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The JBI Model of Evidence-based Healthcare: A model reconsidered



Overarching principles

Culture - Capacity - Communication - Collaboration

Background

According to Pearson, Jordan and Munn (2012) there are a number of models that attempt to represent the components of evidence-based healthcare “to facilitate understanding, analysis, improvement, and/or the replacement of the process as it is currently conceived, purported and practiced”.

The JBI Model of Evidence Based Healthcare (referred to hereafter as ‘the Model’) was first published in 2005 (Figure 1) and has become an important marker of the Institute’s unique and distinctive conceptualisation of evidence based healthcare and how it is operationalised. This developmental framework for evidence-based practice situated healthcare evidence, in its broadest sense, and its role and use within complex healthcare settings. It conceptualised evidence-based practice as “clinical decision-making that considers the best available evidence; the context in which the care is delivered; client preference; and the professional judgement of the health professional” (Pearson et al 2005, p209).



Figure 1: The JBI Model circa 2005

The Model further depicts four major components of evidence-based healthcare as being evidence generation, evidence synthesis, evidence transfer and evidence utilisation, with each modelled to incorporate their essential elements.

In 2011 Pearson, Weeks and Stern explored the relationship between the JBI Model and translation science, which incorporated an in depth analysis of each of the component parts of the Model. A further paper quickly followed this in 2012 that sought to clarify the relationship between evidence-based healthcare and translation science (Pearson, Jordan and Munn 2012). The paper asserts that three translational gaps (identified as the gap between knowledge need and discovery; discovery and clinical application; and clinical application and policy and practice) could be complimented by elements of the JBI Model and help to model the relationship between the translation science cycle and the pragmatic evidence-based healthcare cycle. It concluded that integration of translational gaps with a model of evidence-based healthcare clarifies and re-conceptualises



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the complexity of improving health outcomes through translating knowledge into action.

Justification for change

The JBI Model is now a decade old and it is interesting to note that the discursive statements utilised within it (and the structures and colour frameworks) went on to become the scaffolding for other organisational documents and discourse that followed (Jordan, 2011). Indeed the work programs of the Institute and the Joanna Briggs Collaboration and JBI tools and resources all utilise the language of the Model and the colour themes associated with each wedge. It has permeated and influenced the presentation of every aspect of the organisation.

In the years since its inception there have been significant shifts in both the internal and external discourse around evidence-based healthcare and the terminology associated with it. Even in its infancy, there were internal 'disconnects' between the language used to describe the model and the language used to describe the activity of JBI and its international collaboration.

As such it was considered timely to relook at the model and its component parts to see whether they remain relevant and a true and accurate reflection of where the movement is today in 2015. It is an opportunity to better align the construction of the organisational discourse, the vision and mission with the Model and vice versa.

Structure and design notes

It is important to acknowledge the corporate investment in this Model. Having been in circulation for ten years, the Model is now broadly associated with JBI and thus the intent is not to dilute that, but rather to enhance and strengthen it. Understanding that the Model has become a fundamental framework for how JBI and the JBC is organised some minor structural and design alterations have been made, but with the integrity of the original in mind at all times.

Colour theory is complex, however, in their most basic format they provide a logical structure for colour. This reconceptualisation was utilised as an opportunity to create colour harmony within the structure of the Model and colours now follow the colours of the visible spectrum in the correct sequence. From a design perspective, additional colours (or blurring colours) would only create an imbalance in the visual experience and confuse the concept rather than simplify the information being delivered. Additionally, the outer sections (3 for each wedge) are a paler version of the internal wedge colour so that they act to support the importance of the inner wedges.

The inner circle (pebble of knowledge) has remained largely untouched from a design perspective and the colour has been maintained in line with the pebble that sits within the JBI logo. The "inner wedges" provide the Institute's *conceptualisation* of the steps involved in the process of achieving an evidence-based approach to clinical decision-making while the "outer wedges" *operationalise* the component parts of the model and articulate how they might be actioned in a pragmatic way.

