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research

Insights from system leaders about operationalising a knowledge translation department in the Oman Ministry of Health

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Background: Oman has prioritised enhanced efforts for supporting evidence-informed policymaking (EIPM), including establishing a knowledge translation department in the Omani Ministry of Health (MOH).

Aim and objective: Our aim was to gather insights to guide the process of activating this department.

Methods: We conducted a document review and in-depth, semi-structured interviews with policymakers, researchers, and stakeholders who are familiar with the Omani system.

Findings: We conducted 17 interviews, which highlighted that policymakers in Oman use multiple sources of data and evidence to inform policymaking about health systems. However, several challenges to using evidence were identified, including low quality and limited availability of local evidence, system fragmentation, low interest in research, and lack of skills, capacity and time for finding, synthesising 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 they should be pursued simultaneously. However, when asked to rank the most important option, participants identified capacity building as the most important to enable cultural changes needed within the MOH.

Discussion and conclusions: This study provides insights for activating the knowledge translation department in the Omani MOH. Fully operationalising 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 capitalising on the relevant experience of highly qualified staff and existing infrastructure as well as continuing to foster a supportive climate for EIPM.

Key words knowledge translation • evidence-informed policymaking • health policy • health system

Key messages

- A systematic and transparent approach is important for Oman to support evidence-informed policymaking.
- Enhancing the quality and quantity of local evidence is essential to support evidence-informed policymaking.
- Building capacity and ensuring sustainability are a priority when establishing a policy support organisation.

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Background

Evidence-informed policymaking (EIPM) is the process of systematically and transparently using the best available data and evidence to inform policy (Oxman, 2009). Evidence refers to 'findings from research and other knowledge that may serve as a useful basis for policymaking' (Ashrafian et al, 2011). It is a combination of explicit (that is, structured, verifiable and replicable evidence) and tacit knowledge (that is, expertise, opinions, values, tradition, and belief) (Lomas et al, 2005: McAdam et al, 2007). The appropriate use of evidence in the policy process is influenced by several factors, including: (1) 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; (2) the difficulty of using research evidence; (3) results that are packaged and presented in a way that is unhelpful for the types of decisions policymakers face; (4) mistrust between researchers and policymakers; and (5) poor access to high-quality and relevant research evidence (Bennett and Jessani, 2011; Oliver et al, 2014). In addition, efforts to support EIPM are implemented alongside institutional constraints, interest-group pressure, values, and other types of information that influence the policy process, which can either limit or support the use of evidence (Weiss, 1979). The literature on the effectiveness of different strategies to increase the use of research evidence in policy decisions has found that no single approach provides a higher degree of effectiveness in strengthening the capacity to use EIPM, and such initiatives are highly context-specific (Moore et al, 2011; Hawkes et al, 2015).

As the evidence base regarding approaches to support EIPM has increased, so have global calls for enhancing EIPM (WHO, 2005; The Lancet, 2008). However, such actions require the institutionalisation of approaches to support EIPM at the international, national, and sub-national levels to ensure sustainability (El-Jardali et al, 2014; Zida et al, 2017). Therefore, it is important to ensure that the core functions of policy support organisations become routine practice with approaches that can be adapted according to local contexts (Tolbert and Zucker, 1983; Zida et al, 2017). For example, one significant effort to institutionalise 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 policymaking (WHO, 2019).

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) (MOH, 2014; 2015). The CSR is responsible for: (1) developing, monitoring, and evaluating the five-year plan for health research; (2) cooperating and coordinating with other local and international research bodies; (3) conducting workshops to build research capacity; (4) reviewing and approving research proposals; and (5) conducting national surveys. The revised organisational 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 for a different approach to support this department.

Oman is a monarchical regime, where 'monarchs not only reign but rule' (Lucas, 2004), in which the leadership is directly associated with the Sultan, rather than business or organisational leaders. This makes the power centralised above the ministerial level (Common, 2011). The authoritarian regime gives little chance for social or political pluralism and political parties are banned in Oman (Common, 2011). In general, Oman is considered to be a politically stable country (Brownlee, 2002).

To give the Omani citizens the opportunity to participate in 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 after hearing from the public (MOH, 2014). 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. It is not permitted to combine membership of the Majlis A'Dawla with 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 (MOH, 2014). 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 is renewable (MOH, 2014). 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 (MOH, 2014).

