CHAPTER FIFTEEN

Best Practices in Translation: Challenges and Barriers in Translation

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We Know That There Are Many Challenges and barriers in the translation of evidence, evidenced by the lag time in adoption and the general lack of translation of evidence in health care. According to McGlynn et al. (2003), only one half of evidence reaches widespread use. This has been documented across health care fields, countries, and settings (Harding, Porter, Horne-Thompson, Donley, & Taylor, 2014; Williams, Perillo, & Brown, 2015), including nursing (Omer, 2012; Yadav & Fealy, 2011), occupational therapy (Lyons, Brown, Tseng, Casey, & McDonald, 2011), and medicine (Sadeghi-Bazargani, Sadegh, & Azami-Aghdash, 2014).

To translate evidence into practice, a cascade framework can be used—an adaptation of a knowledge translation cascade by the World Health Organization (WHO; Tugwell, Robinson, Grimshaw, & Santesso, 2006). The first is the identification of barriers and facilitators; the second is the prioritization of the barriers; the third is choosing a model for translation to address key barriers; the fourth is using that model and developing appropriate interventions to address the barriers; the fifth is the evaluation of the translation; and the sixth is the dissemination of the translation. This chapter addresses steps one through four because the other, final two steps are covered in later chapters.

IDENTIFICATION OF BARRIERS RELATED TO EVIDENCE TRANSLATION

The identification of barriers and facilitators is suggested to be completed a priori any translation project. Both challenges and barriers can be broken down via the process described by Funk, Champagne, Wiese, and Tornquist (1991a) and Funk, Tornquist, and Champagne (1995) as barriers to research utilization. However, one can argue that these are the same categories of barriers when exploring those related to evidence translation. These include the characteristics of the *adopter*, the characteristics of the *organization or* *institution*, the characteristics of the *innovation*, and the characteristics of the *communication*. These categories were initially developed from a factor analysis of the BARRIERS scale, developed by Funk et al. (1991a) and Funk, Tornquist, and Champagne (1995). Characteristics of the adopter are essentially the characteristics of the individual who will adopt the evidence, for example the nurse. This category takes into consideration the nurse's knowledge, skills, values, and awareness of the evidence, as well as the nurse's willingness to change or try new ideas. The second category is the characteristics of the organization, which addresses the organization's role in the translation process, as well as the setting. This includes authority to make changes, administrative support for implementation, facilities, and time for implementation. The third category, characteristics of the innovation, is the qualities of the evidence and prior research. This also includes the "innovation" to borrow from Rogers's (1983) work on diffusion of innovations, which is defined as the idea, practice, or object that is new to the potential adopter. The last category focuses on the characteristics of the communication (another category borrowed from Rogers's work). This includes the accessibility of the evidence and channels of communication.

Use of the BARRIERS Scale

A systematic review of the BARRIERS scale (Funk, Champagne, Wiese, & Tornquist, 1991b; Funk, Tornquist, & Champagne, 1995) explored the state of knowledge from use of the scale and to make recommendations about the future use of the scale. The authors included 63 studies, most of which were cross-sectional in design, but of weak to moderate quality. The scale was found to be reliable, as assessed by internal consistency. However, the validity of the scale to accurately capture barriers was lacking. One possible contributory factor is the fact that the scale was developed in the late 1980s to early 1990s, and the health care environment and the nursing profession have changed over the past 30 years. For example, patient participation in decision making has increased, and patients' preferences and opinions may present a barrier to research utilization. The initial scale did not contain any questions related to patients' opinions; however, Greene (1997) added this to the patients' scale and measured barriers toward pain management in oncology. In that study, the item "patients will not take medication or follow the recommendations" was ranked as the third highest barrier by nurses.

The main barriers reported from this systematic review (Funk et al., 1995) were related to the setting and the presentation of research findings. Overall, despite varying geographic locations, sample size, response rate, study setting, and assessment of study quality, identified barriers were consistent. Of the top 10 barriers, the items "there is insufficient time on the job to implement new ideas," "the nurse does not have time to read research," "the nurse does not have enough authority to change patient care procedures," "the statistical analyses are not understandable," together with "the relevant literature is not compiled in any place," were the most frequently reported. Six of the top 10 barriers belonged to the setting subscale. Few studies reported associations between reported research use and perceptions of barriers to research utilization.

More recent use of the BARRIERS scale has provided similar results. Lyons et al. (2011) explored perceived research knowledge, attitudes and practices and barriers among Australian pediatric occupational therapists. From the use of the BARRIERS scale, they found the most barriers on the communication subscale, and then the organization subscale. Omer (2012) used the BARRIERS scale to explore barriers and facilitators of research utilization among nurses in Saudi Arabia, and found the highest perceived barriers were on the organization subscale, followed by the communication subscale.