With respect to the design elements of the Model some subtle modifications have also been made. Red is used for the central “pebble” circle and therefore the wedge that is now called evidence implementation has been changed from red to orange so as not to imply a stronger relationship between these two elements than the others.

The flow, indicated by the arrows, has the large arrow flowing clockwise; the smaller arrows for the “feedback cycle” are slightly smaller. It was important to acknowledge that this is not a clean, linear process and that it may, at times, be bi-directional. The rationale for this decision was to ensure that there was directional clarity. Making the arrows the same size would imply there was some confusion regarding the preferred direction (Figure 2).



Figure 2: The new JBI model

The “Pebble of Knowledge”

The central component of the JBI Model (the “pebble” – aka the “pebble of knowledge” as per the JBI logo) is designed to focus the Institute’s conceptualisation of evidence-based healthcare. In the original model evidence-based practice is a process whereby clinical decision-making “considers the best available evidence; the context in which the care is delivered; client preference; and the professional judgement of the health professional” (Pearson et al 2005, p209).



Pearson and colleagues (2005) define evidence as “the basis of belief; the substantiation or confirmation that is needed in order to believe that something is true” (p210). For health professionals to be able to establish the utility of a broad range of interventions and procedures a broad conceptualisation of evidence is required. While evidence of effectiveness is acknowledged as being of value, other types of evidence are considered equally important as they are designed to answer different clinical questions.

This unique articulation of what constitutes evidence and its ability to inform practice was a first in the field at the time of the original publication in 2005. The FAME scale and this broad conceptualisation of evidence is frequently cited and clearly resonates with those seeking to conduct research that is relevant to point of care decision making.

The centre of the Model demonstrates that, encompassing:

- **Feasibility** (the extent to which an activity or intervention is practical or viable in a particular context or situation)
- **Appropriateness** (the extent to which an intervention or activity fits with a particular context or situation)
- **Meaningfulness** (the extent to which an intervention or activity is positively experienced by an individual or group)
- **Effectiveness** (the extent to which an intervention achieves the intended result or outcome)

Given the significant impact that this conceptualisation has on every other component of the Model it has been moved to the centre pebble. The FAME scale is not only a reflection of the different types of research that are undertaken by health researchers but it also drives the conduct of different types of reviews, the generation of derivative products and resources and their implementation in practice.

When making clinical decisions, health professionals are concerned with whether their approach is Feasible, Appropriate, Meaningful and Effective. We therefore define evidence-based healthcare as clinical decision-making that considers the feasibility, appropriateness, meaningfulness and effectiveness of healthcare practices. The feasibility, appropriateness, meaningfulness and effectiveness of healthcare practices may be 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.

Global Health

As the original model paper states: “the achievement of improved global health is conceptualised as both the goal and endpoint of any or all of the model components and the *raison d’être* and driver of evidence-based healthcare” (Pearson et al 2005, p209). This assumption remains an important element of our conceptualisation of evidence-based practice and hence this wedge of the Model has been moved to the top/centre of the model.



Sustainable Impact

Often evidence implementation activities succeed in making a change to healthcare practices. Unfortunately, due to resourcing issues and the ever-changing nature of health services these changes may only be temporary. To truly address and improve healthcare, any positive improvements need to be lasting. Sustainable impact can only be achieved where there is collective conceptual clarity around the motivation and perceived benefits of an evidence-based approach to healthcare decision-making and the strategies for operationalising it. It is likely that sustainability thresholds will be reached given the changeable nature of the healthcare environment. However, it is our belief that, if research questions are derived from the knowledge needs of the community and a collaborative approach that accounts for local application is utilised then sustained impact is a far more likely outcome.

Engagement

To successfully address the significant issues we face in delivering evidence-based healthcare, engagement and collaboration is essential across all involved stakeholders and groups. This ranges from local collaborations between health services and academia, clinicians and patients, to international collaboration between governments, research units, and health organisations. The Institute has, since its inception, forged local and global partnerships to ensure that activities were “context driven by individuals and groups who understood their very specific healthcare environments and the forces that would work both for and against them” (Pearson in Jordan, Donnelly and Pittman, 2006).