Given that there is no single approach known to be the most effective at improving the utilisation of research in the policymaking process, and no consensus on how best to organise such efforts, the objective of this study is to identify insights to operationalise 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.

It is important to note that, although we describe the policymaking process in this document as a cycle from agenda setting, policy formulation, legitimation, implementation, evaluation, policy maintenance, succession, or termination, we acknowledge that it is a simplification of what is typically a much more complex and non-linear approach to policymaking. As has been documented in previous literature, presenting the process of policymaking in stages can 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) (Head, 2013; Cairney, 2016). However, we used the stage model as an organising framework to analyse and present complex policy-related concepts.

Methods

A case-study approach is best to be used for an in-depth investigation of a case within its real-world context, and one of its main features is using multiple sources of evidence (Yin, 2014). In this study, 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 (Stake, 1995; Baxter and Jack, 2008). The intrinsic case study is often driven by the researcher's interest in gaining 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 (that is, established theory, or methods, or redraw a generalisation). In a collective case study, more than one case is studied at the same time to understand a phenomenon (Stake, 1995; Baxter and Jack, 2008). We used an intrinsic case study given that our interest was in deriving a better understanding of the case itself (that is, 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 (Baxter and Jack, 2008). Our case is bound by activity because it focuses on the operationalisation of the KT department 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 (Crowe et al, 2011). We analysed publicly available policy documents about Oman that provided insights for establishing the KT department, and conducted one-on-one, in-depth, semi-structured interviews with policymakers, researchers, and stakeholders.

In previous studies (Al Sabahi et al, 2020), we identified the process of establishing a policy support organisation (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 (for example, 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.

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 principal 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. 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.

The interviews were conducted using a semi-structured interview guide that was organised around the three objectives listed earlier. 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 (for example, 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 data and evidence they utilise 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. 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 prioritised and why. The five options were: (1) building capacity to support evidence-informed policymaking; (2) finding evidence to inform policymaking; (3) sparking action to inform policymaking; (4) embedding supports for the institutionalisation of evidence use; and (5) evaluating innovations. Participants were also asked about the perceived barriers to and opportunities for implementing the options identified and, more generally, for operationalising 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 organisations (Appendix 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 analysing 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 analysed using NVivo 12 and a qualitative content analysis approach. This approach is best when only descriptions of phenomena are desired (Sandelowski, 2000). Codes for qualitative content analysis were generated from and systematically applied to the data (Sandelowski, 2000). 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 summarised 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. Being an insider-researcher (studying a group to which the lead author belongs) 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 (Bonner and Tolhurst, 2002; Smyth and Holian, 2008). Overall, insider-researchers have an exceptional depth of knowledge as compared to that of an 'outsider' which would take a long time to acquire (Smyth and Holian, 2008).

At the same time, there are challenges associated with being an insider-researcher, such as potential difficulties in being objective in the research process, role duality (that is, employee and researcher), gaining access to sensitive information, and making wrong assumptions about the research process based on the researcher's prior knowledge (DeLyser, 2001; Smyth and Holian, 2008). Being an insider-researcher helped in identifying the policy documents more efficiently, selecting the participants to be interviewed, and coordinating the interview process.

This dual role of the PI as a researcher and as a nominee to lead the department was declared to all participants. Since the exact position of the PI is not addressed in the literature, 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; by having other team members who were not as familiar with the Omani context review the study findings and interpretation; and by giving the participants a chance to provide feedback on the results.

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. Twelve of the participants were policymakers from the MOH, six of whom were senior management (for example, those who oversee several directorates), and the other six of whom were at a lower management level (for example, 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. 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 analysed 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 prioritised 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 (for example, local data and other administrative data from the MOH and from other organisations such as the National Center for Statistics and Information); policy documents/reports, guidelines, and recommendations from Oman, other countries, and international organisations (for example, WHO and other United Nations agencies); research evidence (for example, 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 Appendix 1). Given this, we continually clarified for participants that data are important for informing some aspects of policy development (for example, 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 prioritising 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 organisations. This highlighted a significant reliance on international organisations' 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 (that is, identifying the problem, framing options, implementation, 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.

The second challenge related to the fragmentation across organisations in the health sector (for example, 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 emphasised 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 (for example, 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 synthesising 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 and a lack of time and incentive to conduct research.

The last challenge identified focused on the time needed to find and synthesise 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.

