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## Knowledge Translation and the Governance of Health Research in Canada: A Critical Discourse Analysis

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Health and Rehabilitation Sciences

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**KNOWLEDGE TRANSLATION AND THE GOVERNANCE OF HEALTH  
RESEARCH IN CANADA:  
A CRITICAL DISCOURSE ANALYSIS**

(Thesis format: Monograph)

by

Kathleen S. Ellis

Graduate Program in Health & Rehabilitation Sciences

A thesis submitted in partial fulfillment  
of the degree requirements for the degree of  
Doctor of Philosophy

The School of Graduate and Postdoctoral Studies  
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London, Ontario, Canada

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## **Abstract**

Knowledge translation (KT) is a dominant discourse in the governance of health research in Canada, constructing new roles and responsibilities for researchers and decision makers. In this thesis, I critically examine the knowledge translation discourse of the Canadian Institutes of Health Research (CIHR), Canada's major health research funder. Informed by a governmentality perspective, I explore how the KT discourse operates to shape the directions of health research and the activities of health researchers in Canada using critical discourse analysis with a sample of publicly available CIHR documents.

My results show how this KT discourse is constructed through three powerful rationales: a “gap” between knowledge creation and its application in health and health care; financial and health care accountabilities for public investment in health research; and, the expectation of economic prosperity and an international competitive edge for Canada. Through these rationales, the use of health research becomes problematized and knowledge translation is constructed as an unquestioned solution.

KT is constructed as all-encompassing, and action-oriented, positioned to function in ways consistent with the three rationales in shaping health research and researchers in particular directions. Ideal health research is “innovative”, “world-class”, and demonstrates an economic return on taxpayers' investment. Health researchers are constructed as the workforce in a transformed “research enterprise”, expected to work outside of their areas of expertise through cross-sector collaborations, and to “tailor” and disseminate their research to meet knowledge “users” needs. Discursive strategies are used to increase researchers' capacities for KT activities, and ideally, to adopt KT-researcher oriented subjectivities. Finally, CIHR is constructed through the KT discourse as the Government of Canada's “health research investment agency”, a national manager of health research and researchers and international authority in knowledge translation.

These results illustrate how KT operates as a technology of governance, with potential effects in prioritizing particular health research agendas and privileging particular kinds of researcher orientations to their research programs within the context of neoliberal rationalities of government. The three rationales are considered in relation to discourses on evidence-based

medicine and new public management to critically reflect on the contemporary governance of health research and researchers in Canada.

Keywords: knowledge translation; governmentality; health research; Canada; Canadian Institutes of Health Research (CIHR); critical discourse analysis; research governance; evidence based medicine; new public management.

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# Table of Contents

Abstract.....	ii
Acknowledgements.....	iv
Table of Contents.....	v
List of Tables .....	ix
List of Figures.....	x
List of Appendices .....	xi
1 Knowledge Translation: The Descriptive Landscape.....	1
1.1 Introduction.....	1
1.2 Personal experience: the Canadian Task Force on Preventive Health Care .....	1
1.3 Knowledge Translation in Canada.....	5
1.4 KT and the Canadian Institutes of Health Research (CIHR).....	8
1.5 Thesis Outline .....	9
2 Review Of Literature .....	10
2.1 Introduction.....	10
2.2 Knowledge Translation: Growth of a field and science.....	10
2.2.1 Defining knowledge translation.....	11
2.2.2 Historical context.....	11
2.2.3 Knowledge producers, knowledge users, and linkage systems .....	13
2.2.4 Multiple gaps .....	14
2.2.5 Knowledge translation: beneficial, necessary and universal .....	15
2.3 Health Researchers and Knowledge Translation.....	15
2.3.1 New responsibilities.....	16
2.3.2 Characterizing pre-KT researchers .....	19
2.4 Critiques of knowledge translation .....	20
2.4.1 Tensions in working with KT processes and components.....	21
2.4.2 Questioning the neutrality of KT decision tools.....	22
2.4.3 Questioning the ‘unquestioned’ use of knowledge translation.....	22

2.4.4	Challenging a priori behaviour change goals of knowledge translation.....	24
2.4.5	A “new knowledge production regime” and construction of researcher roles .....	26
2.4.6	Promoting particular views of health through a KT research agenda.....	30
2.4.7	A neoliberal shaping of a research agenda .....	32
2.5	Setting the stage for the present research.....	33
3	A Governmentality Theoretical Perspective.....	36
3.1	Introduction.....	36
3.2	Governmentality: the “conduct of conduct” .....	37
3.2.1	Governing conduct.....	37
3.2.2	Mentalities: the rationalities of government .....	38
3.2.3	Technologies of government.....	39
3.2.4	Knowable and governable through discourse.....	40
3.2.5	Discourse as power/knowledge.....	41
3.2.6	Discourses, power relations and subjectivities .....	42
3.2.7	Conforming, circumventing and contesting: A regulated freedom .....	43
3.2.8	Limitations of a governmentality perspective.....	44
3.3	Governmentality and knowledge translation .....	45
4	A Critical Inquiry Methodology and Research Questions.....	48
4.1	Introduction.....	48
4.1.1	Critical inquiry paradigms: ontology, epistemology, and methodology.....	48
4.1.2	Discourses and texts.....	50
4.1.3	A critical inquiry into knowledge translation as discourse governing health research	
	51	
4.2	Research Questions.....	52
4.3	Analytic Frameworks for Critical Discourse Analysis .....	54
4.3.1	Parker’s (1992) framework for distinguishing discourses .....	56
4.3.2	Document selection.....	60
4.4	Analysis process.....	61
4.4.1	Descriptive phase .....	62
4.4.2	Discursive phase .....	63
4.4.3	Interpretive analysis .....	64

4.5	Quality, trustworthiness, and researcher values.....	64
5	Results.....	67
5.1	Introduction.....	67
5.2	A gap between creation of knowledge and its application .....	68
5.2.1	The gap as two problems .....	68
5.2.2	Accountabilities: improving health and the health care system while demonstrating returns on taxpayer investments.....	71
5.2.3	Boosting Canada’s economic prosperity and competitive edge in a global knowledge economy .....	75
5.2.4	Summary.....	77
5.3	Knowledge translation at CIHR: characteristics and processes.....	78
5.3.1	Knowledge translation as universal, all-encompassing, and action oriented.....	79
5.3.2	Constructing knowledge translation as a science and field of research.....	81
5.3.3	Summary.....	84
5.4	Creating “useful” knowledge from health research .....	84
5.4.1	Constructing health research that leads to economic action .....	85
5.4.2	Valuing health research within a context of economic accountability .....	86
5.4.3	Setting an agenda for “innovative”, “world-class” research.....	89
5.4.4	Metaphorically reducing the field of existing research.....	91
5.4.5	Transforming health research into a “scientific” ideal .....	94
5.4.6	Constructing accountability through communication of “actionable” knowledge ...	96
5.4.7	Summary .....	98
5.5	Shaping researchers in a new research culture .....	98
	Changing the culture of health researchers: accountability in a research ‘enterprise’ .....	99
5.5.1	Shaping researchers through cross-sector collaborations .....	101
5.5.2	Incorporating knowledge translation-ways of working .....	103
5.5.3	Constructing researchers as managers and research technicians .....	106
5.5.4	Building researchers’ capacities for expertise in knowledge translation.....	108
5.5.5	Summary .....	112
5.6	Constructing CIHR: linking knowledge translation and health research.....	113
5.6.1	CIHR as health research investment agency.....	114



5.6.2	CIHR as a knowledge translation agency .....	115
5.6.3	CIHR as governor and manager of health research and researchers .....	116
5.6.4	CIHR as international authority in knowledge translation .....	118
5.6.5	Summary .....	119
6	Discussion And Conclusions .....	120
6.1	Introduction.....	120
6.2	The discourse of knowledge translation at CIHR .....	121
6.3	The strategic use of the ‘gap’ to construct a space for action.....	124
6.4	New public management and knowledge translation rationales.....	126
6.5	Valuing health research and shaping researcher subjectivities.....	132
6.6	Contributions, limitations, strengths and future research .....	136
	References.....	141
	Appendix A: Parker’s (1992) Critical discourse analysis framework .....	155
	Appendix B: List of CIHR documents.....	157
	Appendix C: Example of analysis topics and texts.....	162
	Curriculum Vitae .....	166

## **List of Tables**

Table 1: Parker’s criteria for distinguishing discourses.....	57
Table 2: Initial document selection criteria .....	61
Table 3: Example of descriptive analysis information .....	62

## List of Figures

Figure 1: Knowledge to Action Process; CIHR (Canadian Institutes of Health Research). (2009b last modified May 8, 2009). *More about knowledge translation at CIHR*. Retrieved June 3, 2009, from <http://www.cihr-irsc.gc.ca/e/39033.html>..... 93

## **List of Appendices**

Appendix A: Parker's (1992) Critical discourse analysis framework .....	155
Appendix B: List of CIHR documents.....	157
Appendix C: Example of analysis topics and texts.....	162

## Chapter 1

### 1 Knowledge Translation: The Descriptive Landscape

#### 1.1 Introduction

Knowledge translation is a dominant discourse in the governance of health research in Canada, constructing new roles and responsibilities for researchers and decision makers. Major health research funders now require explanations of how research results will be applicable to decision makers (e.g., clinical, health policy) and/or the inclusion of decision makers as part of research teams (Bowen and Graham, 2013; Goering, Ross, Jacobson and Butterill, 2010; Tetroe, Graham, Foy et al., 2008). There has been little critical examination of the impact of knowledge translation on health research and researchers despite evidence suggesting challenges in balancing these new responsibilities with existing demands (Estabrooks, Norton, Birdsell, Newton, Adewale, and Thornley, 2008; Goering et al., 2010). In this thesis, I critically examine the knowledge translation discourse of the Canadian Institutes of Health Research (CIHR), Canada's major government funder of health research. Informed by a governmentality perspective, I explore how the discourse of knowledge translation operates to shape the directions of health research and the activities of health researchers in Canada using a critical discourse analysis of a sample of publicly available CIHR documents.

I begin this introduction with a reflection on a personal experience that provides context and an introduction to issues related to knowledge translation. This is followed by an introduction to knowledge translation in Canada and specifically at CIHR. I conclude the introduction by outlining the structure of the thesis.

#### 1.2 Personal experience: the Canadian Task Force on Preventive Health Care

I first became acquainted with the concepts of knowledge translation and the related concepts of research transfer and evidence-based decision-making in 2001-2002 through a research opportunity with the Canadian Task Force on Preventive Health Care (CTFPHC). I was asked to

explore the applicability and dissemination of CTFPHC systematic reviews and clinical practice guidelines for developers of health policy in the Ontario Ministry of Health and Long-Term Care (MOHLTC). This project had an additional goal of exploring the feasibility of a relationship between the CTFPHC and the MOHLTC that would support an ongoing, bi-directional exchange of information.

I conducted a review of literature on “effective linkage and exchange strategies” between researchers and government decision makers within a broad range of relevant activities such as policy development and decision-making, research utilization, and diffusion and dissemination of research information. Semi-structured interviews were conducted with senior and program area staff of the MOHLTC in order to explore processes of policy and program development and use of research and research products in these processes. Additional questions explored the Ministry’s relationships with research groups, and how a relationship between the Ministry and the CTFPHC might be initiated and maintained. The Linkage Approach Model (Orlandi, Landers, Weston and Haley, 1990) provided a framework for understanding activities of the MOHLTC as a research “user system” (e.g., decision-making, policy development, research acquisition and utilization) as separate from those of the CTFPHC as a research “resource system” (e.g., development of synthesized research-based information products, dissemination) and a “linkage system” (e.g., knowledge transfer agents, joint resource/user communication activities).

Results of both the literature review and the interviews highlighted the complexities and competing agendas of MOHLTC policy decision-making and the diverse types and sources of information that supported decision-making activities. At the time (2001-2002), preferred types of information included descriptions of evaluated population-based programs and interventions with concise, decision-oriented statements and cost-effectiveness data. Preferred sources included internal or ‘system-linked’ (ministry-funded) research units or other sources closely aligned with government (i.e., other government jurisdictions, government mandated researchers). When research evidence was inconclusive or unavailable, policy decisions were still made based on whatever evidence was available (e.g., best case scenarios).

What was clear in the project results and recommendations was that the CTFPHC would need to do considerable work to gain the credibility and recognition needed to make connections with the

MOHLTC, as well as bear the costs of necessary adaptations of their research products for policy audiences. This included becoming familiar with the various contexts of MOHLTC decision-making (e.g., political, legislative, fiscal) and aware of special issues and potential decisions appropriate for their primary health care-oriented research reviews and guidelines. Furthermore, the focus of much health policy making at the time was treatment-oriented with prevention and health promotion policy development spread across multiple departments and locations within the MOHLTC. Making and maintaining the necessary connections to ensure their preventive health care research ‘products’ were available to the right individuals at the right time was potentially very time and resource-intensive for the CTFPHC. In the end, the potential for a new health policy audience and recommendations for how to link with the new audience were not enough to aid in the continuation of the federal and provincial funding for the CTFPHC, which folded due to discontinuation of funding in 2005 (see <http://canadiantaskforce.ca/>).

My experience with the CTFPHC highlighted for me a number of issues and assumptions relevant to what is now commonly known as “knowledge translation” (KT), and helped direct the focus of my present research. First was the underlying assumption that research-derived knowledge was not getting to or being applied in clinical health care decision-making. This assumption was (and still is) a prominent part of the evidence-based medicine movement (EBM) that guided the mandate of the CTFPHC in providing graded guidance to primary care practitioners. There was also a parallel assumption that better utilization of research-derived evidence in government decision-making would enhance that process and lead to better policies (Black, 2001). The CTFPHC project bridged both of these assumptions and provided an introduction for me to both EBM and health policy development.

Second, the CTFPHC conducted systematic reviews that brought the results of individual research studies into a body of similar research, and developed graded summary statements and guidance for action (e.g., clinical practice guidelines, best practices statements). Their focus on clinical effectiveness resulted in the privileging of some types of research over others. For example, the processes of categorizing and grading research on clinical outcomes invariably privileged quantitative research methodologies, in particular large, randomized controlled clinical trials, over research with small samples sizes or based on qualitative research methodologies.

Third, my experience with the CTFPHC highlighted the complexity and contextual nature of information use, especially research-derived knowledge, in two different decision-making contexts with very different agendas (i.e., health policy, primary health care). While both primary care practitioners and health policy developers wanted brief, actionable summary statements based on results of the CTFPHC systematic reviews of research-derived knowledge, the content, format, and relative importance of the statements to the overall decision-making was very different. For example, primary care practitioners wanted statements based on population based research studies that would aid them in advising individual patients about specific health decisions, whereas the policy developers wanted statements that would guide them in making decisions about policies that would impact large numbers of people in a cost-effective manner.

Finally, the CTFPHC project emphasized three essential components of what is now known as knowledge translation: the producers of research-derived knowledge (the CTFPHC in this case); the expected users of such knowledge (e.g., MOHLTC policy-developers); and, the linkage activities that would facilitate the transfer, translation, exchange and utilization of the research-derived knowledge. Of particular interest to me, and what has led to the present research, were the responsibilities that the CTFPHC would have to assume to ensure their knowledge would be available to the policy developers in the MOHLTC. That is, it was seen as the responsibility of the CTFPHC to: become familiar with the policy-development context; identify, initiate and maintain ongoing relationships with MOHLTC personnel; and, rewrite the results of their systematic reviews into policy-relevant formats to present in person to the MOHLTC. Becoming a communicator of research-derived knowledge to policy decision makers would have been a new role for the CTFPHC, one requiring considerable resources and work beyond what was necessary to fulfill their original mandate.

The results of the CTFPHC project were in many ways prescient of changes that have continued to occur in the culture of health research since 2001. It has recently been suggested that the interest in knowledge translation, fueled in part by the EBM movement and adopted beyond clinical decision-making environments, is so significant that it represents a paradigm shift in how research-derived knowledge or scientific evidence is viewed and used (Hedges, 2007). With this shift come new roles and responsibilities for those involved in using research-derived knowledge as well as for those who produce it (Reimer-Kirkham, Varcoe, Browne, Lynam, Khan and



McDonald, 2009). And yet, in Canada, there has been surprisingly little critical research examining the impact of these paradigmatic changes on health research or for those who produce the health-related research-derived knowledge.

In the next sections of this chapter I provide a brief introduction to knowledge translation, in Canada and at the Canadian Institutes of Health Research. It should be noted that terminology associated with knowledge translation is very confusing. And, as the following literature review will demonstrate, even the term “knowledge” is not well defined within the context of knowledge translation (Greenhalgh and Wieringa, 2011). In this thesis, and unless otherwise specified, I will use the term “knowledge translation” or “KT”. Where necessary, I use the word “research” to refer to the endeavor of inquiry or the study of an issue. Beyond that, I do not pre-define the terms “knowledge” or “evidence” or other knowledge translation-related terms in this thesis. Examining how and when these terms are defined and used within the knowledge translation discourse of the Canadian Institutes of Health Research are part of the object of inquiry of the critical discourse analysis I present in Chapter 5.

### **1.3 Knowledge Translation in Canada**

The Canadian Task Force on Preventive Health Care (CTFPHC) project was a modest example of the interest in the application of research-derived knowledge in health care that grew through the 1990s in Canada. In many ways, developments in Canada have led the way in terms of the current prominence of knowledge translation internationally. For example, the evidence based medicine (EBM) “paradigm shift”, often interconnected with knowledge translation in the research literature, started at McMaster University in Hamilton Ontario in 1992 with the Evidence Based Medicine Working Group (Evidence Based Medicine Working Group, 1992). As well, the Canadian Health Services Research Foundation (CHSRF), an organization devoted entirely to bringing researchers and decision makers together “to create and apply knowledge to improve health services for Canadians”, started in 1997. The CHSRF (now the Canadian Foundation for Healthcare Improvement, <http://www.cfhi-fcass.ca/>), considered a main driver of knowledge translation in Canada, focused on health services organizations and health professions

(especially nursing) in funding research and research trainees, facilitating researcher-decision maker workshops, and providing a collection of toolkits, bulletins and reports supporting KT.

Motivation for knowledge translation policies in health care relates to concerns that the results of resource intensive clinical and health services research are taking too long to be applied or are not being “optimally” applied in clinical practice and health policy (Straus, Tetroe and Graham, 2009b), potentially resulting in harm to patients or even death (Eccles, Grimshaw, Walker, et al., 2005; Graham and Tetroe, 2007; Newton and Scott-Findlay, 2007). While much of the intervention efforts of knowledge translation focus on the linkage systems and decision makers, there is also considerable attention paid to the nature of evidence resulting from health research on which knowledge translation strategies are dependent (Baumbusch et al., 2008; Beaulieu, Proulx, Jobin, et al., 2008). As Guyatt, Cook and Haynes point out, successful integration of research into practice is dependent on the production of relevant evidence “through high quality research (...) requiring considerable investment by funding agencies all over the world” (2004, pp. 990-991). Thus the gap(s) between research-derived knowledge and health care practice (Newton and Scott-Findlay, 2007) combined with the related principles and practices of the evidence based medicine (EBM) movement have had “a profound influence on the setting of biomedical research priorities, the generation of public health and practice guidelines and the implementation of these guidelines in practice.” (Lipworth, Carter, and Kerridge, 2008, p. 426). This influence has become so important in the health care field that it prompted these authors to suggest that: “At present, all funders and publishers of biomedical research and all policymakers and practitioners of clinical and public health medicine are expected to understand and implement the principles of EBM” (p. 426).

While the influence of evidence based medicine on knowledge translation is strong (Bowen and Graham, 2013), particularly in health care, knowledge translation is viewed by some as an alternative to some of the shortcomings of EBM (Baumbusch et al., 2008). For example, the knowledge translation emphasis on interactions between researchers and knowledge users is viewed as offering a timely response to user-identified knowledge needs (Baumbusch et al., 2008; Lavis, 2006). Knowledge translation is considered to include a broader view of evidence (Bowen and Graham, 2013) that is less reliant on the evidence hierarchies of EBM. This is in part related to the inclusion of knowledge users in the research processes, resulting in complex

social interactions and allowing for a non-linear relationship between the evidence, the context and the processes of change (Baumbusch et al., 2008; Kitto, Sargeant, Reeves, and Silver, 2012). Despite this, the distinction in language between knowledge translation and evidence-based or –informed concepts are not always well defined in the health care literature. For example, the terms “evidence” and “research” are used extensively in descriptions of both knowledge translation and evidence-based or –informed strategies.

In 2000, the Canadian Institutes of Health Research (CIHR), the primary funder of health research in Canada, was created by an act of parliament from the earlier government health research funder, the Medical Research Council. CIHR was created with an explicit mandate to excel: “in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian Health Care System” (Government of Canada, 2000). It is the CIHR definition of knowledge translation that is quoted in much of the research on KT, and in many documents produced internationally that promote KT (e.g., WHO, 2006). Also in 2000, the CHSRF and CIHR jointly created the Chair on Knowledge Translation and Innovation (KU-UC) with an objective to “further our scientific understanding of knowledge transfer and innovation in health services, to train and support students graduate degrees in this field, and to encourage and facilitate the transfer of knowledge in general.” (KU-UC is now the Quebec Population Health Research Network, <http://www.santepop.qc.ca/fr/index.html>).

These organizations and developments along with a variety of provincial, professional, non-profit and academic-based efforts (e.g., the University of Alberta based Knowledge Utilization Studies Program, KUSP; the KT program at the Institute for Work and Health) have contributed to a substantially changed landscape for health services organizations, decision makers, health research and researchers in Canada over the last 20 years. The International Review Panel that evaluated the CHSRF’s work in 2007 provided a summary of the then current environment for the Foundation’s continuing mandate. It also paints a picture of the context for knowledge translation in Canada today, with emphasis on: applied health research; the transfer of research-derived evidence into decision-making; and increased accountability for money spent on research.

The Foundation now operates in a vastly transformed landscape, with the Canadian Institutes of Health Research (CIHR) and more particularly the Institute of Health Services and Policy Research (IHSPR) well established, and now giving increased attention to knowledge transfer. Provincial organizations have taken aim at promoting health services research and evidence informed decision-making, and in some areas, like health technology assessment or occupational health and safety, there are strong organizations supporting applied research and knowledge transfer. The political environment has also changed and more pressure is put on the research world to be more accountable and inclusive in terms of value for money of its work (Dussault, Davis, Gruman & Thornton, 2007, p.5).

## **1.4 KT and the Canadian Institutes of Health Research (CIHR)**

The pressures of increased accountabilities have stimulated research funding agencies both in Canada and internationally to develop more explicit guidelines regarding health research agendas and responsibilities of researchers to conduct their research activities with the goals of policy-needs of and healthcare decision-makers (Graham, Tetroe and the KT Theories Research Group, 2007; Hanney and González Block, 2008; Newton and Scott-Findlay, 2007; Shaw, Petchey, Chapman and Abbott, 2009; Tetroe, Graham, Foy et al., 2008). This is a change from previous research funding agendas in which the focus “was almost exclusively on the creation of new knowledge, with little emphasis on the actual implementation in practice or policy” (Newton and Scott-Findlay, 2007, p. 2).

In Canada, CIHR has been a prominent government funder in promoting a knowledge translation agenda for health research ranging from basic, bench-based research to applied. As an official, yet independent agency of the Government of Canada (CIHR, 2013: <http://www.cihr-irsc.gc.ca/e/37792.html>), CIHR funds more than 14,100 researchers and trainees (e.g., graduate students) across a wide range of health research topics in a number of research venues (e.g., universities, teaching hospitals, research centers). CIHR coordinates its efforts across four research areas or pillars (biomedical, clinical, health systems and services, social cultural and environmental factors affecting population health) through thirteen institutes (e.g., Aging, Cancer research, Genetics, Population and Public health; CIHR, 2013). As described above, when CIHR was created in 2000, knowledge translation was included explicitly in its mandate, and CIHR is credited with proposing the term “knowledge translation” (Bowen and Graham 2013). Research

funded by CIHR comes with the expectation that researchers will engage in knowledge translation activities, “disseminate their findings and facilitate their translation into improved health, more effective products or services, and/or a strengthened healthcare system” (CIHR, 2008b, p. 4).

Beyond funding health research in Canada, CIHR also funds programs designed to increase capacity for engagement in knowledge translation in Canada, in the area of health research and in the “science” of knowledge translation itself (Straus, Brouwers, Johnson et al. 2011). The focus of this ongoing program, “Strategic Training Initiative in Health Research” (CIHR 2009a: <http://www.cihr-irsc.gc.ca/e/22174.html>), is to ensure the next generation of health researchers can meet “core competencies” in both the practice and the science of knowledge translation (Straus, Brouwers, Johnson et al. 2011). To this end, CIHR partners with a variety of research centers and organizations and provides stipends and other programs for trainees (e.g., graduate students).

## **1.5 Thesis Outline**

The rest of the thesis is presented in five chapters. In Chapter 2, I review literature examining how knowledge translation developed, and how it is defined. I also review literature that takes a critical perspective on knowledge translation and the assumptions on which it is based. In Chapter 3, I provide an overview of the theoretical perspectives that inform this thesis, in particular, the Foucauldian concepts of governmentality and discourse, including how they relate to knowledge translation. My research questions and the description of my critical discourse analysis methodology, including document selection are presented in Chapter 4. In Chapter 5, I present the results of my critical discourse analysis of selected CIHR documents, and in Chapter 6, I discuss these results in relation to the literature and provide my conclusions.

## Chapter 2

### 2 Review Of Literature

#### 2.1 Introduction

The academic literature pertaining to knowledge translation is large and varied. For this review, I focus on two different bodies of literature about knowledge translation. In the first two sections (2.2 and 2.3), I examine literature that describes knowledge translation, its historical context, and its characteristics. These generally take a positive stance, advocating for the incorporation of knowledge translation in health research and describing the expected new ways of working for health researchers as necessary and desirable. In the third section (2.4) I examine literature that takes a critical perspective on knowledge translation, challenging its assumptions, and perceived neutrality. These articles question the new roles expected of health researchers within knowledge translation, and challenge the rationales governing health research agendas to fit a knowledge translation context. In the final section (2.5) I discuss the implications of these two sets of literature, setting the stage for my critical examination of knowledge translation and how health and health research are discursively constructed within its context.

#### 2.2 Knowledge Translation: Growth of a field and science

As a process, the term “knowledge translation” generally refers to mechanisms that promote interactive exchange between producers of research-derived knowledge and users of such knowledge (Kiefer, Frank, Di Ruggerio, Dobbins, Manuel, Gully and Mowat, 2005). The goal is to increase use of research-derived knowledge in policy and practice decisions and to facilitate the development of new research questions (Mitton, Adair, McKenzie, Patton and Perry, 2007). Other authors suggest that knowledge translation is simply the newest term for a relatively old problem (NCDDR, 2005): the universal human process of putting knowledge to use “for the betterment of society” (Estabrooks, Derksen, Winther, et al., 2008, p. 2).

### **2.2.1 Defining knowledge translation**

The academic literature about knowledge translation is large and diverse, occurring in a wide range of fields (e.g., health, education, climate change, policy), and covering theory, frameworks and models, applications and controlled trials, editorials, and evaluations (McKibbon, Lokker, Wilczynski et al., (2010). As a process with considerable terminological baggage and conceptual complexity (Straus, Tetroe and Graham, 2009a), the knowledge translation process is often described rather than defined. This may reflect a lack of straightforward definitions for knowledge translation. More than 90 synonyms associated with knowledge translation and research use have been identified (McKibbon, Lokker, Wilczynski, et al., 2010), prompting Shea (2011) to comment that it is “perhaps an overused term” (p. 3). For example, McKibbon, Lokker and Mathew maintain a regularly updated website with KT terminology, and as of September 2013, it includes 22 definitions for the term “knowledge translation” among over 125 defined terms associated with KT (McKibbon, Lokker, and Mathew, 2013) <http://whatiskt.wikispaces.com/>). Knowledge translation terminology also varies geographically. According to Straus, Tetroe and Graham (2011) different terms for the same process are used in different countries. While “knowledge translation” is common in Canada, “implementation science” or “research utilization” is used in the UK and Europe, and multiple terms are used in the United States (e.g., research use, knowledge transfer and uptake, dissemination and diffusion).

### **2.2.2 Historical context**

In an effort to provide some historical context for the current field of knowledge utilization, Estabrooks, Derksen and Winther et al. (2008) did an extensive bibliographic analysis of author citation patterns from published literature (over 5000 articles) from 1945 to October 2004 using the online database, Web of Science. They identified four overlapping domains or fields of study within the broader field of knowledge utilization. The diffusion of innovation area associated with Everett Rogers (2003) originated with agricultural studies of hybrid corn and rural sociology in the 1950’s and 1960’s. Estabrooks, Derksen and Winther et al. (2008) suggest that the theory of diffusion of innovations has an ongoing impact on the entire knowledge utilization area, providing a common language and an enduring theory. The second domain,

knowledge utilization, is focused on the relationship between knowledge, particularly that derived from scientific research, and policy development. It originated in the sociology and social/organizational psychology areas, emerging as a distinct area of study in 1975 to 1984. For example, Bacchi (2008) traces what she calls the “lack of ‘uptake’ of research”, particularly in relation to use of social science research in policy to the late 1970s, a time when many of the key concepts now associated with knowledge translation were described (e.g., “the problem” of “research utilization”, synthesis of research findings, “research brokering”).

The third domain Estabrooks, Derksen and Winther et al., (2008) identify is technology transfer. It is considered to have started following World War II and developed in response to the cold war, the Space Age, and a growing emphasis on economic competition. Like the knowledge utilization field, technology transfer grew more prominent in 1975 to 1984. By the time of the CTFPHC project in 2001-2002, the field of health technology assessment (HTA) was fully developed, and the CTFPHC included a number of HTA resource sites on their own list of resources (c.f. <http://canadiantaskforce.ca/>). Finally, Estabrooks, Derksen and Winther et al. viewed the emergence of evidence-based medicine (1984-1994) as a significant addition to the knowledge utilization area, with an emphasis on “explicit incorporation of empirical research into clinical decision-making processes” (2008, p. 3) and subsequent growth of evidence-based databases (e.g., The Cochrane Library) and journals. While these four areas differ “along such dimensions as core problems of concern, knowledge used, audiences of relevance, and sometimes mode of transfer”, the authors see them linked “on the basis that they all address the idea of solving social problems with knowledge” (p. 2).

In a more recent review focusing on knowledge translation as knowledge exchange in organizational environments, Contandriopoulos, Lemaire, Denis and Tremblay (2010) describe diverse areas in which the debate about knowledge production and action have been a concern for the last thirty years. These include: public funding of social sciences in the United States; the field of evaluation; the evidence based medicine perspective; organizational decision making; and, political sciences. These authors point out that, while some of these areas of concern have merged, others have remained autonomous, and collectively they have radically modified the current expectations of interactions between knowledge producers, knowledge users, and institutions.



