

### Knowledge Translation in Occupational Therapy, Physiotherapy, and Speech-and-Language Pathology

#### Introduction

Knowledge translation is a concept that has been defined as “the exchange, synthesis and ethically-sound application of knowledge within a complex system of relationships among researchers and users.”<sup>1</sup> Other terms that describe similar or related concepts include the interchange of the terms knowledge, research and evidence, combined with variations of translation, transfer, uptake, utilization, management and brokering.

Clinicians in all health disciplines are encouraged to practice evidence based practice, which is the integration of best research evidence with clinical expertise and patient values, and which relies on effective knowledge translation. Knowledge translation has become increasingly emphasized by health research granting agencies, health organizations and professional organizations.

The disciplines of rehabilitation therapy need a clear understanding of how to effectively transfer knowledge within and between our professions. Although information on effective modes of knowledge translation is available in many disciplines, research regarding effective modes of knowledge translation within occupational therapy (OT), physiotherapy (PT), and speech-and-language pathology (SLP) has been limited thus far. The aim of the review is to summarize relevant studies and attempt to determine what strategies are effective for translating knowledge with PTs, OTs, and SLPs. This information is particularly relevant to clinicians involved in educating others, such as

those working in a tertiary care or academic centre.

#### Methods

A literature review was completed using the following search terms and related terms: (“occupational therapy or physiotherapy or speech language pathology” AND [(“information or knowledge or research or evidence or innovation” AND “diffusion or dissemination or utilization or uptake or management or transfer or translation or broker”) OR “diffusion of innovation” OR “evidence based medicine” OR “evidence based practice” or “evidence based clinical practice”]. EMBASE, ERIC, Cochrane, OT Seeker, CINAHL, PsychStar, HealthStar, Campbell, and PEDRO databases were searched without limits for publication dates.

To be included in this review of the literature, studies had to be published in English and pertain to occupational therapy, physiotherapy, and/or speech-and-language pathology, involve a knowledge transfer intervention, and include an outcome measure. Outcomes had to include either a reported or observed change in clinical practice or demonstrate an improved health outcome for a client. Both quantitative and qualitative research studies were considered.

Search results were reviewed by 2 assessors. Studies were first excluded based on title review, followed by abstract review, and then full text review.

#### Results

After title review, 62 studies met the inclusion criteria for this literature

review. Of these, 41 met the inclusion criteria after the abstract review. After full-text review, it was determined that 9 studies met the criteria for this literature review on the effectiveness of knowledge transferring in OT, PT, and SLP. Results are summarized in Table 1 below. All 9 studies measured therapist or therapy student outcomes, while none measured patient outcomes. Most of the reviewed studies included more than one profession. Six studies included physiotherapists,<sup>2-7</sup> 4 studies included occupational therapists<sup>2,4,5,10</sup> and only 1 study included SLPs.<sup>4</sup> Two studies included PT students<sup>8,9</sup> and/or OT students.<sup>9</sup>

When considering the reviewed studies' results, it is important to take into account the studies' research methods. Eight of the 9 studies used quantitative methodology and were assigned a Centre for Evidence-Based Medicine Level of Evidence<sup>11</sup> (see Table 2). One of the studies was assigned an evidence level of 2,<sup>6</sup> six were assigned a level of 4,<sup>2,3,5,7-9</sup> and 1 was assigned a level of 5.<sup>4</sup> One study was not assigned an evidence level as it was qualitative in nature.<sup>10</sup> Seven of the 9 studies had clear positive results.<sup>2-7,10</sup> Of these, levels of evidence ranged from 2 to 5,<sup>2-7</sup> with one study being qualitative.<sup>10</sup> The 2 studies with mixed results had an evidence level of 4.<sup>8,9</sup>

Of the 9 studies pertaining to change in therapist<sup>3-7,10</sup> or student therapist<sup>2,8,9</sup> knowledge or practice, interventions included educational workshops, courses<sup>2,3,5,6,8,9</sup>, hands-on research training<sup>4</sup>, positive performance feedback<sup>7</sup>, or using action research to develop a research project.<sup>10</sup> Seven studies reported positive changes after intervention<sup>2-7,10</sup> and 2 studies reported mixed outcomes.<sup>8,9</sup>