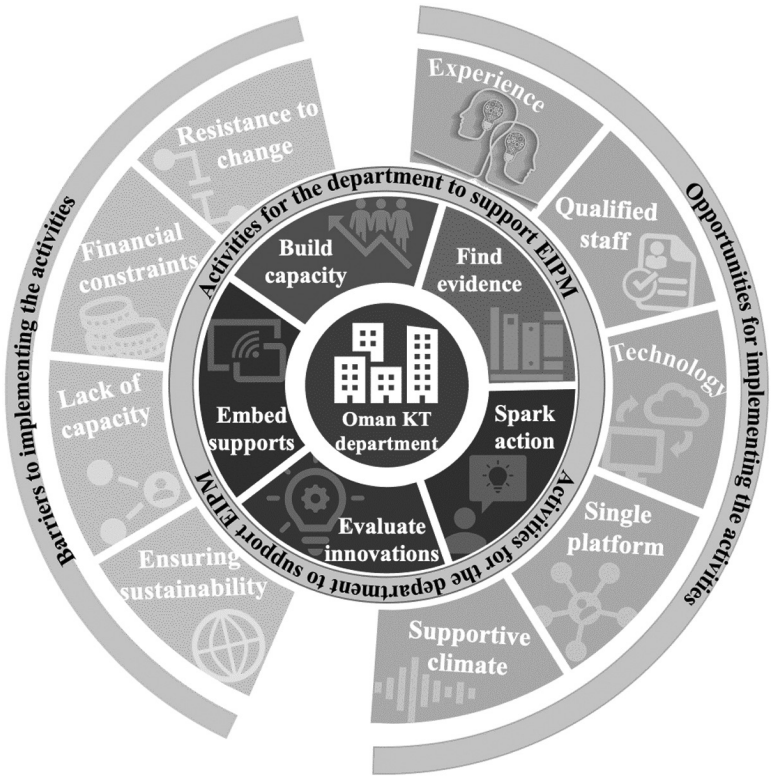
Options for supporting evidence-informed policymaking in Oman and barriers to and opportunities for their implementation

Five possible options for the department were refined with participants: building capacity, finding evidence, sparking action, embedding supports, and evaluating innovations (see Table 1 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 emphasised this by saying that "you cannot ask policymakers to use evidence if they do not have the needed skills" (Participant 4).

For embedding supports, participants viewed this as fundamental to sustaining efforts to support EIPM. For example, a stakeholder emphasised 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 5).

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 1. Participants expressed four overarching

Figure 1: The model for Oman knowledge translation department with the potential barriers and windows of opportunities



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 emphasised 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 their comfort zone, when they think what they do is right" (Participant 4).

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 organisations 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 6).

The third barrier is the lack of capacity for supporting EIPM. The participants expressed their belief that finding, analysing, and synthesising 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.

Table 1: 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 (for example, on finding and using research evidence to inform policy) (Hawkes et al, 2015; Uneke et al, 2015). • Intensive skill training programmes (1 to 3–month certificate course) to foster research capacity and nurture leadership development in the context of limited resources (Hawkes et al, 2015; Uneke et al, 2015). • Capacity enhancement mentorship programmes (for example, mentoring/coaching, meetings, or site visits to build the staff's skills) (Gagliardi et al, 2014). • Building collaboration with academic and research institutions (for example, programmes and courses at undergraduate, master's, and doctoral levels) (McMaster Health Forum, 2017).	• 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.	• 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: ◦ Short courses provided by the centre of continuing professional development. ◦ PhD or master's scholarships (through the Ministry of Higher Education) to train staff in KT. ◦ Short-term training courses through the WHO. • These options facilitate the logistics of organising these activities and could reduce the financial burden for the MOH.
Find evidence to inform policymaking through: • Clearinghouses for research evidence (that is, databases that provide a comprehensive repository of the best available and pre-appraised local research evidence) (Dobbins et al, 2010; Lavis et al, 2015). • A rapid response service designed to synthesise the best available evidence within days or weeks rather than months or years.	• A clearinghouse for local research evidence can reduce the effort needed to find evidence 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.	• It might be challenging deciding who should offer these services and where they should be located. • A lack of local evidence hinders the ability to contextualise findings from global evidence 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 organisations (which are not well-connected) that produce health-related data and evidence.	• The Research Council could be used to invest in high-quality research 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 maximise the benefit from the available data. • Developing an electronic database could better link data while also achieving efficiencies.

