in the system, description of the new path.
    - What did you learn from these critical junctures?
    - With the benefit of hindsight, would you have done anything differently?

Sustainability: is the approach an organization take to ensure survival and thrive in the future

7. Given where you are today, please describe how you approach sustainability for the organization in order to ensure it continues to thrive?
    - What is your approach to securing a sufficient budget, retaining staff, getting organizational support, documenting impacts, etc.?
    - How are you approaching expansion in programs or in activities and products within an existing program?
    - What is your approach to sustaining or improving the number and quality of products and outcomes from your organization?

Appendix 4: Invitation Letter and Consent Form for Interview Participants

Title of study: Examining and developing approaches to establishing health policy support organizations (Phase 2 – interview)

Principal investigator: Sultana Al Sabahi, MSc PhD (candidate)

Co-investigator(s)/supervisors: Michael G. Wilson, PhD

[Insert date]

Dear Sir/Madame,

You are being invited to participate in a research study to examine and develop approaches to establish health policy-support organizations2. Specifically, you are being invited to participate in an interview about 1) the process of starting up the organization; 2) critical junctures in the life of your organization; and 3) what approach the organization has used to ensure sustainability in the long term. Your involvement would mean participating in a 60-90-minute telephone or Skype interview to be scheduled at your convenience.

Your participation in this research study is voluntary. You may refuse to participate in the research study and you may choose to withdraw from the study at any time. The benefit to you of participating in the research study is that you can help jurisdictions, including your own, understand how to establish a health policy-support organization.

Your interview and any information provided in the form of documents that are not in the public domain will be treated as confidential. Interviews will be audio-recorded and transcribed and personal identifiers will be assigned to each digital file and transcript by research staff. The primary investigator will ensure that the transcript and any confidential documents are kept in a locked cabinet, the digital files containing the audio-

2 "health policy-support organizations" refers to the organization, initiatives, and networks which support the evidence-informed health policymaking by clarifying problems, selecting options, and identifying implementation consideration.

recording and transcript are stored on a security protected computer, and the digital files, transcript and confidential documents are destroyed 10 years after the last publication of our findings.

Your anonymity as a research study participant will be safeguarded. We will ensure that the list of study participants and their participant numbers will be stored in a different locked cabinet or security protected computer from those where the digital files, transcripts and confidential documents are stored. Confidential information will not be reported in a way that could identify either individual respondents or individual departments or organizations. A summary of the information provided by your organization will be provided to you to ensure accuracy. We will make the summary of our findings publicly available for use by others interested in establishing health policy-support organization.

Please check yes or no to the questions below to indicate whether you consent to participate in our study and, if so, whether you are willing to have your name and position appear in the study acknowledgements. We would be pleased to provide you with additional information about our study and your potential participation. We will be utilizing this process to aid in the selection of jurisdictions for site visits. Should you be willing to be contacted at a later date for this aspect of the study, please check the box below.

Request for consent	Yes	No
1. I am willing to participate in a 60-90 minute telephone or Skype interview to be scheduled at my convenience.		
2. I am willing to have my name and position appear on the study acknowledgement list as one of the respondents.		
3. I would like to review and comment upon the summary of my organization.		
4. Please contact me. I would like additional information about the study and/or my participation.		
I will receive a signed copy of this form. Signed: _____ Date: _____ Please email to alsabahs@mcmaster.ca		

Thank you for your valuable contribution to our research study. This study is led by the Sultana Al Sabahi (Ph.D. candidate) under the supervision of Michael Wilson. If you have any question about the study, please feel free to contact me at Tel: +1 (905) 525-9140 x22521/ e-mail: alsabahs@mcmaster.ca or contact Michael at Tel: +1 (905) 525-9140 x22121/ e-mail: wilsom2@mcmaster.ca

If you have any questions regarding your rights as a research participant you may contact the Office of the Chair of the Hamilton Integrated Research Ethics Board (HiREB) at +1 905 521 2100 extension 42013.

Sincerely

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Appendix 5: Contextual feature of the of the participated organizations

	Total	WHO region				
		Africa	America	Eastern Mediterranean	Europe	Western Pacific
Income level according to World Bank classification (n=18)						
Low-income	3 (17%)	3 (17%)	0	0	0	0
Lower-middle-income	5 (28%)	3 (17%)	0	0	2 (11%)	0
Upper-middle-income	7 (39%)	0	3 (17%)	2 (11%)	2 (11%)	0
High-income	3 (17%)	0	2 (11%)	0	0	1 (6%)
***Political jurisdiction in which the organizations principally provide supports within (n=18)**						
National/ federal	17 (94%)	7 (39%)	4 (22%)	2 (11%)	3 (17%)	1 (6%)
Provincial/ sub-national	9 (50%)	3 (17%)	3 (17%)	1 (6%)	1 (6%)	1 (6%)
Local	5 (28%)	2 (11%)	2 (11%)	0	0	1 (6%)
Other (global)	1 (6%)	0	1 (6%)	0	0	0
Governance arrangement of the health system in which the organizations operate (n = 17)						
Mainly centralized	7 (41%)	0	1 (6%)	1 (6%)	4 (24%)	1 (6%)
Mainly decentralized	6 (35%)	2 (12%)	3 (18%)	1 (6%)	0	0
Equally centralized and decentralized	4 (24%)	3 (18%)	1 (6%)	0	0	0
Financial arrangement of the health system in which the organizations operate (n = 18)						
Mainly publicly funded	12 (67%)	5 (28%)	3 (17%)	0	3 (17%)	1 (6%)
Mainly privately funded	1 (6%)	0	0	1 (6%)	0	0
Mix of public and private	5 (28%)	1 (6%)	2 (11%)	1 (6%)	1 (6%)	0
Delivery arrangement of the health system in which the organizations operate (n = 18)						
Predominately public delivery	11 (61%)	4 (22%)	3 (17%)	0	3 (17%)	1 (6%)
Predominately private for-profit	1 (6%)	0	0	0	1 (6%)	0
Predominately private not-for-profit	1 (6%)	0	1 (6%)	0	0	0
Mix of private for-profit and not-for-profit	4 (22%)	2 (11%)	1 (6%)	1 (6%)	0	0
Equally delivered by public and private	1 (6%)	0	0	1 (6%)	0	0
◊Research system in which the organizations operate (n = 18)						
Availability of centralized fund for HSR	14 (78%)	4 (22%)	5 (28%)	1 (6%)	3 (17%)	1 (6%)
Provision of funds for prioritized KT activities from funding agencies	10 (56%)	3 (17%)	3 (17%)	0	3 (17%)	1 (6%)
Funding agency requirement for collaboration between researchers & policymakers	10 (56%)	3 (17%)	3 (17%)	0	3 (17%)	1 (6%)
Funding agency requirement for collaboration between researchers & citizens	6 (33%)	1 (6%)	2 (11%)	0	3 (17%)	0

* *More than one answer was possible for this question*

◊ *Each question of this section has been asked separately*

Note: the total percentage may not be exact because of the rounding

Appendix 6: Organizational attributes

		Total	♦WHO region				
			Africa	America	Eastern Mediterranean	Europe	Western Pacific
Location (n= 15)							
Embedded within universities		5 (33%)	2 (13%)	1 (7%)	2 (13%)	0	0
Embedded within ministry of health		3 (20%)	0	3 (20%)	0	0	0
Independent		7 (47%)	1 (7%)	1 (7%)	0	4 (27%)	1 (7%)
Organization type (n =14)							
Government department/ unit		4 (29%)	1 (7%)	2 (14%)	0	1 (7%)	0
Research center in academic institution		2 (14%)	0	0	2 (14%)	0	0
Independent research center		3 (21%)	1 (7%)	2 (14%)	0	0	0
Evidence-Informed Policy Network		3 (21%)	1 (7%)	0	0	2 (14%)	0
Professional association		1 (7%)	0	1 (7%)	0	0	0
Independent non for-profit organization		1 (7%)	0	0	0	0	1 (7%)
Governance approach (n =15)							
Through executive board		9 (60%)	3 (20%)	2 (13%)	1 (7%)	2 (13%)	1 (7%)
Advisory committee		4 (27%)	0	1 (7%)	1 (7%)	2 (13%)	0
Other (in house senior officials)		2 (13%)	0	2 (13%)	0	0	0
Budget in US dollar (n=12)							
Mean		$ 105,880,000	$ 157,500	$ 312,820,000	$ 20,000	$ 1,975,000	13,000,000
Median		$ 250,000	$ 157,500	$ 62,5000	$ 20,000	$ 1,200,000	13,000,000
Range		$ 10,000 to 1,250,000,000	$ 65,000 to 250,000	$ 30,000 to 1,250,000,000	$ 10,000 to 30,000	$ 225,000 to 4,500,000	-
⋆**Source(s) of funding (n =15)**							
Government		11 (73%)	2 (13%)	4 (27%)	1 (7%)	3 (20%)	1 (7%)
Grants from research-funding agencies		10 (67%)	2 (13%)	4 (27%)	2 (13%)	1 (7%)	1 (7%)
Philanthropic donations		1 (7%)	0	1 (7%)	0	0	0
International agencies		5 (33%)	1 (7%)	2 (13%)	0	2 (13%)	0
Biomedical or other for-profit companies		1 (7%)	0	0	0	1 (7%)	0
Other sources		4 (27%)	0	1 (7%)	1 (7%)	1 (7%)	1 (7%)
Human resources (n =15)							
Total number of staff	Mean	63	9	36	11	153	100
	Median	15	8	12	11	115	100
	Range	4 to 360	5 to 15	4 to 93	10 to 12	24 to 360	-
Full time employees	Mean	51	4	19	9	141	80
	Median	12	2	12	9	105	80
	Range	0 to 337	0 to 10	1 to 55	-	18 to 337	-
Part-time employees	Mean	14	5	23	2	13	20
	Median	6	5	9	2	13	20