Knowledge need

“Gathering knowledge of what people need, what resources are available, and what limits constrain their choices” is vital to an evidence-based approach to the delivery of healthcare (Jordan and Pearson, 2013). JBI has long asserted the need for evidence-based healthcare to address the knowledge requirements of the community (that is, clinicians, patients/consumers, governments and other organisations). It is these explicit questions or concerns that are also encompassed in this wedge of the Model. Indeed, a significant gap associated with the translation of research into action has been the gap from knowledge need to discovery. As Pearson, Jordan and Munn (2011) suggest, “within this gap there can be an integrated approach to topic selection, where there is active collaboration between those conducting research and the end users of research.”

Evidence generation

It is important to note that the generation of new knowledge may occur through either primary or secondary research. Systematic reviews are equally important as primary research in this area and can also identify important gaps in what is known about a particular field, intervention or practice (hence the importance of the two way arrows). With that in mind, it is essential to acknowledge that knowledge is not only about effectiveness.

The evidence generation wedge of the Model identifies, as in the original, discourse (or narrative), experience and research as legitimate means of knowledge generation. What has been removed from the wedge is the FAME



scale, given its relevance across the entire Model and the shift to having it central to the conceptualisation of evidence-based healthcare.

Research

It is broadly accepted now that evidence can take many forms and, in the real world of practice and policy making, decision makers are influenced by a variety of understandings and sources of evidence that flow over the situation: habits and tradition, experience, expertise, reasoning, trial and error and research and many others (Pearson, Weeks and Stern, 2011). Of course, in the first instance, “the results of well-designed research studies grounded in any methodological position are seen to be more credible as evidence than anecdotes or personal opinion” (Pearson et al 2005). However, research does not always exist for every intervention, practice or procedure. In these instances clinicians are still required to make choices about the care provided and so must look elsewhere for evidence/knowledge to inform their decision-making.

Discourse

Discourse can be defined as a written communication or debate based on personal anecdote or experience. The term is conceptually broad and has wide applicability across all settings. Alvesson and Kärreman (2000) conceptualise two types of discourse, namely ‘little d’ and ‘big D’ discourse. ‘little d’ discourse refers to talk and text in local social interaction and ‘big D’ discourse (or Discourse) refers to culturally “standardized ways of referring to/constituting a certain type of phenomenon” (p. 1134). This is as opposed to “communication, which is defined as the means by which messages are imparted, transmitted or conveyed (Jordan 2011). Within the context of evidence-based healthcare and the JBI Model, discourse is viewed as incorporating *both* big D and little d discourse and as “operating or taking effect through communicative functions – communications activities or tactics are the symbolic interactions through which discourses are revealed” (Jordan 2011).

Experience

Drawing on the conceptualisations in the healthcare wedge and the component that relates to knowledge need, JBI positions experience (and expertise) as able to inform both primary research; secondary analysis in the form of systematic reviews (and the role of expert advisory panels); and implementation programs. Thus experience and expertise is acknowledged as a vital form of evidence within this framework. This also incorporates patient preferences and/or values.

The process of identifying what type of evidence is *required* to answer a particular question and what type of evidence is *available* (research, experience or discourse) are fundamental to the movement of evidence into practice. While the gold standard is still recognised by many as being the randomised controlled trial, the importance and significance of other sources of evidence continues to gather growing respect, particularly among direct care providers. Due weight must, of course, continue to be afforded to research evidence, clinical wisdom and patient preferences and values.



Evidence synthesis

The original Model defined evidence synthesis as “the evaluation or analysis of research evidence and opinion on a specific topic to aid in decision making in healthcare” and was conceptualised as having three main components (theory, methodology and systematic review of evidence). In this current reconceptualisation, although the definition of evidence synthesis remains true and accurate, we would argue that a significant component of synthesis (i.e. ‘collation’) is missing. We also propose that a more meaningful representation of the three main pragmatic components of the wedge for JBI is in fact systematic reviews, evidence summaries and clinical guidelines.