### **2.2.3 Knowledge producers, knowledge users, and linkage systems**

Much of the knowledge translation literature is loosely focused on one of the three interrelated areas suggested by the Linkage Approach Model (Orlandi et al., 1990) described previously in relation to the CTFPHC project. Literature on “resource systems” involved in the production of new knowledge, includes a focus on: the nature of knowledge/research evidence (Beaulieu, Proux, Jobin, et al., 2008; Goldenberg, Borgerson and Bluhm, 2009; Goldenberg, 2006); the researcher roles in developing relevant research questions within the context of user groups (c.f. McDonald and Viehbeck, 2007; Rosenbaum, 2005); and strategies to disseminate and promote uptake of their research with end users (c.f. Jacobson, Butterill, and Goering, 2003; Rosenbaum, 2005; Smylie, Martin, Kaplan-Myrth, et al., 2003).

There is also considerable literature that examines the contexts, needs and responsibilities of “user systems”, (e.g., clinical practice, policy decision-making, community based interventions) and how members can become more receptive to research evidence (c.f. Jewell and Bero, 2008, Lavis, Oxman, Moynihan and Paulsen, 2008; Ouimet, Landry, Amara and Belkhodja, 2006; Scott, Estabrooks, Allen and Pollock, 2008). Within this area, the distinction between individual-level interventions (e.g., clinical) and interventions directed to collective action (e.g., policy or organizational change) becomes an important consideration (Contandriopoulos et al., 2010).

Finally, there is considerable literature about “linkage systems” (e.g., knowledge brokers, joint resource/user communication activities, social networks), including: frameworks and models of knowledge translation or knowledge exchange (Contandriopoulos, et al., 2010; Estabrooks, Thompson, Lovely, and Hofmeyer, 2006; Graham, Logan, and Harrison, et al., 2006; Kitson, Roycroft-Malone, Harvey, McCormack, Seers and Titchen, 2008); theoretical perspectives and guiding principles (Estabrooks et al., 2006; Roycroft-Malone, 2007; Eccles, Grimshaw, Walker, Johnston, and Pitts, 2005); and, strategies to increase opportunities for various stakeholders to connect and communicate (e.g., communities of practice, networks; Kothari and Wathen, 2013; McDonald and Viehbeck, 2007).

#### 2.2.4 Multiple gaps

Although much of the knowledge translation literature describes a single gap related to one decision-making environment, from a more global perspective, Kitson and Straus (2009) describe many gaps, presumably even within one setting. Kitson and Straus discuss gaps at the population level, the practice level, the organization level, and the individual level (e.g., care provider level), each requiring needs assessment strategies specific to the environment. Consequently, they define the gap(s) between “evidence and practice or policy making” very broadly in terms of assessing the need for knowledge prior to “knowledge implementation” (p. 60). Similarly, many knowledge translation models and frameworks have been developed that are specific to different environments of the user system (e.g., clinical, policy, organizational) and/or focus on specific elements of knowledge translation processes (e.g., knowledge brokering, knowledge utilization by the user system). For example, in a recent survey of potential “knowledge-to-action” models to address promotion of health equity, Davison and the National Collaborating Centre for Determinants of Health (2013) identified 48 unique “pre-existing” models developed since the original 1962 publication of Roger’s Diffusion of Innovations Model that fit their specific criteria for relevancy to health equity (p. 4). These authors found considerable variation in key knowledge translation concepts among the frameworks, including, for example: how knowledge is defined and conceptualized; terminology related to translation (e.g., transfer, exchange); and how knowledge or research evidence use is conceptualized (e.g., instrumentally, politically). They also found models that were variations of other models and evolved over time. Despite identifying six knowledge translation frameworks that fit most of their criteria for usefulness in the promotion of health equity, Davison and the National Collaborating Centre for Determinants of Health conclude with the recommendation for the development and testing of “more robust equity supporting models” (p. 13). Their recommendation suggests that, while the problematizations that construct the gap might be “global” (Straus, Tetroe and Graham, 2009b), in some situations, knowledge translation as a solution needs to be context-specific. This is consistent with Goering, Ross, Jacobson and Butterill who recognize “context sensitive” knowledge translation that draws on research methodologies that are “more attuned to the nuances and particularities of the social environments in which they are situated” (2010, p. 92).

### **2.2.5 Knowledge translation: beneficial, necessary and universal**

The growth in both the structure and complexity of the field of knowledge translation in the last twenty years has prompted the recent observation: “We live in an era of evidence-based everything: what matters is what works (...) knowledge transfer has infused the academic literature, infiltrated the policy discourse, raised the aspirations of funding bodies, and entered the lexicon of universities’ strategic visions” (Davies, Nutley and Walter, 2008, p. 188). However, despite little evidence about what KT strategies work and in what contexts (Curran, Grimshaw, Hayden, and Campbell, 2011; Mitton et al., 2007), such strategies are considered beneficial and necessary processes to bridge the perceived gap between the production of research-derived knowledge and decision-making. Processes of knowledge translation are now considered universally appropriate to any and all types of decision-making, with only the decision-making context changing (Tetroe, 2007). Nowhere is this emphasis more apparent than in the health care area with the influence of evidence based imperatives in: medicine and nursing (e.g., Baumbusch, Reimer Kirkham, Khan et al., 2008; Lipworth, Carter and Kerridge, 2008); health policy (e.g., Brownson, Chiqui, Stamatakis, 2009; Jewell and Bero, 2008; Lavis et al., 2008); and, in health care organizations and among health professions (e.g., the former Canadian Health Services Research Foundation, now the Canadian Foundation for Healthcare Improvement, <http://www.cfhi-fcass.ca/>).

## **2.3 Health Researchers and Knowledge Translation**

In their literature review about knowledge translation, Mitton et al., (2007) discuss the challenges of evidence-based policy development and highlight a lack of clarity in the KT literature about where responsibilities for KT activities should be placed:

what is under the control of the researchers and what falls under the influence of the policy makers (...) much more effort is needed to articulate how knowledge [e.g., what evidence is needed for decision-making] is best transferred from decision makers to researchers and who is responsible for ensuring that this interaction and ultimate exchange takes place. (p. 758).

However, the view of many research-funding agencies is that knowledge translation responsibilities are shared between researchers and the funding agencies (Tetroe, Graham, Foy, et al., 2008). What Tetroe et al. found less certain in their survey of 33 international research funding agencies was the balance of responsibilities and “what should be transferred to whom, when and by whom” (p. 138). Despite the uncertainty Tetroe et al., found, CIHR documents suggest that researchers have new responsibilities associated with knowledge translation expectations and CIHR has developed extensive resources to inform their funded researchers how to engage in either end-of grant or integrated knowledge translation (e.g., learning modules, casebook examples, links to internal and external resources).

### **2.3.1 New responsibilities**

Canadian studies have explored how researchers negotiate these new responsibilities. Graham, Grimshaw, Tetroe, and Robinson (2005) conducted a cross-sectional self-administered mail survey of 368 “applied health” [not defined by the authors] researchers who had been grant-funded (e.g., CIHR, CHSRF) between 1995 and 2001 (73% response rate). The authors were interested in learning about the extent to which researchers engaged in knowledge translation activities and what KT activities these researchers used to promote their research findings. What they found was that researchers more frequently engaged in activities that are part of traditional academic research (e.g., conference presentations, peer-review publications, reports to funders) than in activities that facilitated the uptake and implementation of research results (e.g., education sessions with practitioners, policy makers, patients; use of knowledge brokers). When combined with their qualitative results, Graham et al. concluded that, for their researcher respondents, knowledge translation was time and resource consuming with few incentives and rewards, and that the researchers lacked knowledge and skills about KT. According to the authors, the implications of the study suggested that the types of knowledge translation activities researchers engaged in related more to the expectations and requirements of their funding agency and that researchers lacked skills, experience and confidence to “interact productively with many audiences” (p. 28). The authors concluded that researchers needed help to push or create a pull for their findings to potential users of the research-derived knowledge.

In another study, Estabrooks, Norton, Birdsel, et al., (2008) examined the impact of knowledge translation activities on the careers of health researchers within the context of an apparent shift in accountability between members of the public, governments and universities. They drew on a theory proposed by Gibbons (Gibbons, 1999; Gibbons, Lomoges, Nowotny, Schwartzman, and Scott, 1994) that suggests a new social contract has been negotiated between science and society, placing society in a more active role “in the creation of socially robust (as opposed to reliable) knowledge” (Estabrooks, Norton and Birdsel, et al., 2008; p.1067). Gibbons et al. (1994) characterized the new social contract as “Mode II”, a problem-solving oriented approach to knowledge production that emphasizes: knowledge production within an application context; transdisciplinarity; a diversity of knowledge production sites; “high” reflexivity; and, “novel forms of quality control” (Estabrooks, Norton and Birdsel, et al., 2008, p. 1067, citing Nowotny, Scott, and Gibbons 2003). Mode II knowledge production is contrasted with a more traditional “Mode I” type of knowledge production, founded on positivist-based curiosity-driven research. Estabrooks, Norton and Birdsel, et al. (2008) place CIHR’s KT policies within this Mode II knowledge production context of a renegotiation of social contract between society and science, suggesting knowledge translation policies “can be interpreted in this climate as an agenda with a strong focus on return on investment of tax dollars and increasing accountability demands” (p. 1067). They compared a variety of dissemination activities and characteristics (discipline, faculty, work setting) of basic and applied university-based health researchers in Alberta using the Mode I and Mode II archetypes of Gibbons et al. (1994) as their analytic frame.

The results of their analyses highlight the challenges for health researchers of achieving a balance between basic science/research activities (Mode I research) and activities associated with research that focused on applicability (Mode II research). Estabrooks, Norton and Birdsel, et al. (2008) suggest such a balance involves a complex interaction of researcher’s discipline (research domain: applied versus basic), faculty (medical versus other health science faculties), work setting (university versus university and hospital), and stage in career. Their results suggest that applied medical school researchers demonstrated the best balance between basic (Mode I) and applied KT (Mode II) activities, which Estabrooks, Norton and Birdsel, et al. attributed to their dual role of clinical and research involvement. Estabrooks, Norton and Birdsel, et al. also identified significant researcher costs (e.g., time, resources) associated with such expectations. In their words:

It is apparent that when we call for a balanced profile of Mode I and Mode II activity that we are in fact, asking academic researchers to engage in two sets of activities, each requiring unique and highly specialized knowledge, unique skill sets, substantial commitment of time, and different rewards (payoffs). (...) What previous published work fails to address and what is hinted at in our data is the cost to the individual researcher of trying to balance Mode I and Mode II in an academic and funding environment as yet geared toward rewarding Mode I knowledge production and translation activity. (2008, p. 1076).

In a more recent qualitative study, Goering, Ross, Jacobson, and Butterill (2010) interviewed both researchers and grant reviewers for feedback to a guide addressing the knowledge translation component of grant applications. The guide had been commissioned by a number of research-fund granting agencies, including CIHR, in recognition that requirements for knowledge translation components of grant applications had “preceded protocol and policy” (p. 91). Goering et al. report that many of their informants reinforced the need for such a guide, as they found knowledge translation expectations were not always clear, an observation that highlighted a need for consistency and guidance from granting agencies. The authors report other comments related to implementation of the guide within the larger contexts of knowledge translation guidelines, review processes, and organizational supports. Goering et al. (2010) acknowledge that researcher levels of experience with KT would influence the how their guide is used as well as the need for structural supports (e.g., knowledge brokers) to free researchers’ time to do knowledge translation planning. They challenge researchers to “do what they can” rather than trying to “do it all”, and to identify what further supports they need:

Rather than feeling compelled to ‘do it all’, researchers need to be encouraged to consider what they can do and to identify what other supports are needed so that the full and most appropriate KT interventions are realised within the system. (2010, p. 99).

The Graham et al. (2005) and Estabrooks et al. (2008) studies took place shortly after CIHR was created in 2000 when knowledge translation expectations and requirements were still relatively new, and their studies reinforce the changing expectations and responsibilities for researchers associated with knowledge translation agendas. By the time of the more recent work (Goering et al., 2010), the expectations of researchers by granting agencies for knowledge translation activities are in place such that a guide is deemed necessary.

### 2.3.2 Characterizing pre-KT researchers

Some of the KT literature goes much further than this focus on researcher responsibilities to create idealized portraits of researchers and their research before and after adoption of knowledge translation activities. For example, Reimer-Kirkham, Varcoe, Brown et al., (2009) reviewed the KT literature and developed a list of “some of the most noteworthy cultural shifts represented by the [KT] movement”, one of which was: “a shift in the responsibilities of the researcher, from detached scientist to involved collaborator, negotiator and communicator of knowledge” (pp. 159-160). McDonald and Viehbeck (2008) were more explicit in their portrayal of pre- and post-KT researchers. They described a pre-KT “research as enlightenment” model that portrays researchers as believing their research should naturally lead to the enlightenment of intended users (i.e., practitioners) simply by being presented at conferences and published in peer-reviewed journals. Pre-KT researchers are portrayed as choosing research questions based on “personal interests and curiosities” that will appeal to their peer reviewers and have little relevance for needs of practitioners trying to address social and health mandates. The “research as enlightenment” model suggests these pre-KT researchers spend little time with their populations of study and have little appreciation for what is needed to implement their research results. For McDonald and Viehbeck, “true knowledge translation rests with creating systematic opportunities for meaningful, focused interaction or exchange between parties that share a common desire to improve a common practice” (2008, p. 142). They advocate for development of communities of practice, dynamic social structures where the focus is “not only on *sharing* “best” practices but also on *creating* knowledge and resources to advance the practice or issue of interest” (p. 142, italics in original). The community of practice model suggested by McDonald and Viehbeck endorses the view that researchers should be part of networks with members of a community of people with whom, over time, they will collaboratively develop “a shared history, language, stories, resources, and technical standards. There is an expectation that social capital and cohesion will be generated through mutual negotiation, norms of reciprocity, and the creation of trust between members.” (pp. 142-143). Through these processes, community members actively participate in developing relevant research questions, methodologies and interpretations that in the “research as enlightenment” model would have traditionally been activities of the researchers alone.

Examining the above portrayal of pre-KT researchers from a more critical perspective, what is striking is the judgmental tone and simplistic description of research practices. Researchers are being described as detached and self-focused with little understanding of their subject communities and creating research that has little practical relevance for health and social mandates. In the alternative portrayal, researchers who use knowledge translation are viewed as collaborative communicators of knowledge with the resources, trust, and support of their subject communities in doing research that is addressing broad social and health-related needs. Such portrayals seem to paint all health researchers with the same brush. Also striking about these portrayals is a clear assumption that researchers working in a non-KT manner are not producing research in the best interests of the health needs of society, unlike researchers who have adopted knowledge translation activities. There is little acknowledgement in the literature promoting knowledge translation, beyond the work of Estabrooks, Norton, Birdsel, et al. (2008), of the knowledge translation expectations for health researchers who do necessary basic science work that has low immediate practice or clinical relevance, or whose career stage or research environment make meeting KT expectations difficult. In the next section I examine literature that looks more critically at knowledge translation and its assumptions, including the experiences of researchers who have received CIHR funding for their work.

## **2.4 Critiques of knowledge translation**

In this section, I review a selection of literature that critiques different, but interconnected facets of knowledge translation to offer an alternative understanding than what I describe in the first part of this chapter. I have chosen this sample of literature because it examines a range of knowledge translation assumptions and influences on health care practice, policy, and governance of health research and researchers from different disciplinary and critical theoretical perspectives (e.g., feminist, ethnographic, governmentality). These authors do not view knowledge translation as a neutral process, but see KT as reinforcing particular views of health research, and constructing particular roles and subjectivities for researchers and decision makers alike. The first four articles highlight particular tensions and assumptions in the application of knowledge translation processes, examining: the translation of critically-oriented knowledge; the



neutrality of decision “tools”; the unquestioned use of KT in stroke policies; and a critique of a priori behaviour change goals in KT. The last three articles challenge knowledge translation-related assumptions within the context of research governance rationales (e.g., neoliberal, economic, “new knowledge production”) used to guide research agendas and the construction of researcher roles. Together these research studies, evaluations, and commentaries construct a critical landscape that ‘sets the stage’ for my research.

#### **2.4.1 Tensions in working with KT processes and components**

Reimer-Kirkham, Varcoe, Browne, Lynam, Khan, and McDonald (2009) explored whether knowledge translation could serve as a “vehicle” for transferring critically oriented knowledge developed within a postcolonial feminist perspective about cultural safety into clinical practice. Acknowledging limitations associated with the framework, knowledge translation appealed to this group of researchers because they viewed KT as encompassing a number of positive “cultural shifts” (e.g., recognition of context-sensitive knowledge, non-instrumental uses of knowledge, complexity of transfer process, multi-level decision-maker engagement) that might allow more effective transfer of critically oriented knowledge than, for example, the narrower evidence-based practice (EBP) system (Baumbusch, Reimer Kirkham, Khan et al., 2008; Reimer-Kirkham et al., 2009). Despite this positive potential, Reimer-Kirkham et al. found a number of interconnected tensions in working with knowledge translation and critically oriented knowledge. These included a “continual pull back toward entrenched views regarding evidence and established methods of EBP” (p. 161). They identified a related tension concerning an assumption within knowledge translation that “knowledge can be packaged and translated as a neutral discrete entity” (p. 160), an assumption more consistent with a post-positivist perspective rather than a critical perspective that sees knowledge as socially constructed and not neutral. Reimer-Kirkham et al. also found problematic an emphasis in KT of knowledge being separate from the “knower” and the interrelationship of meaning, interpretation, subjectivity and context. Connected to this tension is the uncertain role of critique within the context of the knowledge translation-facilitated relationship between researchers and practitioners as well as an inference that the researcher is the expert without any accounting for the complicated power relations that shape exchanges between researchers and others involved in the research.

### **2.4.2 Questioning the neutrality of KT decision tools**

Boivin, Légaré, and Lehoux (2008) provide a more specific critique of the neutrality assumption of knowledge in knowledge translation processes that Reimer-Kirkham et al. (2009) identified in their study. Boivin et al. (2008) examined the decision technologies, or “tools” (e.g., clinical practice guidelines, patient decision aides) of what they call “knowledge translation/evidence-based medicine (KT/EBM)” theoretical models (p. 427). Boivin et al. suggest that these decision technologies are conceptualized as a form of knowledge expected to bridge the gap between evidence and practice within knowledge translation frameworks, acting as neutral carriers of information between research and clinical decision making (p. 427) by virtue of the rigorous methodology through which they are created. The authors challenge the assumption of a value-free, neutral nature to decision technologies, and also question the construction of concepts such as “best practice”, “appropriate care” and “good decisions” expected to occur through the use of decision technologies. Boivin et al. suggest that normative assumptions (i.e., tacitly embedded norms, principles and values) are an intrinsic component of decision technologies that become knowledge translation tools. They further suggest that references to “scientific notions of truth and validity in the KT/EMB model” result in the “socio-political” dimensions of decision technology development being overlooked (p. 429). They offer a conclusion about the importance of exposing the normative roles decision technologies play in practice to reframe the debate about the meaning of “effective implementation” for the different actors involved, and why there may be resistance to the changes in practice expected through KT/EBM models.

### **2.4.3 Questioning the ‘unquestioned’ use of knowledge translation**

Komporozos-Athanasiou, Oborn, Barrett, and Chan (2011) also challenge the construction of knowledge translation as a non-negotiable, scientific process with no conflicted meanings in the development of stroke policies. Komporozos-Athanasiou drew on “new public management”, a discourse of increased efficiency and accountability in public service work (Leicht, Walter, Sainsaulieu, and Davies, 2009), to examine the positioning of patients/citizens in the restructuring of stroke policies in the UK and Canada. Komporozos-Athanasiou et al. (2011) use a critical discourse analysis approach with policy texts to explore how stroke services are constructed in the UK and Canada through the concepts of knowledge translation, user

empowerment, and health service innovation. They identify new public management (NPM) and evidence-based medicine (EBM) discourses as prominent rationalities in both the UK and Canada that are highlighted with concepts such as: “informed choice”; “user participation”; “service orientation”; and, “best practices” from EBM. The authors suggest that in these restructured stroke policies, knowledge translation processes are interpreted through a new public management rationality in ways that redefine knowledge sharing processes among service providers (Canada) and discursively construct patients/citizens as active agents in co-designing best practices and knowledge transfer for stroke services (UK). Their results show that in Canada, stroke service “innovation” was constructed as a “shared vision”, focused on integration and continuum of care across services (e.g., rehabilitation, long-term care). The roles of different service providers were given what the authors called “equal status” in policy documents, and the roles of patients (i.e., service users) were described as passive and not an “explicit part of the service continuum” (p. 221).

Particularly important for my research is the role of knowledge translation in these stroke policy results. In Canada knowledge translation was closely connected to an evidence-based medicine discourse, functioning as a connection to various sources of knowledge about stroke (e.g., research evidence, evidence-based guidelines), and as a form of “collaborative sharing” among the various service providers. Stroke service providers were constructed as “knowledge disseminators in a collaborative environment”, forming what Komporozos-Athanasiou et al. call “a new concept of knowledge translation” based on sharing best practices across services, and that was used to “(re)define the context within which existing actors in the service were constituted” (p. 221). Knowledge translation processes were not transparent, they were assumed to be “a simple process of applying ‘existing experience and guidelines’ where different providers were given equal power and rights to participate” (p. 221). The authors summarize the role of knowledge translation in the Canadian stroke policy as “as exercise of moving knowledge from the domain of research to the various components of the (now integrated) services” (p. 222).

Despite differences in the service “innovations” and knowledge transfer roles, the authors found that, in both Canada and the UK, knowledge translation was constructed as the “ultimate target and means to raise service quality”, giving it status as a “common and systemic objective”, as if it were a “scientific fact” with no conflicting meanings (p. 225). Komporozos-Athanasiou et al.

(2008) identify two main effects of this construction of knowledge translation that resulted in legitimacy and a sense of non-negotiability for the “new meanings” of stroke care: 1) any pre-existing power-dynamics among the groups involved (e.g., clinicians, patients, policy makers) become “effectively” obscured; and, 2) any underlying controversial dimensions of the new stroke services were “side-stepped” (p. 225). Komporozos-Athanasidou et al. conclude with several recommendations that are highly relevant to my critical examination of knowledge translation. The role of knowledge translation in the construction and communication of different regimes of meaning in the development of health policy needs to be examined, with particular attention to the “specificities of political and institutional contexts” (p. 225). Connected to this is the need to consider how policy discourses and their underlying ideologies influence knowledge translation processes as healthcare practice is developed. The authors also offer two additional recommendations: to challenge the neutrality of policy discourses by going beyond rational interpretations of knowledge translation processes; and, to “disentangle the process whereby dominant conceptualizations of knowledge translation become embedded in and legitimated by policy discourses” (p. 225).

#### **2.4.4 Challenging a priori behaviour change goals of knowledge translation**

Kitto, Sargeant, Reeves, and Silver (2012) offer a different critique of normative assumptions of knowledge translation by focusing on what they call the “a priori goals” of behaviour change of KT interventions. Their concerns suggest that, rather than embracing contextually contingent and collaboratively produced knowledge, organizational change practitioners approach interventions with vested interests for specific behaviour changes. Kitto et al., base their arguments on behaviour change assumptions of knowledge translation involving both KT processes (e.g., planned action models), and the characteristics of the decision makers as “rational actors”. For example, they cite a potential for organizational change practitioners to draw on favorite change mechanisms, ignoring those that might represent a best fit for a particular situation. The authors suggest that this is particularly problematic as it represents “a reversal of the problem-solving rationality approach by individuals seeking organizational change”, and constructs knowledge translation as a “solution in search of a problem” (p. 292). In this sense, problems become viewed from a solutions point of view instead of the co-production of an emergent solution that

fits the situation, leading Kitto et al. to recommend more scrutiny of the “common techniques” used for knowledge translation activities. As Kitto et al. put it:

This need is related to the KT focus on review, synthesis and repackaging of pre-existing scientific knowledge to facilitate its use in clinical settings, as opposed to recognizing the co-production and emergence of clinical knowledge and practice that occurs during the KT process. (p. 292)

Kitto et al. (2012) also critique the underlying “logic” of KT planned action approaches as implicitly promoting a “rational clinical actor” who, being logical and intentional in their actions, will engage in change in a “linear and purposeful manner” (p. 292). For Kitto et al., this assumption under-represents the complex and contingent relationships between individuals and the contexts in which they work. They recommend that change practitioners develop a more holistic understanding of complex health professional environments to better understand the potential impacts of the integration of new knowledge into practice.

Similarly, Kitto et al. critique the focus in the knowledge translation literature on the individual as the target for intervention with the metaphoric language of “barriers” (e.g., “barriers to change”). Viewing this as a “reductionist form of methodological individualism” (p. 292), the authors suggest that this form of problem diagnosis focused at the level of the individual limits the exploration of influences related to potential changes rather than looking at multiple sources of data to gain an understanding of the individual-external environment relationships. Given these critiques, Kitto et al. advocate for a “reflexive methodology” such as the “translation” model suggested by Law (1992), Callon (1986) and Latour (1996) as a supplement to knowledge translation research agendas. As Kitto et al. put it: “Studies in translation primarily focus on actors and their attempts at building stable networks of practices and maintain relationships between human and non-human entities” (p. 293). Using this theory for understanding implementation of change through a knowledge translation intervention suggests the need to follow all of the actors involved through their processes and relationships of change in an in-depth ethnographic fashion rather than as a normative exercise with pre-determined expected outcomes. As described by Kitto et al.:

This is a commitment to following and mapping the sets of relationships in situ that affect the success or failure of the building of durable KT interventions not least of which is the assumptions and practices of the KT practitioner. All aspects of the *work* to make

connections between all relevant contextual factors, newly introduced techniques of change (i.e., checklists, guidelines), KT practitioners and knowledge users are open to scrutiny. This commitment to the development of an understanding of how KT *works* does not seek to *evaluate* the process of implementing the KT intervention (that is a matter for the KT practitioners), but rather seeks an *understanding* that can hopefully engender a reflexivity that allows for flexibility and adaptation of all interested parties. (2012, p. 296; italics in original)

For Kitto et al., research that uses this knowledge translation framework should allow for a separation from applied/evaluative KT interventions, facilitate a “critical relational understanding” of KT processes, and bring a reflexivity to KT interventions (p. 297).

#### **2.4.5 A “new knowledge production regime” and construction of researcher roles**

Lehoux, Daudelin, Lavis, Denis, Abelson and Miller (2010) highlight the construction of researcher roles within the context of a “new knowledge production rationale” in an evaluation of a CIHR-funded knowledge translation initiative. These authors used a critical theoretical perspective to conduct a 4-year evaluation of the initiative, one of fifteen in a program that CIHR developed to enhance research capacity in strategic areas to “meet the needs of the new ‘knowledge society’ by fostering knowledge transfer and exchange (KT&E)” (p. 737). Lehoux et al. fit this program into what they call the “new knowledge production regime” that is based on the work (i.e., Mode II research) of Gibbons et al. (1994). As Lehoux et al. (2010) put it, this new knowledge production regime constructs the role of researchers as one of producing, sharing and exchanging knowledge that is expected to generate social, health or economic benefits. The authors identify two mutually reinforcing science policy assumptions on which the new knowledge production regime (and the CIHR program) is based. These assumptions concern the ends to which scientific research should be oriented, and how it should be done. For Lehoux et al., the first assumption: “Scientific research should help foster economic development and/or solve ‘real’ societal problems” (p. 738), shapes research funding and merit review processes toward a focus on the applicability of knowledge that emphasizes production and active dissemination of scientific research considered “useable”. Lehoux et al. posit that this focus gives the power of determining the value of knowledge to the nonacademic knowledge users through their application of the knowledge, and makes their involvement in the scientific activity almost mandatory. Lehoux et al. assert that with the second assumption: “Because the problems are complex and multidimensional, they require the contribution of multiple disciplines and

kinds of knowledge (scientific, professional, experiential)” (p. 738), problem complexity is an *a priori* characteristic. Research problems are constructed as too complex for researchers alone, and “require” the involvement of transdisciplinary researchers and “real-world” knowledge users. Lehoux et al. suggest that this conceptualization “reinforces the idea of a divide between science and society” (p. 739), with transdisciplinarity constructed as the way of developing mechanisms that foster collaborative and sustainable exchanges. These two assumptions, based on the principles of the new knowledge production regime, have “permeated the research landscape” and “transformed the rules of the game” (p. 739). New responsibilities are constructed for both researchers and non-academic actors as part of the new knowledge production regime. In the words of Lehoux et al. (2010):

Researchers must acquire new competencies such as the ability to network with different stakeholders and absorb different kinds of information. Understanding what is situated upstream to and downstream of complex problems becomes as important as researching the problems themselves. Thus, search for collaborators and managing collaborative work becomes a more prominent part of researcher’s activities. (p. 740)

Lehoux et al. (2010) used these two assumptions to critically examine how researchers involved in the CIHR-funded project responded to the “new research funding policies” and specifically to the need to “generate applicable knowledge through new collaborative processes with non-academics” (p. 739). The project involved the development of a large genetics-oriented science-policy network, with 33 “key actors” involved in the field of genetics, including: researchers; members of advisory bodies; representatives of a government health technology assessment agency; clinicians; policy makers; and members of the public. The guiding hypothesis of the network was that interactions among the network members, each representing a different epistemic culture (i.e., rationality, expertise, understanding of the field of genetics), were the most appropriate means of achieving knowledge transfer and use. The network had three main research themes (health services, public health, and public involvement), and a long list of specific objectives that were consistent with CIHR’s stated KT goals (i.e., teams conducting transdisciplinary research; opportunities for young researchers; “the integration of knowledge translation activities into the routine activities of research teams”; p. 738). Lehoux et al. (2010) used an ethnographic case study methodology to focus on researcher interactions and the sharing

of epistemic cultures, specifically researcher-decision maker interactions, and network interactions with the policy environment.

Their results showed a number of successes for the network that included both “epistemological” and professional types of learning, and creation of a “novel, transdisciplinary space” (p. 744) that allowed for reflection on the relevant topics in a new way. Lehoux et al. found that a majority of researchers saw the network as an opportunity to gain an understanding of the disciplinary perspectives and normative assumptions of other network members and develop a common language to define what is considered useful knowledge and research in genetics. Despite these successes, Lehoux et al. (2010) identified a number of challenges with regards to governance of the network. They observed that a transdisciplinary research program requires individual researcher champions, but the governance of this particular network “did not foster” the individual entrepreneurship necessary for “a collective research program to be fully realized” (p. 745). And for researchers, the activities of the network added to, and in some cases, competed with, other necessary academic activities (e.g., publishing, securing research funding), something that may have affected their participation. Lehoux et al. also suggest that pressure to generate concrete research outcomes, plus the network’s “careful, conflict-averse and centralized governance did not provide much room for members to engage in transformative discussions or to take the lead on research projects” (p. 745). This is a particularly relevant finding when one considers Lomas’ (2000) description of consensus as an important component of the “linkage and exchange philosophy”. As Lomas states:

Conflict and disagreement feed on uncertainty and the multiple interpretations of reality that this uncertainty make possible. Apparently, the synergy of combining research and researchers’ analytic abilities with decision makers’ input reduces this uncertainty, thereby starving conflict of its nutrient. (p. 237)

For Lomas, consensus is a positive, for Lehoux et al. (2010) it is a negative, the “nutrient” of uncertainty is what actually leads to the type of transformative discussions that are a normal part of researchers’ worlds. The tension between these two perspectives becomes apparent with Lehoux et al.’s use of the phrase “an arduous transdisciplinary task” (p. 744) in citing the observations of a participant who described the challenges of drafting a grant proposal with the



diverse members of the network who represented different epistemological cultures (i.e., decision makers, clinicians, university and non-university-based researchers).