Range		0 to 66	3 to 8	0 to 66	1 to 3	0 to 25	-
⋆**Background of full-time employees (n =15)**							
Policy analysis		12 (80%)	1 (7%)	4 (27%)	2 (13%)	4 (27%)	1 (7%)
Health economics		7 (47%)	1 (7%)	4 (27%)	0	2 (13%)	0
Health services research		13 (87%)	2 (13%)	4 (27%)	2 (13%)	4 (27%)	1 (7%)
Clinical epidemiology		10 (67%)	1 (7%)	5 (33%)	1 (7%)	2 (13%)	1 (7%)
Informatics / library science		5 (33%)	1 (7%)	2 (13%)	1 (7%)	1 (7%)	0
Biostatistics		9 (60%)	1 (7%)	4 (27%)	2 (13%)	1 (7%)	1 (7%)
Population and public health research		13 (87%)	2 (13%)	5 (33%)	2 (13%)	3 (20%)	1 (7%)
Other types of social science		7 (47%)	0	3 (20%)	1 (7%)	2 (13%)	1 (7%)
⋆**Information system access (n =15)**							
Electronic databases		12 (80%)	1 (7%)	5 (33%)	2 (13%)	3 (20%)	1 (7%)
Database that index local studies or reports		9 (60%)	2 (13%)	4 (27%)	2 (13%)	1 (7%)	0
Local data sets		13 (87%)	2 (13%)	5 (33%)	1 (7%)	4 (27%)	1 (7%)
Other		1 (7%)	0	0	0	1 (7%)	0
⋆**Organizational linkages (n =15)**							
Type of organizational linkages							
Government institution		11 (73%)	3 (20%)	3 (20%)	1 (7%)	3 (20%)	1 (7%)
Academic institution		12 (80%)	3 (20%)	5 (33%)	0	3 (20%)	1 (7%)
Other local/ provincial organization		8 (53%)	2 (13%)	3 (20%)	0	3 (20%)	0
Other international organization		11 (73%)	3 (20%)	3 (20%)	1 (7%)	3 (20%)	1 (7%)
Other (NGOs)		1 (7%)	0	0	0	1 (7%)	0
Organizations that mentored others		11 (73%)	2 (13%)	4 (27%)	1 (7%)	4 (27%)	0
Organizations that have 'sister' centres		3 (20%)	1 (7%)	1 (7%)	1 (7%)	0	0
Organizations that have a strategic plan		10 (67%)	0	3 (20%)	2 (13%)	4 (27%)	1 (7%)
Organizations that monitoring and devaluation the organization performance/ impact		8 (53%)	0	2 (13%)	2 (13%)	3 (20%)	1 (7%)
Frequency update of products produced (n = 15)							
Update regularly		2 (13%)	1 (7%)	0	0	1 (7%)	0
Update irregularly		8 (53%)	2 (13%)	3 (20%)	1 (7%)	1 (7%)	1 (7%)
Do not update		5 (33%)	0	2 (13%)	1 (7%)	2 (13%)	0
◊ **Establishment (n = 15)**							
Organizational age	Mean	23	20	24	8	31	17
	Median	17	14	10	8	25	17
	Range	3 to 71	4 to 43	3 to 60	4 to 11	2 to 71	-
Organizations that found lessons from other countries helpful		8 (53%)	2 (13%)	3 (20%)	1 (7%)	2 (13%)	0
Organizations that conduct situation analysis		5 (33%)	0	1 (7%)	2 (13%)	1 (7%)	1 (7%)
Organizations that used readiness assessment tool		1 (7%)	0	0	1 (7%)	0	0

♦ *The Western Pacific region dropped because the survey not complete*

⋆ *More than one answer was possible for this question*

◊ *Each question of this section has been asked separately*

Appendix 7: Organizational focus, and activities

	Total	WHO region				
		Africa	America	Eastern Mediterranean	Europe	Western Pacific
⁎**The domains in which the organizations provide service (n = 17)**						
Clarifying problems	16 (94%)	4 (24%)	5 (29%)	2 (12%)	4 (24%)	1 (6%)
Framing options	15 (88%)	4 (24%)	5 (29%)	2 (12%)	3 (18%)	1 (6%)
Identifying implementation considerations	14 (82%)	3 (18%)	5 (29%)	2 (12%)	3 (18%)	1 (6%)
Supporting monitoring and evaluation	14 (82%)	4 (24%)	3 (1918	2 (12%)	4 (24%)	1 (6%)
⁎**Organizational activities (n = 16)**						
Provide online courses	6 (38%)	0	2 (13%)	1 (6%)	2 (13%)	1 (6%)
Provide face-to-face courses/ workshops	15 (94%)	4 (25%)	5 (31%)	2 (13%)	3 (19%)	1 (6%)
Provide searchable repositories/databases	8 (50%)	1 (6%)	4 (25%)	1 (6%)	2 (13%)	0
Conduct rapid synthesis/rapid reviews of evidence	12 (75%)	2 (13%)	5 (31%)	2 (13%)	2 (13%)	1 (6%)
Conduct systematic reviews of primary research	8 (50%)	3 (19%)	3 (19%)	2 (13%)	0	0
Conduct overviews of systematic reviews	8 (50%)	2 (13%)	3 (19%)	1 (6%)	2 (13%)	0
Create evidence/policy briefs	14 (88%)	3 (19%)	5 (31%)	2 (13%)	3 (19%)	1 (6%)
Convening deliberations with citizens/patients	7 (44%)	1 (6%)	3 (19%)	1 (6%)	2 (13%)	0
Convening deliberations among system leaders	13 (81%)	3 (19%)	3 (19%)	2 (13%)	4 (25%)	1 (6%)
Convening communities of practice	6 (38%)	1 (6%)	2 (13%)	0	2 (13%)	1 (6%)
Supportive audits of policies and practices	9 (56%)	1 (6%)	3 (19%)	2 (13%)	2 (13%)	1 (6%)
External reviews of reports or policies	11 (69%)	3 (19%)	3 (19%)	1 (6%)	4 (25%)	0
Adapting resources to the needs of the organization	10 (63%)	2 (13%)	3 (19%)	1 (6%)	3 (19%)	1 (6%)
Evaluate approaches to support EIDM	10 (63%)	3 (19%)	3 (19%)	1 (6%)	2 (13%)	1 (6%)
Other	3 (19%)	1 (6%)	1 (6%)	1 (6%)	0	0
Organizations that formulate recommendations (n=14)	10 (71%)	2 (14%)	2 (14%)	2 (14%)	3 (21%)	1 (7%)
⁎**Methods of formulating recommendation (n = 10)**						
Subjective review	5 (50%)	1 (10%)	0	1 (10%)	2 (20%)	1 (10%)
Informal consensus	6 (60%)	1 (10%)	1 (10%)	2 (20%)	2 (20%)	0
Formal consensus	6 (60%)	1 (10%)	0	1 (10%)	3 (30%)	1 (10%)
Graded according to the quality	3 (30%)	0	1 (10%)	0	1 (10%)	1 (10%)
Other	1 (10%)	0	0	1 (10%)	0	0

⁎ *More than one answer was possible for this question*

◊ *Each question of this section has been asked separately*

Appendix 8: Organizational products

♣Type of product	Number /16	Years since start producing this product		Number produced in the last 12 months	
		Median	Range	Median	Range
Rapid syntheses or rapid review	12 (75%)	4.5	1-12	5.5	0-46
Evidence or policy briefs	14 (88%)	5	1-10	2.5	1-10
Citizen friendly syntheses or summaries of research	8 (50%)	4.5	1-10	2.5	0-15
Analysis or summaries of deliberations	8 (50%)	7	5-10	2	0-20
Database of research evidence	10 (62%)	5.5	1-30	3	0-4
Information about the health system in which you work	10 (62%)	7	2-30	5	0-20
Tools for application (e.g., algorithms, flow charts, checklists)	5 (31%)	4	2-10	4	0-15
Videos	7 (44%)	5	1-10	2.5	0-5

⋆ *More than one answer was possible for this question*

♣*Not presented across WHO regions because in many cases there is one response only, where we cannot present a median*

Appendix 9: Engagement of target audience

⋆♣Approaches to engage selected groups n = 16 (%)	Health-system policymakers	Social-system policymakers	Policymakers in central agencies	Managers of regions, central agencies	Stakeholders	Citizens/ patients	Other target users
Organizational governance	13 (81%)	6 (34%)	10 (63%)	11 (69%)	9 (56%)	3 (19%)	2 (13%)
Working groups or project steering committees	14 (88%)	8 (50%)	12 (75%)	12 (75%)	12 (75%)	2 (13%)	3 (19%)
Conduct interviews to identify insights	10 (63%)	7 (44%)	7 (44%)	9 (56%)	9 (56%)	3 (19%)	3 (19%)
Reviews of draft reports	15 (94%)	7 (44%)	10 (63%)	11 (69%)	8 (50%)	2 (13%)	3 (19%)
As participants in other activities	14 (88%)	7 (44%)	8 (50%)	10 (63%)	10 (63%)	5 (31%)	5 (31%)
Other mechanism	2 (13%)	1 (6%)	2 (13%)	0	1 (6%)	1 (6%)	0

⋆ *More than one answer was possible for this question*

♣*Not presented across WHO regions because in many cases there is one response only, where we cannot present a median*

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Chapter 4

Preface

The focus on this chapter is to gather insights to guide the process of activating the knowledge translation department in the Omani Ministry of Health. Document analysis and in-depth one-on-one interviews were conducted with policymakers, researchers, and stakeholders who are familiar about the Omani system to generate options for policymakers, stakeholders and researchers to consider in future deliberations about implementing the knowledge translation department. The findings from studies one and two were used to inform the interview guide and the options presented for the participants.

I designed the study design with my supervisor, Dr. Michael G. Wilson, and I was responsible for all data collection and analysis, which took place between January and March 2020. The members of my supervisory committee each provided feedback on drafts of the chapter, which were incorporated into the paper.

Insights from System Leaders About Operationalizing A Knowledge Translation Department in the Oman Ministry of Health

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Key messages

- Despite the use of multiple sources of data and evidence to inform the Omani health system policies, a more systematic and transparent approach is the way forward for the Omani government to support evidence-informed policymaking.
- Supporting evidence-informed policymaking in Oman is challenged by the low quality and quantity of local evidence, system fragmentation, low interest in using research evidence, and lack of skills and capacity for finding, synthesizing, and using research evidence.
- Oman's experience in developing its Health Vision 2050 and Vision 2040 promotes collaborative work between policymakers, researchers, and stakeholders from within and across sectors (health and non-health), which is needed to support evidence-inform policymaking.

Abstract

Oman has prioritized enhanced efforts for supporting evidence-informed policymaking (EIPM), including establishing a knowledge translation department in the Omani Ministry of Health. Our aim was to gather insights to guide the process of activating this department. We conducted a document review and in-depth, one-on-one, semi-structured interviews with policymakers, researchers, and stakeholders who are familiar with the Omani system. The content analysis was used to triangulate the findings from both sources and to develop context-specific insights for the knowledge translation department. We conducted 17 interviews, which highlighted that policymakers in Oman use multiple sources of evidence to inform policymaking about health systems (e.g., local statistical reports, international organizations' reports, recommendations and guidelines, and international publications). However, several challenges to using evidence were identified, including low quality and limited availability of local evidence, system fragmentation, low interest in research compared to the interest in data, and lack of skills, capacity and time for finding, synthesizing and using research evidence. Five possible activities for the department were refined with participants: building capacity, finding evidence, sparking action, embedding supports, and evaluating innovations. Participants viewed each of these activities as equally important and felt that they should pursued simultaneously. However, when asked to rank the most important option to start with, participants consistently identified capacity building as the most important as it was seen essential to enable cultural changes needed within the MOH to be able to implement the other options.This study provides insights for activating the knowledge translation department in the Omani

Ministry of Health. Fully operationalizing the department will require convening a codesign process to reach consensus on the scope of the activities undertaken by the department. Implementation will also require capitalizing on the relevant experience of highly qualified staff and existing infrastructure (e.g., physical space and technology), as well as continuing to foster a supportive climate for EIPM (e.g., by demonstrating impacts of the department).