Systematic Reviews

The core of evidence synthesis efforts remains the systematic review, which is in and of itself a form of research (secondary research). Systematic review methodology is rapidly evolving with the types of reviews being conducted ranging from traditional reviews of effects to reviews of qualitative research, economic and cost effectiveness research, prognosis, diagnosis, umbrella, scoping just to name a few. The scope for reviews is immense, making their applicability and relevance to practice even stronger.

Evidence Summaries

However, smaller scale evidence summaries or rapid reviews have also emerged as a streamlined approach to synthesising evidence in a timely manner. While systematic reviews are still considered the gold standard in knowledge synthesis they are not without their limitations. As Khangura (2012) and colleagues identify, systematic reviews typically take anywhere between 6 months and 2 years to complete and often focus on a narrow clinical question. They suggest that evidence summaries offer something new and potentially valuable to the syntheses repertoire in a way that better addresses the needs of policy makers, decision makers, stakeholders and other knowledge users.

Clinical Guidelines

Clinical guidelines are sources of summarised information on specific practices related to patient care to guide health professionals in their clinical decision-making. They may, or may not, be based on the results of a systematic review of the international evidence. The shift of clinical guidelines from transfer, as in the original Model, to synthesis, has been made due to the passive nature of these publications. We acknowledge, however, they might be considered ‘borderline’ synthesis/transfer as such have ensured they are positioned directly next to the transfer wedge.

Evidence transfer

Evidence transfer is defined as “the act of transferring knowledge to individual health professionals, health facilities and health systems globally by means of journals, other publications, electronic media, education and training and decision support systems” (Pearson et al 2005, p213). However, we take the position that the production of additional ‘derivative products’ from systematic reviews remains a largely passive activity and as such would seek to redefine the term transfer to mean a coactive, participatory process to advance access to and



uptake of evidence in local contexts. In adjusting this definition we intend to reframe transfer as a potential causal phenomenon (i.e. a factor that *enables, facilitates and supports* evidence implementation). In this way, it moves transfer beyond a single interaction to one that extends beyond that of a “publication”.

In the original model the component parts included systems, information and education. In this iteration we propose that evidence transfer incorporates active dissemination, education and clinical integration. Pearson, Weeks and Stern (2011) articulate the fundamental components of this process as being:

- Development of understandable and actionable messages;
- Accommodation of the context of the target audiences information needs; and
- Delivery of messages in cost effective ways (including information technology, print material, meetings, workshops and training programs).

Active Dissemination

Fundamental to the process of evidence-based decision-making is the ability of those at the point of care to access synthesised research evidence. Active dissemination (rather than passive) is therefore an important component part of this wedge of the JBI Model. This 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 (RTI International, 2013). As indicated in a systematic review commissioned by the Agency for Healthcare Research and Quality (AHRQ) Effective Healthcare Program (RTI International 2013) multicomponent, blended communication style dissemination strategies are more effective at enhancing clinician behaviour, particularly for guideline adherence. Active dissemination involves active methods to spread information (such as email and social media), formats to encourage motivation/uptake (such as infographics, decision aids or icon arrays), and knowledge spreaders (such as champions or thought leaders). Passive dissemination is of course still important, but this model highlights the importance of active methods of dissemination in evidence-based healthcare.

Education Programs

Equally, educational programs have been identified as consistently effective strategies for evidence transfer. This might include education regarding the evidence related to a particular intervention, it could involve continuing professional development (CPD) or broader programs at award and non-award levels that take participants through the rationale for evidence-based approaches to clinical decision-making, methods for evidence synthesis or pragmatic strategies for implementation.

Systems Integration

Systems integration might involve the inclusion of an evidence base in clinical decision support systems, but it may also involve the embedding of evidence in broader systems, policies and procedures.