Other Scales of Use

While Funk and colleagues' BARRIERS scale has been used to explore reasons why nurses do not use research (Funk et al., 1991a; Funk et al., 1995), there have been more recent studies looking at barriers and facilitators to use evidence-based practice (EBP). Leasure, Stirlen, and Thompson (2008) specifically wanted to identify the presence or absence of provider and organizational variables associated with the use of EBP among nurses. Using a researcher-developed instrument on perceived internal and external organizational processes related to implementation of EBP changes. Questionnaires were mailed to nurse executives who then gave the questionnaires to staff nurses. Results from 119 nurses revealed the following facilitators: reading journals that publish original research, journal club, nursing research committee, a facility research committee, and facility access to the Internet. Barriers found included lack of staff involvement in projects, no communication of projects that were completed, no knowledge on outcomes, and the fact that most job descriptions did not include a research component. Although there is a methodological flaw (bias) of sending the questionnaires first to nurse managers who distributed them to their staff, the findings are similar to those of Funk et al. (1991a, 1995).

Glasgow and Emmons (2007) cite four categories of barriers to translation, which include characteristics of (a) the intervention, (b) the target settings, (c) the research or re-evaluation design, and (d) the interactions among the first three categories (Exhibit 15.1).

The Promoting Action on Research Implementation in Health Services (PARIHS) framework was developed to represent essential determinants of successful implementation of research into clinical practice (Kitson, Harvey, & McCormack, 1998) and can be dually used to explore challenges and barriers in translation. The PARIHS framework posits three core elements that determine the success of research implementation:

1. Evidence—the strength and nature of the evidence as perceived by multiple stakeholders
2. Context—the quality of the context or environment in which the research is implemented
3. Facilitation—processes by which implementation is facilitated

Each of these three core elements, in turn, comprise multiple, distinct components (see Chapters 2 and 3 on frameworks for translation). Because of its focus on those three areas critical in translation, PARIHS can be used to determine, a priori, potential barriers to translation.

Meijers's Work on Contextual Factors

Exploring contextual factors and research utilization, Meijers et al. (2006) conducted a systematic review exploring the relationship between contextual factors and research

EXHIBIT 15.1

Barriers of Dissemination/Translation

1. Characteristics of the intervention
   a. High cost
   b. Intensive time demands
   c. High level of staff expertise required
   d. Difficult to learn or understand
   e. Not packaged or "manualized"
   f. Not developed considering user needs
   g. Not designed to be self-sustaining
   h. Highly specific to a particular setting
   i. Not modularized or customized
2. Situation of intended target settings
   a. Competing demands
   b. Program imposed from outside
   c. Financial/organizational stability
   d. Specific needs of clients and setting
   e. Limited resources
   f. Limited time
   g. Limited organizational support
   h. Prevailing practices working against innovation
   i. Perverse incentives or regulations
   j. Challenges implementing interventions with quality
3. Research design
   a. Not relevant or representative: sample of patients, sample of setting, and sample of clinicians
   b. Failure to evaluate cost
   c. Failure to evaluate reach
   d. Failure to evaluate setting adoption
   e. Failure to assess implementation
   f. Failure to evaluate maintenance
   g. Failure to evaluate sustainability
4. Interactions among three other barrier types
   a. Because of participation barriers, the program reach or participation is low
   b. Interventions are not flexible
   c. Intervention is not appropriate for the target population
   d. Staffing pattern does not match intervention needs
   e. Organization and intervention philosophies are not aligned
   f. Organization is unable to implement intervention adequately

Source: Glasgow and Emmons (2007).

utilization and mapped to the PARIHS model. In 10 papers, six contextual factors were identified as having a statistically significant relationship with research use, namely the role of the nurse, multifaceted access to resources, organizational climate, multifaceted support, time for research activities, and provision of education. The contextual factors could successfully be mapped to the dimensions of context in the PARIHS framework (context, culture, leadership), with the exception of evaluation. However, the authors found that few studies were found of sufficient quality because of methodological limitations, and the results in reviewed studies were mixed. They concluded that the strength of the relationship between the six contextual factors and research utilization by nurses is still largely unknown; however, findings do provide support of the PARIHS framework for better understanding the impact of context on research use.