(*Continued*)

Table 1: (*continued*)

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 • 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 utilised. 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 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 (Parsons et al, 2017) • Hiring and training staff in evidence synthesis to support the establishment of a rapid response unit • Drawing on external groups to help train and build capacity (Moat, 2019).	• This activity is essential to ensure the sustainability of EIPM efforts and is the second 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.	• Getting top-level policymakers to commit will be challenging given that they have many competing demands. • 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.	• Experience with quality assurance can be capitalised on to allocate the knowledge 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 prioritisation, and production processes in Oman • Conducting empirical research on the policymaking process in Oman and the factors that influence it • 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 analyses 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.	• 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.

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 (that is, as 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 recognisable. Developing these key policies was viewed as paving the way for greater collaboration between organisations 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 6).

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 5). 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 7). 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, we also found that there is high reliance on international organisations to provide evidence, which might be due to the lack of capacity and interest in research. This is also related to the power of the ideas, and diffusion of ideas through international organisations, where these ideas will be considered as sufficient to legitimise or justify the policy option. The fact that most of the policymakers in Oman stay in the same position for a long time (rarely less than six years) and keep following the same practice in policymaking (that is, depending on opinions and international organisations) might further explain this issue. Similarly, this might contribute to the fragmentation in the system. Fragmentation and silo working could limit evidence consideration for complex health issues that require multidisciplinary evidence and horizontal thinking across sectoral boundaries. The fragmentation and silo working might compel some policymakers to focus on small, specific areas of policy activity, making it extremely difficult for them to engage with ideas beyond their immediate area of responsibility. Participants viewed the five options proposed to operationalise the department as equally important and felt that they should be pursued simultaneously.

Our findings revealed five main challenges to supporting EIPM in Oman and four opportunities. The foremost opportunity to support EIPM is Oman Vision 2040, which emphasises in its strategic objective the government commitment to EIPM and transparency in the policymaking process.

Findings in relation to other studies

While several studies have considered EIPM initiatives, facilitators, and barriers at the local, national, regional, or international level (Wilson et al, 2012; Ongolo-Zogo et al, 2015; Mijumbi-Deve and Sewankambo, 2017), we are aware of only one study that partially focused on the climate for EIPM in Oman (El-Jardali et al, 2012). Thus, our study provides an important contribution to the existing literature and builds on the interest in supporting EIPM in Oman.

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 (Clar et al, 2011; Langlois et al, 2016; Shroff et al, 2017). 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 (Clar et al, 2011; El-Jardali et al, 2015; Mijumbi-Deve and Sewankambo, 2017).

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 (Uzochukwu et al, 2016; Mijumbi-Deve and Sewankambo, 2017).

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 capitalised on.

Although most of the approaches proposed in this study to operationalise the Omani PSO were developed in countries with different political and institutional settings, we believe that lessons from these countries can still be informative for Oman. For instance, compared to decentralised political systems, centralised systems are likely to be less open to the uptake of evidence, particularly research findings, and concentration of power in centralised systems prevents pluralistic debate and thus the need for evidence to support competing views (Liverani et al, 2013). On the other hand, the demand for evidence in federal systems is higher, because it is used to justify policy decisions and defend them against opponents' criticisms (Liverani et al, 2013). In addition, 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 organisations (Liverani et al, 2013). However, a comparative study found that the nature of the political system (for example, democratic or autocratic) is not necessarily a key factor in influencing the use of evidence in policymaking.(Sumner and Harpham, 2008)

Finally, integrated KT platforms and similar entities are a key method to support collaborative efforts among policymakers, researchers, and stakeholders to support EIPM (El-Jardali et al, 2015; WHO, 2017). 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 organisations; finding and synthesising 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.

Limitations

There are 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. 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, operationalising 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 capitalised 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 finalise a model to operationalise 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 operationalisation of the department are building the capacity of policymakers and researchers and ensuring the sustainability of EIPM efforts. Implementation will require capitalising on the relevant experience of highly qualified staff and existing infrastructure, as well as continuing to foster a supportive climate for EIPM. Fully operationalising the department will also require convening a co-design process to reach a consensus on the scope of the activities undertaken by the department. Although we are focusing on PSOs that support policymakers in the health system, it does not mean that these organisations will entirely focus on providing evidence related to the health sector only. Instead, PSOs could provide evidence about and coordinate with health and social systems where appropriate. Despite the fact that most of the EIPM approaches are developed in countries with different political and institutional views, they are still informative for Oman with proper contextualisation.