Lehoux et al. (2010) concluded that while the network was successful in fulfilling some of its knowledge transfer and exchange objectives, it failed to fully develop the expected research program and thus did not fully influence policy development. These two connected expectations form the heart of Lehoux et al.'s final conclusions and recommendations. They identify a conundrum related to an inherent suggestion that traditional research approaches or scientific productivity are not compatible with the new knowledge production "processes". Lehoux et al. suggest that this characteristic of the new knowledge production regime creates a culture for researchers that does not recognize the ways traditional research approaches can support knowledge transfer and exchange expectations, including researcher autonomy and motivations. As Lehoux et al. put it:

The conundrum is that the new regime does not acknowledge that significant levers for social and economic change can also be found in and fostered through traditional scientific motivations and values (i.e., political and intellectual autonomy, original and creative discovery, individual entrepreneurship, disciplinary-oriented theory building) (2010, p. 747).

According to Lehoux et al., this conundrum was not recognized within the goals and strategies of the network's science/policy network and researchers, and that a more decentralized governance approach might have been welcomed by researchers. They point out that researchers already work within a heterogeneous social world, and engage in a diverse range of practices (e.g., methodological, theoretical, empirical) and interactions. The new knowledge production does not allow for the existing disciplinary diversity, resulting in unrealistic and potentially deleterious outcomes in the long run. The picture Lehoux et al. portray of the expected changes in researcher practices is similar to that suggested by McDonald and Viehbeck (2008) earlier in this chapter. In the words of Lehoux et al. (2010), the new knowledge production regime: "seeks to impose a one-size fits all model on researchers, as if the collective outcomes of researchers can be transformed by forcing individual practices into the same mould" (p. 749). Lehoux et al. recommend that a broad, process oriented examination is required to address the conundrum, and that the heterogeneity of disciplinary practices needs to be recognized as research production is transformed under the new knowledge production regime.

#### **2.4.6 Promoting particular views of health through a KT research agenda**

The literature that critically examines knowledge translation in relation to health policy decisions focuses on economic agendas and the development of a new knowledge economy that advances and privileges particular research agendas while obscuring others. For example, Bacchi (2008) laments a lack of policy action on issues related to the social determinants of health, which she views as having gotten “lost in the institutional privileging” of the “dominant’ conversation of the know-do gap (p. 167). Bacchi explains the current lack of attention to social determinants of health within a historical context starting in the 1970’s when chronic budget shortages and disillusionment with social programs prevailed. The utilization of social science research became problematized in ways that brought decision makers into the research setting as advisors and later, as drivers of the research agenda. For Bacchi, who works from a feminist political theoretical perspective (<http://www.adelaide.edu.au/directory/carol.bacchi>), these developments have dramatically changed the research-funding environment, diminishing the space for researcher-initiated research and independent thought.

Bacchi (2008) is particularly critical of the knowledge translation model of Jonathan Lomas (1997; 2000; 2009) and the Canadian Health Services Research Foundation (CHSRF) in their mobilization of the ‘two communities’ theory that views researchers and decision makers as two very different communities with “unrealistic expectations” and poor uptake of health research into policy. Bacchi (2008) draws on Gibson’s (2004) study that shows that the relationship between policy and research takes place within a complex social interaction, and that a simple “research transfer” between the researcher and decision maker communities such as Lomas proposes is a flawed way of understanding the relationship. Bacchi (2008) also questions an implicit message in the Lomas (1997) model that researchers must respond to and learn how to accommodate the ideologies, beliefs and interests that make up a values component of the policy decision making process. For Bacchi (2008), the Lomas (1997) model “stops short of recognizing the ways in which these values and beliefs shape particular understandings of ‘problems’” (p. 170) such as those associated with the social determinants of health.

Bacchi (2008) is also critical of the endorsement of an evidence-based discourse in knowledge translation models that recommend policy be driven by policy makers as knowledge users. In the

face of concerns about evidence being driven too much by policy agendas, Bacchi suggests that Lomas (2000) and others who are committed to decision maker-driven research have developed a number of strategies and technologies to manage ambivalence around evidence. These include a shift in terminology from “evidence-based” to “evidence-informed”, a change that Bacchi sees as one that “de-privileges narrow definitions of evidence, and allows decision makers to pick and choose what and when evidence suits them (2008, p. 171). Other strategies include the redefining of evidence as a complex concept with a variety of meanings and contexts (e.g., “scientific” versus “colloquial”), and the commissioning/funding of specific types of research. For Bacchi, this latter strategy is particularly problematic because it reduces opportunities for researchers to challenge policy decisions. Bacchi (2008) considers these strategies as part of larger shifts being driven by research funders and government science policies that view academic research as a means to achieve economic and social development, resulting in a narrow range of research priorities and definition of relevance. As Bacchi points out, these changes also limit questions and challenges about research priorities and policy directions:

the focus on ‘problem’ *solving* (‘what works’) forecloses consideration of how the ‘problem’ is framed, what the ‘problem is represented to be (Bacchi, 1999), and with this foreclosure severely limits the space available to researchers to challenge specific policy directions (2008, p. 173; italics in original).

The implication is that researchers are being “constrained to shape their projects to fit”, and to produce evidence that fits government expectations. As Bacchi puts it:

Researchers as a result tend to tell governments *what they want to hear* producing not a ‘gap’ between what we ‘know’ and what we do, but a *fit* between what the government tells us to ‘research’ and their particular policy agendas. (2008, p. 173; italics in original)

In the end, Bacchi (2008) sees critical research and increased commitment to social determinants of health as lost within funding-driven research agendas that emphasize the values and beliefs of policy decision makers and dominant ideologies of governments. The separation that is disappearing between research and government policy does not create a ‘gap’, but a problem of “‘fit’ between what we ‘know’ and what we (don’t) do regarding SDH” (p. 165). She recommends more attention and even debate about the structures of governance, and in particular, the institutional relationships between researchers and governments that “shape social relations, subjectivities and policy outcomes” (p. 174).

### **2.4.7 A neoliberal shaping of a research agenda**

The final study in this review of critical perspectives examines governance of health research within the context of a particular political rationality. Shaw (2007) and colleagues, (Shaw and Greenhalgh, 2008; Shaw, Petchey, Chapman, and Abbott, 2009) studied the impact of 30 years of research governance within a neoliberal political context on primary health care research in the UK. As a policy framework, a neoliberal political rationality promotes adoption of a political agenda favoring market-style approaches for public goods and services, globalization of capital, enhanced economic efficiency and international competitiveness (Larner, 2000). Shaw (2007) chose a theoretical perspective based on Foucault's ideas of governmentality and a critical discourse analysis methodology to examine national policy documents and conduct key informant interviews. Her results showed that primary health care research has been shaped to fit the role of supporting clinical trials that would ensure Britain's leadership on the world stage of clinical research. Primary care research became an object of "bureaucratic control" through deliberations about "the balance between government intervention and academic autonomy", available funding and allocation to "identified priorities", and "the extent of regulatory intervention in the 'free' market" (2007, p. 321). Multiple economic and corporate discourses shaped the policies governing health research over 30 years, particularly a "knowledge-based economy" discourse the authors defined as "a predisposition toward productivity, return on investment, and a return to basic sciences" instead of multidisciplinary approaches that traditionally support primary health care (Shaw and Greenhalgh, 2008, p. 2516). This discourse positioned "the science system ... as an object to be manipulated in order to produce and transfer knowledge ... predominantly in support of economic growth and global competition" (p. 2510). Results of their analysis challenged the perception that health research policy is a value-free endeavor, with the traditionally broad and multidisciplinary primary health care research repositioned as a conduit for recruiting patients into clinical trials.

Shaw (2007) identified specific policy mechanisms that embody certain values and associated managerial practices that have shaped primary health care research in the UK in particular directions (e.g., regulatory intervention, incentivizing research activity, national framework for governing research). These values and managerial practices are consistent with a neoliberal government rationality associated with a free-market ideology that allows political objectives to

be achieved through “action at a distance” (Shaw, 2007, p. 316). Shaw et al., (2009) show that it is through such policy mechanisms and managerial practices that health research and health researchers in the UK are being regulated, formalized and institutionalized along increasingly narrow directions that privilege certain types of research (e.g., quantitative, clinical trial, commercial and pharmaceutical research) over others (qualitative, participatory). These results echo concerns expressed by researchers in other countries about the increased governance of health and other types of research through a narrow range of discursive orders, policy initiatives and managerial practices that define health research and encourage researchers to produce particular types of research-derived knowledge (e.g., Ashcroft, 2007; Benner and Sörlin, 2007; Cheek, 2007; Cheek, Garnham and Quan, 2006; Denzin, 2009; Pestre and Weingart, 2009). Shaw placed her results within a larger political context that acknowledges the power relations involved in shaping health research toward particular directions with the following summary:

Health research involves more than the simple generation of knowledge and should be considered as a political exercise laden with power relations and strategies for gain. Health research and related policy are pushed and pulled in different directions according to the priorities identified by particular institutions and individuals. (2007, p. 316).

## **2.5 Setting the stage for the present research**

Both the descriptive and critical literature reviewed in this chapter suggest that dramatic changes in the health research environment are occurring, changes that problematize the traditional roles of health researchers and how health research is conceptualized, conducted and valued. While the descriptive literature in the first part of this chapter defines and advocates for knowledge translation as beneficial and necessary, the critiques, many based on authors’ experiences of working with KT processes, challenge many of the assumptions on which knowledge translation stands. Researchers such as Kitto et al., (2012); Reimer-Kirkham et al., (2009); Lehoux et al. (2010) and Bacchi (2008) raise concerns about complicated power relations and the interrelationship of meaning, interpretation, and subjectivity in the context of collaborative decision-making environments. The tensions of different epistemological assumptions between knowledge translation, with its post-positivist leanings, and critical theoretical perspectives described by Reimer-Kirkham et al., (2009) led them to serious questions about the integration of

critical perspectives and knowledge translation. The study results of Estabrooks, Norton, Birdsel et al. (2008) highlights the potential inequalities related to researchers' careers (e.g., type of health research, location, career stage) of a broad-brush approach to knowledge translation requirements, suggesting that implementation of knowledge translation may be more challenging than suggested in documents promoting KT. Even the relationship of evidence based medicine to knowledge translation is conflicted in the literatures reviewed in this chapter. For example, in the literature promoting knowledge translation, EBM is highlighted for its historical contribution to the development of KT (Estabrooks, Derksen and Winther et al., 2008), with knowledge translation viewed as overcoming limitations of the EBM approach. However the authors examining knowledge translation from a critical perspective suggest that an EBM discourse is still a prominent and "entrenched" feature of knowledge translation, implying a neutrality of evidence and translation 'tools' that is unquestioned in literature promoting KT.

More importantly for my research, the articles that draw on critical perspectives reviewed in this chapter demonstrate what they suggest is missing from the dominant knowledge translation discourse. These researchers recommend a critical examination of underlying assumptions, reflections on the impacts of knowledge translation on health research and researchers, and an opening up of spaces for new questions. They call for more attention to be paid to structures of research governance and the institutional relationships between researchers and governments that include powerful funding research arrangements. For example, the focus of user-driven research agendas in influencing who receives funding for health research, as highlighted by Bacchi (2008), suggests that a similar potential exists in Canada for knowledge translation to become a powerful political tool. Shaw's (2007) governmentality perspective and discourse analysis methodology allowed her to examine the neoliberal-influenced governance of primary health care as "involving processes that *produce* spaces, states, and subjects in complex and multiple forms" (Larner, 2003, p. 511, italics in original). As Shaw (2007) concludes, viewing the governance of primary health care research in these critical ways makes it "increasingly difficult for power to be concealed and for political ideologies to go unchallenged" (p. 334).

My experience as a health researcher enabled me to recognize as a new practice the CTFPHC project result of researchers being responsible for ensuring policy use of guidelines and systematic reviews. The literature reviewed in this chapter shows that this new practice is both

an expectation and an accepted tenet of knowledge translation in Canada, and is embedded in a political context of a new knowledge production regime (Lehoux et al. (2010). Despite the prominence in the research environment and in the literature about the importance of knowledge translation, and the formal knowledge translation requirements associated with research funding, there has been little published research that examines critically the assumptions that inform knowledge translation at Canada's major research funder, the Canadian Institutes of Health Research, and its potential role in positioning health research and health researchers as potential objects of political importance. It is these concerns that are the subject of this thesis.

I chose to use both a governmentality perspective and critical discourse analysis to critically examine the role of knowledge translation in governing and managing health research by the Canadian Institutes of Health Research. As a theoretical perspective, governmentality highlights the "thought in governing practices" (Bacchi, 2012, p. 5) that make the strategies of governing as activities more visible. Studies incorporating a governmentality perspective have highlighted, for example: the challenges of incorporating 'new knowledges' (e.g., gender-related, aboriginal perspectives, welfare studies) and global agendas into policy processes; how individuals and groups are constituted as "free" through the use of various knowledges (c.f. Miller and Rose, 2008); and, how an entire field of primary health care research can be transformed to meet specific government agendas (Shaw, 2007). This perspective and methodology offered an opportunity to examine the historically situated discursive construction of knowledge translation as a solution to an apparent problem related to use of health research in Canada, and how health research and health researchers are discursively constituted and shaped within the context of knowledge translation. In Chapter 3, I describe the governmentality theoretical perspective I used in this research, and its implications for my examination of knowledge translation. In Chapter 4, I present my specific research questions and critical discourse analysis methodology.

## Chapter 3

### 3 A Governmentality Theoretical Perspective

#### 3.1 Introduction

In this research, knowledge translation is viewed from the theoretical perspective of governmentality. This perspective allows for important links between discourses, knowledge, power and government. This is about government writ large, and in plural (Dean, 1999), beyond a single state, but concerned with the “network of relations” among the multiple institutions, organizations, and systems that make up government (Miller and Rose, 2008, p. 55). This is about government as an activity (Gordon, 1991), as the assembly of thoughts and practices that shape assumptions about what government is, “how it should be exercised and by whom and for what purposes” (Murray, 2007, p. 162). Government, in this sense, is about shaping behaviour (Dean, 1999). As a critical theoretical perspective, governmentality considers how discourses are shaped by, and in turn, shape, knowledge and power relations. It also considers the constructive effects of discourses in constituting social identities, social relations, and systems of knowledge and beliefs that form hidden assumptions (Fairclough, 1992). Studies incorporating a governmentality perspective have highlighted, for example: the challenges of incorporating ‘new knowledges’ (e.g., gender-related, aboriginal perspectives, welfare studies) and global agendas into policy processes; how individuals and groups are constituted as ‘free’ through the use of various knowledges (c.f. Miller and Rose, 2008) and, how an entire field of primary health care research can be transformed to meet specific government agendas (Shaw, 2007). This perspective offers an opportunity to examine the historically situated discursive construction of knowledge translation as a solution to an apparent problem related to the use of health research in Canada, how health research and health researchers are discursively constituted and shaped within the context of knowledge translation; and, how health researchers negotiate and shape their research and themselves within the context of being governed and regulated through knowledge translation processes. A brief introduction to governmentality as a theoretical



perspective and Michel Foucault's insights about how knowledge and power work together to shape meanings and subjectivities through discourses and practices is presented below.

## **3.2 Governmentality: the “conduct of conduct”**

Governmentality, broadly speaking, is about how we are governed and how we govern ourselves through a variety of explicit and implicit practices, techniques, knowledge, and power relations (Dean, 1999). It is a term coined by Michel Foucault during a series of lectures in Paris between 1977 and 1978 in which he presented a historical analysis of government in 17<sup>th</sup> century Europe that ushered in a style or “art of government” still prevalent today (Foucault, 2004, 1991). His analysis highlighted a change in government that recognized population as the goal and object of government that required new forms of government distinct from sovereignty. This new art of governing required new techniques, new ways of knowing about the population, new administrative apparatuses, and a new focus on ensuring the health and well being of the population. Foucault viewed the exercise of government as a complex form of power “that has the population as its target, political economy as its major form of knowledge, and apparatuses of security as its essential technical instrument” (Foucault, 2004, p. 108).

### **3.2.1 Governing conduct**

Considering the component words “govern” and “mentality” is a useful starting point for gaining an understanding of what Foucault meant by governmentality and how it has evolved as a widely applied theoretical perspective (Dean, 1999; Lemke, 2002). Foucault viewed government as “the conduct of conduct” (Foucault, 1991). He used the word “conduct” purposefully, because of its double meaning: the French verb “conduire” meaning “to lead or to drive”, and the reflexive verb “se conduire” meaning “to behave” or “to conduct oneself” (Foucault, 1982, p. 789). The term government, from this perspective, implies both the setting of standards, or norms by which behaviours can be evaluated, judged, or regulated by others, but also how we conduct our own behaviours (Dean, 1999). As Dean suggests, to govern can imply “any attempt to shape, with some degree of deliberation, aspects of our behaviour according to particular sets of norms and for a variety of ends” (1999, p. 10). Thus, government is any activity aimed at shaping, guiding

or affecting the conduct of those being governed (Gordon, 1991). Or, as Foucault put it, “To govern, in this sense, is to structure the possible field of actions of others” (1982, p. 790).

### **3.2.2 Mentalities: the rationalities of government**

The second half of the word governmentality, “mentality”, refers to modes of thoughts (Lemke, 2002), the unspoken implicit assumptions, ideas, or tenets on which government is based (Dean, 1999). These are the rationalities that Miller and Rose (2008) view as the “styles” of thinking, forms of knowledge and idioms that enable political realities to be enacted. Dean (1999), and Miller and Rose (2008) use the example of economic government as an example of mentality in this context. It is a taken for granted imperative of national governments to ensure the economic well-being of those governed. As an imperative for governing, there are particular ways of thinking about and planning economic government that includes specific vocabularies, knowledges, concepts, and expertise (Miller and Rose, 2008). These particular ways of thinking make it possible to problematize (e.g., the economy, health) and develop solutions that shape actions of institutions or nations in desired directions (Miller and Rose, 2008).

The example of economic government is strongly connected to the prominent political rationality of neoliberalism that developed in the 1970’s with the election of political leaders such as Margaret Thatcher in Britain, Ronald Reagan in the U.S. and Brian Mulroney in Canada (Saint-Martin, 2007). Neoliberalism developed from a collection of political thoughts and actions that arose as part of post-WWII critiques of welfare-oriented governments (Rose, 1999). As a political agenda, it favors market style regulation of economic activity, economic efficiency and globalization of capital with an emphasis on market provision of public goods and services, deregulation and privatization (Larner, 2000). A neoliberal rationality emphasizes a form of self-government, constructing individuals as active entrepreneurs who are freely responsible for engaging in their own “energetic pursuit of personal fulfillment” (Miller and Rose, 2008, p. 82). This “governance at a distance” perspective is also extended to public institutions, with a variety of techniques (e.g. shared vocabularies, assessments and audits) that creates both distance and connections between the decisions of formal political institutions and other social actors, organizations, and independent authorities (Miller and Rose, 2008). For example, Shaw (2007) identified the prominence of a neoliberal rationality of governance in her study of primary health

care research that I reviewed in Chapter 2. Shaw found that the policy mechanisms that shaped primary health care research in particular directions were constructed through the free-market rationale and values of a neoliberal rationality that emphasizes economic prosperity and an international reputation for England in clinical trials.

The term “rationalities” is also present at an individual level in self-government, in the practices through which we govern ourselves. Dean (1999) suggests dieting as an example of this, identifying the reasons one might diet that employ certain forms of knowledge that act on certain aspects of our being (e.g., what we do to avoid certain ailments). Analytically, this multiple use of the term “rationalities” to mean both the modes of thought that guide political actions at a societal/national level (e.g., neoliberalism), and also to guide or justify the actions at a more local level (e.g., individual, a particular institution) became problematic for my research. I needed to make a distinction between the modes of thought that guide actions at a higher level (e.g., in creating CIHR), and the rationales that discursively shape and justify more “local” actions at CIHR (e.g., specific KT strategies or programs). Thus, in this research, I use the term “rationalities of government” to indicate the modes of thoughts that guide actions at the societal/national level, and the term “rationales” to indicate the smaller modes of thought that justify more local actions.

### **3.2.3 Technologies of government**

Foucault was also interested in how the rationalities of government were enacted as specific activities or practices that enable the conduct of conduct (Dean, 1999). Foucault viewed the techniques, strategies and knowledge through which governmental power is exercised to shape conduct as “technologies” (Foucault, 1988). Miller and Rose described technologies of government in very concrete ways as the “actual mechanisms through which authorities of various sorts have sought to shape, normalize and instrumentalize the conduct, thoughts, decisions and aspirations of others in order to achieve the objectives they consider desirable” (2008, p. 32). These technologies of government are what Rose calls the “human technologies”, designed to act upon human capabilities by technical means to shape conduct in particular ways (1999, p. 52). Thus, technologies of government are not just the large schemes and plans guided by specific political rationales, but include the “unlimited” list of “humble and mundane

mechanisms” of governing, such as the forms of practical knowledges and judgments, specific programs, surveys, techniques of notations, standardization of systems, and standards of professionalism (Miller and Rose, 2008, p. 32; Rose, 1999). For example, Shaw, Petchey, Chapman and Abbot (2009) reviewed a UK document that enlisted various technologies of government in the form of new requirements and guidelines designed to increase accountability and transparency of decision-making in health research. These technologies included new standards for research approvals covering ethical reviews, methodologies, health, safety and employment as well as finance and intellectual property.

### **3.2.4 Knowable and governable through discourse**

Politics and language are not viewed as separate from a governmentality perspective, but are “mutually constitutive” (Bacchi, 2008). It is through language that something (e.g., economy, health) becomes knowable and governable. A governmentality perspective shares assumptions with other poststructuralist theories about the roles of power, knowledge, and discourse in shaping social meanings and subjectivities (Crotty, 2003; Weedon, 1987). Poststructuralist theories assume that it is through language and discourse that social meanings or “truths” (Rose, 1999) are created, defined, and contested within social institutions (e.g., education, church, family media). For example, Fairclough (1992, 1993), following Foucault (1972), views discourse (i.e., “spoken or written language use”, p. 62) as a form of social practice, a historically and socially situated mode of action that is both shaped by and shapes social identities, social relations, and systems of knowledge and beliefs (1992; 1993, p. 134). For Fairclough (1993), these two parts of discourse distinguish a poststructural perspective of language use from non-poststructural perspectives.

Of particular interest to Foucault was how the practices associated with such social institutions are themselves historically constituted. Although the term “discourse” is used in many different ways (Cheek, 2004; Wodak and Meyer, 2009), in this context it refers to the ensemble of practices and broad systems of thought that embody ideas, ideologies, attitudes and terms of references (Schwandt, 2007; Foucault, 1969/1972). A discourse consists of sets of statements that constitute commonly held but often unspoken assumptions about objects, topics, processes or anything else being considered. In this sense, discourses provide structure and ways of

thinking and speaking about things (Cheek, 2004). Cheek describes discourses as “scaffolds of discursive frameworks” that provide order to reality by enabling and constraining the production of knowledge, by allowing for certain ways of thinking about things and excluding others. Thus, discourses provide rules by which some statements are considered true or false (2004, p. 1142).

Discourses are not static, but are always changing, across time and space. Jäger and Maier graphically describe discourses as flows of knowledge throughout time that “are intimately entangled with each other and together form the giant milling mass of overall society discourse (...) growing constantly and exuberantly” (2009, p. 35). However, not all discourses are prominent or have equal authority at any given time. Certain discourses become more prominent while others are marginalized or excluded, depending on a variety of sociohistorical influences, prevailing political rationalities, and the effect of power relations (Cheek, 2004).

### **3.2.5 Discourse as power/knowledge**

A governmentality perspective emphasizes the role of discourse in the exercise of power/knowledge (Miller and Rose, 2008). Power is exercised through discourses by authorizing and regulating particular ways of talking, thinking and acting (Jäger and Maier, 2009). In providing the boundaries and rules for what can be known, discourses facilitate certain knowledges to be produced, legitimated, and to become “truths” (Cheek, 2004), thus shaping and enabling particular constructions of social reality. In this way, power and knowledge are inseparable and interrelated (Motion and Leitch, 2007; Murray, 2007). Foucault described the relations between discourse, power and knowledge as inseparable:

What I mean is this: in a society such as ours, but basically any society, there are manifold relations of power which permeate, characterise and constitute the social body, and these relations of power cannot themselves be established, consolidated nor implemented without the production, accumulation, circulation and functioning of a discourse. There can be no possible exercise of power within a certain economy of discourses of truth which operates through and on the basis of this association. We are subjected to the production of truth through power and we cannot exercise power except through the production of truth. (1980a, p. 93).

Power does not operate as a force that represses the truth, instincts or individuals, and analyzed only within the context struggle, conflict or war (Foucault, 1980a). The exercise of power is not inherently violent, but is productive. Foucault used the verbs “incite”, “induce”, and “seduce” to

describe the productive nature of power, and further proposed that power can make things easier or more difficult, and “in the extreme” can constrain or forbid (1982, p. 789). Ultimately, power is considered to be the “total structure of actions brought to bear upon other actions”, in other words, the conduct of conduct (p. 789).

### **3.2.6 Discourses, power relations and subjectivities**

Foucault studied the ways in which power relations work discursively through individual human bodies, and in the regulation of populations (Lupton, 1995). Exercised through technologies of discipline, surveillance and knowledge production, power is constructive, dynamic, optimizing and enabling (Klawiter, 2008), working within discourses to create knowledge and truths, which in turn, shapes reality through discourses (Foucault, 1980a). Constructed through discourses, subjectivities are the particular ways in which we think about, relate to and situate ourselves in the broader social and political contexts in which we are embedded (Robertson, 2000). Subjectivities are not innate, but are socially produced as we engage with the discourses around us. Weedon provides a description of this process:

As we acquire language, we learn to give voice – meaning – to our experiences and to understand, according to particular discourses (...) these ways of thinking constitute our consciousness and the positions with which we identify and structure our sense of ourselves, our subjectivities. (...) as we move out of our familiar circles, through education or politics, for example, we may be exposed to alternative ways of constituting our interests more directly. (1987, pp. 32-33).

We are not passive subjects in this process, however, but are active participants as co-creators of discourses, because we “are entangled into discourse and therefore have knowledge” at our disposal (Jäger and Maier, 2009, p. 37). In this way the power through which our subjectivities are constructed is relational. As Foucault put it:

The individual is an effect of power, and at the same time, or precisely to extent to which it is that effect, it is the element of its articulation. The individual which power has constituted is at the same time its vehicle. (1980a, p. 98).

Thus, as active individuals, we are inevitably involved in power relations through which we construct subjectivities. For example, McDonald and Viehbeck (2008) discursively construct and contrast two types of “idealized” health researchers for their community of practice model of

knowledge translation. Researchers who engaged in knowledge translation processes are described as collaborative communicators of knowledge who have the trust, and support of their subject communities in doing research that is viewed as addressing broad social and health-related needs. It is possible that such researchers will adopt a subjectivity in which they view themselves, as knowledge translation researchers. In contrast, pre-KT researchers as characterized in McDonald and Viehbeck are detached, self-focused, and not connected to their subject communities, who are unlikely to self-identify as knowledge translation researchers.

### **3.2.7 Conforming, circumventing and contesting: A regulated freedom**

It is also through power relations that operate within and through discourses that the possibilities for the conduct of conduct occurs, as individuals and organizations use various discursive strategies to “conform, circumvent or contest” (Motion and Leitch, 2007) the standards and norms through which we are governed. Conducting the conduct of others and ourselves involves discursively shaping the possibilities for action and for subjectivities. As Foucault put it, “The exercise of power consists of guiding the possibility of conduct and putting in order the possible outcome.” (1982, p. 789). However, this is dependent on the freedom of those on whom power is being exercised to have the capacity to act. Rose provides more clarity on this point in suggesting that: “To govern humans is not to crush their capacity to act, but to acknowledge it and to utilize it for one’s own objectives.” (1999, p. 4). Thus, in choosing among a field of possible behaviours or outcomes, individuals or collective subjects are involved in relations of power, as they are shaped and shape themselves in particular ways. And because individuals and collective subjects are actively engaged with the discourses governing them, they have the capacity to conform, resist or transform the possible outcomes. Miller and Rose (2008) have identified this as a kind of regulated freedom. They highlight this in their analysis of political power in advanced liberal (neoliberal) democracies that are common today in Western societies:

Political power is exercised today through a profusion of shifting alliances between diverse authorities in projects to govern a multitude of facets of economic activity, social life and individual conduct. Power is not so much a matter of imposing constraints upon citizens as of ‘making up’ citizens capable of bearing a kind of regulated freedom. Personal autonomy is not the antithesis of political power, but a key term in its exercise, the more so because most individuals are not merely the subject of power but play a part in its operations. (Miller & Rose, 2008, pp. 54-55).

This quote by Miller and Rose (2008) also highlights how power, seen from this perspective, is not something that can be possessed by any one group or individual; it may be exercised by diverse authorities through multiple sources. Jäger and Maier frame this with regard to power *over* discourses, explaining that discourses are “supra-individual” and take on a life of their own as they evolve, “transporting more knowledge than the single subject is aware of.” (2009, p. 38).

In summary, governmentality is a complex form of power that operates on the basis of specific rationalizations and is directed toward certain ends (Rose, O’Malley and Valverde, 2006). Governmentality relies on modes of power/knowledge that are both productive and relational, exercised discursively through the programs, technologies and practices of government, institutions, and other authorities to shape the actions of those to be governed in specific directions. It is through the discursive and non-discursive practices through which those being governed are “free” to individually and collectively be shaped and shape themselves, as well as to protest and resist. However, as both governed and self-governing, we also have the freedom to conform or resist, often with penalty (Dean, 1994; Foucault, 1982; Rose, 1999). Thus a governmentality perspective forms the intersection between the various technologies of power of government and the technologies of self, the rationales and strategies through which the governed are transformed, transform themselves (Foucault, 1988) or resist.

### **3.2.8 Limitations of a governmentality perspective**

There are critiques of a governmentality perspective that have been important to consider in this research. McKee (2009), drawing on a previous critique by O’Malley, Weir, and Shearing (1997), suggests that analysts who focus on discursive practices of governing and focus on examinations of government documents and rationalities of government may not consider the social relations in which they are embedded, the “material practice” resulting in a “disregard for empirical reality” (p. 473). O’Malley et al. (1997) connect this tendency to “diagnose” with a rejection of critique in the governmentality literature, recommending that governmentality research should, at the very least, “facilitate contestation, make room for diversity, (...) assist in the development and refinement of strategies for confronting or interrogating problematic regimes and technologies” (p. 505), goals that are consistent with the critical perspective of critical discourse analyses (Kincheloe, McLaren, and Steinberg, 2011; Wodak and Meyer, 2009).