Introduction

Evidence-informed policymaking (EIPM) is the process of systematically and transparently using the best available evidence to inform policy.[1,2] This can be complex and include using evidence across all stages in the policy cycle, including prioritizing problems and their understandings or causes, deciding which policy or programmatic options to pursue, ensuring the options adopted make an optimal impact at acceptable cost, and monitoring implementation and evaluating impact.[3] The appropriate use of evidence in the policy process is influenced by several factors, including i) the complex nature of the policy process, in which research evidence is only one factor among many that need to be considered in policy decisions; ii) the difficulty of using research evidence; iii) results that are packaged and presented in a way that is unhelpful for the types of decisions policymakers face; iv) mistrust between researchers and policymakers; v) policymakers placing little value on research evidence as an input into policy decisions; vi) poor access to high-quality and relevant research evidence; and vii) lack of timely output of research evidence.[4,5] In addition, efforts to support EIPM are implemented alongside institutional constraints, interest-group pressures, values, and other types of information that influence the policy process, which can either limit or support the use of evidence.[6] The literature on the effectiveness of different strategies to increase the use of research in policy decisions has found that no one single approach provides a higher degree of effectiveness in strengthening the capacity to use EIPM, and such initiatives are highly context specific.[7,8]

As the evidence base regarding approaches to support EIPM has increased, so have global calls for enhancing EIPM.[9,10] However, such actions require the institutionalization

of approaches to support EIPM at the international, national, and sub-national levels to ensure sustainability.[11,12] Therefore, it is important to ensure that the core functions of policy support organizations become routine practice with approaches that can be adapted according to local contexts.[12,13] For example, one significant effort to institutionalize approaches was the launch of the global Evidence-Informed Policy Network by the World Health Organization (WHO) in 2005. The aim of this initiative was to strengthen health systems and improve the health of populations by consolidating national knowledge translation (KT) efforts and supporting the systematic and transparent use of high-quality research evidence by national policymakers, researchers, and members of civil society involved in policy making.[14]

In recognition of the importance of such initiatives, Oman has expressed interest in developing and implementing approaches to support EIPM. The Ministry of Health (MOH) is the main provider of health services and source of health-related information in Oman. The MOH has two main bodies that produce health-related information. Routine information is provided by the Directorate of Health Information and Statistics. Gaps in this information are filled by conducting research, which is the responsibility of the Center of Studies and Research (CSR).[15,16] The CSR is responsible for i) developing, monitoring, and evaluating the five-year plan for health research; ii) cooperating and coordinating with other local and international research bodies; iii) conducting workshops to build research capacity; iv) reviewing and approving research proposals; and v) conducting national surveys. The revised organizational structure of the CSR incorporates a new department for knowledge translation and research management, which will support decision makers

to inform policies with the best available evidence. However, this department is not yet operational due to insufficient capacity. The MOH has also carried out activities within the last five years to raise awareness regarding EIPM. These initiatives have established a preliminary foundation necessary to support a different approach to support this department.

Oman is a monarchical regime, where "monarchs not only reign but rule",[17] in which the leadership is directly associated with the Sultan, rather than business or organizational leaders. This make the power centralized above the ministerial level.[18] This authoritarian regime gives little chance for social or political pluralism and political parties are banned in Oman.[18] In general, Oman is considered to be a political stable country.[19]

Given that there is no single approach known to be the most effective at improving the utilization of research in the policy-making process and no consensus on how best to organize such efforts, the objective of this study is to identify insights to operationalize the Omani KT department. Our specific objectives were to:

1) Understand whether and how data and research evidence are currently used in Oman to inform policymaking about its health system,
2) Identify the challenges to supporting evidence-informed policymaking in the Omani health system, and
3) Identify options to supporting evidence-informed policymaking that could be used by the Omani KT department and the main barriers and opportunities for implementation.

Methods

We used a case study approach based on Stake (1995). According to Stake (1995), 'A case study is both the process of learning about the case and the product of our learning', and can include intrinsic, instrumental, and collective case studies.[20,21] The intrinsic case study is often driven by the researcher's interest to gain a better understanding of a particular case. In contrast, with an instrumental case study, the case itself plays only a secondary role to advance and facilitate our knowledge and understanding about a particular phenomenon (i.e. established theory, or methods, or redraw a generalization). In a collective case study, more than one case is studied at the same time to understand a phenomenon.[20,21] We used an intrinsic case study given that our interest was in deriving a better understanding of the case itself (i.e., the KT department in the Omani MOH).

Case Selection and Definition

Our case was the department of KT in the Omani MOH. Given this, we used what Stake (1995) referred to as a typical case, which is one that offers a great opportunity to learn. This case provides an extraordinary opportunity for learning given the priority placed on the department of KT by the Omani MOH. While variety in case selection can be important, Stake (1995) reinforced that the opportunity to learn is of primary importance and sometimes considered to be superior to representativeness. Cases are typically bound by time, place, activity, definition, or context.[20] Our case is bound by activity because it focuses on the operationalization of the KT department that is physically located in the Omani MOH, which will be responsible for supporting policymakers in clarifying problems, determining policy options, and identifying implementation considerations. Our

case is further bound by place and context given that the focus is on Oman in the context of its health system.

Data Collection

The case study approach usually involves collecting data from multiple sources to develop a thorough understanding of the case or phenomenon.[22] We analyzed publicly available policy documents about Oman that provided insight for establishing the KT department and conducted one-on-one, in-depth, semi-structured interviews with policymakers, researchers, and stakeholders.

In previous studies,[23,24] we identified the process of establishing a policy support organization (PSO), the strategies and approaches that can be used in each stage, and the facilitators and barriers that might influence the process and the approaches. We used these findings to inform the interview guide and to ensure it covered all of the relevant aspects for establishing a PSO in Oman (e.g., awareness, interest, resources, potential barriers, and facilitators). The findings of these studies also highlighted a number of options that a PSO can use to support EIPM. These findings were used to develop the first draft of possible options for the Omani KT department. The suggested model involved a broader group of the most salient options across both studies.

Next, a content analysis of policy documents was used to identify the needed adaptations for the Omani context. The core documents that were reviewed included Oman's Health Vision 2050 (the main document and synopsis of strategic studies), the national health policy, and the most recent five-year plans for health development (the

eighth and ninth plans). Relevant content from each document was qualitatively coded around the three main objectives of the study.

Regarding the interviews, our target was to conduct interviews with a purposive sample of approximately:

1) Eight middle-level decision makers (approximately three general directors from the central level, three general directors from the governorates, and two directors of programmes or departments),
2) Six researchers (approximately two active researchers from the MOH as well as researchers from other institutions, including two active researchers or representatives of health research departments at Omani universities and colleges), and
3) Six stakeholders (including those in leadership positions from relevant research funding organizations in Oman as well as leaders of stakeholder organizations such as professional associations).

Supporting EIPM requires collaboration between policymakers, researchers, and stakeholders. Therefore, we included these three groups of participants to ensure the voices of the producers and users of the research and those who might influence the policymaking process were heard. For instance, policymakers provided more insight into the process of developing policies, researchers focused more on the production of evidence, and stakeholders provided insight on both depending on their position. Thus, the participants collectively provided a comprehensive understanding of the current situation of EIPM in Oman. They also helped with identifying the implementation considerations from within and outside the MOH.

The principle investigator (PI) conducted meetings with the general director of Planning and Studies and the director of the CSR at the MOH to identify the most appropriate participants for the study. Participants were selected based on their proximity to the policymaking process, their contribution to research and health information, and their level of seniority. Those who participated in interviews were asked to suggest any additional participants who they viewed as being well positioned to provide in-depth insight for the study. Participants received an invitation letter either directly from the PI, from the general director of Planning and Studies, or from the director of the CSR. Participants were given the option to respond either to the sender or directly to the PI. Participants asked to sign a consent form before starting the interview (Appendix 2).

The interviews were conducted using a semi-structured interview guide that was organized around the three objectives of this study. The interview guide is provided in Appendix 1. The interview guide was sent to all participants prior to conducting the interviews. The questions in the interview guide were slightly modified based on whether the participant was a policymaker, researcher, or stakeholder. For example, even if a question was not something a participant had direct experience with (e.g., asking researchers about the policymaking process), they were still given the opportunity to comment on it in case they had any relevant experience or insights to provide from their own perspective. First, we asked participants to describe their approach to developing policies and the source of evidence they utilize to inform these policies. Second, participants were asked to identify what they view as the main challenges to supporting EIPM in Oman's health system. Participants were asked to describe the nature of the

challenges, and how and why they make evidence-informed policymaking difficult. Third, participants were asked to review five options for supporting EIPM that could be used by the Omani KT department and to identify which they think should be prioritized and why. The five options were i) building capacity to support evidence-informed policymaking, ii) finding evidence to inform policymaking, iii) sparking action to inform policymaking, iv) embedding supports for the institutionalization of evidence use, and v) evaluating innovations. The activities that could be pursued within each of these groups were refined based on the content analysis of policy documents described earlier. Participants were also asked about the perceived barriers to and opportunities for implementing the options identified and, more generally, for operationalizing the KT department. The interview guide was iteratively revised as needed to allow for exploration of emerging themes and to validate assumptions or statements made by other participants. The interviews were recorded and transcribed verbatim. In addition, to inform the interviews, we developed a list of sources of data and evidence in Oman by reviewing local policy documents and websites of local organizations (Table 1).

Participants were provided with background information in the form of PowerPoint slides that outlined the five options that could be undertaken by the department. The content of the slides was briefly reviewed and explained during each interview. For participants who requested additional details either before or during the interview, a more detailed briefing document was shared. After transcribing and analyzing the interviews, participants were given the chance to check the findings and state whether they agreed with the preliminary analysis and if there were other findings they viewed as important.

Data Analysis

Data were analyzed using NVivo 12 and a qualitative content analysis approach. This approach is best when only descriptions of phenomena are desired.[25] Codes for qualitative content analysis were generated from and systematically applied to the data.[25] Initially, we grouped the content from the interview transcripts to offer a comprehensive summary of the findings in relation to the three study objectives. The summarized findings were coded further while still keeping a close focus on the original data, words, and events. This coding was modified in the course of the analysis to best fit the data and research questions. The coding of the data was inductive by assigning various kinds of codes to the data, which were then grouped into themes and concepts that represent the main research objectives. Finally, participants' comments were constantly compared and contrasted to make sure that our explanations are rooted in the current study findings.

Reflexivity

The PI previously worked at the MOH in Oman for six years, and prior to starting her PhD was nominated to be the head of the KT department. Thus, the PI, as a researcher, had an in-depth understanding of the research objective and the questions being asked. This dual role as a researcher and as a nominee to lead the department was declared to all participants. Being an insider-researcher helped in identifying the policy documents more efficiently, selecting the participants to be interviewed, and in coordinating the interview process. The PI's knowledge about the political system and nature of work of the organizations provided the ability to prompt the interview questions differently for the different participants (based on their position and institution). The familiarity of the PI with

the Omani context could also affect the approach to how participants were selected and how the data was analyzed and interpreted. The potential risk posed by this dual role was mitigated by practicing a reflexive process to ensure that interview questions were asked in ways that avoided expressing unspoken shared understandings, by taking field notes, by triangulating insights gathered during interviews with policy documents where possible, and by having other team members who were not as familiar with the Omani context review the study findings and interpretation. Although the findings of our previous studies were used to inform the interview guide and options selection,[23,24] we allowed the themes of the current study to evolve without referring to our previous studies. Participants' comments were constantly compared and contrasted to make sure that our explanations are rooted in the current study findings.

