Evidence transfer: ensuring end users are aware of, have access to, and understand the evidence

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ABSTRACT

The Joanna Briggs Institute Model of evidence-based healthcare (EBHC) states that the main phases of EBHC include evidence synthesis, transfer, and implementation. There has been some confusion regarding the term ‘evidence transfer’; with this term previously being considered by many as synonymous with knowledge or evidence translation. The aim of this paper is to discuss a proposed definition of evidence transfer and the pivotal role it plays as part of the EBHC process. ‘Evidence transfer’ can be thought of simply as getting the message (evidence) across and at its core it is all about information delivery. We specifically define evidence transfer as a process that helps communicate or convey the results of research or evidence, or brings evidence to the forefront. It is focused on ensuring people are aware of, have access to and understand evidence.

Key words: evidence transfer, evidence-based healthcare, Joanna Briggs Institute

Introduction

Evidence-based healthcare (EBHC) has been defined as ‘clinical decision-making that considers the feasibility, appropriateness, meaningfulness and effectiveness of healthcare practices…informed by the best available evidence, the context in which the care is delivered, the individual patient, and the professional judgment and expertise of the health professional’.1 This conceptualisation of EBHC is at the center of the Joanna Briggs Institute’s Model of EBHC. This heuristic model was developed in order to provide an overview of the complete process of EBHC, from the generation of knowledge through to its implementation in practice. To truly fully execute this understanding of EBHC, processes for evidence synthesis, transfer, and implementation to address gaps in policy and practice are required.

The theoretical underpinnings of evidence transfer, as conceptualized by the Joanna Briggs Institute (JBI), draws on the perspectives and key constructs of a range of disciplines, including psychology, education, and communications and marketing. This reflects the complexity and diversity of this component of the JBI Model as it seeks to engage with various key stakeholders and systems across the health sector as it relates to the achievement of EBHC. The aim of this paper is to further discuss our conceptualization of evidence transfer, the theories that are drawn on to more transparently articulate that conceptualization and the pivotal role it plays as part of the EBHC process. It also seeks to demonstrate how evidence transfer relates to evidence synthesis and implementation, and key enabling strategies to effectively achieve it.

Defining evidence transfer

A simple estimate of the time it takes from evidence generation to its use in practice is 17 years.2 This lag in uptake is due to a number of ‘gaps’ in the movement of research from one stage to another (i.e., from preclinical research through to clinical trials). The field of ‘knowledge translation’ (a broad term encompassing the movement of research findings and knowledge) has been established...
to address the facilitation of knowledge through the various phases of creation through to its use. The term ‘evidence transfer’ has previously been considered by many as synonymous with knowledge or evidence translation. However, it is important to note that our conceptualization of evidence transfer relates to only one part of the knowledge translation process, the transfer of the findings of synthesized evidence and recommendations arising from this synthesis into the minds, attitudes and memory of health professionals, policy makers, patients/clients, and other end users. Evidence transfer can therefore be thought of simply as getting the message (evidence) across, and at its core it is all about information delivery. We specifically define evidence transfer as a process that helps communicate or convey the results of research or evidence, or brings evidence to the forefront. It is focused on ensuring people are aware of, have access to and understand evidence.

In the JBI Model of EBHC (Fig. 1), evidence transfer flows on from evidence synthesis, an important part of which is the systematic review of evidence. Systematic reviews have been considered the pillar of EBHC and are of immense importance in the process of EBHC. However, we know that these reviews are infrequently applied in policy or practice, possibly due to the somewhat ineffective traditional dissemination routes for these reviews. Ensuring appropriate evidence and knowledge is transferred to key stakeholders is a global challenge, and as Pang et al. state ‘the Gates Foundation identified fourteen challenges but a fifteenth challenge stares us plainly in the face: The 15th challenge is to ensure that everyone in the world can have access to clean, clear, knowledge - a basic human right, and

Figure 1. The Joanna Briggs Institute (JBI) model of evidence-based healthcare.
a public health need as important as access to clean, clear, water, and much more easily achievable. In essence, people are dying from a lack of knowledge, particularly in low resource settings. The evidence transfer phase of EBHC is therefore of peak importance, as ‘getting the appropriate information into the hands of those who determine health policy and who deliver healthcare is fundamental to improvements in healthcare delivery and health outcomes’. In the JBI Model of EBHC, evidence transfer is operationalized within the components of active dissemination, systems integration, and education.