Facilitators to Translation of Evidence

Although challenges and barriers are both individual and institutional, facilitators to translation of evidence largely depend on the organization or institution. Cummings, Estabrooks, Midodzi, Wallin, and Hayduk (2007) developed and tested a theoretical model of organizational influences on research use, based on the PARIHS framework, and assessed the influence of less positive to more positive contexts on research use. Findings of hospital characteristics that positively influenced research use by nurses were staff development, opportunity for nurse-to-nurse collaboration, and staffing and support services. Increased emotional exhaustion led to less-reported research use and higher rates of nurse- and patient-reported events. Nurses working in contexts with a more positive culture, leadership, and evaluation reported significantly more research use, staff development, and lower rates of patient and staff adverse events. The authors conclude that the findings highlight the combined importance of culture, leadership, and evaluation to increase research use and improve patient safety. Findings also strengthen the PARIHS framework and its use to guide research into practice and translation (Cummings et al., 2007).

Foxcroft and Cole (2004) conducted a Cochrane review to determine to what extent organizational infrastructures are effective in promoting the implementation of research evidence on the promotion of evidence-based nursing practice. The authors found no studies rigorous enough to be included, and obtained seven case studies. They concluded that conceptual models on organizational processes to promote EBP need to be better evaluated, and suggested time series designs to further explore this topic. Clearly, although organizational infrastructure is important, there are no clear guidelines on its implementation in terms of the promotion of EBP.

Newhouse et al. (2007) explored ways in which institutions could build infrastructure to support EBP. These include leadership, establishing a structure for building and sustaining EBP such as shared governance committees, developing an EBP skill set with the availability of EBP experts and mentors, developing material resources, setting expectations (revising job descriptions), collaborating with a school of nursing, and continuing to revise and update tools.

Mohide and Coker (2005) also described their organizational interventions to increase the rate of research dissemination and uptake. They used an evidence-based nursing

(EBN) committee as an organizational strategy to shift the culture toward scholarship. Specific strategies and activities included organizational commitment to EBP, strategic positioning of the EBN committee within nursing's administrative structure, articulation of a mission, conceptualization of a model for EBN practice, learning on the job, selection and adoption of an evidence-based model for implementing change, and marketing for a change in culture toward clinical scholarship.

PRIORITIZATION OF BARRIERS

After identification of barriers and facilitators, one must prioritize the barriers. One way to prioritize has been proposed by Tugwell et al. (2006), by prioritizing across the six Ps: public/community, patient, press, practitioner, policy maker, and private sector (as discussed in Chapter 12). Barriers "must be prioritized as to whether they are modifiable, which are 'mission critical,' and how to address them" (Tugwell et al., 2006, p. 646). Tugwell et al. (2006, p. 646) go on to describe how to identify key barriers based on three criteria: modifiability, available interventions, and "bottleneck issues," but stating that barriers need to be prioritized based on local settings and relevant stakeholders. At an institutional level, this is where stakeholders can be asked to assist in prioritization, but realizing that each stakeholder may identify a different barrier.

Using a Model to Develop Interventions to Address the Barriers

Models for translation, such as the PARIHS framework, can be used not only to explore and assess challenges and barriers to translation, but can also be used to address the challenges and barriers found. This is the next step in the cascade framework for translation previously mentioned. For example, the category of context, which includes culture, leadership, and evaluation, is important in translation. Although culture can be assessed and described (see Chapter 14), evaluation (see Chapter 17) and assessment of leadership (see Chapter 6) are also important. Leadership can be used to address any barriers or challenges found in assessment. In addition to leadership, an organization's readiness to change is a key factor in addressing barriers to translation.

An Organizational Readiness to Change Assessment (ORCA) instrument, organized according to the core elements and subelements of the PARIHS framework, was developed (Helfrich, Li, Sharp, & Sales, 2009). The instrument comprises three major scales corresponding to the core elements of the PARIHS framework: (a) strength and extent of evidence for the clinical practice changes represented by the quality improvement (QI) program, assessed with four subscales; (b) quality of the organizational context for the QI program, assessed with six subscales; and (c) capacity for internal facilitation of the QI program, assessed with nine subscales. Each subscale comprised between three and six items, assessing a common dimension of the given scale. Although the authors found general support for the reliability and factor structure of the ORCA, there was poor reliability among measures of evidence, and factor analysis results for measures of general resources and clinical champion role did not conform to the PARIHS framework. Additional validation is needed, including criterion validation.