Ethical Considerations

Ethics approval for this project was received from McMaster University through the Hamilton Integrated Research Ethics Board (HiREB) and the Oman MOH through the Research and Ethical Review & Approve Committee (RERAC).

Results

We conducted interviews with 17 of the 22 people who were invited. Of the five who were invited but did not participate, three declined without indicating a reason, and two did not respond to the original invitation or the follow-ups. It is important to mention that this study was conducted around the time when a new Sultan was appointed to rule the country and, as a result, changes in the government were expected at the time. This may

have affected the participants' willingness to participate and made them cautious about phrasing their responses. Twelve of the participants were policymakers from the MOH, six of whom were senior management (e.g., those who oversee several directorates) and the other six of whom were at a lower management level (e.g., directors of a specific directorate). When asked to classify themselves as policymakers, researchers, or stakeholders, each of the 12 participants from the MOH identified themselves as primarily policymakers, but three also identified as researchers. The remaining participants identified mainly as researchers (n = 2) and stakeholders (n = 3).

The majority of the participants had more than 15 years of experience and were playing different roles both within and outside the MOH (e.g., a consultant with the WHO or other organizations within or outside Oman, members in multiple national and international associations, and part-time teaching). Therefore, most of the participants were able to provide perspectives from multiple roles during the interviews. For example, some participants were able to share their personal experiences with using evidence within a role that did not have direct oversight from a higher authority, and others shared the use of evidence by senior policymakers based on their experience and contact with them.

Whether and How Evidence is Used to Inform Health System Policymaking in Oman

Our document analysis revealed that there is a lack of proper documentation about how particular policies were developed, and we were unable to identify from available policy documents whether or how evidence was used in developing policies. Most of the documents we analyzed highlighted that there was a task force responsible for developing

and reviewing the policy document, and some of the documents referenced some sources at the end. However, it was not clear whether and how the evidence was identified, appraised, and used. Similarly, participants highlighted the point of documentation from two perspectives. First, they mentioned that there is a considerable variation in the process of developing policies across departments and individuals because there is no clear guideline on how a policy should be developed. Second, they reported that there was poor documentation of the policy development process, including why the issue was prioritized to be addressed, who was involved and consulted, and what sources of data and evidence were used.

In general, all participants indicated that they (as policymakers) and the higher-level policymakers use evidence to inform policymaking. However, the approaches to finding evidence and the types of evidence used varied widely. The examples provided by participants ranged from identifying data (e.g., local data and other administrative data from the MOH and from other organizations such as the National Center for Statistical and Information); policy documents/reports, guidelines, and recommendations from Oman, other countries, and international organizations (e.g., WHO and other United Nations agencies); research evidence (e.g., by searching electronic databases); and opinions from stakeholders and local or international experts.

While it was clear from the interviews that there are efforts to use evidence in informing policymaking, three limitations were apparent. First, we found confusion among participants regarding the difference between data and research evidence. Specifically, many participants indicated using evidence to inform policymaking, but when asked to list

the sources of evidence they use, it was clear that they relied on data rather than focusing on finding and using research evidence. This is likely driven (at least in part) by the fact that most of the sources of evidence in Oman to support policymakers provide data rather than research evidence (see Table 1). Given this, we continually clarified for participants that data are important for informing some aspects of policy development (e.g., to help determine the magnitude of a problem), but they do not help with other areas, such as identifying the benefits, harms, and costs of policy options. The second limitation was that the approaches identified by participants for finding evidence were not systematic. None of the participants indicated prioritizing systematic and transparent approaches for relevant research evidence or using systematic reviews to find the right evidence and instead typically referred to efforts to identify experiences and guidelines locally, from other countries, and from international organizations. This highlighted a significant reliance on international organizations' recommendations and guidelines. A policymaker indicated this by saying: 'People take the easy way by going to the ready-made work from the international guidelines and recommendations instead of doing their own search for evidence' (Participant 1).

The last limitation was that some policymakers were not familiar with the four main stages of the policy cycle (i.e., identifying the problem, framing options, implementation, and monitoring, and evaluation). Moreover, after explaining this process, the majority of the participants pointed out that evidence was not used throughout the entire cycle; it was primarily used for identifying the problem and framing options.

Challenges Faced in Oman to Support Evidence-Informed Policymaking

Five challenges related to supporting EIPM in Oman emerged from the interviews. The first and broadest challenge identified related to the beliefs and attitudes regarding the importance placed on EIPM. Participants shared that policymakers do not always have an interest in research and are rarely involved in its production, which limits the priority afforded to it in policy development processes. In addition, the dominant culture among experienced policymakers is to rely on opinions and experience as opposed to research. It was also reported that the concept and culture of KT and EIPM are new and might face resistance by policymakers if they are not clearly presented in a way that can help rather than challenge these ideas. Moreover, participants reported that policymakers tend to adopt a narrow view of the types of evidence needed to support EIPM, with emphasis on investing in the collection and use of data as opposed to the need for both data and research evidence. This may be driven, in part, by our finding highlighted in the previous section that the distinction between data and research evidence was not clear to many of the participants (particularly participants from the stakeholder and policymaker groups) as they kept referring to data instead of evidence in their responses.

The second challenge related to the fragmentation across organizations in the health sector (e.g., the MOH, Sultan Qaboos University hospital, Royal Oman Police hospital, Diwan clinics and hospital, Armed Forces hospital, and the private sector) as well as within the MOH itself. This was viewed as complicating the process of sharing information and engaging in comprehensive policy development processes that are informed by evidence. For example, it was highlighted that while there is an overlap in some of the responsibilities

between different departments and directorates, there is no regular communication and collaboration between them, and there is no regular contact between policymakers, researchers, and stakeholders. This was emphasized by a policymaker who is also a researcher, who stated: 'People are working in a silo. They do not want others to interfere with their business. They do not have a culture of collaborative working, and they do not talk to each other frequently' (Participant 2).

Moreover, it was highlighted that fragmentation between hierarchical levels in the bureaucracy does not allow those in positions that are lower in the hierarchy to use evidence if people at the higher levels are not interested in such research. Finally, the system is not equipped with the right tools and facilities (e.g., a policy or checklist for how policies should be developed) needed for coordinated monitoring and evaluation of the impact of policies, which limits the transparency and accountability of the policymaking process.

The third challenge is related to the lack of capacity needed to support EIPM. Participants shared that, with a few exceptions, neither policymakers nor those supporting them have the needed skills for undertaking systematic, transparent, and comprehensive processes for finding, appraising, and synthesizing evidence. Some participants mentioned that researchers also lack the skills of disseminating and communicating their findings appropriately so that policymakers can easily understand them.

The fourth challenge policymakers face is finding high-quality evidence that addresses the local context, either because this evidence is not available due to its low production (particularly in health system research) or because it is difficult to identify given that there is no single database that indexes all of the local evidence in Oman (especially

unpublished studies and reports). As one of the policymakers mentioned: 'We have a lot of PhD and master's dissertations and other research about Oman, but where to find them and how to access them is a real challenge' (Participant 3).

Many also highlighted that the challenge of finding local evidence is intertwined with policymakers often questioning the quality of the existing local evidence when it is identified. As some of the participants highlighted, the low quality of local research could be attributed to the inefficient research skills among health workers to do the research, and a lack of time and incentive to conduct research. For example, a policymaker who is also a researcher reported that 'there is no incentive to produce or use research in policymaking, including the time to do research or to synthesize evidence' (Participant 4).

The last challenge identified focused on the time needed to find and synthesize evidence. Many noted that policymakers are busy with administrative work and do not have time to engage in systematic, transparent, and comprehensive processes to find and use evidence. For example, a policymaker highlighted that 'Most policymakers are involved in so many things, and they do not have time to find evidence' (Participant 5).

Options for Supporting Evidence-Informed Policymaking in Oman and Barriers to and Opportunities for Their Implementation

Five possible options for the department were refined with participants: building capacity, finding evidence, sparking action, embedding supports, and evaluating innovations (see table 2 for more details about the options). Participants viewed each of these options as equally important and felt that they should be pursued simultaneously. However, when asked to rank the most important option to start with, participants

consistently identified capacity building as the most important followed by embedding supports. Capacity building was viewed as essential to enable the cultural changes needed within the department in order to implement the other options. A stakeholder emphasized this by saying that 'you cannot ask policymakers to use evidence if they do not have the needed skills' (Participant 6). Similarly, a policymaker shared that 'without having the right capacities, we cannot start any of this work' (Participant 2).

For embedding supports, participants viewed this as fundamental to sustaining efforts to support EIPM. For example, a stakeholder emphasized that embedding supports for EIPM would help a range of activities to become part of the routine for policy development in the MOH work: 'if you want the practice of EIPM to be sustainable, you have to make it part of the system, and it has to be the new norm' (Participant 7).

When asked about barriers to and opportunities for implementing the options to support EIPM, participants mostly focused on overarching barriers and opportunities related to the specific options listed in Table 2. Participants expressed four overarching barriers that the MOH might face when implementing some or all of the five options to support EIPM (Figure 1). The first barrier is policymakers' resistance to change the culture as well as the ongoing norm to create policies that are based more on opinions and experience and less on research findings. It was emphasized that policymakers need to be systematic and transparent in using evidence to inform health system policies, with a stakeholder stating that this will require 'moving policymakers out of there comfort zone, when they think what they do is right' (Participant 6). In addition, a policymaker mentioned

that ‘it will take time to change the system, move away from personal opinions and experiences, and go more with evidence-informed policies’ (Participant 8).

The second potential barrier is financial constraints to build capacity, adjust the system, and develop and implement new activities. Participants mentioned that the biggest challenge would be if the MOH needed to hire new staff to support policymakers and any necessary funding to create an online platform for connecting the different organizations and information sources. This challenge was frequently mentioned in relation to the current economic crisis the country faces. As indicated by one policymaker, ‘you know that we are facing an economic crisis, so we should be careful about how to fund these activities’ (Participant 9).

The third barrier is the lack of capacity for supporting EIPM. The participants expressed their belief that finding, analyzing, and synthesizing evidence requires particular skills, which only a small number of policymakers, researchers, and stakeholders have. Therefore, it was noted that it will likely be difficult to convince policymakers to use evidence if the right capacity to support them is not available.

The last barrier relates to the sustainability of efforts to support EIPM. Many participants indicated that because EIPM is not embedded as an expectation in the system (i.e., part of the MOH policymakers’ routine work), the sustainability of new activities will be challenging. Another challenge to sustainability is staff turnover among both senior management and at the lower management level. Participants indicated that this challenge in particular needs to be addressed because it will take a great deal of time and effort to prepare staff with the right skills to support policymakers.