Research ethics statement

Ethics approval for this project was received from McMaster University through the Hamilton Integrated Research Ethics Board (Project ID: 8397, approved on Feb 20,2020) and the Oman MOH through the Research and Ethical Review & Approve Committee (Proposal ID: MoH/CSR/199/11447, approved on Feb 11,2020).

Contributor statement

SA was responsible for the conception and design, collection of data, analysis and interpretation of data, drafting and reviewing the manuscript.

MW contributed to the conception and design, analysis and interpretation, drafting and reviewing the manuscript. MW was also responsible for supervising this work.

JL, FE, AND KM provided critical revisions of the manuscript for important intellectual content.

Conflict of interest statement

The authors declare that there is no conflict of interest.

References

Al Sabahi, S. M., Wilson, M. G., Lavis, J. N., El-Jardali, F., Moat, K. and Vélez, M. (2020) Examining and contextualizing approaches to establish policy support organizations - a critical interpretive synthesis, *International Journal of Health Policy and Management*. doi: 10.34172/ijhpm.2020.181.

Ashrafian, H., Darzi, A. and Athanasiou, T. (2011) *Evidence Synthesis: Evolving Methodologies to Optimise Patient Care and Enhance Policy Decisions. Evidence Synthesis in Healthcare*, London: Springer.

Baxter, P. and Jack, S. (2008) Qualitative case study methodology: study design and implementation for novice researchers, *The Qualitative Report*, 13(4): 544–59.

Bennett, G. and Jessani, N. (2011) *The Knowledge Translation Toolkit: Bridging the Know-do Gap: A Resource for Researchers*, New Delhi: SAGE Publications India.

Bonner, A. and Tolhurst, G. (2002) Insider-outsider perspectives of participant observation, *Nurse Researcher*, 9(4): 7. doi: 10.7748/nr2002.07.9.4.7.c6194

Brownlee, J.M. (2002) Low tide after the third wave: exploring politics under authoritarianism, *Comparative Politics*, 34(4): 477–98. doi: 10.2307/4146949

Cairney, P. (2016) *The Politics of Evidence-based Policy Making*, London: Palgrave Springer.

Clar, C., Campbell, S., Davidson, L. and Graham, W. (2011) Systematic review: what are the effects of interventions to improve the uptake of evidence from health research into policy in low and middle-income countries?, https://assets.publishing.service.gov.uk/media/57a08ab3ed915d3cfd0008c2/SR_EvidenceIntoPolicy_Graham_May2011_MinorEditsJuly2011.pdf, (Accessed: 5 Dec 2018).

Common, R.K. (2011) Barriers to developing 'leadership' in the Sultanate of Oman, *International Journal of Leadership Studies*, 6(2): 215–28.

Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A. and Sheikh, A. (2011) The case study approach, *BMC Medical Research Methodology*, 11(1): 100. doi: 10.1186/1471-2288-11-100

DeLyser, D. (2001) 'Do you really live here?' Thoughts on insider research, *Geographical Review*, 91(1–2): 441–53. doi: 10.2307/3250847

Dobbins, M., DeCorby, K., Robeson, P., Husson, H., Tirilis, D. and Greco, L. (2010) A knowledge management tool for public health: health-evidence, *BMC Public Health*, 10(1): 496. doi: 10.1186/1471-2458-10-496

El-Jardali, F., Ataya, N., Jamal, D. and Jaafar, M. (2012) A multi-faceted approach to promote knowledge translation platforms in eastern Mediterranean countries: climate for evidence-informed policy, *Health Research Policy and Systems*, 10(1): 15. doi: 10.1186/1478-4505-10-15

El-Jardali, F., Lavis, J., Moat, K., Pantoja, T. and Ataya, N. (2014) Capturing lessons learned from evidence-to-policy initiatives through structured reflection, *Health Research Policy and Systems*, 12(1): 2. doi: 10.1186/1478-4505-12-2

El-Jardali, F., Saleh, S., Khodor, R., Al Rub, R.A., Arfa, C., Romdhane, H.B. and Hamadeh, R.R. (2015) An institutional approach to support the conduct and use of health policy and systems research: the Nodal Institute in the Eastern Mediterranean Region, *Health Research Policy and Systems*, 13(1): 40. doi: 10.1186/s12961-015-0032-9