For O'Malley et al. (1997), the focus on rationales of government can also lead to government being viewed as if “written by one hand” (p. 513), singly coherent and systematic, ignoring internal inconsistencies and contestations that would come from multiple voices, alternative discourses and perspectives that make up government. McKee (2009) also expresses concerns about an analytic focus that views governing in overly abstract ways and reduces politics to rationalities of government. She cautions that this could lead to a view of power as “omnipresent and totalizing” (p. 474) rather than positive and productive as Foucault suggests (Foucault, 1982). Such a view of governing also ignores the messiness of implementation of programs, the social relations in politics and programs are embedded, agency, adaptation, and resistance (O'Malley et al., 1997).

### **3.3 Governmentality and knowledge translation**

A governmentality perspective situates knowledge translation as a discourse through which the use of health research is problematized, described, evaluated, and addressed. As a discourse, knowledge translation provides boundaries for how the use of health research should be considered within certain decision-making contexts, what types of health research are included and excluded, how research should and should not be conducted, and who is, or is not, considered qualified to engage in health research. And consistent with Shaw's (2007) findings regarding the shaping of primary health care within the context of a neoliberal governmental rationality, I assume that similar neoliberal-informed, market oriented values guide the processes and procedures of knowledge translation in governing health research and researchers in Canada.

A governmentality perspective suggests that knowledge translation can be considered a technology of government through which power is exercised so as to discursively guide the practice of health research and the conduct of health researchers. From this point of view, knowledge translation processes and practices shape health researcher subjectivities by working through their own aspirations, goals, needs, and practices (e.g., to be funded, to publish their work, to connect with colleagues and populations of study) to achieve the expected solutions to the problematizations constructed through the knowledge translation discourse. This is not to

say that researchers would be wholly dominated by this power; they have the capacity to “freely” move within the discursively-set boundaries of what constitutes legitimate health research and health research practices within knowledge translation. Health researchers have the capacity to make choices about how they conform to or resist the strategies and techniques employed through knowledge translation by research funding agencies like CIHR. However, their choices are shaped and negotiated within a regulated freedom and as a result of power relations.

In summary, a governmentality perspective of knowledge translation is concerned with how health research and health researchers in Canada are governed through the explicit and implicit assumptions, practices, techniques, and power relations of the discourse of knowledge translation that shape their practices and subjectivities in particular ways. And, although not part of this study, a governmentality perspective is also concerned with how health researchers are governing themselves within these contexts. In other words, a governmentality perspective of knowledge translation is concerned with the conduct of health research and health researchers in Canada. And following from Miller and Rose (2008, p. 14), if the conduct of health research and health researchers appears to require conducting, then something in it has appeared problematic, and thus, it makes sense to ask how this perspective of health research has occurred. With regards to the present research, it makes sense to ask about how the prevailing political rationalities (e.g., neoliberalism) problematize the use of health research, and how knowledge translation has been constructed as a possible solution to this problematization.

Rose, O'Malley and Valverde (2006) suggest that governmentality, as an analytical perspective, is not a theory of power, authority or governance, but a perspective through which particular questions are asked that are amenable to answers gained through empirical inquiry of, for example, texts. A governmentality perspective focuses attention on “how” questions (Dean, 1999, Miller and Rose, 2008), for example, how we are governed and how we govern ourselves (Dean, 1999). These questions direct attention to specific and mundane practices of governing, such as through a knowledge translation discourse, in an effort to understand how something becomes problematized within the context of specific forms of knowledge and expertise. In the following chapter I start with a discussion of the ontological and epistemological assumptions of critical inquiry paradigms and how they relate to knowledge translation. I then present the questions

about knowledge translation that have guided this research, and describe in detail the critical discourse analysis methodology that I used to address these questions.

## Chapter 4

### 4 A Critical Inquiry Methodology and Research Questions

#### 4.1 Introduction

In this research I use a critical discourse analysis methodology informed by the governmentality theoretical perspective reviewed in Chapter 3 to address research questions about knowledge translation with a purposely selected sample of KT-relevant Canadian Institutes of Health Research documents. Lincoln, Lynham, and Guba (2011) point out that research methodologies emerge from and are interwoven with the disciplines and theoretical perspectives. This interweaving concerns questions of ontology (i.e. what is the form and nature of reality and what can be known about that reality?), epistemology (i.e. how can we know about reality? what is the relationship between the researcher and what can be known?), and methodology (i.e. what are the processes and procedures that can be employed?) (Denzin and Lincoln, 2011; Guba and Lincoln, 2004; Ponterotto, 2005). These three issues form the interpretive framework or inquiry paradigm that a researcher brings to their research (Denzin and Lincoln, 2011; Guba and Lincoln, 2004), and provide the boundaries for what is included and excluded as part of “legitimate inquiry” (Guba and Lincoln, 2004, p. 21). In the next two sections, I discuss in more detail the ontological, epistemological and methodological assumptions of my critical inquiry paradigm followed by a discussion of the implications of these assumptions for this research on knowledge translation in Section 4.2.3. In Section 4.2 I present the research questions that have guided this research, and in the remainder of the chapter (Sections 4.3, 4.4, and 4.5), I present in more detail the critical discourse methodology that I use in this research.

##### 4.1.1 Critical inquiry paradigms: ontology, epistemology, and methodology

Critical inquiry paradigms assume an ontology known as historical realism, a belief in a reality that is historically shaped through social, cultural, political, economic, and gender values, and mediated by power relations (Guba and Lincoln, 2004; Lincoln, Lynham and Guba, 2011; Ponterotto, 2005). Over time, historically situated aspects of reality crystallize and become understood as natural, as if they were “real” (Guba and Lincoln, 2004). As Taylor (2014)

explains, this is consistent with Foucault's approach of examining how "prevailing norms, institutions, and practices have developed historically", and become established and accepted in the present (p. 122). Taylor suggests that, for Foucault, the critical and creative capacities of human beings' become "channeled back into the rearticulation of prevailing modes of thought and existence" through normalization, reinforcing existing power relations rather than keeping them "open and fluid" to facilitate practices of freedom (p. 122, citing Foucault, 1980b). Foucault's historical examinations, or genealogies, show that conditions (e.g. norms, institutions and practices) accepted in the present have not always been considered necessary in the past, and are therefore, open to being critically analyzed, identified and the normative effects countered. The aim in countering the normative effects of historically constructed norms, institutions and practices through critical analyses is to promote "the creation and proliferation of (possibilities for) alternative ways of living in the world" (Taylor 2014, p. 118). The outcomes of research through critical inquiry paradigms have transformative potential as a form of social action (Kinchloe and McLaren, 2005), with an "ontology of the present" (Taylor 2014, p. 124). As Taylor summarizes:

An ontology of the present is a mode of conduct concerned with identifying, analyzing, and challenging the constraints persons face within normalizing societies relative to both their self-relation and their broader relations within the world. It entails questioning prevailing norms and practices, critically engaging the present in ways that yield insight into the workings of existing power relations, and endeavoring to navigate those relations so that new ways of living can be created and explored. (2014, p. 124)

Taylor's (2014) suggestion that an ontology of the present is a mode of conduct implies an active relationship between the researcher and what is being investigated. The epistemological stance in critical inquiry paradigms is transactional and subjective, with the values and experiences of the researcher present and influential throughout the research process (Guba and Lincoln, 2004; Ponterotto, 2005). The researcher understands and expects their value mediated interpretations and findings (Guba and Lincoln, 2004) to be transformative in ways that encourage resistance to the norms, practices, and institutions that encourage the "conformity and obedience" that reinforces normalization (Taylor, 2014, p. 127). Kinchloe and McLaren (2005) summarize the transformative potential of research done from a critical perspective and highlight the researcher position in this process:

Inquiry that aspires to the name “critical” must be connected to an attempt to confront the injustice of a particular society or public sphere within the society. Research thus becomes a transformative endeavor unembarrassed by the label “political” and unafraid to consummate a relationship with emancipatory consciousness. (...) critical researchers often regard their work as a first step towards forms of political action that can redress the injustices found in the field site or constructed in the very act of research. (p. 305).

Methodology is the third component of a critical inquiry paradigm (Guba and Lincoln, 2004). And, in ways consistent with research goals that focus on critique, power relations, and transformative outcomes, research methodologies for critical inquiries are both dialogic (“reaching deep insights through interaction”) and dialectic (“transformative”) in nature (Ponterotto, 2005, p. 131; Guba and Lincoln, 2004). As Guba and Lincoln (2004) describe, critical inquiries are transactional in nature, and require an intense and often prolonged interaction between the research and the subjects of inquiry, often groups of people (e.g. participatory research) or, as in this research, texts (Parker, 1992). A methodological focus on discourse in critical inquiries is based on the recognition that truth claims are discursively situated and intertwined with power relations (Kinchloe, McLaren and Steinberg (2011). Given that texts and discourse are the data for this research, in the next section (4.23) I discuss in more detail discourse as a methodology in critical inquiries.

#### **4.1.2 Discourses and texts**

A discourse is a set of statements that represent commonly held but often unspoken assumptions about anything that has meaning within a particular reality, ordering that reality in particular ways (Cheek, 2004). Fairclough (1993) considers discourse to be a socially and historically situated mode of action that shapes social identities, social relations, and systems of knowledge and beliefs. Researchers see fragments of discourses, in written, verbal, and visual forms (e.g., documents, interview transcripts, poems, pictures, paintings), or in any representation of an aspect of reality (Cheek, 2004; Parker, 1992). Frequently referred to as texts, or as Fairclough labels them, “discursive events” (1993, p. 138), these fragments of discourses contain particular assumptions that presume understanding by those engaging with them (Cheek, 2004). Cheek uses the metaphor of a painting that frames a partial view of a reality, and contains clues for interpretation relevant to the social and historical context in which it was painted. As Cheek puts it, “texts are shaped discursively, in that discourses frame the assumptions that every text makes

with respect to how it will be understood” (p. 1145). In this way, texts cannot be considered transparent or value free.

In a critical discourse analysis, texts are read and considered more deeply than would be necessary for simple descriptions of content. Texts are questioned to uncover the implicit assumptions that construct the particular aspects of reality and highlight the dynamic relationships between the text, the context (e.g., historical, social, political) in which the text is produced, and the power relations involved (Cheek, 2004, Parker, 1992). For Fairclough (1993), this means systematically examining the potentially hidden relationships between discourse (e.g., discursive practices, events, texts), and ideologically shaped contexts, power relationships and power struggles (p. 135).

#### **4.1.3 A critical inquiry into knowledge translation as discourse governing health research**

The ontological and epistemological orientations of the critical inquiry paradigm I have described above are consistent with my understandings of and experiences with knowledge translation. For example, I understand knowledge translation as shaped historically through a variety of social, political, clinical, and economic influences, such as the domains Estabrooks, Derksen and Winther et al. (2008) identified (e.g. evidence based medicine, diffusion of innovations, knowledge utilization theories). Through my experience with the Canadian Task Force on Preventive Health Care (CTFPHC), I recognize that knowledge translation is historically based: 1) on the premise that health-research derived evidence is not getting to or being adequately applied; and, 2) on the assumption that better utilization of research evidence will lead to better decision making in both health care and policy development. My experiences and my interpretation of the KT literature for research projects suggests that, over time, these have become accepted as unquestioned and unquestionable truths, and form the basis for the “know-do” gap (Straus, Tetroe and Graham, 2009b.) through which health research is problematized. I have also observed through my research experiences since 2000, the growing prominence of knowledge translation in all aspects of health research, an observation that is reinforced in the literature I reviewed in Chapter 2. I have become increasingly aware of changes in the health research environment toward particular kinds of research (e.g. applied) with expectations of new activities for health researchers and research outcomes oriented toward

policy and health care decision making. Finally, Shaw's (2007) governmentality and critical discourse analysis research on the neoliberal shaping of the primary health care research agenda in Britain resonated with my own health research experiences since 2000.

With a governmentality theoretical perspective and a critical inquiry paradigm, I make the assumption that knowledge translation as a discourse has been constructed within a particular historical and social context and a web of power relations. I further assume that in interrogating (Cheek, 2004) fragments of knowledge translation discourses about how particular aspects of reality related to health research and health researchers are constructed, conveyed and maintained, the dynamic relationship between the texts, the contexts in which they were produced and the power relations involved will become visible. Specifically, I expected critical discourse analyses of knowledge translation-related texts would make visible the implicit assumptions related to how the use of health research should be considered within certain decision-making contexts, what types of health research are included and excluded, how research should and should not be conducted, and who is, or is not, considered qualified to engage in health research. These research experiences and critically oriented understandings of knowledge translation have contributed to the development of the following research questions that guided this critical discourse analysis of knowledge translation.

## 4.2 Research Questions

This research about knowledge translation is guided by the question:

**How are health research and health researchers in Canada governed through the discourse of knowledge translation at the Canadian Institutes of Health Research?**

This question is addressed by three primary questions and sub-questions that guided the analysis. These questions critically examine knowledge translation as a discourse, how it has been positioned and the rationales employed to support its importance in relation to health research in Canada. These questions also examine the role of knowledge translation in positioning health research and health researchers as objects of political importance within Canada.



**1. How is knowledge translation discursively constructed as a possible solution to concerns related to health research use?**

Sub-questions (analysis questions):

- What does KT as a discourse look like? What elements are identified as important components of KT?
- What problems are constructed (e.g., how does the “know-do gap” emerge as a problem to be addressed)?
- How does KT come to be constructed within the documents as a solution to these problems? What justifications are provided? Why is KT considered a solution? What other solutions are considered or not considered?
- What rationalities of government (e.g., neoliberalism) and rationales (e.g., economic, political) are apparent in the discourse of knowledge translation, and how do they shape the discourse?
- What authorities (e.g., experts, institutions) contribute to this discourse and how? Who is missing from the discussions?

**2. How is health research constructed within the knowledge translation discourse at CIHR?**

Sub-questions (analysis questions):

- How is “ideal” health research presented within KT discourse?
- What forms of knowledge about health are supported or discredited/downplayed by KT discourse?
- How do the rationalities of government influence the construction of ideal health research within the KT discourse?
- What kinds of research practices (e.g., questions, theoretical perspectives, methodologies etc.) are supported, not supported, or missing from KT discourse?
- What types of health research are supported or privileged and what types are left out in KT discourse?

- How is KT implicated in setting health research priorities?

### **3. How does knowledge translation discursively shape and guide the subjectivities of health researchers?**

Sub-questions (analysis questions):

- How are the expectations and responsibilities of health researchers defined?
- What does 'ideal'/non-ideal' conduct look like?
- How do the rationalities of government influence the construction of ideal conduct of health researchers within the KT discourse?
- Who is and is not subject to KT processes (e.g., all health researchers, only those in certain disciplines or doing certain types of research)?
- What technologies and practices are researchers offered as ways to become ideal health researchers?

## **4.3 Analytic Frameworks for Critical Discourse Analysis**

There are a number of broad analytic frameworks to guide critical discourse analyses, reflecting the varied histories and different theoretical perspectives from which they have developed (Shaw, 2010, Wodak and Meyer, 2009). In this sense, critical discourse analysis is considered an approach rather than a specific or fixed methodology (Cheek, 2004, Holstein and Gubrium, 2011; Parker, 1992, Potter and Wetherell, 1987, 1994). Frameworks offer guidance and a range of insights, and I drew on several in developing my initial understanding of critical discourse analysis as a methodology. For example, Potter and Wetherell (1987, 1994) view discourse analyses as social practices, examining how institutions, practices and subjects are constituted through discourses. They examine linguistic features such as content (i.e., meanings and topics), and form (i.e., grammar and cohesion) as well as more general features such as the actions performed through talk and text and how they are constructed through processes such as styles, linguistic resources and rhetorical devices. Potter and Wetherell also consider variability (e.g., in description of phenomena) within and across texts, and three general features of texts: function

(i.e., what the text is attempting to do); construction (i.e., how text is put together and potential consequences); and, variation (differences in construction within and between texts).

I also found the work of Fairclough (1992, 1993) helpful in developing my early understandings of discourse as a social practice. Fairclough, who drew heavily on Foucault's ideas about discourse, provides a series of statements about critical approaches to discourse based on a review of authors who have written about discourse analysis up to 1992 and leading to his own understanding of discourse in social theory (1992, pp. 35-36). These statements, and his definitions for key terminology offer key insights into discourse as a form of historically and socially situated social practice or action that is both shaped and shapes. I also found particularly helpful Fairclough's analysis of the influence of other discourses (and genres) on the construction of texts (i.e., interdiscursivity) and, his examination of particular discursive features of texts (e.g., metaphors).

Given the governmentality perspective and critical inquiry paradigm of this research, Parker's (1992) framework for distinguishing discourses was chosen as the main approach used to guide the analytic process. Drawing poststructural understandings, including Foucault's descriptions of discourse and power, Parker developed ten criteria for distinguishing discourses that include considerations of social and historical contexts, the construction of objects and subjectivities through discourses, and the reproduction of power relations. Parker's framework has proven useful in identifying and distinguishing different discourses, the contexts in which they emerged and overlapped, the construction of and meanings attached to objects through discourses, as well as changes in power relations (Shaw, 2010). Thus, this framework was important in conceptualizing knowledge translation as a discourse, and in distinguishing other discourses associated with the governance of health research in Canada, and the relationship among these discourses (i.e., interdiscursivity, "orders of discourse", Fairclough, 1992, 1993). For example, both types of literature reviewed in Chapter 2 identified the importance of an evidence based medicine (EBM) discourse to knowledge translation. But as suggested in Parkers's (1992) framework, contrasting the way the EBM discourse was used in the two types of literature (e.g., promoting or critiquing KT) helped untangle the relationship between the EBM and KT discourses. In a similar way, Parker's framework was also helpful to highlight how health research and health researchers have become objects of governance through knowledge

translation, what meanings and subjectivities are being assigned to health research and health researchers, respectively, and the power relations involved.

#### **4.3.1 Parker's (1992) framework for distinguishing discourses**

Parker's (1992) ten-point framework offers broad themes with which to identify discourses. He drew heavily on the work of Foucault and other poststructuralists in developing this framework at a time when there was a new paradigm of critique of "traditional laboratory-experimental social psychology" (p. xii). Parker's main focus for developing his framework was to help researchers confront the practical problems associated with carrying out a critical discourse analysis.

The analysis process Parker (1992) suggests involves asking questions of the text, and reflexively stepping back "a number of times" to make sense of the chosen statements. This process is grounded in the ten criteria in the framework, with each raising questions about the critical inquiry perspective (e.g. historical location, construction of objects and subjects) and keeps the researcher close to her/his theoretical perspectives. Parker considered the first seven criteria "necessary and sufficient" for identifying discourses, but recommended that consideration of power relations, ideological effects, and the discursive reinforcement of institutions should also be included in critical discourse analyses (p. 17). Shaw (2010) and Shaw and Greenhalgh (2008) chose this framework for their critical discourse analysis of health policy and primary care research in Britain. I have provided the framework in Appendix A and included Parker's two analysis statements that he provided with each criterion, and Shaw and Greenhalgh's (2008) summary explanations. The ten criteria are provided below in Table 1 followed by further explanation for each criteria and relevance for this research on knowledge translation.

**Table 1: Parker's criteria for distinguishing discourses**

- |  |
|--|
| <ol style="list-style-type: none"> <li><b>1. Discourse is realized in texts</b></li> <li><b>2. A discourse is historically located</b></li> <li><b>3. A discourse is a coherent system of meanings</b></li> <li><b>4. A discourse is about objects</b></li> <li><b>5. A discourse contains subjects</b></li> <li><b>6. A discourse refers to other discourses</b></li> <li><b>7. A discourse reflects on its own way of speaking</b></li> <li><b>8. Discourses support institutions</b></li> <li><b>9. Discourses reproduce power relations</b></li> <li><b>10. Discourses have ideological effects</b></li> </ol> |
|--|

“A discourse is realized in texts”: For Parker (1992) the first step in critical discourse analysis is to consider all materials as potential texts to be studied. A second part of this is to explore the “connotations, allusions and implications” evoked in the texts (p. 7), a process he recommends be done in discussion with other people for whom the texts might have different meanings. With this research, I identified a large pool of knowledge–translation relevant documents, and narrowed the sample in collaboration with my advisory committee, a process I describe in more detail in the next section (4.3.2).

“A discourse is historically located”: Consistent with the ontology of critical inquiry paradigms, an analysis must examine how discourses are located in time and history, and how a discourse makes past references to objects. Understanding the historical emergence of a discourse helps the researcher to understand the discourse in the present and how it has changed. For example, there were many references in my sample of CIHR documents to the way research was done in the past that were contrasted with how research is expected to be done through knowledge translation.

“A discourse is a coherent system of meanings”: This involves grouping together statements according to topics. The grouping of statements, through, for example, metaphors or analogies, is dependent on a “cultural coherence” or common understanding of what constitutes a topic

(Parker, 1992, p. 11). What constitutes a topic or what statements can be coherently grouped together may differ depending on the context (e.g. who benefits or is oppressed through the discourse) and the researcher who brings their own understanding of topics. For my research I examined the documents in two ways. The first was a descriptive phase through which I recorded the document background, how it was located, and my initial impressions (Section 4.4.1). A second, discursive examination across the documents led to identification of topics and a grouping of statements that I brought to the advisory committee for discussion. A sample of the topics and grouping of statements for my analysis is presented in Appendix C and described in more detail below in Section 4.4.2 (Discursive analysis).

“A discourse is about objects”: Parker identifies two analytic layers of “objectification”. The first layer draws on Foucault’s (1972) statement that discourses are “practices that systematically form the objects of which they speak” (1992, p. 8). Through language (e.g. nouns), phenomena are constructed through the discourse and given a reality. This object, constructed through the discourse, may or may not exist outside of the discourse, or it may have a different reality. A knowledge translation example is the concept of ‘translation’. When not associated with the concept of ‘knowledge’, the word ‘translation’ has different meanings, for example in reference to languages (e.g. English, French) or in biology where it can refer to protein synthesis. As Parker summarizes: “The first layer of reality, then, is the reality of the objects of the discourse, the things the discourse refers to” (p. 8). The second form of reality or objectification referred to within a discourse is the discourse itself. This is related to what Parker calls “the dialogue”, the reflection in the text about the discourse, and what the text says the discourse is about.

“A discourse contains subjects”: Subjects are also constructed within discourses, particularly through a process of self-recognition. That is, a subject may be able to “step into the space” made available in the discourse. As Parker describes: “a subject, a sense of self, is a location constructed within the expressive sphere which finds its voice through the cluster of attributes and responsibilities assigned to it as a variety of object (1992, p. 9). Parker frames this in questions, such as: “who is it addressing?” and, “what ‘role’ are we having to adopt to hear this message?” (p. 10). A second consideration concerns the question: “what rights do we have to speak in a discourse?” (p. 10). This is about who is given authority through a discourse to speak,

and what characteristics (e.g. particular knowledge, education, position) are necessary for the authority to speak. This also provides clues to who does not have the right to speak. I addressed this in response to my third research question: “How does knowledge translation discursively shape and guide the subjectivities of health researchers?” and the sub-questions that ask about the ideal/non-ideal characteristics of health researchers.

“A discourse refers to other discourses”: With this criterion, Parker (1992) is suggesting that discourses are embedded and presupposed in other discourses, becoming evident through contradictions or systematic use of terms or concepts, metaphors, models or analogies. As Shaw and Greenhalgh (2008) suggest, contrasting different ways of speaking helps disentangle this. For example, I have noted the presence of language I associate with an evidence based medicine discourse throughout my documents. Through my analysis process, I developed an interpretation of the inter-relationship between these two discourses.

“A discourse reflects on its own way of speaking”: This is related to being able to see discrete discourses, being able to pick out instances where the discourse reflects on its own way of speaking. As Parker (1992) describes it, these are situations where the discourse reflects on itself with phrases like: “for the want of a better word”, or “don’t get me wrong” (p. 14). Shaw and Greenhalgh (2008) framed this as a need to reflect on the terminology used within a discourse, and to recognize when a discourse draws on other discourses to explain itself. Parker (1992) recommends stepping back to see more of the discourse, and to bring in other readers and listeners to help identify implicit meanings and other views that may be “rarely voiced but which are part of that way of talking about things” (p. 9).

“Discourses support institutions”: Discourse can be implicated in particular ways in reinforcing an institution, for example, through particular activities. Parker (1992) uses a medical discourse as an example that is reproduced when certain activities associated with medical practice are employed (e.g. giving an injection). Parker draws on Foucault (1972) to suggest that such activities can be considered discursive practices that reproduce an institution. This criterion was particularly relevant for my analysis as I viewed knowledge translation both as a discourse and a practice.

“Discourses reproduce power relations”: With this criterion, Parker (1992) examines how power relations are reproduced through discourses, for example by identifying who is being promoted

through the discourse, or how someone might gain or lose through the discourse. This is reflected, for example, in my research questions related to the ideal or non-ideal characteristics or activities of health researchers, and who might or might not be supported with research opportunities or research funding.

“Discourses have ideological effects”: Parker views ideology for this type of discourse analysis as a “description of *relationships* and *effects*”, and suggests this criterion be used to describe relationships within a particular place and historical period (1992, p. 20). He uses the example of a religious discourse that could be viewed in an ideological way or as a discourse that empowers members of a religion.

In the rest of this chapter, I describe my document selection and analyses processes in more detail.

#### **4.3.2 Document selection**

CIHR, as a publicly funded government agency, has made available an extensive range of documents via the internet (<http://www.cihr-irsc.gc.ca/e/193.html>). These cover a broad range of topics, including, for example, documents pertaining to: CIHR’s predecessor, the Medical Research Council of Canada (MRC); CIHR’s creation, including the formal act of Parliament; strategic plans and policy documents; research funding information and decisions; and, documents related to CIHR’s 13 topic-specific institutes. At the time this research was initiated, CIHR had a formal department dedicated to knowledge translation with links to an extensive collection of KT-oriented material. As CIHR was created in 2000, I was specifically interested in documents that covered a time period from the mid-1990’s (e.g., Medical Research Council (MRC) documents) for historical background through 2012, when document sampling concluded. An initial pool of 27 documents within this time frame was selected according to six criteria, which are presented in Table 2. All of the documents were linked through CIHR’s website, including resource documents not published by CIHR (e.g., journal articles, presentations). This sampling strategy is consistent with Wodak and Meyer’s (2009) description of theoretical sampling in critical discourse analysis that focuses on “finding indicators for particular concepts, expanding concepts into categories and, on the basis of these results, collecting further data” (p. 27).



**Table 2: Initial document selection criteria**

1. Documents related to the MRC from the mid-1990s
2. Documents specifically related to the transformation of the MRC to CIHR
3. Non-KT-specific CIHR documents (e.g., strategic plans, national consultations, international reviews)
4. KT-specific documents (e.g., introduction to KT, background for KT at CIHR)
5. KT-specific strategies and policies at CIHR (e.g., CIHR's KT strategic plan)
6. KT specific resource documents (e.g., synthesis, integrated KT, end of grant KT, KT science, KT training and capacity building, Institute-specific KT documents)

A final total of thirteen documents were selected, in consultation with my advisory committee, on the basis of their relevance to knowledge translation and the research questions (Appendix B). These documents fit three specific criteria: 1) knowledge translation foundational documents that provide introduction and background information about knowledge translation at CIHR; 2) planning and policy documents that relate to CIHR's mandate and situate knowledge translation as a strategy and policy within the larger CIHR organizational context (e.g., strategic plans, policy documents); and, 3) resource documents for researchers that provide information, guidelines and examples of research in aid of applications for funding (e.g., learning resources educational modules, presentations). All of these documents were publically available on the CIHR website ([www.cihr-irsc.gc.ca](http://www.cihr-irsc.gc.ca)) as of 2012 with a single exception that was available through a library database at University of Western Ontario. A full list of the documents with descriptions is presented in Appendix B. As the documents for discourse analysis are publically available, research ethics approval was not necessary.

#### **4.4 Analysis process**

An analysis guide for this research was constructed, which outlined different analytic levels and incorporated the sub-questions associated with the three research questions. I examined each CIHR document in three phases: i) Descriptive; ii) Discursive; and iii) Interpretive. Although I

these labels imply distinct phases, in reality the entire analysis was more fluid, with overlap and constant back and forth throughout the process. I describe each of these phases in more detail below.

#### 4.4.1 Descriptive phase

Initially I examined each document descriptively, noting: the type of document (e.g., KT introductory/background; planning/policy; or resource for researchers), source (e.g., URL) and date produced; the stated purpose (e.g., intended audience); and my initial impressions. These descriptive summaries provided initial insights into the context of each document within the larger sample, including its source location, the type of document, and its explicit purpose (e.g. policy, strategic plan, training document for researcher). The descriptive phase also provided an invaluable database of my initial impressions that helped me get a ‘sense’ of the discourse as a whole. I constantly went back to these initial impressions throughout the later phases of analysis to help understand what meanings I might be imposing on the texts. I have presented an example in Table 3, including a sample of my initial impressions.

**Table 3: Example of descriptive analysis information**

**Type of document:** CIHR web-based documents (i.e., not pdf); ‘about’ type of documents; website pages that provide description, definitions, and sources and links to resources; provided definitions for KT and components, why KT is important to CIHR; links to resources with more explanations;

**Link:** CIHR home page → “The Agency” (left side) → “About CIHR → document #: “Knowledge Translation & Commercialization” → present documents;

**Intended audience:** health researchers, anyone who clicks on: ‘The Agency’ → ‘About CIHR’ → ‘Knowledge Translation and Commercialization’ → document;

**Why these documents:** This document in particular provides what I view as the starting definitions for KT at CIHR – how it is defined, why it is important etc. I assumed that starting with the definition would give me initial topics that would lead back to the history and forward to more depth into KT as a discourse. Doc (#) was a link to the present document and contained the exact same starting sentences. So analyzing them together made sense because it is analyzing the exact same material.

**Sample of initial impressions:**

- Provides links to other CIHR websites about knowledge translation. It seems to provide a basic level of information – i.e., what KT is from CIHR’s perspective, and links for more KT information.
- The ‘definitions’ and descriptions contain a lot of code words and phrases (e.g., knowledge, dynamic, iterative, complex system of interactions, knowledge users) with few definitions, especially 29418. The explanations for the key phrases and terms are as difficult to understand as the initial words and phrases they are meant to explain.
- Knowledge translation is presented in a very ‘unapologetic’ way, even its importance to CIHR, simply is ... After reading these two paragraphs, I would still not know what KT is ... however, it is a powerful beginning, leaving no room for questioning ...