Participants also identified four potential windows of opportunity for implementing the activities to support EIPM in Oman (Figure 1). The first opportunity is the experience of policymakers, researchers, and stakeholders in developing Oman's Health Vision 2050 and Oman's Vision 2040. Participants felt that this experience would make a collaborative work approach more acceptable and the language of evidence-informed policies more recognizable. Developing these key policies was viewed as paving the way for greater collaboration between organizations from both health and non-health sectors in Oman. For example, a policymaker shared the following: 'I really see Oman's Health Vision 2050 and Oman's Vision 2040 as our way to go with this initiative, because most of what you are describing here has the mandate to support it in these policies' (Participant 9).

The second opportunity identified was the large number of staff with graduate-level education. While those staff do not necessarily have the specific skills to support EIPM, having staff with graduate-level training would present an opportunity to deploy targeted capacity building to create a cadre of people who can implement and promote activities to support EIPM.

Third, several participants highlighted that there is already technology in place that can support training, communication, and the synthesis and dissemination of evidence. Some specifically noted that harnessing this technology for supporting EIPM was also aligned with the government's effort to advance e-government initiatives.

Lastly, participants agreed that among policymakers and researchers, there is an interest in working together and using evidence systematically and transparently to inform decisions about the health system in Oman. This was cited as a critical opportunity for

continuing to foster a climate for EIPM. For example, one stakeholder indicated that 'researchers will be happy to see the other side of the coin' (Participant 7). In addition, a policymaker indicated that 'policymakers believe in evidence. Evidence provides a solid ground, and, making policy based on evidence makes it less challenged' (Participant 10). This interest was identified as providing some of the justification for a single body to coordinate efforts to support EIPM across the health sector, which most of the participants felt was important.

Discussion

Principal Findings

Based on the 17 interviews with policymakers, researchers, and stakeholders, we were able to generate insights that can be used to guide the process of activating the KT department in the Omani MOH. In particular, our findings highlight that policymakers in Oman use multiple sources of evidence to inform policymaking about health systems, and many are aware of the importance of using evidence to inform policy. However, several challenges for using evidence were identified, including low quality and lack of availability of local evidence; system fragmentation; low interest in using research evidence compared to using data; and lack of skills, capacity, and time for finding, synthesizing, and using research evidence. Participants viewed the five options proposed to operationalize the department as equally important and felt that they should be pursued simultaneously. However, when asked to rank the most important option, participants identified capacity

building and embedding supports as the first and second most important options to start with.

Our findings revealed five main challenges to supporting EIPM in Oman. These include the beliefs and attitudes about the importance of EIPM and fragmentation across organizations in the health sector. Additionally, there is a lack of capacity needed to support EIPM, of high-quality local evidence, and of time needed to find and synthesize evidence.

The main challenges to the operationalization of the department are resistance to change, financial constraints, lack of needed capacity to support EIPM, and ensuring the sustainability of EIPM efforts. However, the potential opportunities that the MOH can capitalize on for implementing these options include the experience of policymakers, researchers, and stakeholders in developing Oman's Health Vision 2050 and Oman's Vision 2040; the large number of staff with graduate-level education whose capacity could be harnessed to promote EIPM; the availability of technology; and interest among policymakers and researchers in working together.

Findings in Relation to Other Studies

While several studies have considered EIPM initiatives, facilitators, and barriers at the local, national, regional, or international level,[26-28] we are aware of only one study that partially focused on the climate for EIPM in Oman.[29] Thus, our study provides an important contribution to the existing literature and builds on the interest in supporting EIPM in Oman (which has grown in the last 10 years) by generating additional insights about i) whether and how data and research evidence are currently used in Oman to inform policymaking about its health system, ii) the specific challenges to supporting EIPM in Oman, iii) options

for supporting EIPM that could be used by the Omani KT department, and iv) the main barriers and opportunities for EIPM implementation.

Beyond Omani-specific literature, our findings align with the broader literature in the field, which frequently reports the lack of communication between policymakers, researchers, and stakeholders as one of the main barriers to KT and EIPM.[30-32] In addition, our findings are in agreement with other frequently cited barriers to EIPM, including policymakers' beliefs and interests in research; system fragmentation and bureaucracy; lack of time to find evidence; and lack of capacity, funding/resources, and high-quality local evidence.[26,30,33]

Our finding regarding the importance of the availability of technology and qualified staff for supporting EIPM is also consistent with the literature. For instance, having the right technology in place has been found to facilitate efforts to access research evidence and communication between policymakers, researchers, and stakeholders.[26,34]

Although Oman's Health Vision 2050 and Oman's Vision 2040 are unique to Oman, El-Jardali et al. (2012) reported that the development of new national strategic plans were windows of opportunity for implementing a KT platform in eastern Mediterranean countries. Importantly, the Oman Vision 2040 committee was led by the new Sultan, who was appointed to rule the country starting in January 2020. This is an opportunity that could be capitalized on.

Finally, integrated KT platforms and similar entities are a key method to support collaborative efforts among policymakers, researchers, and stakeholders to support EIPM.[33,35] This is consistent with the importance that most of the participants in our study

placed on having a single body responsible for unifying the roles and regulations for health research in all sectors; bringing policymakers, researchers, and stakeholders together more frequently; facilitating communication and collaboration within and across organizations; finding and synthesizing evidence to frame policy options; and bringing local evidence together. Therefore, the KT department in the Oman MOH could be shaped into an integrated KT platform to achieve these goals.

Strengths and Limitations

This study has two main strengths. First, the knowledge of the PI about the Omani health system gave her the ability to gain in-depth insights about the use of evidence in policymaking. In particular, this role and the fact that PI did not have any power of authority over the participants, allowed participants to be more transparent and detailed in their descriptions about how evidence is used to develop policies. The second notable strength is that we were able to conduct this study before the department began operation, which has enabled an evidence-informed approach to operationalizing the department and provides an opportunity to use evidence to inform a future co-design process through stakeholder dialogue and to conduct follow-up studies to determine whether and how changes have been made and impacts achieved.

There are also two potential limitations that should be considered. First, being an insider to the Omani system could be viewed as affecting the analysis and presentation of the findings. However, any risks related to this were mitigated by our reflexive data collection and analysis approach discussed earlier. The second potential limitation is that we were not able to engage top-level policymakers and many relevant stakeholders, which

may mean that our findings are missing some essential perspectives. However, we are planning a co-design process as the next stage for activating the department, and we will aim to engage some of these missing perspectives in that process. Moreover, this study was conducted between February and March 2020, which was almost a month after the Sultan who had ruled the country for 50 years passed away. As a result, some participants may have been cautious in their responses given the potential for changes in the government.

Implications for Policy and Research

Our study has many implications for policymakers in Oman. First, operationalizing the KT department should be a priority to support EIPM in Oman, particularly under the current economic crisis, where using evidence might help with allocating resources more efficiently. In addition, the MOH's experience with using evidence to inform public health and clinical practice guidelines as well as its experience with collecting and using data can be capitalized on as part of a broader effort to support EIPM. Doing so will require investing in expanding the production of research evidence to inform system priorities; raising awareness among policymakers (at all management levels), researchers, and stakeholders about the importance of EIPM; and clarifying the difference between the roles of data and evidence in policymaking.

Important next steps for research could include three types of research initiatives. First, there is a need to conduct a large-scale study that engages a larger number of participants from more levels of authority in the health and non-health sectors to understand the climate of EIPM at the national level. In addition, a collaborative study with the quality assurance department could be conducted to better understand the current approach to

framing policies and the documentation of the policymaking process. Lastly, there is a need to conduct a co-design workshop to finalize a model to operationalize the department of knowledge translation in Oman.

Conclusion

This study provides insights for activating the KT department in the Omani MOH. The most salient options for beginning operationalization of the department are building the capacity of policymakers and researchers and ensuring the sustainability of EIPM efforts. Implementation will require capitalizing on the relevant experience of highly qualified staff and existing infrastructure (e.g., physical space and technology), as well as continuing to foster a supportive climate for EIPM (e.g., by demonstrating impacts of the department). Fully operationalizing the department will also require convening a co-design process to reach a consensus on the scope of the activities undertaken by the department.

Table 10: Overview of key examples of evidence sources in Oman

Source of evidence	Domain of focus	Features	Policy stage relevance	Type of products produced

Centre of Studies and Research, MOH	• Clinical
	  ○ Programmes, services and products
	• Systems
	  ○ Health
		• Year started
		  ○ 1991
		• Jurisdiction/area served
		  ○ National/ local
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Monitoring and evaluation
				• National surveys
				• Reports
				• Policy briefs
				• Electronic database for local studies and reports

Directorate General for Disease Surveillance & Control	• Public health	• Year started
		  ○ unclear
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Monitoring and evaluation
				• Practice guidelines
				• Bulletin (summary of statistics)

Directorate General of Information Technology, MOH	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
		• Year started
		  ○ 2004
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Monitoring and evaluation
				• Administrative data

Directorate General of Quality Assurance Center, MOH	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
	• System
	  ○ Health
		• Year started
		  ○ Unclear
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Implementation
			• Monitoring and evaluation
				• Safety practice guidelines
				• Surveys

Directorate of Health Information and Statistics, MOH	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
	• Systems
	  ○ Health
		• Year started
		  ○ 1991
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Monitoring and evaluation
				• Statistical reports

Oman Heart Association*	• Clinical
	  ○ Practice
		• Year started
		  ○ 2002
			• Options	• Practice guideline

	• Programmes, services and products	• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians		

Oman Health System Observatory (OHSO), MOH	• Systems
	  ○ Health
	  ○ Social
		• Year started
		  ○ Unclear
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Implementation
			• Monitoring and evaluation
				• Health systems and policy studies
				• Health indicators

Oman Medical Specialty Board	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
	• System
	  ○ Health
		• Year started
		  ○ 2006
		• Jurisdiction/area served
		  ○ National/ international
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Implementation
			• Monitoring and evaluation
				• Oman medical journal (peer reviewed)

Sultana Qaboos University	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
		• Year started
		  ○ 1986
		• Jurisdiction/area served
		  ○ National/ local
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Monitoring and evaluation
				• Research evidence (peer reviewed)
				• Graduate student dissertations
				• Electronic database

The Research Council	• Clinical
	  ○ Programmes, services and products
	• Public health
	• System
	  ○ Health
		• Year started
		  ○ 2007
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
			• Implementation
			• Monitoring and evaluation
				• Mainly local research evidence
				• Electronic database

University of Nizwa	• Clinical
	  ○ Practice
	  ○ Programmes, services and products
	• Public health
		• Year started
		  ○ 2004
		• Jurisdiction/area served
		  ○ National/ local
		• Target audience
		  ○ Researchers
		  ○ Stakeholders
		  ○ Policymakers
			• Problem
			• Options
				• Research evidence (peer reviews)
				• Graduate student dissertations