Four of the studies with positive outcomes utilized educational workshops,<sup>2,5</sup> modules<sup>3</sup> and programs<sup>6</sup> for knowledge translation. Richardson and colleagues provided 2 critical appraisal workshops to therapists and found statistically significant differences in self-reported knowledge before and after the workshops.<sup>5</sup> Forrest offered workshops utilizing active teaching techniques to faculty members. Results indicated that all participants felt that they were well prepared to integrate evidence-based decision making into their courses and 93% of faculty members felt better prepared to use evidence-based decision making in their practice.<sup>2</sup> Myers utilized an educational module to prepare professionals to deliver care and counseling to patients with cancer and their families. Results indicated that participants improved their knowledge of cancer by 14%, their knowledge of counseling by 11%, and participants decreased their perceived job stress by 10%.<sup>3</sup> Stevenson investigated the use of an educational package to change therapists' attitudes towards evidence-based practice (EBP) through a cohort study with a control group.<sup>6</sup> Results indicated that the intervention group reported positive attitude changes towards the support given from management to provide EBP as well as an increased ability to undertake literature searching and critical appraisal. Interestingly the control group and the intervention group were both able to identify opinion leaders in subspecialty areas.

The other 3 studies with positive results utilized 3 very different modes of knowledge translation.<sup>4,7,10</sup> Pomeroy and colleagues offered hands-on research training to therapists to improve EBP. The authors found that

85% of participants reported improvements in their research skills and 69% reported that secondment enabled involvement in evidence-based activities; however, frustrations were reported regarding lack of resources and support in the work place.<sup>4</sup> Van de Mortel and colleagues utilized positive performance feedback to increase the frequency of hand washing in health care professionals.<sup>7</sup> Results indicated that hand washing performance increased with performance feedback in most disciplines although improvements were only maintained in the short-term in most disciplines. Lastly, Egan and colleagues used an online action research project to enhance the use of research findings among OTs working in similar practice areas.<sup>10</sup> Results indicated that only half of the participants completed the study. However, those who followed through indicated that involvement in the group lead to increased personal awareness, motivation, and confidence regarding the use of research evidence and knowledge to be used in practice.

The 2 studies with mixed results utilized courses to attempt to change student attitudes and practice habits.<sup>8,9</sup> Kaplan and colleagues attempted to improve student knowledge and attitudes regarding patients with AIDS through a half-day education seminar. The authors reported positive outcomes in changing student knowledge but did not change their attitudes and willingness to provide services to individuals with AIDS.<sup>9</sup> Connolly and colleagues were successful in using research courses to change short term attitudes and perceptions about research and its application to practice; as well as level of comfort, confidence, and personal habits regarding reading.

However, only limited changes were maintained at 1 year post-graduation, in this study.<sup>8</sup>

## Discussion

Overall study results indicate positive outcomes in response to knowledge translation intervention in therapy disciplines. However, due to the wide range of disciplines, interventions, and outcomes measured in each study, it is not possible to identify one or more effective techniques for knowledge translation in OT, PT, and SLP. In addition, the limited levels of evidence of the studies reviewed add to the inability to determine the most effective methods. Positive findings<sup>2-7,10</sup> and particularly those from one level 2 study<sup>6</sup> are, however, promising, and set the stage for future research.

Although it is not possible to determine which modes of knowledge transfer are most effective based on the reviewed literature, resources are available to help clinicians determine the best modes for developing knowledge transfer strategies within their practice. Both CanChild<sup>12</sup> and the Institute for Work and Health<sup>13</sup> have created documents to assist clinicians in developing knowledge transfer strategies, based on research from the Program and Policy Decision-Making research group.<sup>14</sup> Both suggest 5 questions or principles to consider including: (1) To whom is the message being delivered? (2) What message is to be transferred? (3) By whom should the message be delivered? (4) How should the message be delivered? (5) With what effect? i.e. identifying impact of the message, setting objectives, and evaluating the strategies used.<sup>12,13</sup> The authors of the CanChild document provide concepts and tips from the

literature as well as resources to assist clinicians in developing their knowledge transfer strategy.<sup>12</sup> In addition, the Institute of Work and Health document provides worksheets to guide clinicians through these 5 principles.<sup>13</sup>

The 5 principles included in the above mentioned documents emphasize the need for clinicians to evaluate the methods of knowledge transfer used in their practice. By measuring the effectiveness of educational methods used in every day practice, therapists will increase the amount of evidence available to support different modes of knowledge translation and will be better able to determine which modes are most effective.

### Conclusion

Research regarding effective modes of knowledge transfer within OT, PT, and SLP is limited, and the results of this evidence summary do not identify one or more effective techniques. Although positive outcomes from the reviewed studies are promising, further research is needed to identify how to best share knowledge within and between therapy disciplines. Until further evidence is available, OTs, PTs and SLPS should consider research results from other disciplines as well as utilize currently available resources to assist in the development of effective knowledge translation strategies.

*This evidence summary was written by Jen Sawrenko, B.Sc. OT, Tanja Mayson, M.Sc., B.Sc. PT, and Bonnie Baxter, M.Sc., SLP in May 2007.*

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