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A framework to improve evidence-informed decision-making in health service management

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Abstract

Objective. The objective of this paper is to present and provide justification for a framework to improve evidence-informed management decision-making among health service managers. Three research questions informed the study: How have different perspectives influenced how evidence has been defined? What are the barriers to the practice of evidence-informed decision-making (EIDM)? What are the factors that may encourage the application of evidence to guide management decision-making processes?

Methods. A literature review was conducted to identify studies that examined the practice of EIDM among health service managers. Information relevant to the three research questions was collectively analysed, compared and contrasted based on their relevance to the EIDM process.

Conclusion. Several factors have played different but significant roles in affecting the practice of EIDM among health service managers. Although interaction between these factors is complex, the framework developed in this paper may guide the development of strategies to encourage and improve the utilisation of evidence in management decision-making process.

What is known about the topic? EIDM has been promoted as a mechanism for improving the quality of management decisions, and hence better service delivery, effectiveness and efficiency. Previous studies have explored and discussed various factors that may affect the practice of EIDM amongst health service managers. However, a greater understanding of how these factors interact is required so that relevant strategies to promote the increased use of EIDM can be developed.

What does this paper add? The paper clarifies 'evidence' from the view of both managers and members of the research community. It discusses factors that may affect the practice of EIDM among health service managers and develops a framework to for better understanding of how these factors interact and affect practice at various levels. The framework will guide the development of strategies to encourage the utilisation of evidence among health service managers.

What are the implications for practitioners? To encourage the practice of evidence-informed decision-making amongst health service managers, multi-level changes in the system, organisation and individual levels are required. To maximise the benefit and relevance of research evidence, managers should be actively involved in setting research agendas and guiding the appropriate presentation of research findings to meet the needs of potential readers.

Additional keywords: evidence-based health service management.

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Introduction

Since the 1960s, we have seen the rising importance of evidence-based medicine (EDM) followed by the emergence of evidence-based policy in the late 1980s.[1] In fact, we 'live in an era of evidence-based everything: what matters is what works'[2] (p.188). Hence, using evidence to support policy development and practice in healthcare has earned high saliency.[1] Evidence-informed decision-making (EIDM) in health service management has been debated and promoted in the literature since the early 1990s.[3,4] Evidence-informed health services management is the systematic application of the best available evidence to management decision-making, aimed at improving the performance of

health service organisations.[3] It recognises that management decision-making is a process of gathering, assessing and using evidence rather than a simple act of choosing between alternatives. Managers should learn how to search for and critically appraise empirical evidence from management research and other sources as a basis for their decisions.[3–6]

The use of an evidence-informed approach has been proposed to improve the practice of healthcare management by improving the quality of managerial decisions.[5] In addition, using such an approach within health services management may overcome previously-identified problems within the health services sector that arise from: an inefficient overuse of management strategies previously demonstrated to have limited effectiveness; the underuse of well supported management strategies; and the misuse of other management strategies that can be effective when used correctly.[7] It is imperative for policy and management decisions in the healthcare industry to be based on evidence because this can lead to a more productive, cost effective, high quality and efficient healthcare system.[8]

Studies in the USA, Canada, UK, and Australia have found that health service managers understand the importance of using evidence to improve management effectiveness[9,10] and most health service managers report a desire to use and apply evidence.[11] However, they make little regular use of evidence in their decision-making, especially neglecting scientific or research evidence.[10,12,13] The lack of EIDM is not unique to the health sector. A systematic review of literature in the fields of general management, education and medicine indicated a lack of regular use of evidence in managerial decision-making.[14] Management research has often failed to meet the needs of practitioners/managers and may not have reached sufficiently wide audiences.[15]

Previous studies have identified various factors that may affect the practice of evidence-informed decision-making amongst health service managers. However, a greater understanding of how these factors interact is required so that coordinated and comprehensive strategies can be developed. The purpose of this paper is to describe the development of a framework to understand how EIDM in health service management can be encouraged and improved based on knowledge of the factors that may affect such practice, and more importantly, how these factors interact to encourage or discourage such practice. This framework may be a useful guide to the development of interventions to improve the access and utilisation of evidence to guide management decision-making within health service organisations.

Methods

A review of academic literature including all descriptive, qualitative and quantitative studies and discussions or reports was conducted to identify studies that explored the practice of EIDM among health services managers. In particular, we searched for literature that addressed the following questions:

(1) How have different perspectives influenced how evidence has been defined?
(2) What are the barriers to the practice of EIDM?
(3) What are the factors that may encourage the application of evidence to guide management decision-making processes?