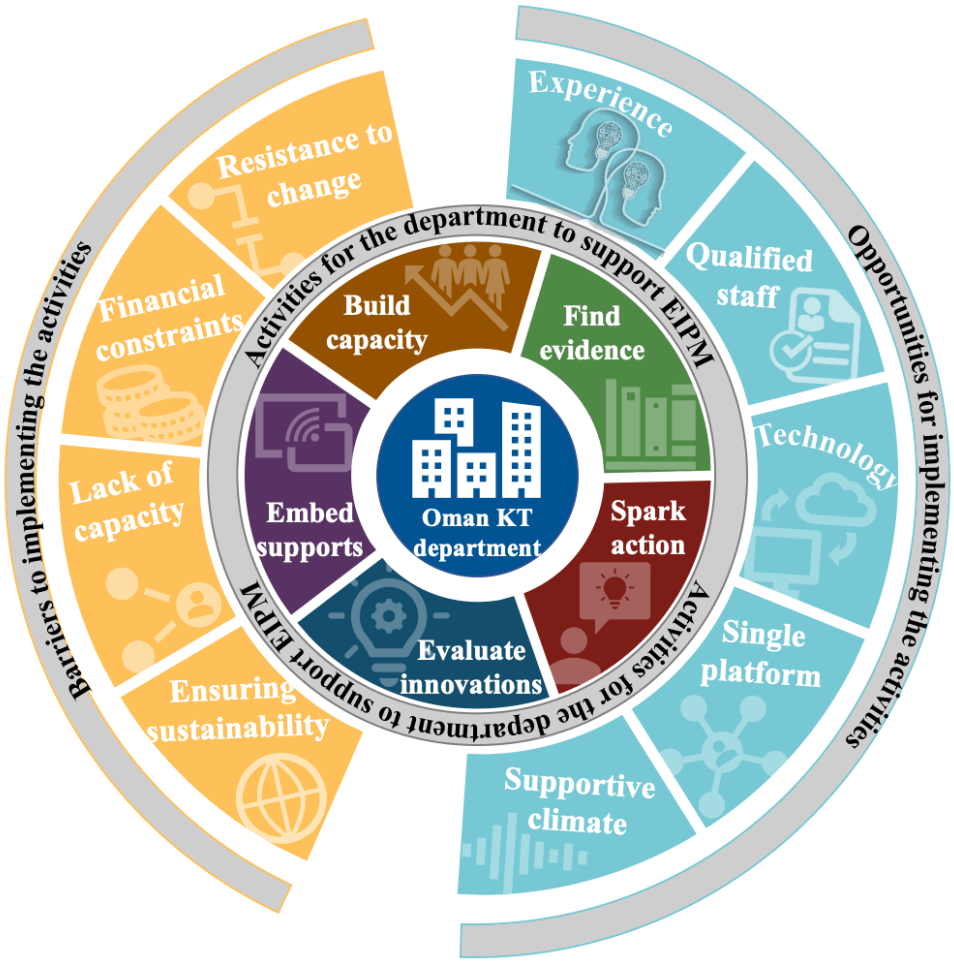
Table 11: Barriers and opportunities for each of the proposed options

Options for supporting EIPM	Participants' views	Barriers to implementation	Opportunities for implementation
Build capacity to support EIPM through: • Brief skills development workshops (e.g., on finding and using research evidence to inform policy),[7,36] • Intensive skill training programmes (1 to 3-month certificate course) in collaboration with academic institutions to foster research capacity and nurture leadership development in the context of limited resources,[7,36] • Capacity enhancement mentorship programmes (e.g., mentoring/coaching, meetings, or site visits to build the staff's skills),[37] and • Building collaboration with academic and research institutions (e.g., programmes and courses at the undergraduate, master's, and doctoral levels for building capacity for KT and policy analysis in Oman).[38]	• Supporting capacity development for a cadre of policymakers who believe in the importance of research, are willing to accept change, and advocate for EIPM is an important activity to start with. • Researchers who have the right research skills, can present evidence in a friendly format, and can advocate their findings are crucial. • There is a need for capable staff who understand the concept of EIPM. Such staff might help in raising awareness about the importance of EIPM and lead the training for others to find, appraise, and synthesize evidence. • Participant 2 said 'we need champions who can drive the notion of EIPM and the collaborative approach in working and framing policies'.	• Shortage of staff will make it challenging to implement training. Because the MOH is mainly a service provider, if there are not enough staff, priority will always be given to providing services rather than building capacity to support EIPM. • Selecting the right participants who would be willing to continue supporting EIPM is vital. Since the concepts of KT and EIPM are not well-known among many health care workers, it will be difficult to identify the individuals to be trained in this field, as there is no clear indicator for their interest in supporting EIPM. • Retaining trained staff is a challenge because staff move between different institutions in the MOH.	• There should be multiple channels through which capacity building activities can be run, such as: o Short courses provided by the centre of continuing professional development, o PhD or master's scholarships (through the Ministry of Higher Education) to train staff in KT, and o Short-term training courses through WHO. • These options facilitate the logistics of organizing these activities and could reduce the financial burden for the MOH.
Find evidence to inform policymaking through: • Clearinghouses for research evidence (i.e., databases that	• A clearinghouse for local research evidence can reduce the effort needed to find evidence	• It might be challenging deciding who should offer these services and where they should be located.	• The Research Council could be used to invest in high-quality research

provide a comprehensive repository of the best available and pre-appraised local research evidence),[39,40] and • A rapid response service designed to synthesize the best available evidence within days or weeks rather than months or years.	and can identify gaps that need to be filled or updated. • A rapid response service would reduce the time constraints faced by policymakers to find and use evidence.	• A lack of local evidence hinders the ability to contextualize findings from global evidence (e.g., from systematic reviews) and identify implementation considerations. Participants attributed the lack of local evidence to the lack of incentive and skills to conduct high-quality research. • Finding local evidence is a challenge because there are different organizations (which are not well-connected) that produce health-related data and evidence.	that directly addresses priorities for the MOH. • Large amounts of data that can be turned into research can reduce the time needed to collect raw data and maximize the benefit from the available data. • Developing an electronic database could better link data while also achieving efficiencies (e.g., by reducing duplicative work).
Spark action to inform policymaking through: • Citizen panels that provide an opportunity for citizens to deliberate about a problem and its causes, options to address it, and key implementation considerations and • Stakeholder dialogues that provide an opportunity for system leaders to deliberate a problem and its causes, options for addressing it, and key implementation considerations.	• Engaging citizens is currently not promoted and utilized. Policymakers could resist such processes, and citizens may not be interested in participating. • Engaging citizens could prolong the policymaking process.	• Citizen involvement in policymaking is not widespread in Oman, which could limit its uptake. • Selecting the right citizens and stakeholders to participate could be challenging given the lack of processes for identifying diverse panels of citizens.	• 'Maajlis A'Shura' representatives, a consultative council, know the problems people have experienced with health and non-health services. • Highly educated people in the public can constructively share their opinions.
Embed supports for EIPM by: • Sending strong messages regularly to all levels of the MOH about the importance of finding and using	• This activity is essential to ensure the sustainability of EIPM efforts and is the second	• Getting top-level policymakers to commit will be challenging given that they have many competing demands.	• Experience with quality assurance can be capitalized on to allocate the knowledge

research evidence to inform all stages of the policy cycle; • Adding the use of research evidence in policy and programme development as one of the criteria for staff performance evaluation; • Initiating a research evidence checklist that must be completed before briefing materials are submitted to the minister, cabinet, or other key decision makers[41]; • Hiring and training staff in evidence synthesis to support the establishment of a rapid response unit; and • Drawing on external groups to help train and build capacity.[42]	most important after building capacity. • The success of this option, as well as all other options, is highly dependent on getting policymakers on board from the beginning to reach a common understanding between policymakers, researchers, and stakeholders. • Resistance to EIPM could be mitigated by showing a concrete example of how this concept can benefit the entire system.	• Demonstrating the usefulness and effectiveness of the concept will be challenging. • The system is not ready to be accountable as there is no sufficient monitoring and evaluation for policies. • The hierarchical system in the MOH might complicate communication between policymakers, stakeholders, and researchers.	translation department as a tool that supports enhancing the efficiency of the health system rather than challenging policymakers.
Evaluate innovations through: • Conducting empirical research to understand the climate for the use of research evidence in health systems, research prioritization, and production processes in Oman; • Conducting empirical research on the policymaking process in Oman and the factors that influence it (institutions, interests, ideas, and external factors); and • Evaluating any new initiatives to support EIPM that are implemented or supported by the KT department.	• There is no policy to guide the proper development of health system policies. Therefore, the current policymaking process should be evaluated and a guideline developed. • The findings of such studies might be very sensitive, and the department should be careful about how it conducts research and analyzes and presents these findings. • Getting information for these studies and validating the findings might be difficult.	• Lack of documentation regarding how policies were developed will make it difficult for the department to evaluate the use of evidence in policymaking. • Participant 12 said ‘There is no system to evaluate the system because it depends on individuals [and] not [the] system’. • Policymakers’ sensitivity to evaluation may result in resistance to accept these studies. • Participant 2 said ‘this will be considered as very sensitive and political’.	• The experience from evaluating the five-year health development plan can be extended to evaluate the role of EIPM initiatives. • The quality department can contribute to conducting such an evaluation.

Figure 3: The model for Oman knowledge translation department with the potential barriers and windows of opportunities



Appendix 1: Interview Guide

Ethical considerations:

A description of the study will have been presented during the recruitment phase. A signed confirmation of commitment to participate will be obtained prior to engaging in the questions. Any ethical issues arising will be addressed prior to the first question and will be documented by the Interviewer.

Process:

Interviews will be recorded on a digital audio device or computer, transcribed, and uploaded into a qualitative software program. Hand-written notes will also be made by the interviewer into her field notebook.

Date:

Time:

Place:

Interviewer:

Interviewee:

Position of Interviewee:

In this interview, I am going to ask you about:

1) what challenges are faced in Oman for supporting evidence-informed policymaking about its health system;
2) what options should be used by an Omani knowledge translation department to address the challenges for supporting evidence-informed policy about its health system; and
3) what are the barriers to and opportunities for implementation exist for options that could be used by an Omani knowledge translation department?

Questions

Do you have any questions for me before proceeding to the interview?

Section 1: Challenges faced in Oman for supporting evidence-informed policymaking about its health system

<u>General question</u>

- What do you view as the main challenges faced in Oman for supporting evidence-informed policymaking about its health system?

  - Could you describe the challenges, and how and why they make evidence-informed policymaking difficult?

- Do you think that policymakers, researchers, and stakeholders have a mutual interest in working together to inform policies by evidence and data?
- Evidence use throughout the entire policy cycle
  - Evidence can be used to clarify problems, frame options to address a problem, identify implementation considerations, and monitor and evaluate progress. Do you think policymakers are using evidence in all of these stages? How? Why and why not?