#### 4.4.2 Discursive phase

The second analysis phase for each document was more discursive in nature, and involved examining the construction of document in terms of themes/main topics, functions and actions, and discursive features, such as metaphors. I paid close attention to the terminology used in each document, making a list of key terms and noting how such terms (e.g. ‘knowledge’, ‘translation’, or the ‘gap’) were defined and used. I noted what was being problematized, how and with what language. Consistent with Parker’s (1992) framework, I noted what and how “objects” or topics and subjects were being constructed in the texts and started broadly grouping statements together that seemed to be related, under headings (codes). I have provided a sample of these groupings in Appendix C. For example, I noticed statements that were related broadly to the characteristics of knowledge translation and grouped these together under the headings such as: ‘the gap’; KT as a process; or, KT as a science (Appendix C). This process was done within each document separately and then across documents. These headings (codes) and grouped statements were brought to advisory committee meetings and stimulated extensive discussions about interpretations and meanings.

I used a qualitative analysis program during this phase to create a single searchable database that included all 13 documents of my sample. This qualitative analysis program, HyperResearch (version 3.5.2), Researchware Inc, 2013 (<http://www.researchware.com/>), was chosen because it was compatible with my computer’s operating system. Documents were brought into HyperResearch as text files, and units of text were highlighted and labeled with an explanatory code that related to the text (e.g., “KT as science”; “metaphor”; “accountability”). Highlighted pieces of text remained visible in their original location in the document with the code added, providing a traceable history for every analysis decision. Codes were fully searchable across documents, and the software allowed for notes and reflections to be attached to both documents and individual coded pieces of text, providing a flexible platform for interpretation as it developed. This database of grouped statements and pieces of text, combined with my observations and reflections allowed me to reflect more deeply on my changing interpretations.

### **4.4.3 Interpretive analysis**

The interpretive phase was an extension of the discursive phase, and involved examining my coded sections of text within the context of my research questions and Parker's (1992) criteria. This involved deeper reflections on my coded and grouped pieces of text, comparing and contrasting across documents to develop the broader themes and characteristics of the knowledge translation discourse. For example, it was during this iterative phase and in discussion with my advisory committee that the three rationales that create an imperative for knowledge translation became apparent. This interpretive phase continued throughout the writing of the results and discussion chapters, with constant referencing back to the research questions, Parker's (1992) framework, and discussions with my advisory committee, until no new understandings were gained (Wodak and Meyer, 2009; Jäger and Maier, 2009).

## **4.5 Quality, trustworthiness, and researcher values**

It is important that the assumptions and values that I as the researcher bring to discourse analysis be recognized, acknowledged, and reflexively examined throughout the research. This is based on the recognition that analysis is an interpretation, and thus researchers need to be sensitive to their own interpretive tendencies and socially situated reasons for them (Fairclough, 1992). Cheek (2004) recounted her own dilemma as researcher in deciding how far she should go as analyst in relation to interpretation of text and the context in which the text was produced. She observed that in discourse analysis the analyst has great power "to impose meanings on another's texts" (p. 1146), that analysts are also producers of discourse, and both analysts and readers of texts bring their own understandings to the interpretive process. Parker (1992) describes this as "coherence" in his framework for distinguishing discourses. Coherence relates to how statements in a text are grouped together constitute a particular topic. Parker points out that coherence is a function of both the context (e.g. who benefits or is oppressed through the discourse), and the understandings of the research/analyst. Fairclough is more explicit, viewing coherence not as a property of texts, but "a property which interpreters impose upon texts" (1992, p. 134). As Fairclough describes, coherency is not an unqualified, conclusive property of

interpretation, but contextual, depending on the analytic purposes and the interpreter. In his words: “a coherent text hangs together sufficiently well for present purposes as far as the interpreter is concerned, which does not preclude indeterminacies and ambivalence.” (p. 134). Thus, coherency differs with different interpreters, each of whom brings their own backgrounds and understandings of the text and topics. Fairclough points out that coherency also relates to how the producer of the text implicitly creates “interpretive positions” for the reader, with the assumption that the reader will be able to make coherent “connections across the intertextually diverse elements of a text” (p. 135). This last point is important for my analysis for several reasons. It reinforces coherency as a property of the interpreter(s), who makes the relational connections within a single document, and across documents to create a more or less coherent interpretation of a discourse. The second reason implicit “interpretive positions” is important relates to the critical inquiry position from which I am analyzing and interpreting my sample of CIHR documents. My analysis and interpretations involved what Fairclough calls “resistant readings” (p. 136); I am purposely resisting the implicit “interpretive position” of the texts.

In keeping with this interpretive position of coherency, I identify my own assumptions about knowledge translation as follows, based on a broad range of health research experiences, including knowledge translation research projects. The most recent graduate experience as a Ph.D. student has offered the opportunity to reflect on my experiences in health research in new ways through class papers, but also to adopt a critical perspective in examining knowledge translation. Consistent with a critical epistemological stance, I recognize my assumptions are a part of the voice and the values that I bring as researcher to this interpretation and critique of knowledge translation, and have been an important part of my reflections throughout each phase of the analysis process described above.

Regarding health research, I bring the following assumptions and reflections. I view health research as a diverse, complex practice that is highly contextual, fluid and constantly changing, often in contradictory ways. Through my diverse health research experiences, I have come to recognize a political and social nature to health research that means I do not consider it to be neutral or value free. I view health research as social practice that includes multiple discourses such as those associated with academia, specific academic disciplines, health and medicine. I recognize that there are existing (traditional) processes associated with the practice of health

research that provide evaluation of research studies (e.g., peer review). In my experience, a single research study is not an isolated event, but builds on a body of research evidence and researcher experiences, that have been subject to evaluative processes such as stringent peer review at conferences, through peer-reviewed publications, and grant proposal competitions.

My analysis is partial and perspectival, and my results represent my interpretations of coherency. They are not the only interpretations possible. That said, I have grounded my interpretations by linking them with specific quotes from the documents. My analysis process has been transparent, and involved systematically documenting every decision made (i.e., a decision trail, Cheek, 2004). This was done in a number of ways. I have an analysis database of associated with each phase of analysis that includes my changing interpretations. I have provided examples of my thematic codes and excerpts of text and transcripts with explanations of my interpretations in Appendix C. This allows readers with different interpretive tendencies to understand how I have reached my conclusions while recognizing that they may reach different conclusions. As well, I challenged and strengthened my own interpretations during the analytic and writing phases through extensive discussions with my thesis committee, each of whom contributed their own unique theoretical backgrounds and interpretive contexts to my final interpretation. Each meeting was audio recorded and saved to computer, and I transcribed verbatim the majority of the meetings. These transcriptions have proven invaluable as part of my decision trail. Finally, there is a broad literature about knowledge translation and health research in Canada, as reviewed in Chapter 2, that helped with insights about the contextual consistency and relevance of this research. Overlaps and contrasts between my results and the KT literature should allow readers insights into my interpretations and construction of reality regarding knowledge translation.

## Chapter 5

### 5 Results

#### 5.1 Introduction

The results are presented in six parts. I start with an examination of three rationales that circulate throughout my sample of CIHR documents and form a discursive imperative for knowledge translation at CIHR. These are not the rationalities that guide actions at a governmental level, but the kinds of rationales that shape and justify more local actions at the level of CIHR. The three rationales are: i) a perceived gap between research and application in health care; ii) health, health system and financial accountabilities related to demonstrating returns on investment in health research; and, iii) commercialization of health research leading to economic prosperity and global leadership for Canada (Section 5.2). These rationales construct particular problematizations with the use of health research, and solutions or benefits that are expected to result from the translation of knowledge from health research into action. In Section 5.3 I examine how knowledge translation is constructed as a discourse with specific characteristics that position it to function in ways consistent with the three rationales in shaping health research and researchers in particular directions. In Section 5.4, I show how the “ideal” health research for the “translatable” knowledge (expected to achieve outcomes associated with the three rationales) is constructed. In Section 5.5 I show how a change in culture for health researchers is constructed. This new culture positions researchers as the workforce that is expected to meet stakeholders’ needs through adoption of knowledge translation processes. In the final section of this chapter (Section 5.6), I examine four roles of CIHR, constructed through its “bold and transformative mandate”, and through which CIHR facilitates changes in the health research culture to maximize the expected outcomes consistent with the three rationales from Section 5.2. CIHR’s roles include: (i) Government of Canada’s “health research investment agency”; (ii) a knowledge translation agency; (ii) governor and manager of health research and researchers; and, (iii) an international authority in knowledge translation.

## 5.2 A gap between creation of knowledge and its application

The first rationale through which the use of health research is problematized is a perceived “gap” between the creation of knowledge and its application. This “gap” is present in all of the documents of my sample, and is associated with both positive and negative effects. When presented as positive, the gap is established through references to the expected positive benefits of closing the gap (i.e., “improved health”; “more effective” or “strengthened” health care services or systems; or “better health, better health care”). When phrased in the negative (i.e., the benefits do not occur), the gap is constructed as requiring a solution. For example, in the following quote, the gap is implicitly constructed as a problem because the “creation of new knowledge” does not lead to the expected positive benefits. The rationale for a solution is constructed with the phrase “not on its own”:

The creation of new knowledge often does not on its own lead to widespread implementation or impacts on health. (CIHR, 2010a, p.1)

The problem is named more specifically in the next quote as the “know-do” gap, where “know” represents the knowledge generated from health research, and ‘do’ represents the actions expected from the implementation of knowledge, actions expected to result from knowledge translation. Knowledge translation becomes defined in relation to the gap (as the solution):

Knowledge translation (KT) is about: (...) closing the gap between what we know and what we do (the know-do gap) (CIHR, 2009b, p.6)

### 5.2.1 The gap as two problems

The gap is described as made up of two types of problems in the discourse. One is expressed as a problem of timing, that is, as a form of delay or unevenness to get research results into the expected action. Strong language is used to describe this problem, such as “haphazard” and “unacceptably long”, emphasizing the seriousness of this problematization. These adjectives also describe the second gap-related problem: the negative consequences of research results not being incorporated into practice in a timely manner. Dire consequences are predicted such as patients being denied necessary treatment. The linking of a time or uneven delay between the incorporation of health research into practice and serious consequences suggests a subtle cause



and effect relationship between health research and expected outcomes. These problems are evident in the following quote that demonstrates a discursive linking of both gap problems with an aspect of the second rationality, financial accountabilities (Section 5.2.2). Connecting the gap with financial accountabilities suggests a relationship between investment in health research and the problem of the transfer of research results into practice. The gap as a problem occurs despite “considerable resources” that are available for health research:

Despite the considerable resources devoted to health sciences research, a consistent finding from the literature is that the transfer of research findings into practice is often a slow and haphazard process. This means that patients are denied treatment of proven benefit because the time it takes for research to become incorporated into practice is unacceptably long. (Graham, Logan, Harrison et al., 2006, p. 13)

The gap is constructed as a “consistent” problem, particularly given a time delay that is considered “unacceptable”. The next quote frames the gap within the language of health (i.e., “realization of health”) and economic accountabilities. The linking of these themes is common in many of the texts. The gap also becomes identified as a “common” international problem that is not just confined to Canada. This language suggests that the gap as a problem is widespread, experienced by other countries, adding a quality of shared responsibility to potential solutions for bridging the gap:

While health research has made revolutionary strides over the last 50 years, there remains an unacceptable lag time between discovery and the realization of health and economic benefits from applying the knowledge generated through research. Thus, countries and societies face the common challenge of how best to mobilize research to bridge the gap between what we know and what we do. (CIHR, 2004b, p. 6)

Further, the gap is presented as having been a problem almost as long as the successful outcomes of health research have existed, with a history of at least 45 years, previously in the realm of quality assurance work. The explicit linking of the gap with health and economic accountabilities, together with the mobilization of an evidence based medicine discourse brings the gap forward from quality assurance to a more “current” time frame:

Although it has been ongoing since the early quality assurance of Donabedian in the 1960’s, the growing awareness that research findings are not making their way into practice in a timely fashion, coupled with the current emphasis on evidence-based, cost-effective, and accountable health care, has stimulated increased interest in finding ways

to minimize what might be described as the knowledge-to-action (KTA) gap. (Graham, Logan, Harrison et al., 2006, p.14)

The gap is frequently mentioned in the documents I analyzed, and is constructed in the KT discourse as having attained the status of being self-evident. The Graham et al., (2006) document is the only one of the thirteen documents of my sample that reviews any specific evidence for the gap, and is the only document cited as providing this evidence. The literature cited by Graham et al., covering the time period from 1990 to 2005, draws on the language of the well-established discourse of evidence-based medicine. This focuses attention on results of randomized controlled trials, practice audits, and patients not receiving care based on the best evidence. Specific problems cited in the Graham et al. document include patients not receiving scientifically proven care, care that is not needed, outdated, not consistently applied, or harmful:

Also, practice audits performed in a variety of settings have revealed that high-quality evidence is not consistently applied in practice. For example, although several randomized trials have shown that statins can decrease the risk of mortality and morbidity in poststroke patients, statins are considerably underprescribed. In contrast, several studies have shown that antibiotics are overprescribed in children with upper respiratory tract symptoms. At the same time, there are problems with premature adoption of some treatments before they have been shown to be beneficial. When this occurs, patients are exposed to potentially ineffective and even harmful treatments. (Graham et al., 2006, p. 13)

There are also estimates of reduced mortality from cancer with optimum application of knowledge (as of 2006), and problems with the volume of research literature that make it difficult for practitioners to keep current. Citing this particular literature supports the construction of the “knowledge-to-action gap” as a problem that requires a solution:

There is also the issue of the growing accumulation of evidence and practitioners’ ability to keep up to date. Focusing on studies of cirrhosis and hepatitis in adults published between 1945 and 1999, by 2000, only 60% of the conclusions were still valid, 19% were considered obsolete, and 21% were considered false. For many reasons, research findings are not being taken up in practice settings, and many patients are not receiving the best possible care. This situation results in inefficient use of limited health care resources. (Graham et al., 2006, pp. 13-14)

From a governmentality perspective, the finding that only one of the thirteen documents analyzed for the present study provides evidence for construction of the gap and is cited for that

evidence, suggests that the existence of the gap within the discourse of KT at CIHR has become a truth that is generally uncontested. That is, the acceptance of the gap as self-evident is so prevalent within the discourse that in explanations of why knowledge translation is important to CIHR, it is presented as requiring no explanation and thus as offering few opportunities for questioning. This is demonstrated in three quotes below, each of which refers to the same text that is widely repeated in my sample of CIHR documents. The similarity of the language describing the need to close the gap and the expectations of particular beneficial outcomes evident in these quotes from multiple documents is another indication of the gap as self-evident:

KT is important to CIHR because:

The creation of new knowledge often does not on its own lead to widespread implementation or impacts on health. (CIHR, 2010a, p. 1; Tetroe, 2007, p. 2)

CIHR wants to close the gap between the knowledge that the research community generates and what is done with that knowledge. (CIHR, 2010b, p. 1)

Knowledge translation (KT) is about:

- Making users aware of knowledge and facilitating their use of it to improve health and health care systems
- Closing the gap between what we know and what we do (the know-do-gap)
- Moving knowledge into action (CIHR 2009b, p. 6)

### **5.2.2 Accountabilities: improving health and the health care system while demonstrating returns on taxpayer investments**

The second rationale that constructs an imperative for knowledge translation is about accountabilities for investment of resources in health research. Within the KT discourse, there are two types of accountabilities articulated: i) accountabilities associated with health and the health care system; and, ii) financial accountabilities associated with taxpayer investments and their management. The health and health care system accountabilities are a common discursive theme in the documents, connected with the gap rationale. The accountability language associated with the gap is one of expected health benefits, such as improved health for Canadians and a better (i.e., more efficient) health care system. The second construction of accountabilities draws on and mobilizes language that is more explicitly financial, with particular emphasis on

demonstrating returns on investments to taxpayers and managing investments wisely. These two facets make up the second rationale of this KT discourse and are presented below.

In the CIHR documents I sampled, the implementation of health research into action is presented as resulting in changes to the health of Canadians and to health services or health care, framed as expected benefits (e.g., “realizations”, “impacts”). Powerful accountabilities are constructed through the discourse when the health of Canadians and the health care system are put at stake. The following quote, from CIHR’s second strategic plan, provides examples of the language of accountability for the health of Canadians and the health care system with a list of the positive expected outcomes that are assumed to follow from successful translation of knowledge. The phrase “Canadians expect” adds power to these accountabilities by suggesting the active involvement of Canadians in developing these expectations:

Canadians also expect health research to inform improvements in access to timely, affordable and quality health care. (CIHR 2009c, p. 18)

The CIHR documents I sampled provide other examples of how Canadians and other actors are discursively mobilized in powerful ways with multiple types of accountabilities associated with health and the health care system. For example, in the following quote from CIHR’s first strategic plan, at least four different types of accountabilities are described, with those to whom accountability is to be demonstrated clearly indicated. First, the “health and well-being” of Canadians, their families, friends, and communities are connected with “Canada’s future success”. This is followed with a statement about Canadians’ concern not just for their own health, but that of their families, friends, and communities. A third accountability is evident with the suggestion that Canadians have “great pride” in their health system. Finally a fourth is added, that of Canadian’s expectations of access to “high quality” services, available when needed:

Canada’s future success depends on the health and well-being of its people. Canadians care about their health and that of their families, friends and communities, and they take great pride in their health system. Not surprisingly, Canadians have come to expect access to high quality health services based on need. (CIHR 2004b, p. 5)

Accountability for the success of Canada’s future is put another way in CIHR’s first strategic plan, which praises the Government for its action (i.e., recognition) of the expected benefits of

stimulating and translating health research with the creation of CIHR. In this quote it is CIHR that is positioned as accountable to Canada by virtue of its mandate:

The Canadian government has recognized the central importance of health research for the future of Canada by establishing CIHR in 2000 with the mandate of both stimulating excellent health research and translating it into an improved health system, more effective products and services, and ultimately, improved health for Canadians (...) (CIHR 2004b, p. 7)

While CIHR is positioned as accountable for ensuring research is constructed and translated into benefits, the language of accountability is even stronger for health researchers who are discursively constructed as having a “responsibility to ensure” that their research will result in improvements in the “lives of Canadians” and for the future Canada:

Yet, Canada’s health researchers have a responsibility to ensure that public investment in their work can improve the lives of Canadians and the future of our country. (CIHR 2009c, p. 8 italics in original)

Health care system accountabilities are also constructed as necessary to ensure public safety and security against the potential of diseases and health challenges posed from beyond Canada’s borders (e.g., SARS). Particularly interesting in this quote is a subtle positioning of the health system and the “research community” as accountable for public safety and security in the face of such health threats:

In a mobile world, health challenges and disease know no boundaries. New diseases are appearing, and what were once considered “third world” issues are becoming first world concerns. Public safety and security requires a health system and research community that can respond quickly and appropriately to rapidly emerging health issues. (CIHR 2004b, p. 6, emphasis in original)

Finally, there are references made about gap-associated accountabilities to potential users of health research (i.e., health professionals and decision makers) to ensure they can do their work. The language of evidence-based medicine is used to frame these accountabilities in terms of expectations for particular types research to be put into practice with economic efficiency. This implies that researchers are accountable to engage in particular types of research that will produce the type of evidence useful for health professionals and decision makers:

Health professionals and decision makers need evidence on how to deliver the best care in a cost-effective manner. Research focused on patients and other users of health services is the cornerstone of evidence-based health care. (CIHR, 2010b, p.1)

The language that constructs financial accountability draws more explicitly on discourses of business and economics rather than on the evidence-based medicine discourse associated with the gap-associated accountabilities. This is particularly evident with the focus on the need to demonstrate returns on investments in health research and assurances that investments are being managed wisely. This accountability is to Canadians who are positioned in the discourse as investors who provide money to CIHR through their taxes. The language of financial accountability is evident in the following quote that clearly positions CIHR, by virtue of its KT mandate, as accountable to demonstrate to Canadians a return value in exchange for their investments in health research in the form of benefits:

Knowledge Translation (KT), a prominent and innovative feature of the CIHR mandate, has the potential to:

Significantly increase and accelerate the benefits flowing to Canadians from their investments in health research; (CIHR 2004a, p.3)

As with the gap, the power of this type of accountability is increased when “Canadians” are mobilized as active participants who “want” assurances that their investments are being managed in accordance with their beliefs about quality:

Canadians want to know that their investments in health research are wisely managed. (CIHR 2010b, p.1)

Canadians (...) also believe that the future quality of Canada’s health system is related to investments in health research today. (CIHR 2004b, p. 5)

In another example, accountabilities to government and the public for investment of taxpayer dollars in health research are to be demonstrated through benefits that are expected to follow from the incorporation of research findings into policies, programs and practice. Connecting taxpayer dollars with policies, programs, and practices shows the connection of this accountability rationale with the gap rationale:

(...) accountability from the federal and provincial governments, as well as the public, makes it increasingly important to demonstrate the benefits of the investment of taxpayer

dollars in health research by moving research into policy, programs and practice. (CIHR 2010a, p. 1; CIHR 2012, p.1)

(...) the past 10 to 15 years have seen increased emphasis on (...) accountability from the federal and provincial governments, as well as from the public. All of these interested parties want to see the benefits reaped by taxpayers' dollars invested in health research by moving research into practice/action. (Tetroe 2007, p. 2)

The language of return on investments in health research is strongly connected to health and health care expectations in CIHR's first strategic plan. While the next quote does not specifically mention knowledge translation, it does summarize the expectations associated with the KT discourse by drawing on both evidence-based medicine and business discourses to "sell" the benefits of investment in health research on multiple levels.

The benefits for Canada of sustaining and increasing our investments in health research are clear. They include:

- a healthier nation overall and better quality of life for individuals;
- a strengthened, responsive and more productive health system;
- challenging careers for young Canadians;
- rewarding work to keep our best and brightest researchers, mentors and educators in Canada;
- rapid adoption of sound research into evidence-based practice, programs and policies;
- stimulation of economic development through discovery and innovation; and,
- branding of Canada as an international leader in health and health research. (CIHR 2004b, pp. 7-8)

These benefits include: improving public health and the health care system; "evidence-based practice, programs and policies"; and, support for researchers and those seeking research careers.

### **5.2.3 Boosting Canada's economic prosperity and competitive edge in a global knowledge economy**

The third rationale creates an imperative for knowledge translation through emphasis on economic uncertainty. Economic uncertainty is used to construct the expectation that investment in health research will yield direct economic benefits for the nation, ensuring prosperity and an internationally competitive advantage for Canada in a global knowledge economy of health research. The economic challenge is placed both within Canada and beyond Canada's borders in

the following quote from CIHR's second strategic plan, adding to the importance of the uncertainty of the economic environment and the investment in research as the solution:

CIHR presents its second Strategic Plan during a period of unprecedented economic uncertainty. It has been particularly rewarding, therefore, to see the widespread conviction expressed on both sides of the 49<sup>th</sup> parallel that investment in research is vital to future growth and competitiveness and will help to stimulate the economy and secure prosperity. (CIHR 2009c, p. 2)

Economic recession and losses in revenue and employment in the manufacturing section are mobilized in this strategic plan to construct an economic rationale for investment in "science" and "innovation" as necessary to promote economic sustainability for both traditional and knowledge economies. Linking investment in health research with science, innovation, and competitiveness provides insights into the characteristics of the kinds of research viewed as the solution for economic prosperity. Constructing the economic and manufacturing losses as more than just Canada's problems (i.e., North America) adds an international importance to the investments and suggests larger, overarching national-level rationalities of government are involved:

While the North American manufacturing sector has sustained considerable losses of revenue and employment, the recession's impact on health research has also been significant. Fortunately, the Canadian and American governments recognized that to build momentum and ensure future economic sustainability, they needed to invest not only in the traditional economies, but also in the knowledge economy. Both governments realize that investing in science and innovation is essential to staying competitive. (CIHR 2009c, p. 7)

The need for a focus on science and technology is constructed as a rationale for the Government of Canada to support research that *excels* and is translatable into applications that are considered "practical", or useful that will create a national competitive advantage:

In its Science and Technology (S&T) Strategy, 'Mobilizing Science and Technology to Canada's Advantage', the Government of Canada has recognized the centrality of S&T (...) to securing Canada's national competitive advantage. (...) The government of Canada's 2007 Science and Technology (S&T) Strategy emphasizes building research excellence, translating knowledge into practical applications. (CIHR 2009c, pp.2, 4)



Further, Canadians in general are mobilized as active participants in the sample of documents through their (constructed) expectations for new drugs and treatments that represent practical applications, adding a language of accountability to government actions in investing in science and technology on their behalf:

Canadians expect health research to continue to deliver new technologies, treatments and drugs as a result of government investment in research. (CIHR 2009c, p. 18)

New imaging methods and technologies are offered as examples of the innovations expected to result from investment in health research. Not only are these examples anticipated to fulfill Canadians' expectations for better health services, but they are also expected to contribute to Canada's "competitive advantage" when they are made available to other countries:

New imaging modalities will allow more precise and less invasive methods of detecting early signs of disease and the onset of natural processes such as aging. (...) New technologies such as telehealth are already leading to novel approaches to the delivery of health services to remote areas of Canada and even to other countries. (CIHR 2004b, p. 5)

The discursively constructed expectation in this third rationale is that, through investment in innovative and scientific health research, not only will the potential of health research for stimulating the economy be realized, but Canada's international leadership position in the fields of health research and knowledge translation will be ensured:

Canada is well positioned to realize the potential of health research and to become an international leader in both the creation and use of knowledge through research for the benefit of Canadians and the world. (CIHR, 2004b, p. 4)

#### **5.2.4 Summary**

Through my critical discourse analysis I have identified three interconnected rationales that construct problems and justifications for the translation of health research at CIHR. Substantial expectations are constructed for the particular outcomes from investment in and use of health research. The first rationale, the "know-do" gap, problematizes the use of health research in terms of both the time it takes for the results to get into practice and the potentially dire consequences of this delay. These negative consequences are described in terms of: patients (e.g., lack of health, death), health care practices (e.g., inappropriate patient treatment), and the

health care system (e.g., lack of patient access, inefficient use of resources). The gap is constructed as a “consistent” problem, achieving status as an unquestioned truth in the KT discourse.

The second rationale highlights two aspects of accountability associated with the use of health research: health and health care related; and financial. Health and health care related accountabilities are expressed in terms of expected health related benefits: improved health of Canadians; improved health care; a strengthened health care system. This rationale explicitly positions CIHR and health researchers as accountable to: Canadians (i.e., “Canadians expect”), patients, families, friends, communities, health care professionals, and multiple levels of government. The second rationale also draws on the language of business to construct accountability in terms of returns of financial investments in health research, particularly investments by governments on behalf of Canadian taxpayers. These investments are expected to accelerate the potential benefits from closing the gap (i.e., move knowledge into “action”), particularly in policies, health care practices, the health system, and Canadians’ health.

The third rationale constructs an expectation that investment in health research that is considered excellent, innovative, and likely to result in commercially viable products will lead Canada (and North America) out of economic uncertainty into prosperity, and secure a globally competitive advantage for Canada as an international leader in health research.

### **5.3 Knowledge translation at CIHR: characteristics and processes**

The equation-like title of a one-page CIHR pamphlet provides discursive evidence of how knowledge translation is constructed to function in ways that will enable the expected beneficial outcomes of the three rationales described in the previous section. Knowledge translation is positioned between research and the expected health and health care benefits, with the implication that, without knowledge translation, the potential benefits expected through the rationales will not be reached through research alone. The equation is followed in the pamphlet with text that makes the connection between knowledge translation and the accountability and economic prosperity rationales that construct the imperative for its use:

Innovative research + knowledge translation = better health, better health care

At the Canadian Institutes of Health Research (CIHR), we believe that supporting innovative health research and facilitating knowledge translation (turning findings into improved practices, products and policies) means better health for Canadians, a better health-care system and a stronger economy. (CIHR 2010b, p. 1)

In the follow section I examine some of the conceptual features with which knowledge translation is endowed through the discourse.

### **5.3.1 Knowledge translation as universal, all-encompassing, and action oriented**

Knowledge translation is considered “a broad concept” (Tetroe, 2007, p. 1) with the most prominent construction in the discourse as universal and all-encompassing. This dominant construction allows knowledge translation to be positioned as: inclusive of a wide range of approaches; relevant to all knowledge users; applicable at all levels of decision-making; and as a solution to terminology confusion within the KT world.

The construction of knowledge translation as universal and all-encompassing is evident in a variety of ways. Knowledge translation subsumes and builds on all approaches identified as KT-related regardless of the source discipline (e.g., continuing education, continuing professional development, Graham et al., 2006, p. 22). This inclusivity presumes a common focus on the use (i.e., “uptake”) of research among these different disciplines and approaches, facilitating their conflation into a single concept:

The concept of KT is not at all unique to medical research, it has been used in many other disciplines, where it is known by other names. (...) the process that is KT is appropriate to any discipline – it is about facilitating the uptake of research. While the process is universal, the content/context varies. (Tetroe, 2007, p. 2)

In a similar fashion, the all-encompassing quality ascribed to knowledge translation extends to all steps in the processes between new knowledge creation and its ultimate use. This echoes the equation at the beginning of this section that places knowledge translation between research and the expected “beneficial outcomes”:

It encompasses all steps between the creation of new knowledge and its application to yield beneficial outcomes for society. This includes knowledge dissemination, communication, technology transfer, ethical context, knowledge management, knowledge

utilization, two-way exchange between researchers and those who apply knowledge, implementation research, technology assessment, synthesis of results within a global context, development of consensus guidelines and more. (CIHR, 2004a, p. 4)

The diverse terminology associated with knowledge translation-related processes also becomes problematized as complex and confusing, and extends to the interchangeable ways in which the terms are used (i.e., as noun and verb):

Some of the more common terms applied to the KTA process are knowledge translation, knowledge exchange, research utilization, implementation, dissemination, and diffusion. (...) This situation is further complicated by the use of the terms often interchangeably. Some are used as nouns to describe the entire process that results in the use of knowledge by decision makers. Others are used as verbs to represent actions or specific strategies taken to cause the uptake to occur. (Graham et al., 2006, p. 14)

As with knowledge translation as a concept, terminology confusion becomes resolved within the discourse by positioning the terms for similar concepts as a “subset of KT”, regardless of their original meanings or sources:

Terms such as continuing medical education (CME), continuing professional development, and translational research have often been used interchangeably with the term knowledge translation, but we would consider each of these to be a subset of KT. (Tetroe 2007, p. 2)

Another focus within the discourse is on knowledge translation as a process that involves “action”, suggested by the term “knowledge to action”. Powerful terms are used within the discourse to convey this action-orientation role of knowledge translation. For example, Tetroe (2007) uses the term “organic” to describe the process in the knowledge to action model on which knowledge translation at CIHR is based, linking the term with a technical characteristic of “defined steps”:

Knowledge to action is an organic process with defined steps—a process with defined steps (Tetroe 2007, p. 2)

Other action-oriented phrases include “dynamic and iterative” in CIHR’s current and widely reproduced definition of knowledge translation:

At CIHR knowledge translation (KT) is defined as a dynamic and iterative process (CIHR 2010a, p. 1)

Use of the strong metaphor “organic” to describe the KT process conjures images of the process as natural, healthy, and positive, suggesting something that is living and growing. This is reinforced in the CIHR definition of knowledge translation with the label “dynamic” suggesting fluidity and flexibility, and “iterative” that implies a repetitive, back and forth type of process. These qualities fit well the construction of knowledge translation as “all-encompassing” and ‘universal’, and confer on the KT process a sense of active adaptability. This adaptability also aligns well with the diverse beneficial outcomes associated with the three rationales expected from the use of health research described in Section 5.2.

