INTRODUCTION

Maximizing Research Relevance to Enhance Knowledge Translation

Deborah Backus, PT, PhD, a Michael L. Jones, PhD b

From the aVirginia C. Crawford Research Institute, Shepherd Center, Atlanta, GA; and bVirginia C. Crawford Research Institute, Shepherd Center College of Architecture, Georgia Institute of Technology, Atlanta, GA.

Abstract

This supplement focuses on an important issue in rehabilitation medicine: how to maximize research relevance in order to enhance knowledge translation into clinical practice. Authors provide insights into issues and barriers impacting effective translation of evidence into practice and provide useful guidance for rehabilitation researchers and practitioners on how to structure lines of inquiry to enhance clinical relevance. While this supplement will provide meaningful information to rehabilitation researchers, the content will also be of interest to clinicians, consumers of rehabilitation services, and reviewers for journals featuring rehabilitation research.

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The chasm between academic research and practice has long been recognized across a broad spectrum of disciplines, including engineering, medicine, public health, and rehabilitation. Efforts to bridge this gap have included: (1) processing and packaging research evidence for easier consumption by practitioners (eg, systematic reviews); (2) training of practitioners to become better consumers of research evidence; and (3) promoting the dual role of scientist-practitioner (with only a modicum of success).

Knowledge translation pertains to the review, assessment, and use of scientific evidence in clinical practice. The ease of knowledge translation has much to do with whether practice-relevant questions are being asked and answered in a way that informs clinical practice. Research relevance relates to issues of external, social, and ecological validity. There is a growing consensus that these issues should receive as much attention from scientists as concern for internal validity.

This supplemental issue of the Archives will address the issue of how to maximize research relevance to enhance knowledge translation. Knowledge translation efforts may be differentiated from research dissemination and diffusion by an emphasis on the quality of research prior to dissemination and efforts to implement rigorous evidence into practice. 1 Moreover, knowledge translation requires a more active and coordinated process, involving “all steps between the creation of new knowledge and its application and use to yield beneficial outcomes for society.”2(p4) Because of this systems view, knowledge translation strategies may result in a more sustainable impact on practice.

There is a common misperception that if good research is available and well communicated, people will act on it. But most of our efforts to date, which have focused largely on research transfer, have had modest success. This has created a need to reexamine the evidence. Bowen and Graham3 summarize what is known about effective methods for promoting evidence-informed action, tracing the evolution from a linear focus on research transfer to complex strategies for user engagement. Using concrete examples, Bowen and Graham3 illustrate the strengths and limitations of various approaches and implications for rehabilitation medicine.

Chau et al4 address the unique issues facing rehabilitation engineering researchers and suggest strategies for facilitating interaction between partners. With these partners, rehabilitation engineering research endeavors to cocreate solutions to pressing clinical challenges for individuals with disabilities. In this approach, every partner is equally valued, recognizing that knowledge translation is a multidirectional and multimechanistic exchange of information. Real-life examples of this partnered paradigm are drawn from several active rehabilitation engineering research efforts.

Social validity has become an expectation in applied behavior analysis, and the acceptability and social importance of intervention research in rehabilitation has improved as a consequence.
Seekins and White\textsuperscript{5} make the point that efforts to improve the social validity of rehabilitation research will similarly facilitate knowledge translation and adoption into clinical practice. Their article discusses the dimensions of social validity, describes methods used to evaluate various aspects of social validity, and suggests strategies for applying these concepts and methods in intervention-focused rehabilitation research.

Ehde et al\textsuperscript{6} describe how use of a participatory action research (PAR) model can inform all stages of rehabilitation intervention research, help overcome some of the challenges common in such research, and enhance intervention research relevance and knowledge translation. Ehde\textsuperscript{6} provides useful recommendations for incorporating PAR into rehabilitation intervention research.

Facilitating clinician use of the evidence remains a challenge even when researchers have gone through the processes outlined in these articles. Sander et al\textsuperscript{7} review factors that impact the clinician’s use of evidence-based techniques in their rehabilitation practice. They provide examples of obstacles encountered when attempting to translate evidence-based techniques into practice in the areas of cognitive rehabilitation and physical therapy, and practical recommendations for researchers regarding how to conduct research and present findings in a way that will maximize their use in clinical practice.

One important way to assist clinicians in translating evidence into practice is to provide an environment that fosters this behavior. In the work of Jones et al\textsuperscript{8}, the authors present a framework and offer practical advice to nurture development of a research culture within a clinical setting. Information is presented on research education, infrastructure development, and helping clinicians develop a scientific mindset. Economical ways to facilitate a scientist-practitioner approach to clinical practice is described, as well as metrics to gauge the success of these efforts.

Finally, there are potentially several ethical issues when considering translating evidence into clinical practice. Banja and Eisen\textsuperscript{9} tackle this issue in their article. They discuss how certain institutional constructs involving patenting and intellectual property concerns, financial interests on the part of researchers and universities, and lack of oversight in the scientific community may result in ethical misdoings related to the efficacy of research findings for clinical use. They also explore the question of how much evidence is enough to translate research into clinical use, and how clinicians can make ethical decisions about the use of certain interventions and technology when evidence is lacking. From a patient-centered care perspective, Banja and Eisen\textsuperscript{9} examine moral judgments about research within the context of disability and illness, and specifically, how a patient’s values and preferences influence the nature and course of treatment.

People today have more options than ever for rehabilitation after trauma or disease. However, finding information to help make important choices about their care and knowing which sources to trust can be extremely difficult, and often unfufilling. Clinicians are also challenged, faced with making decisions about treatment for their patients based on evidence that may be incomplete, unsuitable for their particular patient, or may simply be lacking. Now, more than ever, it is imperative that research be relevant and guide clinicians and consumers in making informed treatment choices.

Consumers does not mean simply the patients and clinicians, but must also include the payers. Of growing importance, specifically in the United States, is the cost effectiveness of interventions and technologies that are being created or evaluated for clinical effectiveness. Communication between clinicians and researchers, particularly related to the development of new tools for clinics, is essential at the very earliest of stages of development. Not only are payers seeking to understand the cost implications of applying the evidence in practice, but so will the Food and Drug Administration, in their assessment of devices and drugs for rehabilitation. These issues are paramount to the success of clinical translation.

Communication between researchers and clinicians is critical not only to establish research relevance, but also to ensure dissemination of findings to clinicians and their consumers that are informative and meaningful. This supplement is intended to better prepare researchers and clinicians to assist in this mission, enhance rehabilitation research relevance, and improve accessibility of the best rehabilitation care one can afford. An increased awareness of these issues, and the suggestions provided, will hopefully lay the groundwork for training programs that include familiarizing researchers with translational research, including good laboratory, clinical, and manufacturing practices, as well as other compliance and regulatory requirements. Although many researchers may choose not to participate in translational efforts, being cognizant of the requirements for successful translation will drive research design at the earliest stages and maximize research relevance.

**Keywords**

Evidence-based practice; Rehabilitation

**Corresponding author**

Deborah Backus, PT, PhD, Shepherd Center, 2020 Peachtree Rd, NW, Atlanta, GA 30309. E-mail address: Deborah_backus@shepherd.org.

**References**


**List of abbreviations:**

PAR participatory action research