Specific prompts

- Challenges related to interest and awareness in using evidence to inform policymaking about the Oman health system
  - Do you think policymakers, researchers, and stakeholders in Oman have an interest in using data and evidence to inform policymaking? Why or why not?
  - Do you think that there is enough awareness about the importance of evidence-informed policymaking?
- Assets for using data and research evidence
  - Are there sources for the types of data and evidence that are needed to inform policymaking about health systems? Please describe.
    - What gaps exists in relation to identifying data and local evidence needed to clarify a policy problem (e.g., indicators to establish the magnitude of the problem, for making comparisons to establish the magnitude of the problem and to determine how a problem can be framed (or described) in a way that will motivate different groups?)
    - Are there any challenges in accessing the data and evidence that is needed to inform policymaking about the Oman health system?
  - Do you think there is enough collaboration between the different organizations that provide access to needed data and evidence? Why or why not?
  - What do you think can be done to enhance collaboration for supporting evidence-informed policy?

Section 2: Possible options that could be used by an Omani knowledge translation department

Knowledge translation department can support evidence-informed policymaking through the following options:

- Build capacity to support evidence-informed policymaking;

- Find evidence to inform policymaking (e.g., through databases of locally-relevant data and evidence and rapid-response services);
- Spark action to inform policymaking (e.g., by convening citizen panels to elicit values and preferences and stakeholder dialogues that capture evidence- and values-informed insights);
- Embed supports to support the institutionalization of evidence use; and
- Evaluate innovations (e.g., using rapid-learning approaches).

An overview of activities that could be pursued as part of each option was provided through PowerPoint presentation. For those asked for more details a briefing document was sent prior to the interview. Let's talk about each option one by one. I would be interested in hearing which option you think are feasible, useful, and acceptable to incorporate into the model for the knowledge translation department.

Section 3: Barriers to and opportunities for implementation for options that could be used by an Omani knowledge translation department

- For each option that you identified as being useful for the knowledge translation department, could you identify what you think are the potential barriers to implementation, as well as any opportunities to implementation.
- Are there any barriers at the level of: 1) patients/citizens; 2) providers; 3) organizations; and/or 4) systems?

Appendix 2: Information and Consent Form

Information sheet and consent form for participants

Title of study: Insights from system leaders about operationalizing a knowledge translation department in the Oman Ministry of Health

Principal investigator: Sultana Al Sabahi, MSc, PhD (candidate)

Local principal investigator/ PhD supervisor: Michael G. Wilson, PhD

[Insert date]

Dear Sir/Madame,

You are being invited to participate in a research study to develop a model to operationalize the Omani knowledge translation department. The study is designed to identify insights from policymakers, researchers, and stakeholders about:
what challenges are faced in Oman for supporting evidence-informed policymaking about its health system;
what option should be used by an Omani knowledge translation department to address the challenges for supporting evidence-informed policy about its health system; and
what are the barriers to and opportunities for implementation exist for options that could be used by an Omani knowledge translation department?

Your involvement
Your involvement would mean participating in a 60-90-minute face-to-face or telephone interview to be scheduled at your convenience. Participation in this research study is strictly voluntary. You may refuse to participate in the research study, and you may choose to withdraw from the study at any time. If you withdraw during the study, we will cease the collection of data and you will be asked whether you would like to have the data that you have provided retained for use in the analysis or destroyed. If you decide to withdraw after the study, but before the results are written up, you may contact the principal investigator and/or local principal investigator to have the data you provided destroyed and not included in the analysis.

Confidentiality
Your interview and any information provided in the form of documents that are not in the public domain will be treated as confidential. Interviews will be audio-recorded and transcribed, and unique identifiers will be assigned to each digital file and transcript by research staff to ensure that all data is anonymized. The primary investigator will ensure that the transcript and any confidential documents are kept in a locked cabinet, the digital files containing the audio-recording and transcript are stored on a security protected

computer, and the digital files, transcript and confidential documents are destroyed 10 years after the last publication of our findings.

Your anonymity as a research study participant will be safeguarded. We will ensure that the list of study participants and their unique assigned participant numbers will be stored in a different locked cabinet or security-protected computer from those where the digital files, transcripts and confidential documents are stored.

Confidential information will not be reported in a way that could identify either individual respondents or individual departments or organizations. A summary of the information provided will be presented to you to ensure accuracy. We will make the summary of our findings publicly available for use by others interested in establishing health policy-support organizations.

Potential benefits and risks of participation

While there are no direct benefits to you for participating in this study, your participation will contribute benefits more broadly by providing insight to operationalize the knowledge translation department in Oman and by doing so implementing a more transparent and systematic approach in developing health policy. There are no physical risks involved in participating in this activity. The main cost will be the time to participate in the interview.

The main potential risk from participating in the study is that we are asking for feedback about the creation of the new Knowledge Translation Department in the Ministry of Health. Some of ministry employees might perceive that saying anything negative could affect their job in some way. We are going to mitigate this risk by ensuring anonymity of all participants. While anonymization process reduces this risk, we cannot guarantee that there is no risk of this event.

Declaration of the principal investigator

Prior to starting her PhD, the principal investigator of this study (Sultana Al Sabahi) worked at the Ministry of Health in Oman for six years and was nominated to be the head the knowledge translation department. At present the principal investigator is not an employee of the Ministry of Health in Oman given that she is on leave to complete her PhD. To ensure a robust and transparent analysis, the principal investigator's PhD supervisor and committee will also be engaged in the analysis and interpretation.

Questions

If you have questions or require more information about the study, please contact the principal investigator or local principal investigator using the contact information provided below.

This study has been reviewed by the Hamilton Integrated Research Ethics Board (HiREB) and Research and Ethical Review & Approve Committee (RERAC). The HiREB and RERAC are responsible for ensuring that participants are informed of the risks associated

with the research, and that participants are free to decide if participation is right for them. If you have any questions about your rights as a research participant, please call the Office of the REB Chair, HiREB at 905.521.2100 x 42013 or the Centre of Studies and Research, RERAC at (+968) 24697551 or (+968) 24696702 x 7282.

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Consent Form

Participant:

I have read the preceding information thoroughly. I have had an opportunity to ask questions and all of my questions have been answered to my satisfaction. I agree to participate in this study. I understand that I will receive a signed copy of this form.

Name	Signature	Date

Person obtaining consent:

I have discussed this interview in detail with the participant. I believe the participant understands what is involved in this interview.

Name, role in study	Signature	Date

A signed copy of this form will be provided to the participant for their records

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Chapter 5

Conclusion

This dissertation presents three original research studies that clarify and define key concepts that are essential to enabling a rich understanding about the process of establishing a policy support organization (PSO). Compared to the existing literature in the field of knowledge translation, the three studies in this thesis focused on organizations that support evidence-informed policymaking (EIPM) at the health-system level as opposed to studies that support using research evidence in clinical practice, public health practice or health technology assessment. In addition, the three studies provide critical evidence for informing the process of establishing organizations that are supposed to support EIPM efforts. This chapter begins with summarizing the main findings of each of the three studies presented earlier in chapter 2-4. Following this, the substantive, methodological and theoretical contributions, and strengths and limitations of the three studies as a whole are presented. Finally, the chapter concludes with highlights of the implications for policy and practice, and ramifications for future research.

Principal Findings

My use of a critical interpretive synthesis approach in chapter two introduced a new conceptual framework that outlines the process of establishing a PSO. The framework suggests that a PSO establishment process has four interconnected stages: awareness, development, assessment, and maturation. The process of establishing a PSO is iterative

and influenced by contextual factors in political, research and health systems, which determine the availability of the resources and the trust between researchers and policymakers. The contextual factors have an impact on each other, and the challenges that arise from one factor can be mitigated by other factors.

In chapter three, I used a sequential mixed method approach (i.e., survey followed by interviews) to enhance and verify the framework developed in chapter two. I used the framework to inform the data collection tools used in chapter three (the survey and the interview guide) and analysis of the findings. I found that PSOs function at different political, health, and research system contexts and at more than one jurisdictional level. However, regardless of the contexts in which they operate, PSOs provide services in multiple domains and engage in a wide array of activities. Insights from PSO leaders were used to identify approaches used in each stage in the process to establish a PSO. The common approaches for the awareness stage included establishing a supportive climate for EIPM, making adequate resources available, and demonstrating the conceivable role a PSO can play. The most important development stage approaches included understanding the situation where the organization would be established, strategic planning to guide the subsequent steps, and conducting start-up activities. In the assessment stage, the most important approaches were planning for assessment, running the assessment activities to know what has been done appropriately and what needs to be improved, and considering changes needed for the PSO. Finally, the most important maturation-stage approaches were: ensuring sufficient funding, sustaining appropriate capacities, and approaching the institutionalization of the organization. Key barriers to the process of establishing a PSO

included lack of funding, lack of human resources, and division of policy authorities. Important facilitators included awareness and government interest in EIPM, availability of support from national and international organizations, as well as at the individual, organizational and system level. These factors are similar to the contextual factors that were identified in the first study to influence the process of establishing a PSO. The only additional factor which was been occasionally mentioned by some of the participants in study 2 but not identified in the first study is language as a barrier for supporting EIPM in countries where English is not the first language.

Finally, the findings from chapters two and three were used to develop a model for the Omani Knowledge Translation based on insights from policymakers, researchers and stakeholders generated from one-on-one semi-structured interviews. The framework developed in chapter two was used to develop the interview guide for this chapter. Although the department is not operating yet, participants' comments can inform the future actions for fully operationalizing it throughout the four stages (i.e., awareness, development, assessment, and maturation stage) identified in study 1. For instance, this study revealed that policymakers in Oman use multiple sources to inform their policies, which includes mostly local statistical reports, international organizations' reports, recommendations and guidelines from international organizations, and international publications. However, the study also highlighted what policymakers, researchers and stakeholders view as important challenges to supporting EIPM in Oman, which included low quality and availability of local evidence, a fragmented system, low interest in and limited skills and capacity for finding and using research, and limited time for finding and synthesizing research evidence.

Therefore, these challenges indicate that Oman has to start from the awareness stage to create supportive climate for EIPM with emphasis on building capacity at the development stage to run the different activities. Furthermore, participants reported the lack of documentation of and proper guidance on how policies are developed as a challenge. This has to be considered to inform the assessment stage which relies on the proper documentation to assess the impact and outcome of the department. Participants were given five options for activities that could be used to support EIPM (i.e., build capacities, find evidence, spark action, embed support, and evaluate innovations) to operationalize the department. From these options, participants consistently emphasized the need to initially focus on building capacity (which is an essential activity in the development stage) to undertake the types of activities needed to be implemented and embedding supports within institutions as a mechanism for ensuring long-term sustainability of activities that are implemented (which is very relevant to the maturation stage). Participants emphasized that the most important windows of opportunity for enhancing efforts to support EIPM through a new knowledge translation department in the Oman Ministry of Health are: I) policymakers', researchers' and stakeholders' experience in developing Oman's Health Vision 2050 and Oman's Vision 2040; ii) availability of a core of highly qualified staff that can support the initial steps needed; iii) the availability of technology to facilitate efforts for accessing research evidence and communication between policymakers, researchers and stakeholders; iv) agreement among participants for the need to have a single body to bring the health sector together; and v) having a supportive climate for EIPM (an action that usually can take place during the development stage).