### **5.3.2 Constructing knowledge translation as a science and field of research**

The results thus far show that knowledge translation is constructed as an active-oriented process that, when added to health research, is expected to ensure that the beneficial outcomes associated with the three rationales (i.e., the gap, accountabilities, economic prosperity) become realized. This construction of knowledge translation as ‘active’ reinforces a technical role, encompassing all of the programs, strategies, mechanisms, and technical procedures through which the expectations of the rationales will be realized. The justification for this technical role is evident in the following quote with the phrase “planned and focused interventions”, implying the need for a deliberate and calculated (e.g., scientific) approach:

The evidence, while limited, is fairly consistent that change is more likely to occur with more planned and focused interventions. (Graham et al., 2006, pp. 20-21)

Constructing knowledge translation as a science and as a field of research implies qualities of objectivity and standardization that confer substantial powers and legitimacy to fulfill a technical role. As a scientific field, knowledge translation gains the productive power to mobilize resources (e.g., “support”, “concepts and theories”) for research necessary to prove its effectiveness:

Supporting KT research is essential in order to develop the *science of KT*, and will lead to better understanding of the concepts and theories that underlie effective KT and better determination of effective strategies for knowledge translation. CIHR 2004a, p. 6, italics in original)

Construction as a science confers on the knowledge translation discourse the power to resolve areas of conceptual confusion and terminology such that gaps in the science of knowledge translation can be identified and a research agenda can be formed. For example, the development of a common language allows the full extent of KT-oriented characteristics and processes to be shared and applied more broadly:

The establishment of a common nomenclature is also often an important step in advancing a new field of scientific inquiry and is particularly useful in outlining the research agenda and highlighting its gaps. (Graham et al., 2006, p. 22)

The expectation is that, with consensus on KT terminology and definitions, communication across a variety of settings will be enhanced, the science of knowledge translation will advance, and knowledge translation can be employed more broadly. For example, with a common nomenclature, those who are expected to be involved in knowledge translation can be identified (e.g., “knowledge producers”, “implementers and users”), conceptual differences can be resolved (e.g., clarifying the “boundaries and nature of the terrain”) and the mechanisms through which KT research will be done can be specified (e.g., through “effective and meaningful” communication):

Our description of the variability in the operational definitions of knowledge translation and knowledge transfer demonstrates that the KTA field, while not exactly uncharted territory, is territory that has differing views on its boundaries and on the nature of the terrain. In order to advance the science of KTA, consensus on terms and definitions is essential if knowledge producers and implementers and users are to effectively and meaningfully communicate with each other. (Graham et al., 2006, p.22)

Another important step in the solidification of knowledge translation as a science is construction of a series of “defined steps” (Tetroe, 2007) through which the KT process is expected to occur. These steps: synthesis; dissemination; exchange; and “ethically-sound application of knowledge” are usually listed in the texts in a particular order, as if one step needs to follow the other, as in the CIHR definition for knowledge translation:

At CIHR knowledge translation (KT) is defined as a dynamic and iterative process that includes synthesis, dissemination, exchange, and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system. (CIHR 2010a, p. 1)

The steps are described as the “ideal” process that takes place between “knowledge creation” and “action”. This is evident, for example, in the following quote that refers to the “Knowledge to Action” model of KT on which CIHR’s knowledge translation framework is built:

The Knowledge to Action Process conceptualizes the relationship between knowledge creation and action, with each concept comprised of ideal phases or categories. (CIHR, 2010a, p. 2)

The construction of knowledge translation as both a science and field of research creates the need to develop a capacity among researchers to engage in KT research through proposal development and evaluation:

(...) with KT still an emerging field, there exists a need to build capacity not only in developing research proposals with a KT approach but also in assessing those proposals for scientific merit and potential impact. (CIHR, 2012, p. ii)

A need is also constructed to offer researchers opportunities to participate in KT research:

Researchers interested in increasing the impact of their work through contributing to the KT process have a variety of options to pursue. They can contribute to both the science and the practice of KT. (Tetroe 2007, p. 5)

The defined steps of knowledge translation are also an important component of the construction of knowledge translation as a science. For example, the step of knowledge synthesis involving “the contextualization and integration of research findings of individual research studies” (CIHR 2010a, p.1) is positioned as important to identifying gaps in research that need to be addressed:

Through knowledge synthesis such as systematic reviews, we can determine areas, based on strong evidence, that are ready for application and work with partners to move findings into practice. (CIHR 2009c, p. 26)

Finally, the “defined steps” are constructed in ways that suggest compliance with scientific method, in this case, an approach that emphasizes reproducibility and transparency in methodology, and draws on its all-encompassing nature of knowledge translation through the inclusion of both quantitative and qualitative methods:

A synthesis must be reproducible and transparent in its methods, using quantitative and/or qualitative methods. (CIHR 2010a, p. 1)

### 5.3.3 Summary

In this section I have examined how knowledge translation is discursively constructed with specific conceptual, process, and scientific qualities that position it as the solution to the problematizations constructed through the three rationales. Knowledge translation is positioned as the necessary step between health research and achievement of the expected beneficial outcomes of: better health and more efficient health care through closing the “know-do” gap; demonstrating accountability to Canadians for their investment in health research; and, ensuring economic prosperity and a competitive advantage for Canada.

Knowledge translation is constructed as “all-encompassing”, a “universal” process that is action-oriented, with other concepts becoming “subsets” of KT regardless of their source or original meaning. The “all-encompassing” and universal nature of knowledge translation, as it is described in my study sample, is further extended to include everything “between the creation of new knowledge and its application” and all levels of decision-making.

Finally, knowledge translation is constructed as both a science and field of research. As a science, the processes of knowledge translation include a series of defined steps that suggest a scientific method, objectivity, and standardization. This construction of KT as a science and as a field of research confers power and the legitimacy to create an agenda and mobilize resources (e.g., researchers) for furthering the study of the science of knowledge translation. In the next section I will examine how these processes and mechanisms of knowledge translation as a technology function to shape the use of health research in the expected particular directions.

## 5.4 Creating “useful” knowledge from health research

In this section I examine how health research is discursively mobilized and constructed through the discourse of knowledge translation into knowledge that is considered translatable into the “practical applications” that will result in the beneficial outcomes expected through the three rationales examined in Section 5.2 (i.e., the gap, accountabilities, economic prosperity). This section is presented in two parts. The first part examines how health research is constructed as



fitting a particular definition of “useful” in the context of the imperative to demonstrate to Canadians a return on the government’s investment of their tax dollars. The second part examines how health research is shaped into knowledge through particular activities of knowledge translation.

#### **5.4.1 Constructing health research that leads to economic action**

Informed by the three rationales outlined in Section 5.2 (i.e., the gap, accountabilities, economic prosperity), the expectation is constructed that health research, when added to knowledge translation, will lead to specific, “concrete” health practice actions (Parry, Salsberg, Macaulay, and CIHR, 2008, p. 8), and beneficial economic outcomes. The economic expectations are particularly evident in my sample of CIHR documents with the use of business and industrial-like metaphors that construct action-oriented images of health research as devices for achieving expected benefits. For example, in CIHR’s first strategic plan, health research, fueled with “federal investments”, is described as “the engine of progress” both for population health and the economy. Consistent with the rationales, progress means positioning Canada as a global leader in the “creation and use” of “new health knowledge” for the benefits of Canadians and the “evolution of knowledge-based economies”:

With the creation of CIHR and other federal investments in research, Canada is now positioned to become a world leader in advancing the creation and use of new health knowledge for the benefits of Canadians and the global community. Research truly is the engine of progress in health and in the evolution of knowledge-based economies. (CIHR 2004b, p. 7)

In the same CIHR document, health research is also described as a catalyst for innovation through which both health and economic benefits are expected to occur:

In pursuit of its mandate and vision, CIHR aims to achieve the following strategic outcomes: (...) transforming health research into action – to catalyze health innovation in order to strengthen the health system and contribute to the growth of Canada’s economy. (CIHR 2004b, p. 17)

In this sense, health research becomes constructed as a “lever” in a heading from CIHR’s second strategic plan, and as an economic “motor” for university and hospital-based research and development (R&D). This text links the industrial metaphor (“motor”) with the

investment/spending language of business, discursively transferring them to settings that traditionally have not been equated with businesses or industries (i.e., universities and hospitals). In so doing, these settings are situated as “theoretically ideal” for health research action through knowledge translation, and as sites for economic stimulus:

*Health research as a lever for better health and a stronger economy*

Research and development (R&D) has long been recognized as a potent motor of the economy. Total spending in Canada on R&D in the health field was estimated at \$6.6 billion in 2006, up 6.8% from the previous year.<sup>2</sup> Most R&D activities are performed at universities, and particularly at university hospitals (63% of all R&D in the health field representing an estimated \$4.1 billion).<sup>3</sup> It is estimated that up to 80% of all health research is conducted in teaching hospitals across Canada,<sup>4</sup> a setting theoretically ideal for translation of research results from bench to bedside. (CIHR 2009c, p. 8; italics in original)

More broadly, and using language reminiscent of a business venture, all of health research is constructed as an enterprise:

(...) we build support for the entire health research enterprise – support that can translate to sustained and increased funding for your research. (CIHR 2011, p. 1)

#### **5.4.2 Valuing health research within a context of economic accountability**

This construction of health research in concrete and measureable business-oriented ways that demonstrate an economic return on Canadian taxpayer’s investments is positioned as a shift from traditional ways health research is made accountable, creating an apparent tension within the discourse. In the following quote, health research is valued for its contribution to the health of Canadians. At the same time, demonstrating the link between financial investments and measurable health outcomes is identified as creating a “vexing measurement challenge” for the agency responsible for supporting health research within the context of the rationales. The language of financial accountability is prominent with mention of the “economy” and “research investments”, while the phrases: “demonstrating direct and objective links’ and “identifiable and measureable outcomes” helps shape the need for the construction of knowledge translation as a science:

Clearly, however, if CIHR is to be successful, it must demonstrate to Canadians not only the value of individual programs within its suite of programs but also the overall return on investment (ROI) to Canadians by CIHR as an agency. This is a particularly vexing measurement challenge for research (...) It is not that health research does not have significant effects on the health of Canadians, and on the robustness of their health care system and economy, rather, demonstrating direct and objective links between particular research investments and immediate, short-term or long-term, identifiable and measurable, outcomes is difficult. (CIHR 2004b, p. 19)

The use of such strong language as a “vexing measurement challenge for research” emphasizes the strength of this tension between the need to demonstrate financial accountability to the Canadian public and the need to acknowledge the health-value of research. This tension is examined more fully in the same document through a contrast made between the inherent value of research and its economic value. The contrast starts with the question: “What good comes from health research?”. The two positions are contrasted in the following two quotes in which ‘good’ becomes equated with the two different definitions of “value” (i.e., inherent versus economic). The “intrinsic good” in the first quote suggests a conceptual view of use as the traditional way health research is valued, as a worthy pursuit on its own, needing no other objective to define its value. While this type of research activity is considered worthwhile, when the goal is for “concrete”, “tangible” outcomes (e.g., “advancing health”, “economic advantage”), the intrinsically good approach to health research becomes problematized as unpredictable and too slow, implying its inherent goodness or value is inferior:

What good comes of health research? For some, it is an intrinsic good – the search for new knowledge and discovery is inherently worthwhile, the more of it, the better. The process of discovery is incremental, and as such, tangible benefits do not materialize immediately. As a result, no one can predict which new knowledge will be instrumental, even decades later, in advancing health or leading to economic advantage. Indeed, even a superficial analysis of recent history in the biological sciences illustrates the power of outstanding fundamental research to impact on health, the health care system and the economy. (CIHR 2004b, p. 19)

The contrasting position in favor of economic value is described as “agnostic”, a word that suggests skepticism or uncertainty about the inherent or intrinsic value of health research. In the following quote, research value is framed in instrumental terms with predictable or measurable goals, reflecting the expected outcomes associated with the three rationales (i.e., the gap, accountabilities, economic prosperity) and consistent with the process of knowledge translation

as the technology of government that will facilitate the outcomes. This is a position where demonstrating a return on taxpayers' investment in health research takes precedence:

Others have a more agnostic view – that health research is instrumental and subordinate to other goals (e.g., better health, economic productivity) and moreover, competes with other claims for public dollars. (CIHR 2004b, p. 19)

It becomes clear that, while acknowledging the importance of the “intrinsically good” view of research, the “agnostic” direction toward measurable economic outcomes is preferred and inevitable. The inevitability of this view of health research is explicit in a series of questions from CIHR’s first strategic plan. The language of these questions places the value of health research within the context of an economically oriented “return on investment” (ROI), and measurement of outcomes within a return on investment framework (i.e., “measurable rates”, “ROI measures”, duration of an “investment and return cycle”). The valuing of health research within this accountability rationale is expressed as a given in these questions, and the many non-business-like characteristics of health research are constructed as challenges to be overcome (i.e., “cannot be usefully measured in dollars”, “long-term and cumulative”, “multiple and non-linear pathways”, “contributions from around the world”):

This [economic valuing of health research] raises a number of questions for CIHR, of which the most important are:

1. What does the return on investment mean in the context of health research?
2. What is a measurable rate for health research and how would one measure it when many of the most important outcomes of the investment in health research cannot usefully be measured in dollars?
3. Should there be a single set of ROI measures or should a different conceptual approach be taken to different kinds of health research (e.g., basic science, clinical science, health services, population health research)?
4. What is the duration of a reasonable investment-and-return cycle in health research? Because health research is often long-term and cumulative, and because its impact may materialize through multiple and non-linear pathways, how precisely can one estimate an ROI?
5. How should one measure benefits not easily expressible in dollar or any other quantitative terms?
6. What is the best method of attributing the return to CIHR’s specific investment when the knowledge that ultimately yields returns (in various forms) will almost always be built on research contributions from around the world? (CIHR 2004b pp. 19-20)

The framing of the value of research in terms of a return on investment (ROI) framework becomes firmly established in describing the need to demonstrate measurable results to Canadians and fulfilling CIHR's accountabilities:

There are no easy answers to these questions. Nonetheless, given the importance of informing Canadians about the results and benefits of health research, CIHR will develop a ROI framework that aligns well with its mandate, priorities, and scope of activities. (CIHR 2004b, p. 20)

There are at least three different mechanisms apparent within my sample of CIHR documents through which health research is selected and/or transformed to become measurable, actionable knowledge expected to demonstrate a return on investment. These boundary-setting knowledge translation mechanisms shape health research in particular ways that reflect the expected benefits constructed through the rationales (i.e., the gap, accountabilities, economic prosperity). These mechanisms reduce the field of possible research studies to be added to the knowledge translation process, and construct what "ideal" health research-derived knowledge looks like. Once selected and/or transformed, the health research-derived knowledge, conceived as "outputs", are further shaped in particular ways to enhance communication to potential knowledge users, presumably to be acted on and to demonstrate measurable return on investment and accountability. In the next section I explore how ideal health research becomes selected and shaped through these knowledge translation mechanisms into knowledge considered 'actionable' and appropriate to demonstrate returns on investment.

### **5.4.3 Setting an agenda for "innovative", "world-class" research**

The first way "ideal" knowledge from health research is constructed and selected is through research agenda-setting and reinforcing the message that CIHR supports research that is considered "new", "innovative", and "world class". This focus on innovative research and expected benefits (i.e., 'impact') is, for example, evident in a one-page CIHR publication entitled "Research. Knowledge. Impact.". The text discursively links 'innovative' research with the process of knowledge translation, which is, in turn, linked to improvements in population health, health care systems, and the economy:

(...) we believe that supporting innovative research and facilitating knowledge translation (turning research findings into improved practices, products and policies) means better

health for Canadians, a better health-care system and a stronger economy. (CIHR 2010b, p.1)

Innovation is further emphasized in the titles of CIHR's two general strategic plans and a KT-specific strategic plan that explicitly links innovation with "action":

Investing in Canada's Future: CIHR's blueprint for health research and innovation (CIHR, 2004b)

Health research roadmap: Creating innovative research for better health and health care. CIHR's Strategic Plan, 2009-10 – 2013-14 (CIHR, 2009c)

Innovation in action: Knowledge translation strategy 2004-2009 (CIHR, 2004a).

The language of innovation is set within the context of a metaphoric "revolution" that constructs a health research environment focusing on "new" (e.g., "new ways of thinking", "new partnerships", "new technologies", "new industries"). It is further suggested in this text that "innovative" health research will become self-perpetuating, fueling the creation of more innovative technologies and industries:

Spectacular advances in our understanding of human health and disease are also being fueled by new ways of thinking, new technologies, new partnerships, and new industries. Further, the revolution in health research is itself creating transformative new technologies, and industries, including biotechnology, medical imaging, nanohealth and health informatics. CIHR 2004b, p. 6)

The following quote provides insight into how, through the knowledge translation discourse, boundaries are constructed and ideal health research is defined and selected. The emphasis is on health research described as "discovery-based" and made up of the "best" "innovative" "ideas" from the "brightest" minds. This ideal health research is constructed as the "essential foundation" for support through CIHR:

New knowledge is acquired through innovative ideas and discovery-based health research. CIHR will, through the directions outlined in these pages, continue to support a broad base of the best ideas and the brightest minds as the essential foundation of what it does. (CIHR 2009c, p. 11)

The expectation of ensuring Canada's position as a world leader in health research shapes the characteristics of ideal health research-derived knowledge by placing it in a global context and

drawing on “international standards”. Research becomes constructed as an “international” action, with an implicit implication of newness associated with the 21<sup>st</sup> century: “Research in the 21<sup>st</sup> century is an international undertaking” (CIHR 2009c, p. 11). Health research viewed as world class and “excellent” is considered to have such a high potential for demonstrating a return on investment in the economy (i.e., a “measurable impact”), that CIHR will “spare no efforts” in providing support. In the following quote from CIHR’s second strategic plan, this notion of “excellence” is used to judge research proposals and researchers for support according to the ideal qualities of health research for the best return on investment. Ideal qualities include: “originality”; “creativity”; “scientific and ethical soundness”; and, a “high probability of ... measurable impact”:

Excellence is the gold standard for supporting the best ideas and brightest minds and maintaining Canada’s competitiveness in today’s knowledge economy. As stewards of the public trust, CIHR will spare no efforts to ensure that investments in health research are made on the basis of excellence, a value that encompasses originality and creativity; scientific and ethical soundness; high probability of achieving measurable impact (while ensuring cutting-edge research); and peer review based on international selection standards. This commitment applies to projects that respond to CIHR’s open calls for proposals and to competitions that are strategically focused on priority areas. (CIHR 2009c, p. 12)

#### **5.4.4 Metaphorically reducing the field of existing research**

A second way “ideal” health research-derived knowledge is constructed within the KT discourse involves the metaphorical sifting of existing research studies and transforming them through a “synthesis” process into knowledge that has particular characteristics (e.g., “scientific”). The field of health research that can potentially become translatable knowledge is described within the discourse as an “unmanageable multitude of primary studies” (Graham et al., 2006, p. 18). This description constructs an image of a large mass of unruly single health research studies, too numerous to count and somewhat out of control. A series of colorful metaphors and specific criteria are employed to selectively reduce the size of this field of health research and presumably make it more controllable.

The metaphors also construct a presumption that these primary studies have been conducted outside of a relevant body of work, are without context and are ready to be processed through the mechanisms of knowledge translation. For example, in the following quote, a metaphor used to

describe the quality of the studies in the “multitude” is “first generation”. Like the earliest generation of computer software programs, first generation is suggestive of a necessary step in the development of innovation but one that requires continual updating and improvement. This metaphor also suggests a parallel with the development of a knowledge economy that has been facilitated by computer technology. Another metaphor drawn from industry constructs research studies as “diamonds in the rough”, suggesting that, like unrefined diamonds, primary studies are in a “natural” state and not useful until “refined”, reinforcing the presumption of research as having been conducted outside a relevant body of work. And like diamonds, health research can be viewed as a commercially viable (i.e. exploitable) natural resource for Canada, offering a link with the economic downturn in manufacturing and the need to stimulate the knowledge economy:

For example, the phase of knowledge inquiry represents the unmanageable multitude of primary studies or information of variable quality that is out there and that may or may not be easily accessed. This can be thought of as first-generation knowledge that is in its natural state and largely unrefined, like diamonds in the rough. (Graham et al., 2006, p. 18)

These processes of “refinement” of health research are discursively constructed as “synthesis”, a term that suggests the creation of something “newly”, or “artificially” created from unrelated components. This process of “synthesis” is examined in more detail in Section 5.4.5.

The imperative to transform health research into knowledge that is considered useful is also signaled by the use of metaphors that liken the processes of refining health research to filtering or sifting as ways of reducing research such that only the research considered most “valid and useful knowledge” remains:

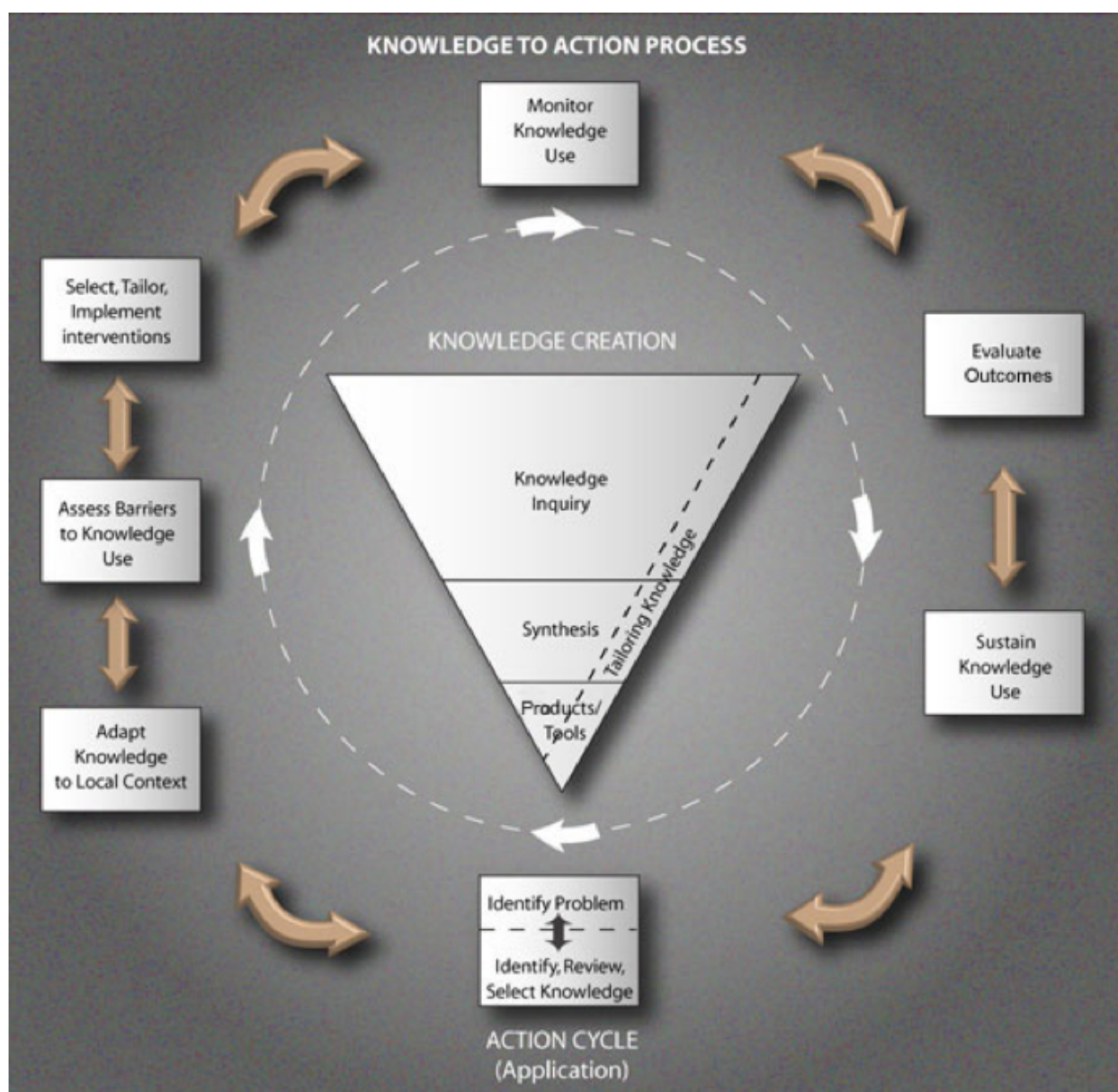
Another analogy would be to think of the research being sifted through filters at each phase so that, in the end, only the most valid and useful knowledge is left. (Graham et al., 2006, p. 18)

In keeping with this need to “filter” and “sift”, the knowledge-to-action model is represented visually with the metaphor of a funnel inside of a circle, illustrating how research in its “natural” state is transformed into translatable knowledge (Figure 1). Health research is discursively



channeled through the “knowledge funnel”, metaphorically becoming distilled like alcohol and refined like a natural resource until it presumably becomes “useful” knowledge:

The knowledge funnel represents knowledge creation and consists of the major types of knowledge or research that exist and can be used in health research. (...) as knowledge moves through the funnel, it becomes more distilled and refined and presumably more useful to stakeholders. (Graham et al., 2006, p. 18)



**Figure 1: Knowledge to Action Process; CIHR (Canadian Institutes of Health Research). (2009b last modified May 8, 2009). *More about knowledge translation at CIHR*. Retrieved June 3, 2009, from <http://www.cihr-irsc.gc.ca/e/39033.html>**

It becomes clearer in the next quote that there is room within this construction of useful knowledge for other forms of knowledge, such as “experiential” knowledge. This is consistent with the all-encompassing nature of knowledge translation discussed earlier. However, given the processes of refinement and sifting required to transform health research into “useful” knowledge described above, it is not clear how experiential forms of knowledge fit into the KT processes:

With our conceptualization, knowledge is empirically derived (i.e., research based) but also encompasses other forms of knowing such as experiential knowledge as well. (Graham et al., 2006, p. 18)

This uncertainty becomes particularly apparent given the privileging within the discourse of knowledge that is derived from research fitting a definition of “scientific”:

Implicit in what is meant by knowledge is primarily scientific research (Graham et al., 2006, p. 4)

It is through the “translation” of “scientific” knowledge that the positive benefits (e.g., “improved health”, strengthened health care system) are expected to occur:

CIHR’s mission is to create scientific knowledge and enable its translation into improved health, more effective health services and products and a strengthened Canadian health care system. (CIHR 2012, copyright page)

Regardless of what forms of research or knowledge are included in the “multitude of primary studies”, what is clear in my sample of CIHR documents is that, through the mechanisms of knowledge translation, “research” becomes discursively transformed into “knowledge” that should conform to a definition of “scientific”. In the next section, I explore how this transformation of health research into “translatable” knowledge is expected to occur through “synthesis”.

#### **5.4.5 Transforming health research into a “scientific” ideal**

As mentioned in the previous section, my discourse analysis revealed the metaphors that described a process through which health research becomes transformed into a “scientific”, measurable ideal, by adding individual research studies to a larger body of similar work (i.e., “synthesis”). This process is discursively based on an assumption that individual research

studies can be taken out of their original context and be [re]-contextualized and integrated into a particular body of work in ways that fit a “scientific” ideal. The advice from expert forums (e.g., Cochrane Collaboration, expert panels) is expected to guide the synthesis process to ensure that methodologies (e.g., systematic reviews, meta-analyses, practice guidelines) fit with the scientific qualities of transparency and reproducibility:

Synthesis, in this context, means the contextualization and integration of research findings of individual research studies within the larger body of knowledge on the topic. A synthesis must be reproducible and transparent in its methods, using quantitative and/or qualitative methods. It could take the form of a systematic review, follow the methods described by the Cochrane Collaboration, result from a consensus conference or expert panel or synthesize qualitative or quantitative results. Realist syntheses, meta-analyses, meta-syntheses and practice guidelines are all forms of synthesis, (CIHR 2010a, p.1)

The synthesis process is constructed to improve the “strength” of an individual research study (i.e., the “strength of the evidence”), with the expectation that the knowledge resulting from the synthesis process is more stable (i.e., ‘robust’), “mature”, and presumably, more objective. The conferring of these scientific qualities through synthesis is constructed as particularly important within the knowledge translation process with the expectation that it reduces a risk of “harm” from application of findings from a single research study from a “nascent area of research”:

It may, at times, be appropriate to apply the results of a single study, but the scope and strength of the evidence must be considered when defining KT activities. A single study can represent either the culmination of a large body of work ready for application or a nascent area of research where the findings may not yet be generalizable. In the latter case, KT efforts to apply the findings could result in more harm than good. Synthesized evidence is generally more robust and mature, thus it usually constitutes the best knowledge for widespread application. (CIHR 2012, p. 12)

Knowledge synthesis is also constructed as a necessary technical process to establish “scientific” credibility for a variety of knowledge “tools”:

Synthesis is important to be able to create knowledge tools (i.e., provide the data content for incorporation in practice guidelines); it can be used to determine best practice (that needs to be implemented) and to create a context for and establish an evidence base for the knowledge to be translated. Furthermore, it is important to consider and report on the types of evidence used in a synthesis—it establishes the credibility and generalizability of the evidence base of the knowledge to be “translated”. (Tetroe 2007, p.3)

Ultimately, the shaping of health research through knowledge synthesis processes (i.e., “contextualizing”, conferring particular scientific qualities, instilling confidence) is constructed to increase the truth-value of research as the basis for knowledge to be translated as “actionable”:

For example, the results of a knowledge synthesis can often lead to actionable messages that can then be communicated to the relevant audience. (CIHR 2012, p. 2)

#### **5.4.6 Constructing accountability through communication of “actionable” knowledge**

There is one additional knowledge translation process that I examined in these results. Drawing on language reminiscent of marketing, this process is constructed to enhance communication of the “actionable messages” through packaging the knowledge in particular ways (i.e., “tailoring”), and ensuring its delivery through a variety of channels:

Dissemination. Sharing research results by identifying the appropriate audience for the research findings and tailoring the message and the medium to the audience (CIHR 2012, p. 1)

A broad variety of “tailoring” and delivery strategies are recommended, consistent with the all-encompassing, universal characteristics of knowledge translation:

Dissemination activities can include such things as summaries for/briefings to stakeholders, educational sessions with patients, practitioners and/or policy makers, engaging knowledge users in developing and executing dissemination/implementation plan, tools creation, media engagement. (CIHR 2010a, p. 1)

The availability of new, digital communication strategies is positioned as providing an opportunity to increase the international exposure of health research through open access, with the expectation that this will enhance application and implicitly increase Canada’s competitive edge in the knowledge economy:

The advent of the internet has transformed the way that science and scholarly research is communicated. Indicative of this changing landscape has been the steady growth in open access publishing and archiving which facilitate widespread diffusion and free digital access to publications and the latest scientific discoveries. Open access enables researchers to make their research results freely accessible and useable for the international research community thereby enhancing the application of research results. (CIHR 2007, p. 3)

The new, digital communication strategies have also constructed the need for new types of expertise in the field of KT, in the form of “knowledge brokers” and “IT” experts:

Specific expertise might be required to deliver on the identified strategies. For example, the development of specialized products, like DVDs or films might require intermediaries, such as information technology (IT) experts or knowledge brokers. The expertise represented should be driven by the KT goals, audiences and strategies. (CIHR 2012, pp. 13-14)

The explicit assumption with these focused packaging and delivery activities for health research-derived knowledge is that an “appropriate” audience will be more likely act on the messages. This audience is discursively constructed to be a decision maker capable of using research. However identifying this audience and “tailoring” the messages could be challenging given the broad definition of “knowledge user” that includes almost everyone (i.e., the “widest possible audience”). This reinforces the overriding imperative to demonstrate accountability by making health research-derived knowledge as broadly visible as possible:

Knowledge User. CIHR defines a knowledge user as an individual who is likely to be able to use research results to make informed decisions about health policies, programs and/or practices. (...) A knowledge user can be, but is not limited to, a practitioner, a policy maker, an educator, a decision maker, a health care administrator, a community leader or an individual in a health charity, patient group, private sector organization, or media outlet. (CIHR 2012, p. 1)

Accountability and the need for sustained and increased financial support for the entire research “enterprise” becomes explicit with construction of the Canadian public as a particularly important (and “unquenchably hungry”) audience for research “stories”. Particularly interesting in this quote is the bounding of the research to that considered “worthwhile”, presumably judged through the ideals examined earlier in this section (e.g., “scientific”, “innovative”, “world-class”, “high probability of measurable impact”):

Canadians have a seemingly unquenchable appetite for hearing about health research. When we tell them these stories, we not only attract attention to worthwhile research, we build public support for the entire research enterprise – support that can translate to sustained and increased funding for your research. (CIHR 2011, p. 1)

### **5.4.7 Summary**

In this section I have examined how health research is discursively shaped and reframed through specific, technical processes of knowledge translation to fit particular ideals that will result in translatable (i.e., actionable) knowledge. This reframing is constructed through a governmental imperative to demonstrate the economic value of health research, achieved by discursively problematizing the traditional ways health research has been valued and conducted. The resulting “knowledge” is constructed as the “engine of progress” and the “lever” through which the expected benefits of health research can be demonstrated as measurable “returns on investment”. These knowledge translation processes are constructed within the discourse to ensure that health research and knowledge fit within particular boundaries, specifying what is appropriate, and by implication, what is not. The ideal health research is selected through a research agenda that uses the criteria of “innovative” and “world class excellence”. Health research is further shaped and “contextualized” through the KT mechanism of synthesis to meet specific “scientific” qualities (i.e., strength of evidence, robust, generalizable) designed to enhance its truth-value and trustworthiness for “widespread application”. The “synthesized” knowledge is then packaged and marketed with strategies designed to reach a wide range of audiences, including the public (e.g., social media, workshops, newsletters), who are expected to reward this return on investment with increased support “for the entire research enterprise”.