Communication as a key principle of evidence transfer

Although ‘communication theory’ as a formal area of scholarly enquiry is only a few decades old, the activity itself has existed for as long as humans have walked the earth. Indeed, Aristotle (in his book Rhetoric) argued that the means of persuasion are primarily ethos (the nature of the source), pathos (the emotion of the audience) and logos (the nature of the message presented by the source to the audience). Unfortunately, although Aristotle promoted ‘clarity’, he gives only passing mention to the concept of ‘delivery’, which is essentially the main thrust of what we mean by ‘transfer’ in this current context. Scholars throughout history have grappled with how human communication works and strategies to improve it. Of course the world today is vastly different from what it was back then and as such our worldviews and connectivity have evolved significantly. It is no longer dominated solely by white, male scholars, and new theories and applications appear constantly. Rhetorical communication, as conceptualized by Aristotle, was primarily concerned with person-to-group verbal applications. While evidence transfer is much broader, the focus on influencing the thoughts and actions of other people still underpins it and is arguably one of the most important skills of the human race with respect to survival in the broadest sense – that is, the power of sharing knowledge about what works.

The core of evidence transfer is communication and a process of conveying information. Where possible, this communication will entail more than the simple distribution or dissemination of evidence. Ideally (although not always feasible), it will be a coactive, participatory communicative process between knowledge creators (or curators) and end users. German philosopher and sociologist Jurgen Habermas has described communication as a means to produce legitimacy and mutual understanding regarding actions among people. Habermas shares the view of Gadamer that communication has the capacity to ‘expand our moral horizons and open up ever broader horizons of agreement and “truth”‘. This opinion subsequently led to the development of his theory of communicative action. Communicative action displays the following three features:

(1) People knowingly and purposefully aim to achieve intersubjective agreement, which in turn leads to
(2) Mutual understanding
(3) And results in an ‘unforced consensus about what to do in the particular practical situation in which they find themselves’.

Across all evidence transfer strategies the end user needs to be considered and preferably involved. This theory of communicative action can inform evidence transfer processes. Therefore, when designing and implementing transfer strategies, there is a need to consider how much detail the end user prefers (which may differ across user groups), and how much knowledge can feasibly be comprehended from the evidence source. For example, for end users such as consumers, any information should be presented at the right reading level and in a format that is accessible and easily understood. As such, to ensure effective transfer of knowledge, there is a need to have a deep understanding and awareness of the end user group.

Pearson et al. articulate the fundamental components of this process as being:

(1) Development of understandable and actionable messages
(2) Accommodation of the context of the target audience’s information needs
(3) Delivery of messages in cost effective ways

Discussing the boundaries of evidence transfer

As previously mentioned, although the term ‘evidence transfer’ has been used synonymously with knowledge translation, we view evidence transfer as the process of communication or conveying the results of synthesized research, and as such it sits within the broader EBHC or knowledge translation fields. There is no guarantee that once knowledge has been transferred (i.e., when people have become aware of, have access to or understand the evidence) it will be subsequently implemented. In the JBI Model of EBHC, once evidence has been generated, it flows through a process of synthesis, transfer and implementation. Although there is some crossover
between these distinct components, it is useful both practically and for heuristic purposes to delineate between them, and in particular to define the boundary (which we acknowledge is fluid) between evidence transfer and evidence implementation. One useful way to outline the differences between evidence transfer and evidence implementation is to discuss Nutley’s conceptual and instrumental uses of research. In this context, instrumental use ‘refers to the direct impact of research on policy and practice decisions’ (p. 36). In contrast, conceptual use refers to the use of research having an impact ‘on the knowledge, understanding and attitudes of policy makers and practitioners...playing a more general ‘consciousness-raising’ role’ (p. 36). Nutley’s conceptual and instrumental use of research has been aligned with Rogers’ diffusion of innovations theory, and particularly the five stages in the decision innovation process, namely knowledge, persuasion, decision, implementation, and confirmation. In this amalgamation of models, the conceptual uses of research (awareness, knowledge and understanding, changing attitudes, perceptions, and ideas) have been linked to the stages of knowledge, persuasion and decision on a research use continuum. Comparatively, instrumental use (practice and policy adaptation) has been linked to the implementation and confirmation stages. Following a similar thread, Wimpenny et al. have aligned Nutley’s work with the work of Glasziou and Haynes and their evidence pipeline model, mapping the research use continuum (conceptual to instrumental impact) to the stages of the pipeline model, where conceptual use maps to the aware, accepted, applicable, and ability stages, while instrumental aligns to the acted on, agreed to and adhered to stages of the model. We further these discussions and adaptations by aligning evidence transfer (as we view it) with Nutley’s conceptual use and implementation with Nutley’s instrumental use. These discussions are summarized in Table 1.