While Oman has a different government structure (absolute monarchy) compared to those identified in the first study and those interviewed in the second study and the findings from this thesis are inconclusive regarding the role of the government structure in establishing PSOs, Oman can benefit from the different approaches that have been identified to operationalize the knowledge translation department. Specifically, the third study demonstrated that guidelines and recommendations from international organizations are important sources of evidence in the policymaking process. At the same time, international organizations were found in the first and second studies to be an important factor for facilitating the establishment of PSOs. Therefore, it would be important to investigate the role of the international organizations in establishing PSOs, and how and why the ideas diffused through international organizations are used in the process.

Thesis Contributions

This thesis started to address the gap in the literature regarding the process of establishing a PSO through three complementary studies. Through these studies, I developed a conceptual framework to understand the process of establishing a PSO, identified approaches and strategies that can be used in the different stages of the process, and demonstrated a potential way through which my framework might be used to develop a model for a planned department in Oman. Each of the contributions combined to make important substantive, methodological, and theoretical contributions, which are discussed below.

Substantive Contributions

Motivated by the existing literature that intensively focused on approaches to support EIPM (e.g., across the domains of building capacities, finding evidence, sparking action, embedding supports and evaluating innovations) and the factors that might influence their impact,[1-7] this dissertation goes further to provide insights about the process for establishing the organizations that support EIPM.

The first study in this dissertation (chapter two) developed a conceptual framework that could be used as a road map by those planning to establish a new PSO. The framework can also be used by leaders with established PSO to evaluate or extend their scope of work. This chapter also identified the political, research and health system contextual factors that have to be considered while establishing a PSO. The second study (chapter three) in this dissertation further enhanced this framework by incorporating insight form PSOs' leaders from around the world. These chapters provided lessons for establishing PSOs that are not country or region specific.[1-7] Both studies also identified the contextual factors that influence the process and approaches for establishing PSOs. In addition, the third study (chapter four) gave an example of how this framework can be used to develop a model for a planned PSO. Combining the three studies together, this dissertation has shown that leaders from established and planned PSOs agree on most of the potential barriers (e.g., lack of funding, lack of policymakers interest in research and EIPM, lack of high quality local research, and lack of appropriate capacities) and facilitators (e.g., policymakers interest in research and EIPM, pre-existence of a cordial working relationship between

research and policy communities, and having capable human resources that can understand and use research) to establish a PSO.

Methodological Contributions

While this dissertation did not develop a novel methodological approach, it combined quantitative and qualitative approaches in a novel way to analyze the process of establishing a PSO. The sequences and the spectrum of the methods used in this thesis generated both broad (e.g., a framework that can be used to guide an establishment process for a PSO) and in-depth (e.g., specific insights about each of the components of the framework and views about how they can be operationalized in Oman) understandings about the process for establishing a PSO. In the first study (chapter two), the qualitative approach to synthesizing evidence allowed for the inclusion of insights from complementary fields such as organizational establishment concepts from the management literature. Moreover, the framework was enhanced with insights from PSO leaders from around the world to verify the framework and make sure that important stages or components in the process were not missing, as well as to enrich it with more detailed approaches that can be used in each stage. Lastly, the third study provided an example regarding how the framework can be used to develop a model for establishing a PSO. In particular, using the framework to inform the interview guide provided the opportunity to identify the appropriate starting points for Oman (awareness stage) and inform the upcoming action across the four stages. A planned PSO was selected as a prospective case for the third study to solicit insights from policymakers, researchers and stakeholders from

Oman and to compare their views about what the most important potential barriers and facilitators with those from leaders of PSOs in other countries.

Theoretical contributions

The dissertation has three theoretical contributions that complement each other. The first is the development of the conceptual framework that acts as a road map for guiding the process of establishing PSOs. The second study complements this framework by verifying its main constructs through insights from PSO leaders. The verification revealed that the stages in the initially developed framework are comprehensive as all of identified strategies were easily allocated across the four stages in the framework. The third study further provides an example for how the framework can be utilized to inform the establishment of PSO. Given the Omani context, where EIPM is limited, the framework was used to guide the study to focus mainly on the first two stages (e.g., awareness and development stage) to raise awareness, identifying the gaps in the system, identify the challenges and the opportunities, and understand the situation regarding who is doing what and why. Doing so, also helped identify the essential options that have to be prioritized for the assessment (need for proper documentation) and maturation stage (need for embedding the EIPM activities in the system) at the Omani context. Therefore, the three studies together contributed to bridge a gap in the literature of institutions.

Institutions were frequently reported as an important factor that influenced policies.[8-10] Institutions can influence policies by providing incentives and resources to support or hinder particular policies.[8-10] Given this, it is not surprising that evidence shows that enhancing the use of evidence in policymaking requires a system that enables

policymakers to find, appraise, synthesize and contextualize the large volume of available evidence in a timely manner.[11,12] What is more, evidence also shows that institutionalizing EIPM's efforts to become a routine practice and a part of policymakers' daily practice is an important factor for supporting the use of research findings.[13,14] However, the process and approaches in establishing and institutionalizing a PSO to foster EIPM culture, is not known. In addition, the link between the establishment of a PSO and its institutionalization has not been explored either. Therefore, this dissertation contributed to bridging this gap by providing an enhanced conceptual framework that can be used to inform the process of establishing a PSO.

Strengths and Limitations

This dissertation has three main strengths and two limitations. A key strength of this dissertation is that it is the first to focus on understanding the process of establishing a PSO as an entity to support EIPM. In doing so, it complements the literature that focuses more specifically on institutionalization and can therefore be used by policymakers and stakeholders to inform the maturation stage in our framework. Perhaps most importantly, it provides a framework illustrating the establishment process and identified approaches and strategies that can be used at each stage in them. As such the findings from this dissertation are an important complement to the existing literature that identifies different approaches that could be used to support EIPM (e.g., priority setting, building capacity, finding and synthesizing evidence), or the factors that might affect EIPM.

There are also two methodological strengths that are important to highlight. The first methodological strength is the use of a combination of complementary qualitative and

quantitative research methods. The second is that this dissertation incorporated and synthesized empirical and non-empirical findings within these methods to better understand organizations that exist in different contexts. By looking across regions and countries while also considering contextual factors in health, research and political systems as important considerations that might facilitate or hinder the process to establishing a PSO, enhances the flexibility, transferability and applicability to others planning to establish a PSO in different contexts. Moreover, the inclusion of insights from leaders of established PSOs and leaders from a planned PSO further triangulate the findings.

One potential limitation of this dissertation is that it focused on organizations that support policymakers at the health-system level, and not on organizations or initiatives that support the production and use of other types of decision supports for policymaking (e.g., clinical practice guidelines, health technology assessments, or public health practice). The potential limitation stems from the possibility of having missed relevant insights from these areas. Given this, the trade-off between breadth and depth in the more specific domain of PSOs that focus on strengthening health systems was important to advance thinking in the field.

Another limitation of this dissertation is that neither the literature nor the empirical findings allowed for a depth of analysis that would enable the identification of patterns in PSO features that indicated how they approached establishing a PSO that is specific to their particular context or setting. I was not able to identify these patterns because findings in the literature were mostly reported in an aggregated format and because the sample sizes in chapters three and four was not large enough to attain the needed depth to identify such

patterns. In addition, I only used a single case for study 3, which limits my ability to do cross-case (and cross-context) comparisons. Moreover, the nature of the questions asked in study 2 did not allow for an in-depth assessment of how contextual factors influenced leaders' responses and experiences related to establishing a PSO.

Implications for Policy and Practice

There are several policy implications for those supporting EIPM based on the results of this dissertation. For those interested in establishing a PSO, the findings can provide a road map for identifying the most appropriate starting point. It also helps in identifying the factors that might influence the establishment process that varies according to the context in which a PSO is to be established. For example, establishing a PSO in a country where sufficient awareness about EIPM already exists will likely not require much effort to be invested into this stage of the framework. Instead, in such a context, the focus can be shifted to the second stage for evaluating the situation and identifying the organization's attributes. Furthermore, the findings can be informative for established PSOs where leaders can use the findings to expand or refine their scope of work, such as by selecting a new program or service to offer, and refining monitoring and evaluation plans to include assessments of the impact of their work (if this was not previously included in the scope of monitoring and evaluation efforts).

Similarly, the findings of this thesis have collectively reinforced the importance of conducting a situation analysis as part of the establishment process as well as institutionalizing the effort of supporting EIPM. Situation analyses were identified as important for understanding who is doing what, how and why. This information can help

policymakers to capitalize on the existing resources to overcome any potential challenges. In addition, policymakers and PSO leaders should aim to reach the sustainability stage to make the services offered by the PSO part of the norms and routine practice of policymakers, researchers and stakeholders.

Future Research

Although this dissertation contributed to filling an important gap in the literature regarding the process of establishing PSOs, some important future research directions have been identified. First, given that this dissertation focused only on PSOs in the health sector, an important next step for research would be to include other sectors from social systems and identify any additional insight that can enhance the framework developed in chapter two and the approaches outlined in it and refined in chapter three. The frameworks might also benefit from testing its applicability to organizations that have different contextual factors (i.e., exist in different political, health, and research system). Future research might also compare the establishment framework and approaches identified in this thesis with the literature from the management field. This thesis also identifies that assessment of PSO performance is not well established, and therefore future research should focus on identifying approaches for evaluating the impact of PSOs. One approach to evaluation could be through a before and after quasi-experimental design with a set of indicators to assess the impact of a PSO in informing policies with the best available evidence and whether informing policies by evidence has any impact on the efficiency of the policymaking process and ultimately on strengthening health systems. For already established PSOs, evaluations of impact could be conducted using qualitative methods

(e.g., interviewing policymakers, researchers and stakeholders about whether or not programs and services offered by the PSO had an impact on evidence used in policymaking, and if so, how did they have an impact) or conducting theory-informed multiple case studies with clearly defined indicators and with a sampling strategy that would ensure that counterfactual cases are included in order to provide insights about the organization's impact. In addition, important future research could focus on testing the usefulness of this framework as a basic construct for developing a tool to assess the readiness of a country that is planning for establishing a PSO. Particularly the first two stages (i.e., awareness and development stages) would be the most relevant for developing such a tool. Furthermore, the framework can be further enhanced by including larger sample size to identify patterns in the approaches to be used to establish PSO based on common contextual factors. A larger sample could be obtained by including other organizations that support the use of evidence in the health sector (e.g., public health practice, clinical guidelines, and health technology assessment) or from other non-health sectors (e.g., environment) in addition to snowball sampling. Lastly, future research that is specific to Oman is to conduct a co-design workshop to finalize a model to operationalize the department of knowledge translation in Oman and reach consensus on the scope of the activities undertaken by the department.

Concluding Comments

The process of establishing a PSO as an entity to support EIPM is an iterative process that can be influenced by multiple political-, research-, and health-system contextual factors. This thesis provides insights for establishing PSOs that are not country or region specific. Although no single approach found to be the most dominant or the most

efficient in establishing a PSO, learning from existing organizations and simultaneously considering multiple approaches will be important for successfully establishing a PSO. This argument is an important implication for policymakers planning to establish a new PSO and further research might be conducted to evaluate the success of the different organizations based on the approach(s) the organization considers.

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