Evidence implementation

The first and most obvious change to this component of the model is the change from *utilisation* to *implementation*. While scholars in the disciplines of public and community health and social science have for some years studied behavioural change with respect to the implementation of evidence, it remains a relatively young area of scientific investigation. The phrases implementation and utilisation have both been commonly referred to in the extant literature, however implementation seemingly better reflects this activity within the context of the JBI Model. Evidence implementation in the context of the JBI Model is defined as a purposeful and enabling set of activities designed to engage key stakeholders with research evidence to inform decision-making and generate sustained improvement in the quality of healthcare delivery.

Within this wedge the original Model incorporated the components of embedding system organisational change, practice change and the evaluation of impact on system/process/outcome. We propose that a more appropriate reflection of the components of evidence implementation includes a situational analysis, the facilitation of practice change and evaluation of process and outcome.

The Centre for Reviews and Dissemination (CRD) posit that evidence indicates a need for the following steps to be pursued in programs designed to implement evidence (NHS CRD, 1999):

- A 'diagnostic analysis' to identify factors likely to influence the proposed change. Choice of dissemination and implementation interventions should be guided by the diagnostic analysis and informed by knowledge of relevant research (**context analysis**)
- Multi-faceted interventions targeting different barriers to change are more likely to be effective than single interventions (**facilitation of practice change**)
- Any systematic approach to changing professional practice should include plans to monitor and evaluate, and to maintain and reinforce any change (**evaluation of process and outcome**)

While we accept the above summation, the evidence relating to multifaceted interventions is not conclusive. Hence, we would argue that local champions, opinions leaders or clinicians who facilitate practice change (whether through audit and feedback or other programs) are essential for successful implementation of evidence.

Approximately nine models for evidence implementation dominate the healthcare literature and the success of these models is dependent on how well they account for the complex, multi-dimensional nature of the healthcare environment – systems thinking. Discovering better ways to ensure patients receive the care they need is not easy and poses formidable methodological challenges. The overlap with the quality improvement field and its parent field of complexity theory are considerable.

Drawing on existing models and theories about change management and knowledge translation, the evidence implementation wedge of the JBI Model



seeks to ensure that this process is one that is cognisant of local culture and context, that builds capacity and supports and reinforces existing infrastructure in a sustainable fashion.

Overarching principles: culture, capacity, collaboration and communication

The complex and inimitable healthcare environment means that there is no single, linear approach that will work every time to move evidence into policy and practice. Indeed evidence will not always be feasible, appropriate, meaningful or effective in a given context. As such, we propose that the overarching principles of this process are culture, capacity, collaboration and communication. In this way, issues relating to stakeholder engagement, the localisation of knowledge, responsiveness to local knowledge requirements and sustainability are acknowledged.

Invariably, discourse and communication are fundamental to the translational agenda. However, communication is something that Manojlovich and colleagues (2015) see as being only *implied* in the JBI Model, rather than being explicit. Given the recognition that evidence translation (on the whole) is a largely discursive activity that takes place within a global context, a transparent and flexible approach is advocated that utilises a broad array of communicative activities to promote collective understanding, identity and mutually beneficial goals and objectives.

It is important that this Model is not seen to be reductive in character or to ignore, in any way, the importance of social, cultural and historical organisational and individual influences on clinical decision making. There must be understanding of the 'sameness' and uniqueness' of the actors participating in the process of moving evidence into policy and practice and the need, to a certain extent, to openly acknowledge it as an on-going, organic, evolutionary process that requires constructive, coactive partnership across sectors, groups and individuals.

Conclusion

The Model has been an important part of the Institute's development, both from a scientific and organisational perspective. It has provided a framework for the Institute's academic endeavours as much as an organisational construct for operations at both a local and international level. Given the changing international discourse relating to evidence and its translation into policy and practice over the course of the last decade it was opportune to revisit the Model and assess its ongoing applicability in its current form. Some changes/alterations have been made for consideration in the hope that it repositions the Institute theoretically and pragmatically.



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How to cite: Jordan Z, Lockwood C, Aromataris E, Munn Z. The updated JBI model for evidence-based healthcare. The Joanna Briggs Institute. 2016

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