Gagliardi, A.R., Webster, F., Perrier, L., Bell, M. and Straus, S. (2014) Exploring mentorship as a strategy to build capacity for knowledge translation research and practice: a scoping systematic review, *Implementation Science*, 9(1): 122. doi: 10.1186/s13012-014-0122-z

Hawkes, S., Aulakh, B., Jadeja, N., Jimenez, M., Buse, K., Anwar, I., Barge, S., Odubanjo, M.O., Shukla, A. and Ghaffar, A. (2015) Strengthening capacity to apply health research evidence in policy making: experience from four countries, *Health Policy and Planning*, 31(2): 161–70. doi: 10.1093/heapol/czv032

Head, B.W. (2013) Evidence-based policymaking: speaking truth to power?, *Australian Journal of Public Administration*, 72: 397–403. doi: 10.1111/1467-8500.12037

Langlois, E.V., Montekio, V.B., Young, T., Song, K., Alcalde-Rabanal, J. and Tran, N. (2016) Enhancing evidence informed policymaking in complex health systems: lessons from multi-site collaborative approaches, *Health Research Policy and Systems*, 14(1): 20. doi: 10.1186/s12961-016-0089-0

Lavis, J.N., Wilson, M.G., Moat, K.A., Hammill, A.C., Boyko, J.A., Grimshaw, J.M. and Flottorp, S. (2015) Developing and refining the methods for a 'one-stop shop' for research evidence about health systems, *Health Research Policy and Systems*, 13(1): 10. doi: 10.1186/1478-4505-13-10

Liverani, M., Hawkins, B. and Parkhurst, J.O. (2013) Political and institutional influences on the use of evidence in public health policy: a systematic review, *PloS One*, 8: e77404. doi: 10.1371/journal.pone.0077404

Lomas, J., Culyer, T., Mccutcheon, C., Law, S. and Tetroe, J. (2005) Final Report: conceptualizing and combining evidence for health system guidance, *CiteSeer*, http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.112.4445.

Lucas, R.E. (2004) Monarchical authoritarianism: survival and political liberalization in a Middle Eastern regime type, *International Journal of Middle East Studies*, 36(1): 103–19. doi: 10.1017/S0020743804361064

McAdam, R., Mason, B. and McCrory, J. (2007) Exploring the dichotomies within the tacit knowledge literature: towards a process of tacit knowing in organizations, *Journal of Knowledge Management*, 11(2): 43–59. doi: 10.1108/13673270710738906

McMaster Health Forum (2017) Evaluate Innovations, https://www.mcmasterforum.org/spark-action/stakeholder-dialogues. Accessed October 16, 2019.

Mijumbi-Deve, R. and Sewankambo, N.K. (2017) A process evaluation to assess contextual factors associated with the uptake of a rapid response service to support health systems' decision-making in Uganda, *International Journal of Health Policy and Management*, 6(10): 561. doi: 10.15171/ijhpm.2017.04

Moat, K. (2019) 'Session 2 – Introduction to PERLSS and contextualizing 'embed supports' Embed supports' workshop for the Ethiopian Public Health Institute McMaster University.

MOH, Sultanate of Oman (2014) Health vision 2050: the main document, https://www.moh.gov.om/documents/16506/119833/Health+Vision+2050/7b6f40f3-8f93-4397-9fde-34e04026b829.

MOH, Sultanate of Oman (2015) Health vision 2050: synopsis of strategic studies, https://www.moh.gov.om/documents/16506/119833/Synopsis+of+Strategic+Studies/a18796c8-c998-4e8b-9c8f-3fbd87017cff.

Moore, G., Redman, S., Haines, M. and Todd, A. (2011) What works to increase the use of research in population health policy and programmes: a review, *Evidence & Policy*, 7(3): 277–305.

Oliver, K., Innvar, S., Lorenc, T., Woodman, J. and Thomas, J. (2014) A systematic review of barriers to and facilitators of the use of evidence by policymakers, *BMC Health Services Research*, 14(1): 2. doi: 10.1186/1472-6963-14-2

Ongolo-Zogo, P., Lavis, J.N., Tomson, G. and Sewankambo, N.K. (2015) Climate for evidence informed health system policymaking in Cameroon and Uganda before and after the introduction of knowledge translation platforms: a structured review of governmental policy documents, *Health Research Policy and Systems*, 13(1): 2. doi: 10.1186/1478-4505-13-2

Oxman, A.D., Lavis, J.N., Lewin, S. and Fretheim, A. (2009) SUPPORT tools for evidence-informed health policymaking (STP) 1: What is evidence-informed policymaking? *Health Research Policy and Systems*, 7(Suppl 1): doi: doi: 10.1186/1478-4505-7-S1-S1.