As the concept of EIDM was only introduced to public health policy development and health services management relatively recently (~15 years), only journal articles and reports published in or after 1995 in English were included. The following databases with good inclusion of health policy and management, social science and public health literature were searched: Emerald Full Text; Medline (Ovid); ProQuest Health and Emerald and Google Scholar. Keywords used for the search included 'health service management', 'evidence-based management', 'evidence-informed decision-making'. In total, 168 abstracts were reviewed by the researchers, with 127 papers selected for content review based on their assessed relevance. Content screening further reduced the number of papers to 58 for content analysis, amongst which 46 were included in developing this paper.

What evidence is used for management decision-making?

Evidence should be viewed broadly.[3,11,12,16,17] Lomas *et al.* found that outside the research community, evidence could be as diverse as 'anything that establishes a fact or gives reason for believing in something'[13] (p. 3). Researchers, however, recognise evidence 'can be defined as information or facts that are systematically obtained, i.e. obtained in a manner that is replicable, observable, credible, verifiable, basically supportable'[18] (p. 100). Therefore, evidence can be categorised as being of two major types: scientific evidence (the researchers' view) and colloquial evidence (the broader view outside the scientific community). Howard *et al.*'s study confirmed that evidence such as 'internally developed data', 'information from within organisation', 'best practice reports' and 'own experience' were the commonest forms of evidence used in guiding managerial decision-making processes of Victorian health service managers. Although these health service managers considered scientific evidence the second most important type of evidence, it was viewed neither as the most useful nor the primary form of evidence used by participants in their study at any stage of the management decision-making process.[10]

To understand the relevance of scientific evidence to the health service management community, Lomas *et al.* divided scientific evidence further, by referring to 'context-free' evidence and 'context-sensitive' evidence. Context-free evidence can be defined as 'evidence that provides a glimpse of what might be achieved in ideal circumstances and creates context-free guidance', whereas context-sensitive evidence 'provides sensitive guidance on both what works and how it might be implemented in specific circumstances under consideration.' They further argued that the importance of colloquial evidence should not be underestimated as it can 'complement or substitute for missing scientific evidence on context'[12] (pp. 3–4,15). Although evidence is perceived differently according to its relevance, importance and usefulness to management practice, it should be viewed broadly.

Barriers to the practice of evidence-informed decision-making

As discussed earlier, despite its importance, scientific evidence has not been widely used.[11] The lack of use of research evidence among managers has been influenced by various factors acting

as barriers to the practice,[3,4,10,19,20] which appear to be common to research use by managers in medicine, education, social care, the criminal justice system and other public sectors.[21,22] Conversely, there are also factors that may act as catalysts to such practice. Furthermore, under different circumstances, catalysts may become barriers to the practice, and vice versa. These barriers can be grouped at various levels as detailed in Table 1.

One of the most frequently identified barriers to the adoption of evidence is health managers' perception of the low level of relevance of much research evidence. The consensus within the literature is that empirical research findings in health management generally have poor external validity[23] and are not contextually sensitive,[10] and hence, are of limited promise for local applicability.[17] When accessing research evidence, health managers want to know if something will work locally and in what context it will work.[13] However, implementation methods, the context, and processes of the intervention are frequently described inadequately. In addition, research topics often do not reflect the needs of health managers. This, combined with a perceived lack of skills in critical appraisal among health services managers, is likely to lead to their distrust of research evidence. On the other hand, the literature suggested that organisational cultures that facilitate and invest in ongoing learning are more conducive to research use.[23] However, the lack of leadership support, inadequate financial investment, and lack of policy and political will at the organisational level further limit the practice of evidence-informed managerial decision making.[10]

Factors that may encourage the application of evidence to guide management decision-making processes

Interaction between researchers and management decision-makers is said to aid the building of relationships between researchers and management decision-makers, hence facilitating and increasing research use.[17,21,36] Such researcher–decision maker partnerships may enhance decision makers' trust, understanding and comfort level with research, as well as assist researchers to tailor research better to the needs of management decision-makers.[37] Dobbins *et al*. [38] found that even where research has been conducted without collaboration between researchers and research users, interaction between these two groups can still facilitate the use of research through discussions about the findings of the research and its potential implications for practice.[38] However, such partnerships would be particularly successful when they included the target user at all stages of the research[37] and with support from the organisation[39] with sufficient resource and financial investment.[40]

Organisational factors also encourage the uptake of evidence for decision-making.[24] The need for information systems that support the use of evidence was noted by Blumenthal and Thier,[26] and Shortell,[4] who highlighted the role of health service boards in driving cultural change within organisations, which demand the use of best available evidence. Organisational factors critical to the success of EIDM in health service management have been reported as supportive organisational systems for evidence access and information sharing.[17] The provision of incentives to facilitate the use of evidence and the ability to access up-to-date information were also seen as crucial organisational facilitators of evidence use.[24]