### Evidence transfer components in the Joanna Briggs Institute model

In the JBI Model of EBHC, we have highlighted three key elements that are pivotal to evidence transfer. These are active dissemination, education, and systems integration.

#### Active dissemination

Dissemination is the process whereby research findings or evidence are publicized, presented, or communicated to target audiences. Dissemination strategies have traditionally been passive, in that researchers may publish in peer-reviewed journals and at conferences, largely presenting the evidence to other knowledge producers and requiring significant work on the end user to access this knowledge. This simplistic approach is seen as the ‘traditional approach’ to the transferring of evidence. It presumes that the target audience will find the disseminated research and practice change will happen following dissemination of the evidence to the relevant target audience. However, we know that simple passive dissemination is not enough. Given the shortcomings of traditional passive dissemination methods, more recently there has been a move toward active dissemination. Active dissemination is largely a communicative function aimed at spreading knowledge/evidence on a large scale within and across geographic locations, practice settings and other networks of end users. As indicated in a systematic review commissioned by the Agency for Healthcare Research and Quality (AHRQ) Effective Healthcare Program multicomponent, blended communication style dissemination strategies are more effective at enhancing clinician behavior, particularly for guideline adherence.

Given the lack of success of traditional passive dissemination strategies, definitions for dissemination have expanded to ensure it is more active. Wilson et al. have recently defined dissemination as ‘a planned process that involves consideration of target audiences and the

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EBHC, evidence-based healthcare; JBI, Joanna Briggs Institute.

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settings in which research findings are to be received and, where appropriate, communicating and interacting with wider policy and health service audiences in ways that will facilitate research uptake in decision-making processes and practice. In their review, Wilson et al. found that most conceptual frameworks for disseminating evidence were informed either by the Persuasive Communication Matrix from McGuire or Rogers' Diffusion of Innovations theory. McGuire stressed the importance of five factors for persuasive communication: these are the consideration of the source, the message, the channel for the communication, the receiver characteristics and the destination or setting where the message is received. Wilson et al. conclude that the frameworks evaluated include the following important aspects to truly facilitate dissemination: they are more participatory, the importance of context is recognized, and successful dissemination requires interaction with the end user.

Passive dissemination is of course still important but we need to be aware of its limitations, and ideally dissemination would be both passive and active. There are many strategies (both active and passive) for disseminating evidence. Active dissemination includes active methods to spread information (email, social media), formats to encourage motivation/uptake (infographics, decision aids, icon arrays) and knowledge spreaders (champions, thought leaders), among others. Producers of research should consider both active and passive measures for disseminating the results of their research and consider the use of theory to inform their research dissemination.

Education

All evidence transfer strategies require an educational component. Education and evidence transfer are thus intertwined and explicitly linked with one another. Although dissemination, systems integrations and other aspects of the JBI Model (such as facilitation of change) inherently include some sort of educational process, in this component of the model we are specifically referring to formal and informal education delivery. This might include education regarding the evidence related to a particular intervention or practice; it could involve continuing professional development (CPD) or broader programs at award and non-award levels. Additionally, we know that the more active learning involved in any educational program, or the more a participant plays a part in their own education, the more effective the education will be in achieving an impact.

However, it is important to note that the provision of education alone will not necessarily result in behavior or practice change. Kirkpatrick’s model of learning evaluation outlines four levels for evaluating educational interventions, with the first level being reaction (views and feelings/thoughts regarding the training), learning (knowledge, skill and/or attitude changes), behavior (behavior changes in real world settings), and results (actual changes in outcomes). A similar framework has been developed for medical education, providing six levels ranging from Participation, Satisfaction, Learning, Competence, Performance, Patient Health, and Community Health. In both of these models, it may be more difficult to have an impact as you progress from the early levels. Systematic reviews on education for improving or changing practice commonly show small but potentially important effects on practice.

