

# Knowledge Transfer within the Canadian Chiropractic Community. Part 1: Understanding Evidence-Practice Gaps

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### Overview

This two-part commentary aims to provide a basic understanding of knowledge translation (KT), how KT is currently integrated in the chiropractic community and our view of how to improve KT in our profession. Part 1 presents an overview of KT and discusses some of the common barriers to successful KT within the chiropractic profession. Part 2 will suggest strategies to mitigate these barriers and reduce the evidence-practice gap for both the profession at large and for practicing clinicians.

### Introduction

New knowledge is created at such a rapid pace that health care professionals find it difficult, if not impossible, to

keep up to date. In a single day alone, 75 clinical trials and 11 systematic reviews are published.<sup>1</sup> As a result, it is incredibly difficult to keep up to date with the literature in order to implement new knowledge that may optimize patient care, increase benefits, or reduce harm. In an effort to promote evidence-based practice, many researchers and funding agencies are now focusing on processes to deliver emerging evidence successfully to clinicians and other stakeholders; this process has been termed KT.

### What is KT?

KT is defined by the Canadian Institutes of Health Research (CIHR) as ‘a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically

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sound application of knowledge to improve the health of Canadians, provide more effective health services and products, and strengthen the health care system'.<sup>2</sup> In other words, it is the ongoing process of effectively translating current and up-to-date research into practice and policy.

### What KT is not...

A commonly held misconception is that the process of KT is a pipeline that transports information generated by academics to awaiting clinicians. Knowledge translation does not involve just two parties, or the simple exchange of information. In reality, KT (and knowledge exchange) is a roadmap of two-way streets that creates a system of interconnections between researchers and clinicians, patients, government, policy makers, regulators, payers, guideline developers, and other stakeholders. Through these interconnections, it is hoped that all involved will use shared knowledge to improve health care delivery in a measurable way (e.g. effectiveness, cost, access to care, etc.).<sup>3</sup> As such, creating structured two-way avenues for collaboration between chiropractic clinicians, scientists, policy-makers, and others is a vital element in the facilitation of effective and efficient KT in the chiropractic profession.

In contrast, activities such as technology integration, commercialization of a product, and continuing education (i.e. professional development) may not necessarily constitute KT if they do not engage the appropriate stakeholders and/or do not result in improved outcomes.<sup>3</sup>

### Why is KT important?

In 2000 and 2001, two landmark reports were published that clearly defined the importance of KT. Published by the Institute of Medicine (IOM), 'To Err is Human'<sup>4</sup> and 'Crossing the Quality Chasm',<sup>5</sup> drew attention to the gap between what clinicians know as opposed to what clinicians actually do. This gap was seen as an important cause of overuse, misuse, and underuse of health care services. In addition to defining the impacts arising from this gap, the second IOM report proposed a *reason* for the existing gap, namely that health care delivery has fallen well short in its ability to translate research into practice and policy, and to apply new technology safely and appropriately.<sup>5</sup>

A major implication arising from this observation is that patients don't always receive safe and effective health care and, if they do, it may not be delivered in a

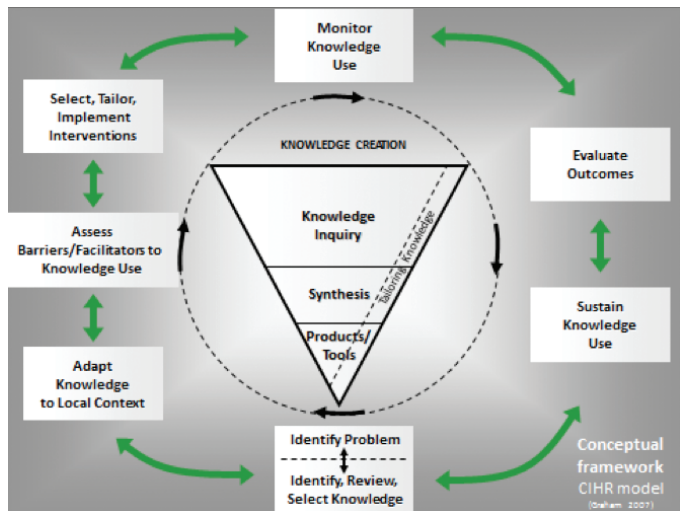


Figure 1. *The Knowledge-to-Action process developed by Graham et al. (2006). The funnel represents knowledge creation, and the cycle represents the application of knowledge (action).*

timely manner. As a result, many feel that much of society's investment to date in biomedical, clinical, and health research has had limited impact. To better understand the extent of how the evidence-practice gap contributes to adverse effects on population health, social welfare, and economic productivity, various global organizations are now cataloguing gaps in primary care, specialty care, and in-patient care provided by most health disciplines.<sup>6</sup> Studies in industrialized countries including North America, Australia, and Europe have identified that up to 30 to 40% of patients do not receive treatments of proven effectiveness, while approximately 25% receive care that is unnecessary or potentially more harmful.<sup>7,8</sup> While little is known regarding similar gaps for chiropractic care, there are no compelling reasons to suggest that the magnitude of these gaps are any different within the chiropractic profession. In fact, the management of back and neck pain is recognized as having poor adherence to, and wide variations in, established best practices.<sup>9-13</sup>

### Understanding KT

The CIHR Knowledge-to-Action model<sup>14</sup> helps conceptualize ways in which evidence-practice gaps can be addressed toward changing professional behavior with the ultimate outcome of improving health (Figure 1). Recom-

mended steps to identifying and addressing knowledge-practice gaps include problem identification, selection of best practices relevant to the problem, and assessing barriers to practice change. Together, these steps suggest strategies that can potentially narrow research-practice gaps (Part 2). In practice, the Knowledge-to-Action model identifies selected strategies which are then disseminated or implemented using various means; changes in practice and other trends can then be monitored. The impact of these strategies are then evaluated and additional strategies are implemented to help improved practices become sustained.<sup>14,15</sup> This process is not foolproof, and adapting the model to specific situations can be a difficult task before success is realized.