## **5.5 Shaping researchers in a new research culture**

In this section I examine how health researchers are discursively shaped through the discourse of knowledge translation at CIHR. I start with the change in research culture constructed through the discourse of knowledge translation, and examine how health researchers are discursively shaped into new roles within this KT environment in particular directions through a variety of techniques and programs. This is followed with an examination of the processes constructed to build health researchers’ capacities for expertise in both the science and practice of knowledge translation.

### **Changing the culture of health researchers: accountability in a research ‘enterprise’**

A new research environment is constructed through the governmental imperative to demonstrate the economic value of health research, with the traditional ways health researchers have worked (i.e., as individuals or small groups) becoming problematized despite historical success. This new environment is considered so “complex” and “challenging” that health researchers become the subjects of experimental “new models” that “require” them to work collaboratively across sectors and country borders, beyond their areas of expertise:

Historically, biomedical research has owed its success to individual researchers or small groups working in individual laboratories. The complexity and scale of today’s research challenges increasingly require that researchers and countries reach out beyond their own areas of expertise and that we experiment with new models to bring people and sectors together. (CIHR 2004b, p. 6)

Health researchers are discursively charged with the “responsibility” to create research that will not just “improve” Canadian lives, but ensure the “future” of the entire country. In the following quote from CIHR’s second strategic plan, this powerful language of accountability is collectively placed on researchers to demonstrate the impact of their research. At the same time, governments are discursively credited as having the “fortunate” recognition of the need to mobilize, through public investment, “science and innovation” to achieve their competitive and economic goals:

Fortunately, the Canadian and American governments recognized that to build momentum and ensure future economic sustainability, they needed to invest in the knowledge economy. Both governments realize that investing in science and innovation is essential to staying competitive. However, *this realization has increased pressure on Canada’s research community and funding agencies to demonstrate value for money.* Demonstrating research impact is not a simple task: the translation of discoveries into new treatments, products and services can often take years. This lag time is further amplified by Canada’s large geography, low population density, complex political structure and health system, and diverse health research landscape. *Yet, Canada’s health researchers have a responsibility to ensure that public investment in their work can improve the lives of Canadians and the future of our country.* (CIHR 2009a, pp. 7-8; emphasis added)

The “new models to bring people and sectors together” construct a change in culture for health researchers (and funding agencies) that provide ways of identifying who is to be supported and

who is not. Health researchers who demonstrate “commitment” by engaging in the knowledge translation work of collaborating with knowledge users and “conducting outstanding research” will be supported in the new research culture:

CIHR is committed to providing programs designed to support a culture change among health researchers and institutions by supporting researchers who demonstrate a commitment not only to conducting outstanding health research, but also to working collaboratively with potential users of research in ways likely to improve knowledge translation. (CIHR 2004b, p. 16)

The “world’s best” researchers are expected to use their “abilities” with “new technologies” to initiate a “constant flux” of ideas that will lead to the ideal (i.e., innovative, world class) health research. With the language of business, researchers become constructed as the “talented workforce” who, in collaboration with other stakeholders, will supply an innovation “pipeline” for the research enterprise:

Knowledge creation depends on researchers initiating a constant influx of ideas and innovations. Increasingly, it also depends on their ability to employ new technologies and work in collaboration with other researchers and with research users such as industry partners, community groups, policy makers, patients and clinicians. This talented workforce – a broad and solid base of the world’s best researchers – supplies the pipeline of ideas that lead to innovation. (CIHR 2009c, p. 13)

And, like the competitive environment of business, the incentives and “attractive work environments” of other countries are strategically mobilized within the discourse to highlight the necessity of collaborative “specific actions” by CIHR to “attract, retrain, and sustain” the “highly prized” and talented workforce of health researchers in Canada:

Other countries around the world are creating attractive work environments and incentives to draw this prized talent. CIHR, in collaboration with key partners, will take specific actions to attract, retrain and sustain this workforce. (CIHR 2009a, p. 13)

This business-like approach of the new work culture for health researchers is reinforced in CIHR’s second strategic plan through the authority of a well-known private sector technology entrepreneur, who, by example and advice, emphasizes the construction of health research as “public-sector R&D” (research and development). The recommendation of this Canadian industry authority is that the “number one” reason research should be well-funded is to develop



the skilled, international workforce of world-class researchers and students that are necessary for sustained (i.e., next generation) public sector research and development activities:

One of the main activities of public-sector R&D must be training a highly skilled workforce. As stated by Mike Lazaridis, inventor of the BlackBerry: “The number one reason to fund research well and with vision is to attract the very best researchers from around the world. Once (in Canada), they can prepare Canada’s next generations of graduates, masters, PhDs and postdoctorates, including the finest foreign students. All else flows from this.” (CIHR 2009c, p. 9)

### **5.5.1 Shaping researchers through cross-sector collaborations**

Cross-sector collaborations are constructed as key to the deliberate, business-like culture change in the health research environment. The expectation is that disciplinary boundaries need to change, particularly in traditional research environments (i.e., CIHR “Pillar 1” – biomedical). New emphasis is placed on work beyond specific disciplines to include research that connects researchers to the “new ways of thinking” and “stimulating” environments of other stakeholders in the research enterprise (e.g., private, public, not-for-profit sectors). This focus on “breaking” boundaries is explicitly described in CIHR’s second strategic plan under the heading: “Breaking professional and sectoral barriers in health research” (CIHR, 2009c, p. 14). Nurturing and ensuring young researchers are equipped to work in the new, business-like research culture (i.e., “labour markets”) is constructed as particularly significant:

Health research training requires a new focus on harmonization across professions and (biomedical) will have to break traditional disciplinary/departmental moulds to better equip young investigators for multidisciplinary and team-based research approaches. (...) This includes nurturing trainees not only for academic careers, but also for work in the public, private and not-for-profit sectors. They will need a broadened approach that enables them to adapt to changing environments and new ways of thinking. (CIHR 2009c, p. 14)

More importantly, the solutions to health and health care “challenges” become framed as “problem-based” rather than disciplinary based, creating a space for “breaking” disciplinary boundaries by requiring cross-sector collaborations and partnerships that are discursively justified as part of CIHR’s mandate for governing health research. The expectation that is constructed with this “deliberate” mechanism of breaking traditional research boundaries is that “relevant” disciplines and “approaches” will be mobilized to solve health “challenges” or

“problems” and provide the expected beneficial health care outcomes of closing the “know-do” gap:

CIHR’s broadened, problem-based mandate reflects a deliberate strategy to reach out to all disciplines and research approaches that are relevant to the challenges of human health and disease, and the efficient delivery of effective and appropriate health care services. (CIHR 2004b, p. 7)

International collaborations are also constructed within the new research culture as “valued” work for researchers:

CIHR promotes and encourages and values collaboration among researchers in Canada and internationally. (CIHR 2009c, p. 7)

Such collaborations are facilitated through various programs and funding schemes that are constructed to “enable” the “best” researchers (and research institutions) to choose international partnerships. This enabling explicitly assumes that researchers will work internationally in ways that will boost Canada’s competitive advantage:

CIHR will continue to build partnerships with relevant stakeholders including (...) international organizations to develop national and strategic programs that best enable Canadian researchers and research institutions to be competitive internationally. (CIHR 2004b, p. 12)

Finally, despite an acknowledgment of and support for researchers working in more traditional ways (i.e., individually, disciplinary-based), and a stated need to balance support for both old and new ways of doing research, all researchers are subject to the changes within the new culture. Further, it is researchers who fit a definition of “most talented”, and who have the “best ideas”, can compete “internationally”, and cover a “full spectrum” of health research who will be funded.

The contributions and excellence of individuals and individual disciplines are at the very foundation of CIHR’s vision of health research. Indeed, CIHR’s single largest investment, through our open grants competition, is to fund the research of individuals, allowing them to pursue their own creative ideas for novel and significant research projects. CIHR will fund the best ideas of the most talented researchers at internationally competitive levels and across the full spectrum of health research. (...) Setting the right balance – between research-driven and targeted opportunities between grants to individuals and grants to multidisciplinary teams – is critical to the vitality of the Canadian health research enterprise. All types of research require the excellence, imagination, creativity, and hard

work of individuals. Interdisciplinary and strategic research must be built on this broad foundation of excellence. (CIHR 2004b, p. 13)

### **5.5.2 Incorporating knowledge translation-ways of working**

Changes are constructed through the knowledge translation discourse regarding how research is to be conducted and who is to be involved in research activities. In the new research culture, “knowledge users” become positioned as important participants in research activities. These are the decision makers whose “real-life” challenges drive the need for change from curiosity-based to solutions-based research. And it is through partnerships and collaborations with knowledge users that the new activities for researchers are constructed (e.g., shaping of research questions as solutions-based). Incorporating the language and the processes of knowledge translation into research activities is constructed as essential to meet the “real-world” needs of knowledge users:

A key to successful KT is the nature of the partnerships between health researchers who produce knowledge and knowledge users who address real-life challenges. (...) CIHR intends to focus increasingly on solutions-based research that involves collaboration between researchers and users. This begins with shaping research questions that will generate solutions to pressing problems. (CIHR 2009c, p. 24)

Partnerships are constructed as so important to “successful” knowledge translation that they are metaphorically positioned as the “heart” of activity, and are expected to result in such “meaningful interactions” that “appropriate” use of “relevant” research will occur by knowledge users:

Partnerships are the heart of all KT activity. Effective KT is underpinned by effective exchanges between researchers and users – exchanges premised on meaningful interaction with the intent to appropriate use of the latest and most relevant research in decision-making. (CIHR 2004a, p. 5)

The expectation is not that these partnership activities of knowledge translation are to replace existing research work, but are to be added in the form of “opportunities for interactions” between researchers and knowledge users. In the following quote from CIHR’s first strategic plan, a Canadian authority in knowledge translation is called upon to reinforce the importance of incorporating KT activities into health research activities:

It is well documented that bringing users and creators of knowledge together during all stages of the research cycle is fundamental to successful KT. In fact, Canadian John Lavis has studied knowledge translation and believes this activity is so important that it should become a recognized integral part of research: “Researchers (and research funders) should create more opportunities for interactions with the potential users of their research. They should consider such activities as part of the ‘real’ world of research, not a superfluous add-on.” (Lavis et al., 2001). (CIHR 2004a, p. 4)

Two types of knowledge translation processes are constructed with an expectation of some form of active interaction/partnership between health researchers and knowledge users: “end of grant” KT; and, integrated KT (iKT). The descriptive differences between the two types of KT processes are in how “actionable” knowledge is created and exchanged with knowledge users.

In end of grant KT, space is discursively constructed for researchers working with traditional (i.e., “classic”) research approaches to continue in their “accustomed ways” of sharing their research results through “end of grant” knowledge translation:

End of grant KT is the classic way that researchers are accustomed to disseminating their research results by discussing the results with peers, presenting at conferences, and publishing findings, generally once the bulk of the study has been completed. (Parry, Salsberg, Maccaulay et al., 2008, p. 9)

With the goals of “raising awareness and promoting action”, end of grant KT is constructed with the expectations that researchers will, in addition to their existing research activities, add the new activity of identifying (i.e., “precisely” defining) the “appropriate” knowledge user audiences for their research. In order to “precisely” define the appropriate audience, researchers are expected to know enough about a potential audience that they can “match” their research with the audiences’ level of knowledge, anticipate how their research is likely to be used, and determine the best way to disseminate results to that audience:

There are two broad goals typical of end-of-grant KT activities: raising awareness and promoting action. (...) Applicants should identify the individuals and/or groups that should know about the research findings. A good plan will demonstrate the detailed understanding of its knowledge-user audience. Audiences should be precisely defined with respect to their sector of work and their role in decision making related to the research findings – simply mentioning clinicians, managers, policy makers etc. is not sufficiently specific to make clear that the audiences selected are appropriate to the identified goals. Applicants should try to understand the current state of the audiences’

knowledge, how they tend to use knowledge and the formats in which they prefer to receive their information. (CIHR 2012, p. 13)

Despite the added expertise and responsibilities required of researchers, it is also clear that research considered appropriate for end of grant KT is viewed as incomplete and in an “early stage of discovery”, suitable for academics but not ready for the ‘real-world’ of application:

These forms of KT remain the best approach for research at the early stages of discovery, when the knowledge has more relevance to academics who are contributing to a body of evidence, that is not yet appropriate for application. (CIHR 2012, p. 12)

In contrast to end of grant knowledge translation, integrated KT (iKT) is entirely constructed to fit the new culture of research. With the expectation that the knowledge users will be incorporated from beginning to end into the research processes, iKT is considered a “different” way of doing research:

The term integrated KT describes a different way of doing research with the researchers and the research users working together to shape the research process – collaborating on setting the research questions, deciding the methodology, being involved in data collection and tools development, interpreting the findings, and helping disseminate the research results. (Tetroe 2007, p. 6)

However, consistent with the discursive framing of knowledge translation as all-encompassing and the imperative for a common nomenclature, similar research approaches from other disciplines become subsets of iKT:

iKT has a longstanding tradition in many disciplines but has usually gone by other terms, such as collaborative research, participatory action research, community-based participatory research, co-production of knowledge or Mode 2 research. (CIHR 2012, p. 2)

iKT is constructed with the assumption that knowledge will be “co-produced” in response to knowledge users’ problems (i.e., problem-based research), and translated by the researchers and knowledge users into action by metaphorically “weaving” knowledge translation processes into all parts of the research processes. Researchers become accountable through a new responsibility to minimize any unforeseen barriers to use (i.e., “action”) of the “co-produced” knowledge:

In contrast to end of grant KT, *integrated knowledge translation (IKT)* involves engaging and integrating those who will need to act on the findings, the *knowledge users*, into the research process. IKT requires researchers and knowledge users to develop partnerships and engage in a collaborative process with the overarching goal being the co-production of knowledge, its exchange and its translation into action. By integrating knowledge users at every stage, KT becomes woven into the process and researchers' minimise the possibilities of unanticipated barriers that may occur when attempting to act upon results with stakeholders. IKT is most appropriate with the framework of problem-based, as opposed to curiosity-driven research. (Parry et al., 2008, p. 9, italics in original)

“Mutual learning” is constructed as the “ideal” outcome of the researchers’ and knowledge users’ “collaborative problem solving” knowledge translation processes:

Effective knowledge exchange involves interactions between knowledge users and researchers and results in mutual learning through the process of planning, producing, disseminating, and applying existing or new research in decision-making.” (CIHR 2010a, p. 1)

The “ideal” interactions are constructed as those that are part of an ongoing relationship between researchers and knowledge users, reinforcing the problem-based focus for researchers:

Very strong iKT projects will demonstrate an established relationship with the participating knowledge users, one that hopefully precedes and will outlast the project. (CIHR 2012, p. 3)

Further, every aspect of the research process is constructed as an “opportunity” for the researchers to have “significant” interactions with the knowledge users, presumably in addition to usual research activities:

Each stage in the research process is an opportunity for significant collaboration with knowledge users. (CIHR 2012, p. 2)

### **5.5.3 Constructing researchers as managers and research technicians**

Researchers are constructed as responsible for ensuring that all opportunities for interactions are taken, that the interactions are “meaningful” and “sustained”, and for developing proposals specifying all of the details of the interactions. In essence, researchers are constructed as the managers of knowledge user involvement, especially for iKT research:

There should be strategies for sustaining the meaningful engagement of participating knowledge users throughout the research process. (...) Proposals should specify when, how and for what purpose the researchers and knowledge users will meet. All feasible opportunities for knowledge exchange should be explored. (CIHR 2012, p. 3)

Knowledge users are characterized, using positive language, as bringing powerful strengths to the research process in addition to having their problems addressed. These include: different knowledge, skills, organizational expertise and insights; and a unique understanding of the context, problem and results. Knowledge users are constructed as “well positioned” to identify potential barriers, and move results into practice. In contrast, researchers are reduced to technicians of scientific enquiry, bringing technical skills related to research and grant writing, but characterized as “frequently” lacking time, contacts, or academic “rewards” (e.g. publishable results):

The very significant advantages of IKT are that the knowledge users bring different knowledge, skills and insights to the research team, have a unique understanding of the results (which may be different than that of the researchers), and are well positioned to move these results into practice. Researchers have a refined and specific skill-set for conducting research and accessing grants and they possess their own network of contacts. Equally, knowledge users possess an expertise derived from being members of their organizations, communities or professional fields (...) Knowledge user strengths include an understanding of the problem, the context and environment where the research results are to be applied, the ability to readily identify potential facilitators and barriers to the uptake of the findings, positioning to adopt new knowledge, capacity to tailor messages and interventions, and capability to evaluate the implementation process and outcomes. (...) These are all areas where researchers are frequently lacking in time, contacts or academic reward to pursue. (Parry et al., 2008, p. 9)

A very powerful and singular picture is constructed in the text of an iKT training document of researchers who may be “challenged” by the social interaction that is required conduct of integrated knowledge translation. By implication, some researchers are constructed as: non-collaborative inflexible individuals who lack respect for others’ viewpoints and do not know how to share power or authority, or develop positive relationships. Presumably such negative characteristics would be equally detrimental to non-iKT research:

What may be challenging for researchers who are typically accustomed to making all the decisions is:

- learning how to work as a member of a team
- how to respect other viewpoints

- sharing power and authority
- developing positive relationships
- understanding different agendas and timeframes
- developing the flexibility required to accommodate the course of events, to build trust and find the ‘win-win’ solutions. (Parry et al., 2008, p. 10)

Such portrayals discursively construct subjectivities for researchers (and knowledge users) in potentially problematic ways. For example, while not every researcher is expected to engage in integrated knowledge translation, both types of knowledge translation (i.e., iKT and end-of-grant) mobilize knowledge users’ needs in very powerful ways, requiring that all researchers think about their research expertise and the value of their research findings within the context of knowledge users’ “real-world” needs:

The expectation is not that every researcher be involved in integrated KT. However, the expectation is that research results are disseminated to the appropriate audience. (Tetroe 2007, p. 6)

#### **5.5.4 Building researchers’ capacities for expertise in knowledge translation**

In the final part of this section, I examine strategies constructed through the KT discourse to build researchers’ capacities for expertise and participation in knowledge translation processes. Constructing a new culture for research also constructs a need to increase researchers’ capacities to actively engage in the new, knowledge translation-oriented ways of working, and ideally, adopt “knowledge translation subjectivities”. For example, in the following quote, the need to increase researchers’ capacities to engage in research with a KT orientation is connected with the new research culture imperative to meet the needs of knowledge users across a variety of sectors, suggesting that an “ideal” KT researcher subjectivity includes a focus on knowledge users across different sectors:

To enhance the application of research, CIHR must increase the number of health researchers who understand KT and what it means for their work. This will require increasing capacity in the creation of appropriate dissemination plans, the knowledge of how to move research into action, and the understanding of how to engage potential knowledge users in the research process. In this way, we will be better able to meet the needs of knowledge users in the health, public and or/industrial sectors. (CIHR 2009c, p. 27)



The need for research funding is constructed as a powerful motivator for researchers to adopt new ways of working and develop expertise in knowledge translation. For example, in CIHR's second strategic plan, research funding is linked to cross-sector research teams and innovative health research projects that demonstrate a return on investment through health impacts:

The focus for research funding support has been on multidisciplinary team-based approaches and innovative project that could make a significant health impact. (...) CIHR will focus its activities on five broad priorities and will integrate these priorities into open operating grant programs and specific programs designed to maximize the impact of health research in identified areas. (CIHR 2009c, p. 18)

Knowledge translation-specific funding is also offered, constructing additional motivation for researchers to adopt KT processes and advance the science of KT:

CIHR has mechanisms to fund synthesis, end of grant KT, and the science of KT and is developing a number of policies and procedures to facilitate KT. (Tetroe 2007, p. 6)

The need for KT-specific funding and policy mechanisms is explicitly constructed through a new kind of gap that problematizes a perceived lack of researcher expertise in knowledge translation. This new “knowledge gap” is described in a CIHR 2012 guide to knowledge translation. Researcher “expertise” is constructed as necessary to close the “knowledge gap”, and includes, for example, ensuring research proposals for funding have a strong KT approach, and reinforcing knowledge translation as a science through assessment of others' research proposals for “scientific” merit and potential impact:

Only a minority of researchers would call themselves experts in KT, and with KT still an emerging field, there exists a need to build capacity not only in developing research proposals with a KT approach but also in assessing those proposals for scientific merit and potential impact. The Canadian Institutes of Health Research (CIHR) has written this guide as one resource to fill this knowledge gap. We hope this guide will help to strengthen projects that involve a KT approach, while ensuring that the review of KT within grant proposals is more rigorous and transparent. (CIHR 2012, p. ii)

In addition to the powerful motivator of research funding for behaviour change, a variety of “softer” (i.e., less coercive than direct funding) strategies are mobilized within the discourse to “encourage” researchers to reconsider their research activities in directions consistent with the new culture of knowledge translation. These discursive strategies are designed to work on the

premise that researchers want their work to have impact, and are willing to shape their own work by engaging in research with a KT orientation, and/or research that furthers the science of KT:

Researchers interested in increasing the impact of their work through contributing to the KT process have a variety of options to pursue. They can contribute to both the science and the practice of KT (Tetroe 2007, p. 5)

For example, “soft” strategies are discursively constructed with an objective to increase understanding and “active” incorporation through a wide range of “deliverables” that “offer” training and networking opportunities for researchers to learn about and engage with the processes of knowledge translation:

#### KT Capacity Development Plan

- Objective: An increase in the number of health researchers and knowledge users who understand KT concepts and actively incorporate such activities into their work
- Examples of deliverables: KT handbook, KT course modules, KT summer institute, KT training for STIHRs, network of KT-funded trainees, synthesis fellowships, community of practice for synthesis, KT capacity development for policy makers (CIHR 2009b, p.15)

There is an expectation constructed through the knowledge translation discourse that researchers will become “motivated” to “learn about the science and practice of KT research” and access a database of resources about the “science and practice of KT”:

KT Clearinghouse: Funded by CIHR to serve as a repository of KT resources for individuals who want to learn about the science and practice of KT, access tools that facilitate their own KT research and practices. (McCarthy & Mota 2011, p. 43)

As well, real-life “success stories”, with researcher details (e.g., name, location, area of expertise) are available from the CIHR website (<http://www.cihr-irsc.gc.ca/e/39128.html>), and provide a persuasive discursive frame through which researchers can imagine themselves working within the KT context. There is also a learning module for researchers about integrated knowledge translation (iKT) that constructs an elaborate hypothetical case of a KT research project. In this story, the research team seemingly does everything correctly from a scientific research perspective, but fails from a knowledge translation perspective. With a title that blatantly suggests researcher incompetence, “Interdisciplinary Network for Excellence in Patient

Treatment (INEPT)” (Parry et al., 2008, p. 2), this negative hypothetical case is used in a powerful way to persuade researchers that adopting an iKT approach (i.e., partnering with knowledge users at the beginner) will lead to positive outcomes.

Second person pronouns (i.e., you, yours) are another discursive technique used to encourage researchers to identify with the new, knowledge translation-based research culture. For example, phrases such as: “your research”; and, “you and your colleagues” speaks more directly to researchers (i.e., more personal) than a third person approach such as “the researcher”, or “most researchers” used in some of the documents in my sample. In the following quote from a recent public relations guide for CIHR funded researchers, second person pronouns become linked with the more direct motivating imperatives of research funding and accountabilities to the public and their own colleagues. Researchers are reminded of the KT-related imperatives that are valued as part of their “research world”, including: moving findings into practice (i.e., closing the gap); developing multidisciplinary collaborations (i.e., meeting knowledge user needs; working in teams); and, disseminating research beyond their ‘traditional channels of communication’:

Public attention translates into greater reach for your research. More people hear about it, more people may put its findings into practice. Potential collaborators get to know about you. In a research world that values multi-disciplinary collaboration, people in other areas, people you would not normally reach within your own discipline’s traditional channels of communication can find out about you. Public support can also translate into increased levels of funding which means support for you and your colleagues. (CIHR 2011, p. 2)

Finally, there is one additional discursive technique that, while presented in a serious context of a presentation about knowledge translation, explicitly uses irony. The suggestion is that researchers will adopt a knowledge translation subjectivity to such an extent that they will be tempted to encourage “over-application” of research findings. The title includes the words “warning” and “beware”, and emphasizes the phrase “KT imperative” with quotation marks, suggesting it might be a well-known concept. As well, the text contains particular words that are highlighted, suggesting they are important for additional ironic emphasis (i.e., “everything”, “everyone”, “extra-ordinary”). This text is clearly directed towards researchers, discursively constructing a subjectivity that implies that researchers in the new knowledge translation-based research culture are to engage in the knowledge translation activities of synthesis, dissemination, implementation, and use caution with regards to activities based on a single research study.

What is particularly ironic is the explicit linking of “academic rigour” with common sense, particularly with a field that is also trying to become established as a science:

Warning: Beware of the “KT imperative”

- The “KT imperative” is the perceived need to do **everything** to encourage **everyone** to apply their research findings
- Results from a single research study should be contextualized within a synthesis of global research results before **extra-ordinary** dissemination or implementation efforts are undertaken – hence the importance of synthesis
- We need to bring common sense as well as academic rigour to bear on our decisions about the degree and intensity of KT activities warranted by a single research study – i.e., judicious KT. (CIHR 2009b, p. 12; emphasis in original)

### 5.5.5 Summary

In this section of results, I have examined how a new research culture is constructed through the knowledge translation discourse that shapes health researchers in particular directions. The new culture draws on business-oriented language to construct emphases on “harmonization” of research disciplines, and expectations for researchers to engage in business-like partnerships and collaborations with a diverse range of “stakeholders”. Researchers are constructed as highly prized technical talent who excel in the development of innovative ideas that can lead to commercially viable research products (i.e., supply the innovation “pipeline”), while yielding to the “expertise” of the other stakeholders (i.e., knowledge users). Despite support for the traditional ways of doing research (e.g., curiosity-driven, individual researchers), the need for a “balance” with the new culture is constructed within the discourse, where researchers are expected to work outside of their areas of expertise and collaboratively across disciplines, sectors, and countries.

Researchers are to add processes of knowledge translation to their existing research activities with the expectation that knowledge translation processes will enhance implementation of research findings. Two types of knowledge translation approaches are constructed to facilitate this addition. End of grant KT projects add the responsibilities of identifying and disseminating research findings considered sufficiently generalizable to appropriate stakeholders, renamed “knowledge users” in KT language. Integrated knowledge translation projects emphasize the expertise of knowledge users by requiring their involvement throughout all phases of the

research project, relegating researchers to roles of scientific technicians and project managers. Finally, a variety of direct (e.g., research funding) and “soft” discursive strategies (e.g., real-life research examples, hypothetical case study, second-person pronouns, irony) are used to both educate and stimulate capacity development among researchers to engage in knowledge translation-oriented collaborative research, and ideally, to adopt subjectivities as ‘knowledge translation’ researchers.

## **5.6 Constructing CIHR: linking knowledge translation and health research**

In this final section, I examine four interconnected roles of CIHR constructed through its KT discourse. These roles are: a health research investment agency; a knowledge translation agency; the governor and manager of health research and researchers; and, an international authority on knowledge translation. CIHR’s knowledge translation discourse was initiated by the Government of Canada through creation of CIHR in 2000 with a strong (“bold, transformative”) mandate that links health research with knowledge translation:

In June 2000, the Government of Canada created the Canadian Institutes of Health Research (CIHR) with a bold, transformative mandate that included both health research *and* knowledge translation. (CIHR 2004a, p. 3; italics in original)

As expected, the rationales (i.e., the gap, accountabilities, economic prosperity and an international competitive edge) that construct the imperative for KT at CIHR are discursively prominent in CIHR’s mandate in the form of the beneficial outcomes that are expected to occur with the creation and translation of new knowledge.