Strong leadership may increase confidence of managers in evidence-based decision-making.[9] Defining and promoting the success of previous evidence-informed decisions within organisations could be a significant step in successfully encouraging and implementing EIDM.[25] Leaders, both within and external to healthcare organisations, should promote and encourage the application of effective EIDM. Although this level of support and encouragement for evidence-based decision-making was seen in the clinical sphere within organisations, the same level of support was not perceived to exist for managers seeking to make evidence-informed decisions. This has limited health service managers' ability to process and apply evidence effectively.[11]

The promotion of evidence use by opinion leaders was highlighted as the most significant facilitator of EIDM from the perspective of the healthcare organisation/manager.[27] Locock *et al*.[28] explained that for research to be well accepted, some process of local negotiation was needed, and opinion leaders were the most influential in translating the available evidence into useful practice within the local context. Researchers may benefit from the involvement of local opinion leaders (knowledge brokers) in the dissemination of their research by assisting them to encourage promotion of findings to the wider healthcare management community.

Table 1. Barriers to the practice of evidence-informed decision

Levels	Barriers
Broader level (societal or industry-level beyond the organisation)[5,7,10–13,17,19,23,26–31]	• insufficient policy support and political will • excessive literature to review • lack of accessibility of management research • lack of research evidence that is sensitive to local context • presentation of research evidence with excessive amount of statistical information, and over use of scientific language
Organisation[3,4,10,11,13,16,19,20,24,27,29,32]	• inadequate financial resources to support the practice • lack of senior management encouragement of the practice • resistance to change among staff and management • insufficient time available for managers to adopt the evidence-based approach • organisational decision-making processes that are not conducive to research transfer and uptake
Individual manager[5,9,10,19,33–35]	• inadequate skills in searching for and appraising research evidence • lack of the perceived relevance of management research

The role of researchers in framing and presenting research in an appropriate manner has been widely suggested as one of the keys for improving the practice of EIDM among managers.[18,41,42] The presentation of research evidence is viewed as having importance equal to the findings. Research findings presented simply and succinctly in plain language and packaged with summary and actionable recommendations are more acceptable to managers.[42] The traditional journal article format is not seen as user friendly by health service managers and therefore, does not facilitate the uptake of evidence in decision-making.[10,41] Howard *et al*.'s[10] study confirmed that health service managers in Victoria have a clear preference for research information to be presented in abbreviated formats. The top three preferences for the presentation of research were executive summaries, best-practice guidelines and abstracts. These are similar to the preferences of health services managers in Canada, where executive summaries and abstracts were managers' top preferences for research presentation.[19] It has been proposed that researchers do such things as produce a one-page take-home summary, a three-page executive summary for important findings and a 25-page report (with technical report available if necessary) to address the needs of a variety of audiences.[19] Further study is required to assess the value of these specific suggested formats.

Researchers should also ensure that studies are, besides being of a quality standard acceptable to health managers,[24,29,43] have the methodology of the research clearly described. In addition, contextual consideration should be given to the research evidence produced, so that health managers can quickly judge whether they are likely to be able to apply the reported findings locally.[10] In order to improve the relevance and perceived value of the research evidence, decision-makers from health service delivery systems could be more involved in the research design in order to tailor research questions and focus to the needs of health service managers and build trusted relationships. Health service managers' involvement in the research design and processes is likely to be highly influential to the perceived relevance of the evidence ultimately produced.

It has been frequently suggested that research which is context-sensitive, localised and of higher applicability will be perceived to be of higher value to healthcare managers.[8,10,30] Inadequate descriptions of participants and contexts often made it difficult to interpret results because the same evidence utilised in different contexts often led to different decision desires and outcomes.[44,45] Furthermore, process research should be encouraged as it often provided insights for managers from the implementation of the change and obstacles that were overcome during the change process.[46] Hence, researchers should place more focus on specifying steps for managers to follow and identifying the outcomes of following such steps. Cohen[41] suggests having a section on practitioner application in all scholarly articles in applied fields such as management practice. However, any trend towards researchers providing interpretations of how to apply findings to practice needs to proceed cautiously. Disagreement exists between managers about whether researchers should move beyond a strict interpretation of their results to provide recommendations about preferred management and policy actions.[17] Howard *et al*.'s[10] study suggested that applicability of the findings and results should be identified in the abstract to facilitate research uptake in decision-making processes and draw attention to the most relevant articles in an area.