Parsons, E.C., Mattox, E.A., Beste, L.A., Au, D.H., Young, B.A., Chang, M.F. and Palen, B.N. (2017) Development of a sleep telementorship program for rural department of veterans affairs primary care providers: sleep veterans affairs extension for community healthcare outcomes, *Annals of the American Thoracic Society*, 14(2): 267–74.

Sandelowski, M. (2000) Whatever happened to qualitative description?, *Research in Nursing & Health*, 23(4): 334–40.

Shroff, Z.C., Javadi, D., Gilson, L., Kang, R. and Ghaffar, A. (2017) Institutional capacity to generate and use evidence in LMICs: current state and opportunities for HPSR, *Health Research Policy and Systems*, 15(1): 94. doi: 10.1186/s12961-017-0261-1

Smyth, A. and Holian, R. (2008) Credibility issues in research from within organizations, *Researching Education from the Inside*, Abingdon: Routledge.

Stake, R.E. (1995) *The Art of Case Study Research*, Thousand Oaks, CA: Sage.

Sumner, A. and Harpham, T. (2008) The market for 'evidence'in policy processes: the case of child health policy in Andhra Pradesh, India and Viet Nam, *European Journal of Development Research*, 20(4): 712–32. doi: 10.1080/09578810802493358

The Lancet (2008) The Bamako call to action: research for health, 372(9653):1855, doi: doi: 10.1016/S0140-6736(08)61789-4.

Tolbert, P.S. and Zucker, L.G. (1983) Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform, *Administrative Science Quarterly*, 28(1): 22–39. doi: 10.2307/2392383

Uneke, C.J., Ndukwe, C.D., Ezeoha, A.A., Uro-Chukwu, H.C. and Ezeonu, C.T. (2015) Implementation of a health policy advisory committee as a knowledge translation platform: the Nigeria experience, *International Journal of Health Policy and Management*, 4(3): 161. doi: 10.15171/ijhpm.2015.21

Uzochukwu, B., Mbachu, C., Onwujekwe, O., Okwuosa, C., Etiaba, E., Nyström, M.E. and Gilson, L. (2016) Health policy and systems research and analysis in Nigeria: examining health policymakers' and researchers' capacity assets, needs and perspectives in south-east Nigeria, *Health Research Policy and Systems*, 14(1): 13. doi: 10.1186/s12961-016-0083-6

Weiss, C.H. (1979) The many meanings of research utilisation, *Public Administration Review*, 39(5): 426–31. doi: 10.2307/3109916

WHO (2005) Report from the ministerial summit on health research: identify challenges, inform actions, correct inequities, https://apps.who.int/iris/handle/10665/43226.

WHO (2017) Conceptual background and case studies: introduction to EVIPNet Europe, http://www.euro.who.int/__data/assets/pdf_file/0004/368833/Annual-report-2017-for-EVIPNet-Europe.pdf?ua=1>.

WHO (2019) What is EVIPNet? WHO/Evidence-informed policy network, https://www.who.int/evidence/about/en/.

Wilson, M., Lavis, J. and Grimshaw, J. (2012) Supporting the use of research evidence in the Canadian health sector, *Healthcare Q*, 15: 58–62. doi: 10.12927/hcq.2013.23148

Yin, R.K. (2014) *Case Study Research and Applications: Design and Methods*, Thousand Oaks, CA: Sage.

Zida, A., Lavis, J.N., Sewankambo, N.K., Kouyate, B. and Moat, K. (2017) The factors affecting the institutionalisation of two policy units in Burkina Faso's health system: a case study, *Health Research Policy and Systems*, 15(1): 62. doi: 10.1186/s12961-017-0228-2

Appendix 1: 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
	  o 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 and 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
	• Programmes, services and products
		• Year started
		  ○ 2002
		• Jurisdiction/area served
		  ○ National
		• Target audience
		  ○ Physicians
			• Options	• Practice guideline

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

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
	  o 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