■ ADDRESSING BARRIERS IN INDIVIDUAL PRACTICE

The aforementioned strategies for assessing and acting on challenges and barriers to translation of evidence have primarily focused on organizations. From the perspective of an individual provider, one can use Pathman's pipeline (Pathman, Konrad, Freed, Freeman, & Koch, 1996; Diner et al., 2007; Glasziou & Haynes, 2005) to move evidence into action, and to assess and address potential challenges and barriers. This pipeline, linear in fashion, focuses on translation of knowledge and includes the following: clinician awareness, acceptance, applicability, ability, action, agreement, and then adherence to the evidence. Specifically, these are provider-oriented and patient-focused strategies to assist in translation of evidence into practice. Although the initial proposed pipeline was to address physician adherence to guidelines, Pathman et al. (1996) described four stages from evidence to action: the clinician needs to be aware, then agree, then adopt, and then adhere. Diner et al. (2007) later proposed a revised Pathman's pipeline, and an adaptation by Glasziou and Haynes (2005), to address the path to optimal patient outcomes, moving from evidence to practice. Diner and colleagues' adaptation includes the “leaks” along the pipeline. The leaks, the droplets of water, provide illustrative examples of information loss, misuse, or inapplicability at each level. The first five leaks deal with the physician and health care team, whereas the last two leaks are specific to the patient's environment. This model addresses how to “slow the leaks” and, thus, improve the flow of information from high-quality, clinically relevant evidence to the achievement of optimal patient outcomes. Unlike previous models, this is more individually than institutionally based.

Diner et al. (2007) also addressed barriers to change of practice, for the individual practitioner. These include self-motivation and incentives that reinforce old behavior, the environment (budget, liability, peer group influence), recommendations that contradict previously accepted standards of care, and competing nonprovider influences such as pharmaceutical marketing, hospital administration, concern over costs, and joint commission mandates. Removing barriers to translation for an individual practitioner may indeed prove more difficult than addressing those barriers from an institutional perspective. Individual concerns, values, and motivation may be more difficult to change; and strategies in the literature are scarce.

Kulier, Gee, and Khan (2008) described five steps to guide implementation of new research findings into practice, using the pipeline metaphor, adapted from Glasziou and Haynes (2005).

1. *Knowledge and awareness*—This step is for the clinician to be aware of new clinically useful and applicable evidence. They suggest institutional interventions such as journal club meetings and ward rounds.
2. *Acceptance and persuasion*—This step focuses on persuading the clinician about the potential benefit for the patient. One proposed intervention strategy is the use of key opinion leaders, and providing information from multiple sources.
3. *Decision making*—This step involves the choice about implementing research findings. The authors again suggest more institutional strategies such as the use of clinical directors or persons in a position of power to bring about change within the organization. This decision-making phase truly depends on the individual, and here is where values and motivation are important to bring about any change.

4. *Implementation*—This step focuses on all the variables needed to actually implement a change. Here, the authors suggest such interventions as the use of clinical protocols and clinical practice guidelines.
5. *Continuation*—This step focuses on maintenance of the change. This can occur through regular monitoring, audits, and ongoing feedback.

Although assessment of challenges and barriers in translation is acknowledged by many, it is the unforeseen challenges and barriers that occur during translation that may pose more of a challenge, and may be difficult to overcome. It is knowledge, through frameworks, that can assist the translation by identifying and addressing as many barriers in advance.

Another challenge in translation of evidence rests with the consumer. Carman and colleagues (2010, p. 2) explored how making health care decisions based on evidence of effectiveness could be translated into a language that consumers would understand and embrace, as part of the development of a "communication toolkit" to help consumers communicate more effectively about evidence-based health care. Using focus groups, interviews, and an online survey with health care consumers, the researchers found many beliefs, values, and knowledge to be at odds with what policy makers prescribe as evidence-based health care. Few consumers understood terms such as "medical evidence" or "quality guidelines," and many believed that more health care and newer care meant higher quality, better care. Thus, translation of evidence-based health care into understandable concepts and activities that support and motivate consumers must occur at the provider level, the institutional level, as well as with employers, health plans, and policy makers.

■ CONCLUSION

In summary, the translation of evidence is fraught with challenges and barriers, although the imperative is strong. The translation of knowledge has been promoted by the Institute of Medicine (IOM) and has been linked to health care quality. The translation of knowledge has been linked to the concept of a paradigm shift of Thomas Kuhn in that, science does not progress linearly, but periodically undergoes paradigm shifts. Now is the time for a paradigm shift. However, barriers still exist to the application of knowledge, specifically in the area of risk versus benefit, comfort with current practice versus outcomes, cost, rewards, lack of experience, values, contexts, and others. As individual practitioners, we need to acknowledge and address these challenges and barriers, and institutions must also promote translation and address both individual and institutional barriers.

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