Systems integration

For evidence transfer to occur consistently and broadly across an organization, there needs to be mechanisms in place to ensure evidence is embedded and integrated within local systems. Without adequate integration of evidence there is a risk that transfer, and therefore uptake, will only occur in an ad hoc and haphazard fashion. Our conceptualization of systems integration is informed by the field of knowledge management, which has been defined as ‘the systematic process of collecting and curating knowledge and connecting people to it so they can act effectively’. Knowledge management is often classified into organizational knowledge management (with a focus on organizational structures), ecological knowledge management (focusing on people relationships), and technocentric knowledge management (focusing on technology and the process of designing technology to enable and facilitate the flow of knowledge and the storage of information).

Strategies that make evidence accessible mainly relate to the integration of evidence into systems. Ideally all health professionals would have easily accessible evidence via a clinical decision support system, where tailored, actionable recommendations are presented alongside patient characteristics. Where this is not possible, simple and quick access to summarized evidence via a point-of-care resource is the next best option. Across healthcare organizations there should exist a commitment to EBHC, and this commitment should be displayed through the embedding of evidence into organizational policy and procedures.

Discussion

Evidence transfer is a pivotal step of the EBHC cycle and enables policy makers, clinicians, patients, and other stakeholders to be aware of and understand research
findings. Evidence transfer relates to the process of transferring the recommendations of evidence synthesis products into the minds of users to assist in eventual implementation. There are many strategies that fall under the broad heading of evidence transfer, but at this stage there is no ‘silver bullet’. However, it is clear that ‘no one size fits all, with specific messages needing to be tailored to each audience’. Information provision or dissemination alone, or education alone, is not enough. Multiple strategies are preferred, preferably including the end users as part of a collaborative relationship. Context is incredibly important when transferring and disseminating evidence, with strategies differing based on the local context.

Although conceptually it can be argued that evidence transfer is a recent phenomenon, the history and importance of communicating evidence are much older, with perhaps the earliest pioneer of evidence transfer being Florence Nightingale in the 1800s. In addition to her widely known work on sanitation and hygiene, Florence was also a passionate statistician and critical thinker. Nightingale was aware of the importance of communicating knowledge in a format that policy makers could understand, and it is a little-known fact that Florence was one of the first to use pie charts and color coding to help convey data in a meaningful and easy to comprehend format. In addition to her work on formatting evidence to enable ease of comprehension, she was also an advocate of education for policy makers, civil servants and politicians, including running courses for these stakeholders on statistics and healthcare. Presenting evidence in a formatted and comprehensible manner and providing education are still two key factors of evidence transfer today. As Scott states, historically, ‘as healthcare professionals and researchers, we are good at creating content, but perhaps we could gain by making the information engaging, widely seen and sticky’. By considering these factors it may be that we can plan strategies to ensure that evidence is more likely to be transferred.

Achieving effective evidence transfer in our hyper connected, hyper paced culture and in the complex, inimitable healthcare context is challenging to say the least. To ensure any evidence transfer strategy we implement is worthwhile, there ideally needs to be an assessment of its impact. Such impact assessment frameworks can be informed by the models discussed previously. The theories that align to the approaches described above (active dissemination, systems integration and education) descend from the social sciences. The globalization phenomenon manifest in society today has resulted in the need to ensure that messages are sufficiently dynamic to reach different target audiences effectively. The increasing centrality of new technology in our day-to-day communications also seems to add equal parts complexity and simplification in the production and distribution of ‘knowledge’ as an artifact of the EBHC project. The challenge for organizations seeking to disseminate, or ‘transfer’, evidence/knowledge in the global community, is to find strategies that reach key stakeholders in meaningful ways. In doing so we must also be cognizant of the myth of global cultural homogeneity when we know that there are communities across the world still who do not engage with social media or even the Internet. Ultimately, mass communications of this order is a human endeavor and is arguably one of the most challenging activities that society faces when trying to achieve effective interactions across multiple cultural contexts where words and symbols can have a wide variety of meanings.

Conclusion

The successful transfer of evidence into the minds of stakeholders, clinicians, and patients is critical to the success of EBHC. Key components of evidence transfer are education, active dissemination and integration of evidence into systems. Evidence transfer strategies include approaches that aim to assist end users to become aware of the evidence, have access to the evidence and understand the evidence.

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