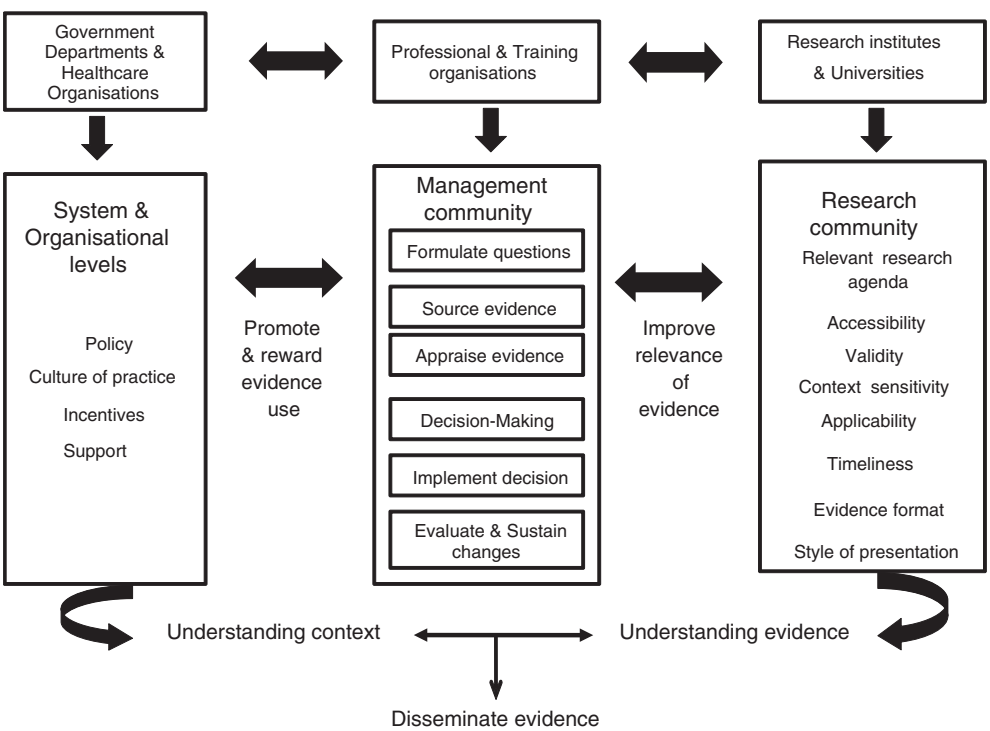

Fig. 1. Framework for improving the use of evidence in managerial decision making.

Individual decision-makers' skills in searching for and critically appraising research, as well as previous exposure to research, are also cited as important in relation to evidence use. Analysing the use of an evidence-based priority setting process in Australia, Astley and Wake-Dyster[32] found a challenge to the process to be the variability of staff skills in searching and utilising research literature. Axelsson[5] suggested that new skills and capabilities would be required of managers in order to adopt evidence-informed management practices more frequently. Kovner *et al*.[34] suggested that many healthcare managers lack the skills required to adopt EIDM. Thus, it is not surprising to posit training as a crucial facilitator in EIDM.[10]

Framework to guide the development of strategies in improving the practice of evidence-informed decision-making

Innvaer[44] suggested that it is unclear which barriers and facilitators are most influential to decision-makers. Amongst the range of factors considered, there is no basis for a strong recommendation of any single factor acting as a primary facilitator of, or barrier to, an evidence-informed approach. Therefore, how to address these factors when developing relevant strategies to improve the access and application of evidence in management decision-making processes requires careful and thorough consideration. Hence, it is important to depict how these factors relate and interact. The following framework (Fig. 1), developed from an understanding of the above factors and their interactive relationships, may provide guidance on what strategies are to be developed and evaluated.

This framework takes into consideration all factors relevant to the various types of organisations – government departments, healthcare organisations, professional and training organisations, and university and research institutions – that play significant roles in influencing EIDM. In addition, within each organisation type, such practice is affected by various factors, but it is clear that factors relevant to each type of organisation are interrelated. To best influence the practice of EIDM amongst health services managers, changes should be introduced within the three types of organisations as detailed in the framework. These changes should be specific and relevant, focussing on promoting and rewarding the use of evidence and improving the relevance of evidence, so that evidence produced is not only more sensitive to the local context, but can be more easily understood and interpreted by managers for immediate use.

Conclusions

Evidence-informed decision-making is important in improving the quality of management decisions, and hence, improved service delivery, effectiveness and efficiency. However, its practice among health services managers remains limited. It is believed that several factors existing at the societal or industry level, the organisational level and the individual level have played different but significant roles in affecting such lack of practice. In addition, the interactions between these factors are complex. The framework discussed in this paper may assist with developing a better understanding of how these factors interact and affect the practice of evidence-informed decision-making at various levels. This understanding is important for strengthening the development of strategies to encourage the utilisation of evidence among health service managers and in guiding management decision-making process in the future. It is also suggested that multi-level changes at the system, organisation and individual levels are required in order to achieve the widespread practice of evidence-informed decision-making amongst health service managers. Furthermore, to maximise the benefit and relevance of research evidence, researchers should more actively involve managers in setting research agendas and guiding the appropriate presentation of research findings to facilitate the translation of research evidence produced to improved management practice in the health sector.

Competing interests

The authors declare there are no competing interests.

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