### The size of the evidence-practice gap in chiropractic

Narrowing the evidence-practice gap is an ongoing exercise for any health profession. While there are several approaches to reducing a profession's evidence-practice gap (Part 2), it is critical to assess the size of the gap to determine what strategies to use and whether current KT strategies are effective.

Several different approaches exist with respect to measuring the size of the gap in the chiropractic profession. While it is not our intent to provide an exhaustive list, some approaches are easier to appreciate than others. For example, one simple way of assessing the size of the evidence-practice gap in chiropractic is to ask yourself: "What has changed in practice since I graduated?" Alternatively, another simple approach is to contrast what is done in your practice to what recent clinical practice guidelines recommend.

No matter how the gap is measured, it would appear to be significant.

### Addressing our own evidence-practice gap

While the profession may not presently have an informed, planned, and measurable approach to reducing the evidence-practice gap, there are examples where our ability as a profession to generate new, meaningful knowledge and our willingness to incorporate it into our clinical practice has succeeded. For example, it can be argued that chiropractic clinicians' understanding of the relation between manipulation and adverse events is current and informed by research. Unfortunately, there are many other

examples where meaningful knowledge has been generated in our profession, but has not been adopted into practice. Specifically, the Neck Disability Index was created by chiropractic researchers Sil Mior and Howard Vernon in 1991. This simple tool has become the international standard for measuring neck function. Yet, a recent survey suggests that many chiropractors do not use this tool in daily practice.<sup>16</sup> Additionally, investigations related to the prediction of short-term and long-term outcomes in back pain patients receiving chiropractic care have shown that early improvement in the course of treatment appears to be a crucial factor,<sup>17-22</sup> and is a strong predictor of outcome at 3 and 12 months.<sup>23-25</sup> Despite this body of evidence, we suspect that many chiropractors do not use this criteria (i.e. lack of improvement within the first few treatments) as an indication that the patient may best be served through an alternative treatment strategy. As a result, there is an increased probability that a single patient may receive very different care, with different results, if they were to see a number of different chiropractors<sup>26</sup> (a phenomenon present in many other clinical disciplines). Understanding the reasons why practice variations exist and the barriers to optimizing care are extremely important in regard to effectively reducing practice gaps.

### Barriers to KT in the chiropractic community

A systematic approach to KT can help understand why a specific gap persists between what is known to be effective, what is done in chiropractic practice and how this gap might be reduced.

Several studies have itemized the primary barriers to implementing evidence in clinical practice in general. These include a lack of time and the lack of skills to navigate and appraise literature. While these are two important barriers, over 250 others have been identified with respect to specific KT activities involving physicians alone.<sup>27</sup> Quite often, these barriers are easy to appreciate if they are grouped into those affected by individual clinicians (e.g. lack of awareness, lack of familiarity, lack of agreement, lack of self-efficacy, lack of outcome expectancy, and inertia of previous practice), and those external to clinicians (e.g. patients, guidelines, and practice environment).<sup>28</sup>

While these general barriers are common in many health professions, there are additional barriers which (although not specific to the chiropractic profession) are certainly well-known characteristics of our profession.

On the supply side, there is limited research capacity to generate knowledge within the profession, with approximately 1% of the chiropractic profession conducting research in Canada.<sup>29</sup> While this figure is nearly twice as much among physician-scientists in the US, the numbers of full time MD researchers has remained rather stable in the past decade.<sup>30</sup>

Another barrier for our profession is the suggestion that when compared to other professions, the chiropractic profession places a lower value on scientific knowledge as compared to individual expertise.<sup>31,32</sup> Chiropractic is also characterized by a large percentage of clinicians practicing in solo practice, which can limit opportunities to interact with colleagues and other professions.<sup>33,34</sup>

Additionally, the profession tends to have a short history with decision support systems (e.g. clinical decision rules, guidelines, etc), and may trivialize their use. A limited number of chiropractic guidelines have been published since the Mercy Guideline in 1993,<sup>35</sup> and divergent recommendations among available guidelines may only serve to confuse clinicians.<sup>36</sup>

Finally, like most other professions, chiropractic has yet to develop coordinated efforts to address KT issues between researchers, practitioners, and stakeholders while ongoing debates, legislation, and internal evolution about the chiropractic profession's own identity<sup>37</sup> result in low coherence of beliefs and evidence-based practices.

## Summary

In this commentary, we described the process of KT and its importance in optimizing health care delivery through the effective and efficient integration of available and new knowledge into practice and policy. In addition, we highlighted several barriers to KT, including those that are common to most health care disciplines, and those that are of particular relevance to the chiropractic profession (e.g. limited research capacity, a greater emphasis on individual expertise than scientific knowledge). In Part 2, we will suggest strategies to narrow the evidence-practice gap in our profession, as well as some tools that may provide early success in this regard.

## Next issue:

### **Knowledge Transfer within the Canadian Chiropractic Community.**

### **Part 2: Narrowing Evidence-Practice Gaps.**

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