The mandate of CIHR is “to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge and its translation into improved health for Canadians, more effective health services and products and a strengthened Canadian healthcare system. (Bill C-13, April 13, 2000) (CIHR 2009c, p 6)

The four roles constructed for CIHR through the discourse are evident in the descriptions of: CIHR’s knowledge translation strategies and policies that govern health research; its multiple accountabilities; and, the discursive relationships it constructs with its funded health researchers:

Strategic Directions: In this context and cognizant of the challenges and opportunities facing the Canadian health system and the health of Canadians. CIHR will pursue the following four strategic directions over the next five years:

1. Invest in world-class research excellence
2. Address health and health system research priorities
3. Accelerate the capture of health and economic benefits of research
4. Achieve organizational excellence, foster ethics and demonstrate impact (CIHR 2009c, p. 5)

### **5.6.1 CIHR as health research investment agency**

CIHR's role as "the Government of Canada's health research investment agency" is explicitly stated in two documents of my sample (CIHR, 2011, p. 1; CIHR, 2012, copyright page), and is discursively constructed through increased emphasis on research governance and CIHR's accountabilities to multiple governments and the public:

With the increased focus on research governance and accountability from the federal and provincial governments, as well as from the public, it becomes increasingly important to demonstrate the investment of taxpayer dollars in health research by moving research into policy, programs and practice. (CIHR 2010a, p. 1)

In its role as the "Government of Canada's health research investment agency", CIHR is constructed as the "enabler" of outcomes consistent with the three rationales of the gap, accountabilities, and economic prosperity. Strategies include knowledge translation processes for "creation" of a particular kind of knowledge (i.e., "evidence-based") and its transformation into the gap-related expected health and health care benefits. There is the promise of "new products" that suggests a link to the expectation of economic prosperity through commercialization. This construction also emphasizes CIHR's role in facilitating an international stature for Canada through CIHR's "internationally-recognized" research institutes that are also positioned as integral to demonstrating accountability to the taxpaying Canadians through promotion of the "value" of health research:

As the Government of Canada's health research investment agency, CIHR enables the creation of evidence-based knowledge and its transformation into improved treatments, prevention and diagnosis, new products and services, and a stronger, patient-oriented healthcare system. Composed of 13 internationally recognized Institutes, CIHR works to promote the value of health research to Canadians; (CIHR 2011, p. 1)

Beyond expecting its funded researchers to tell the public about their research, CIHR has also constructed a variety of ways to directly demonstrate its own accountability by “marketing” the stories of the research enterprise to the public. These include: monthly researcher “profiles”; journalist workshops; use of social media such as blogs (i.e., “Science on Tap”), Facebook, Twitter, YouTube; videos, newsletters, informal discussions in cafes, bars and restaurants (i.e., “Café Scientifiques”); and, “youth engagement” programs for high school students (CIHR 2011, p. 2). Finally, a single phrase at the end of CIHR’s 2004 strategic plan discursively encapsulates CIHR’s role as investment agency. Below a picture of a maple leaf, the message is about quality of the ‘value’ of CIHR to Canada as a whole, offering the business-like ideal of an “exceptional” return on investment (CIHR 2004b, p. 26):

CIHR ...

Exceptional Value for Canada!

### **5.6.2 CIHR as a knowledge translation agency**

CIHR’s role as a knowledge translation agency is closely connected to the construction of its role as the government’s research investment agency, particularly through the expectation of achieving the positive outcomes associated with the rationales (e.g., the gap, accountability, economic prosperity):

CIHR wants to close the gap between the knowledge that the research community generates and what is done with that knowledge. As an organization, we are also committed in making users aware of knowledge or innovation in order to facilitate their uptake. It is through these knowledge translation activities that the impacts of our investments in research, such as improved health and economic benefits will be felt. (CIHR 2010b, p. 1)

CIHR’s role is constructed as “unique” regarding knowledge translation, one that requires the closing of its own “gap” with the development of future priorities, resource allocation, progress measurement, and creation of its own particular “niche”:

Building on its first four years, as well as what we have learned from the many experiences and consultations with the research producer and user communities, the time is right to further define CIHR’s unique role in knowledge translation. How can CIHR best respond to what we have heard from stakeholders and what we have learned about the gap between what we know and what we do? What should our niche be relative to

other players? How should CIHR set future priorities, allocate resources and measure its progress? (CIHR 2004a, p. 3)

Consistent with the construction of knowledge translation as all-encompassing, KT activities are constructed to be a part of everything that CIHR does, internally and externally. This includes: its existing programs and tools, its governance of health research (i.e., “applications and awards”), the measuring of outcomes (i.e., “assess KT plans and strategies”); in developing capacity for knowledge translation “expertise”; and, its positioning in the knowledge translation “community” (i.e., “lead role”):

In order to effectively deliver on its KT mandate, CIHR will ensure that all processes, programs and ways of conducting business are conducive to achieving CIHR’s objectives in KT. This will be accomplished through integrating KT opportunities into existing programs and tools where appropriate and by enhancing CIHR’s organizational capacity to assess KT plans and strategies in applications and awards. CIHR will build KT expertise internally, and create learning opportunities that enable CIHR to play a lead role in the knowledge translation community. (CIHR 2004a, p. 8)

Finally, CIHR’s knowledge translation role is also constructed to use the power of research funding to “support” knowledge translation processes (e.g., dissemination, synthesis) and the science of KT:

Through continuing to fund knowledge synthesis, dissemination of research findings, integrated KT research and supporting research into the science of KT, CIHR will be making important progress in fulfilling its KT mandate. (CIHR 2009c, p. 24)

### **5.6.3 CIHR as governor and manager of health research and researchers**

CIHR’s roles related to health research and researchers are constructed as multifaceted, as both a governor of the health research “enterprise”, and manager of research processes. CIHR’s role as governor of health research in Canada is constructed through its transformation from a “granting council” (i.e., as the former Medical Research Council), to a “research agency”, with accountabilities to “stakeholders” and ultimately to Canadians. CIHR discursively governs health research from a “distance” through its research institutes that set the agenda for health research in Canada:

Our institutes are integral to the future of CIHR. Implementation of *Blueprint* will result in a closer alignment of organizational programs and activities within CIHR and among



its 13 Institutes. *Blueprint* is designed to complete CIHR's transformation from a granting council to an internationally respected research agency, ensuring integrated an Institute-driven health research agenda that is responsive to the needs of CIHR's stakeholders for the benefit of all Canadians. (CIHR 2004b, p. 12, *italics* in original)

CIHR governs through its institutes to “develop, support, and sustain” the new initiatives and research agendas that cross disciplines. Drawing on the idea of adherence to the “highest ethical standards” implies and offers reassurance that the processes CIHR supports are not to be questioned:

A major challenge for the Institutes is to forge relationships across disciplines to stimulate integrative, multifaceted research agendas that respond to societies health priorities while adhering to the highest ethical standards. (Tetroe 2007, p. 1)

Health research becomes constructed as an “energized and innovative” enterprise, made up of research funders, those who “carry out” research (presumably researchers), and knowledge users (those who “use its results”). CIHR is discursively constructed within the context of the research enterprise as the “foundation builder”, with the “integrative vision” to bring the players together. The key phrases for this CIHR role includes “excellence”, “cooperation”, and “partnerships”:

In its first three years, CIHR laid the foundation needed to build an energized and innovative health research enterprise for the 21<sup>st</sup> century. (...) Key to CIHR's success is an integrative vision that brings together all members of the health research enterprise, including those who fund research, those who carry it out, and those who use its results. Excellence, cooperation and partnership are the hallmarks that will characterize Canada's achievements in health research. We recognize the unique role and contributions of all partners (CIHR 2004b, p. 4).

CIHR discursively becomes the “creator” of new knowledge, transforming health research into “real-world” applications through knowledge translation, with the implication that unless transformed, health research will not yield the expected benefits associated with closing the gap:

CIHR's aim is to excel in the creation of new knowledge and to translate that knowledge from the research setting to real-world applications in order to improve the health of Canadians, provide more effective health services and products and strengthen the healthcare system. (CIHR 2004a, p. 3; CIHR 2009c, p. 6)

Finally, the expectation is constructed through the KT discourse that CIHR must “capitalize” on scientific and health-related opportunities that will demonstrate accountability to Canadians and

the “worldwide society”. This includes new (e.g., innovative) “national platforms” and initiatives:

CIHR will stimulate and sustain research that capitalizes on key scientific opportunities, addresses important and emerging health issues of concern to Canadians, and contributes to the health of a worldwide society. CIHR is also committed to developing, supporting and sustaining new national platforms and initiatives in health research. (CIHR 2004b, p. 14)

#### **5.6.4 CIHR as international authority in knowledge translation**

CIHR’s international leadership in both health research and the “KT world” is primarily about ensuring that Canada is a “world leader” through CIHR’s success. This accountability is discursively constructed in CIHR’s vision statement:

CIHR’s vision is to position Canada as a world leader in the creation and use of knowledge through health research that benefits Canadians and the global community (CIHR 2009c, p. 6)

This implies that CIHR was created to ensure Canada’s international position, through its role for governing the creation and use of health research into translatable knowledge. Placing this in the context of the “world” suggests CIHR has accountabilities beyond Canada and Canadians:

With the creation of CIHR, Canada is well positioned to realize the potential of health research and to become an international leader in both the creation and use of knowledge through research for the benefit of Canadians and the world. (CIHR 2004b, p. 4)

The expectation is that Canada’s position is not just as a leader, but is an “authority” in knowledge translation by virtue of CIHR’s mandate:

Knowledge Translation (KT), a prominent and innovative feature of the CIHR mandate, has the potential to (...) Establish Canada as an innovative and authoritative contributor to health-related knowledge translation. (CIHR 2004a, p. 3)

The expectation constructed through the discourse is that CIHR will ensure Canada’s international stature through its own reputation and credibility as a source of knowledge fitting a definition of “objective”:

Above all, CIHR's reputation as an independent, credible and objective source of knowledge positions it as an influential organization in the KT world. (CIHR 2004a, p. 6).

Finally, the importance of knowledge translation in CIHR's international role and reputation is explicit (i.e., "critical") in the following quote. CIHR needs to be viewed internationally as an expert in the latest KT practices (i.e., the science of KT), and be informed of other KT organizations and their initiatives, in order to maintain "excellence" and avoid duplication of its "niche within the KT world":

It is critical for CIHR to remain knowledgeable about leading KT organizations nationally and internationally, as well as state-of-the-art KT research and practices if it is to achieve excellence in its KT initiatives. This knowledge will help CIHR identify opportunities for partnering and collaborations that will ensure that its KT investments respond to current health and health system priorities and avoid duplication of its KT niche and activities (CIHR 2004a, p. 5)

### **5.6.5 Summary**

In this section I examined four roles constructed for CIHR through its mandate and evident throughout the 13 documents of my sample. With the use of adjectives such as "bold" and "transformative" in its mandate, CIHR is clearly constructed within the context of the three rationales (the gap, accountability, economic prosperity) that construct an imperative for knowledge translation. The four roles: a health research investment agency; a knowledge translation agency; governor and manager of health research and researchers; and, an international authority in knowledge translation, are key to the positioning of CIHR to enact a transformation in the health research environment and in how health research is valued. CIHR has discursively prominent responsibilities to demonstrate accountabilities to Canada and Canadians as taxpayers by ensuring: achievement of the expected benefits of improved health and health care; wise financial management of taxpayers' investments in health research; and, an international reputation for Canada.

## Chapter 6

### 6 Discussion And Conclusions

#### 6.1 Introduction

I have critically examined the knowledge translation discourse of the Canadian Institutes of Health Research (CIHR), Canada's major government funder of health research. Informed by a governmentality theoretical perspective, I conducted a critical discourse analysis of a sample of publicly available CIHR documents that are relevant to knowledge translation. I viewed the discourse as a series of statements through which particular meanings of health research, the roles of CIHR, and the activities and subjectivities of health researchers are created and defined. With this perspective, I viewed the discourse as central to the exercise of power, through which new expectations are created, and new boundaries and rules are constructed for what is considered ideal health research, how it should be produced, who should produce it and who should use it. This means that I do not view knowledge translation at CIHR as neutral, but as part of a transformation of the health research environment in Canada.

In this chapter, I discuss the findings of this critical discourse analysis, paying particular attention to how the knowledge translation discourse is constructed with three powerful rationales through which the use of health research is problematized and knowledge translation is constructed and legitimized as the solution. More specifically, I draw attention to how knowledge translation operates as a technology of governance through which the directions of health research and the activities of health researchers are shaped in ways consistent with a neoliberal political rationality and the imperatives of new public management.

In the next section, I provide an overview of the results of my critical examination of knowledge translation as a discourse. In Sections 6.3 and 6.4 I discuss in more detail how the gap, accountability and economic prosperity rationales are used within the knowledge translation discourse to transform the health research environment. In Section 6.5 I discuss how knowledge translation operates as a technology of governance to re-value health research in economically measurable ways, and how the subjectivities of health researchers are discursively constructed

within the context of a transformed health research environment. I end with a discussion of the strengths and limitations of my research and my conclusions in section 6.6.

## **6.2 The discourse of knowledge translation at CIHR**

Examining knowledge translation as a discourse has highlighted how power is exercised through the three rationales that circulate throughout my sample of CIHR documents to construct particular problematizations with the use of health research and expectations of health and economic benefits through the translation of knowledge from health research. These are not the larger rationalities that guide actions at a governmental level, but the kinds of rationales that shape and justify more local actions at the level of CIHR. The first rationale, the “know-do” gap, problematizes the time it takes for the results of health research to get into practice and creates a sense of urgency by highlighting the potentially dire consequences for patients and the health care system. The second rationale focuses on the use of health research to ensure financial and health care accountabilities for the public investment in health research. The third rationale constructs expectations for investment in health research that exhibits excellence, innovation, and the potential for commercially viable products that will lead Canada out of economic uncertainty into prosperity, and secure a globally competitive advantage for Canada in health and in scientific research. These three rationales construct an imperative and provide justification for knowledge translation to be employed by CIHR as the solution to the problematizations outlined above, and as necessary to achieve the beneficial outcomes expected with the use of health research. This imperative is evident with CIHR’s “bold and transformative” mandate that explicitly links knowledge translation with health research, and the construction of roles for CIHR as a health research investment agency, and as an international expert in knowledge translation.

Metaphors and problem-oriented language effectively construct the imperative for change in how health research should be used to achieve the expected health and economic outcomes. Health research is described as going through a self-sustaining “revolution”, “fueled” by new ways of thinking, partnerships, industries, and new technologies (CIHR 2004b, p. 6). The constructed “know-do gap” suggests a hole or space that needs to be filled between the creation of

knowledge from health research and its ultimate application in practice. A gap in this context becomes a justification for action, particularly when explained with references to unreasonable lengths of time and haphazard methods of putting health research into practice. Further, the potential for dire consequences for patients implies the need for prompt action to close the gap. Similarly, it is implied through the discourse that population health can and should be improved through the use of health research, and that health researchers need to demonstrate this accountability to Canadians as taxpayers. Finally, uncertainty that threatens economic prosperity constructs both a tension for the government, and provides justification for action expected through investment in a particular kind of health research that is “translatable” into “practical” applications (e.g. new drugs, treatments, technologies, novel health service delivery models).

From a governmentality perspective, my results suggest that knowledge translation functions as a technology of governance, providing the strategies and techniques to transform health research and the activities of health researchers in ways that will ensure the expected beneficial outcomes associated with the rationales. Knowledge translation is constructed as both a field and a science, designed to work through a series of defined steps, and described as ‘organic’ and ‘dynamic’ suggesting it is a natural and active process. It is constructed as all-encompassing, subsuming all similar terminology and research approaches between knowledge creation and application regardless of their original discipline. As a technology of governance, knowledge translation becomes social action in practice, with power used productively to discursively construct a new system of health research and new identities for health researchers.

Knowledge translation is conceived as a process through which health research is “sifted”, “synthesized” and re-valued in economically measurable ways and in relation to knowledge users’ needs. Particular emphasis is placed on research considered: “world class” and “innovative”, created through end-of-grant or integrated knowledge translation processes. These processes are designed to ensure health research: fits particular ideals of economic and health care value; is accountable through development of products, better health for Canadians, more efficient health care system, and economic prosperity; and, is scientifically robust to meet knowledge users’ needs.

The results also illustrate how health research is discursively constructed as an “enterprise”, with new roles defined for health researchers who are positioned within the discourse as one of a number of stakeholders. Researchers comprise part of a “talented international” workforce who produce innovative ideas that will lead to commercially viable research products. The expectation is constructed that researchers will add knowledge translation processes to their existing research activities, and engage in cross-disciplinary and cross-sector partnerships designed to meet knowledge users’ needs. A variety of techniques are constructed through the knowledge translation discourse to aid researchers to become experts in the practice and the science of knowledge translation (e.g. real-life research examples, hypothetical case studies, second-person pronouns, irony).

My results suggest that, as a discourse through which a new health research environment is constructed, knowledge translation draws on both the language and concepts of research that would be familiar to researchers and clinicians (e.g. evidence, reproducibility, robustness), and the business-oriented language of investments, products and services, and economic prosperity that are part of the new research “enterprise”. However, the powerful metaphors used within the discourse to construct a new reality (Fairclough, 1992; Parker, 1992) in the form of expectations for “ideal” health research suggest the possibility of a discursive struggle to control the construction of shared meanings (Fischer, 2007) about the health research system and culture. For example, a “revolution” does not imply a small or peaceful change, nor does the “breaking” of traditional disciplinary/departmental boundaries to encourage cross-sector partnerships. Constructing knowledge translation as a science with a common, scientific-oriented nomenclature may be, as Fisher suggests, a discursive tactic to “reduce emotional and conflict-ridden political questions by translating them into scientific and technical answers” (p. 101). I argue that the new, “ideal” health research environment that is powerfully constructed through the discourse leaves little room for the more traditional ways of doing research or the familiar disciplinary roles of researchers.

Finally, CIHR, as the agency expected to employ knowledge translation, has been created with a knowledge translation-linked identity, becoming the “Government of Canada’s health research investment agency”, a role that is very different from the former Medical Research Council’s identity as a “granting agency”. My results show that CIHR, with its mandate explicitly linking

knowledge translation with health research and the expectations of the three rationales (the ‘know-do gap’, health and financial accountability, economic prosperity and an international competitive edge for Canada) has three additional roles pertaining to knowledge translation. In addition to positioning CIHR as a health research investment agency, CIHR is also constructed as a knowledge translation agency, as a governor and manager of the health research “enterprise”, and, as an international authority in knowledge translation.

### **6.3 The strategic use of the ‘gap’ to construct a space for action**

The analysis of Estabrooks, Derksen and Winther et al.’s (2008) demonstrates that the field of knowledge translation has evolved from a variety of prominent discourses, the presence of which are still evident. This includes: the language of diffusion of innovations; the problems of research utilization first highlighted in relation to policy development in the 1970s; and, the evidence based medicine discourse that critically-oriented researchers argue is still prominent in knowledge translation processes. As the results of my critical discourse analysis shows, the language of the know-do gap rationale is a prominent feature of the knowledge translation discourse that circulates throughout my sample of CIHR documents. In this section I examine the connection between the gap and the evidence based medicine discourse (EBM), and argue that the KT discourse draws on the EBM discourse for rhetorical strength and legitimacy, and is subject to critiques similar to those about EBM. Consistent with Parker’s (1992) criterion that discourses are historically located, and the prominence of the EBM discourse in the KT discourse, I also provide a brief history of EBM.

The concerns constructed through the gap rationale are that the results from health research take too long or are not being “optimally” applied in clinical practice and health policy (Straus, Tetroe and Graham, 2009b), potentially resulting in harm to patients and even death (Graham and Tetroe, 2007; Newton and Scott-Findlay, 2007; Eccles, Grimshaw, Walker, et al., 2005). As I reviewed in the literature in Chapter 2, these concerns are also consistent with the EBM discourse that is often interconnected with knowledge translation in the KT literature. As suggested in literature that critiques knowledge translation, EBM is still considered a prominent feature in KT processes (Reimer-Kirkham et al., 2009; Komporozos-Athanasίου et al., 2011).



As outlined in Chapter 1, evidence based medicine (EBM) was introduced in 1992 as a “new paradigm for medical practice” (Evidence Based Medicine Working Group, 1992, p. 2420) with a focus on reducing the reliance of clinical decision making on “unsystematic clinical experience and pathophysiological rationale” (Guyatt et al., 2004, p. 1990). Traditional clinical decision making was problematized within the EBM discourse through case studies of poor patient outcomes and experiences, the increasing amount of clinical research available, and changes in medical practice (Evidence Based Medicine Working Group, 1992). Similar to the knowledge translation processes promoted through the KT discourse (e.g. research synthesis; development of decision ‘tools’), EBM promotes clinical decision making based on systematic reviews of clinical and epidemiological research, and decision tools such as graded practice recommendations and clinical practice guidelines.

The EBM discourse has become a prominent feature of the teaching and practice of medicine (Guyatt et al., 2004) in Western countries (e.g. North America, the UK, Europe, Mykhalovskiy and Weir, 2004), and in policy decision making (e.g. Bacchi, 2008; Greenhalgh and Russell, 2009). For example, Greenhalgh and Russell describe how a Labour government came to power in Britain with an agenda that included a short-lived, evidence-based “manifesto” suggesting that: “every problem in society has an evidence-based solution that should be identified and driven into policy” (2009, p. 305, citing Parsons, 2002). Similarly, the evidence based medicine movement is also viewed as having “led to the institutionalization of a whole range of organizations seeking to influence decision-making in healthcare” (Byrkjeflot, 2011, p. 152, citing Hansen and Rieper, 2009).

The evidence based medicine discourse and, as my results suggest, the concept of the “know-do” gap, are discourses with assumptions that are taken for granted as truth. As Black (2001) points out: “It seems difficult to argue with the idea that scientific research should drive policy” (p. 275). In a similar argument related to the evidence-based movement in education, Davies (2003) persuasively describes the truth-value and authoritative power of scientific evidence in the following quote. She describes the difficulty of critiquing the need for “scientific research” in the context of new managerialism, a neoliberal-oriented theory applied to the restructuring of public service that will be discussed in more detail in the following section. Davies agrees that, within

this context, the appropriateness of the use of scientific evidence is not questioned, evaluative evidence is not immediately necessary, and critique is “irrelevant”.

Yet it is in order to give an appearance of an *unchallengeable* link between evidence and practice that the advocates of evidence-based practice rely on experimental research. They engage the authority of ‘hard science’ to give weight to their propositions. ... Through an understanding of how new managerialism works, we can guess that the objectives will come first and that the ‘experimental research evidence’ will be generated to justify them. As long as the objectives have been met (according to the auditors), then questions about the appropriateness of the evidence for good teaching or the capacity for teachers to act on it can be left unasked and unanswered. Critique, in this model becomes irrelevant. (p. 100, italics in original)

My results demonstrate a similar use of the “know-do” gap in CIHR’s knowledge translation discourse. I suggest that the discursive use of the “know-do” gap provides rhetorical strength and legitimacy by drawing on the well-established EBM discourse to construct the need and justification for transformation of health research and the culture for researchers. The EBM discourse has been a pervasive and powerful part of medical and health research cultures for more than twenty years (Evidence Based Medicine Working Group, 1992), is familiar to clinicians and health researchers, and, with assumptions that are taken as truth, is difficult for researchers to challenge, critique and/or resist. The language and assumptions of the gap rationale in problematizing the use of health research and creating the imperative for knowledge translation are similar to those of EBM. And similar to Davies’ (2003) observation about the generation of justifiable evidence, knowledge translation as practice is promoted in CIHR’s KT discourse as an unquestionable necessity, with the assumption that the supporting evidence of its effectiveness can be generated later through KT as a science and field of research. Thus, I argue that the gap rationale is used discursively to facilitate the transformation of the health research environment to meet the expectations associated with the accountability and economic prosperity rationales, and in ways that may be difficult to challenge.

#### **6.4 New public management and knowledge translation rationales**

The three rationales that construct and shape the imperative for knowledge translation at CIHR (e.g. the “know-do” gap, health care and financial accountabilities; economic prosperity and an

international competitive edge for Canada) are key results of this research. These rationales are explicitly and implicitly present in every reference to the beneficial outcomes expected from knowledge translation. Further, the influence of the neoliberal rationality of government on the three rationales becomes apparent with a governmentality perspective. The discursive emphasis placed on demonstrating accountability to taxpayers for their financial investments, the economic value of health research, and international competitiveness in the field of health research are consistent with a neoliberal political rationality (Larner, 2000).

Neoliberalism, as a political rationality of government (Larner 2000), developed in the 1970's with the election of political leaders such as Margaret Thatcher in Britain, Ronald Reagan in the U.S. and Brian Mulroney in Canada (Saint-Martin, 2007). Neoliberalism favors market style regulation of economic activity, economic efficiency and globalization of capital with an emphasis on market provision of public goods and services, deregulation and privatization (Larner, 2000). A neoliberal rationality emphasizes a form of self-government, constructing individuals as active entrepreneurs who are freely responsible for engaging in their own "energetic pursuit of personal fulfillment" (Miller and Rose, 2008, p. 82). This "governance at a distance" perspective is also extended to public institutions, with a variety of techniques (e.g. shared vocabularies, assessments and audits) that creates both distance and connections between the decisions of formal political institutions and other social actors, organizations, and independent authorities (Miller and Rose, 2008).

The three knowledge translation rationales identified in my research, and the neoliberal political rationality that informs them, can also be understood in relation to "new public management" (NPM) approaches that have guided the restructuring of public institutions, including the health care sector, in Canada and elsewhere (e.g. the UK) since the 1980's. New public management has been generally characterized by increased emphasis on efficiency and accountability in public service work (Leicht, Walter, Sainsaulieu, and Davies, 2009). Shaw describes a "climate of new public management" (2007, p. 319) based on business and market economy mechanisms (Boston, 2011) that emphasize deregulation, privatization, economic efficiency, and choice, entrepreneurship, and competition (Shaw, 2007). The origins of new public management include: neoliberalism; managerialism associated with administrative theory; 'new institutional

economics' associated with a number of economic and institutional theories; and a rational choice tradition ("public choice") (Boston, 2011).

Adoption of new public management has led to increased emphasis on efficiency and accountability in the restructuring of professional work (Leicht et al., 2009), government departments (Glor, 2001), and public services (McDonough and Polzer, 2012) in western economies and governments for the past 30 years. In Canada, the Mulroney government adopted NPM-style practices in 1984 following the introduction of managerialism in 1979, resulting in federal government restructuring, creation of and emphasis on new service delivery agencies, and a decentralization of authority and responsibility to lower levels of government (Glor, 2001). This includes the health sector in Canada, where privatization of services and downloading of market-style accountability onto local health care organizations has been well documented (c.f. Jiwani, 2003).

NPM-style language is prominent in documents describing the creation of CIHR from its predecessor, the Medical Research Council (MRC) in the year 2000, particularly related to reduced government funding, an increased emphasis on accountability and efficiency, and stronger partnerships with non-research stakeholders. This is evident, for example, in the following quote from a document describing the MRC in the 1990's. The government was paternalistically portrayed as "the sugar daddy", an unlimited source of funding to health researchers who were problematized as having a sense of "entitlement". The solution articulated in the quote is for an agency that is more entrepreneurial and proactively involved with its stakeholders and the world at large. This is reminiscent of the portrait Bacchi (2008) portrays regarding a lack of action on the social determinants of health when chronic budget shortages and disillusionment with social programs led to the problematization of social science research in ways that brought decision makers into the research setting as advisors and later, as drivers of the research agenda:

Governments, whose commitment to research had always been tempered by short-term considerations (and whose generosity after adjusting for inflation was not quite as fabulous as the raw figures indicated), had begun to question the prospect of endlessly bankrolling a community of academic scientists who had a well-developed sense of entitlement. In the 1970's the postwar era of constantly-expanding government activity, based on steadily-rising revenue, began to founder on the shoals of stagflation. In the

1980's, especially after the 1984 change from Liberal to Progressive Conservative government, it was becoming clear that Ottawa would not simply play sugar daddy to the research community indefinitely. The government expected its granting agencies to be less passive, more proactive and innovative, more involved with the world outside of Ottawa and the universities. (Medical Research Council of Canada, 2000a, p. 8)

By the year 2000 CIHR's knowledge translation discourse was almost fully realized in accordance with the new public management-related rationales of governance. The CIHR Act and mandate had been passed with the expectations for: health research that would excel according to "international standards of scientific excellence"; the translation of research knowledge into better health, efficient service, and health products; and, an international reputation for Canada. CIHR was charged with the responsibility of establishing its topic-specific institutes and downloading to them the responsibilities for governing health research and ensuring and accountability to Canadians' for their financial investment. The following quote highlights this governance at a distance and the construction of health researchers who become "useful" as the cross-sector technical workforce:

CIHR will establish a slate of institutes, each of which will make full use of researchers from across the spectrum, including biomedical research; clinical research; health systems and services research; and research into societal, cultural, and environmental determinants of health. The Institutes will ensure that science which meets the highest standards of excellence is relentlessly pursued, and will target programs and partnerships to address Canadians strategic priorities. (Medical Research Council of Canada, 2000b, p. 5)

Given the results of this research, I suggest that the rationales of accountability and economic prosperity that are so prevalent in CIHR's knowledge translation discourse are informed by and reflect the assumptions of new public management style reforms in Canada. My results show a number of characteristics of the knowledge translation discourse that are consistent with NPM. For example, the expectations that knowledge translation will lead to improved health for Canadians and a more efficient health care system resonates with the emphasis of NPM on accountability that is focused on outcomes rather than processes. As well, the adoption of business-oriented language in the KT discourse that constructs health researchers as stakeholders and as a "workforce", and health research as an "enterprise" reflects the NPM focus on the delivery of public services through the private sector. Finally, there are similarities between NPM and the knowledge translation discourse in their emphasis on partnerships and cross-

disciplinary collaborations, public-private partnerships, and, an implicit privileging of quantitative research and results over qualitative (Free and Radcliffe, 2009).

The imperative for knowledge translation within a NPM context is not without controversy. For example, Barer, commenting on apparent resistance to knowledge translation in Canada, recognizes a competition between the agenda of accountability and the agenda promoting “commercialization/innovation/economic growth” (2005, p. 51). Barer suggests that the potential for economic gains through commercialization of health research by the pharmaceutical industry, media and advertising competes with a “public health and safety” agenda advocated by “organizations representing the public as taxpayer” such as provincial governments, consumer groups and health care professional groups (p. 51). In another example, Leicht et al. (2009) highlight a different tension in their analysis of the impact of NPM on public professions in Europe and Canada. They suggest that, in practice, the expectation of increased accountability, with an accompanying increase in rules, supervision and administration is contradictory with demands for increased efficiency. Their case studies show that, in Canada, administrators become like ‘public sector CEOs’ with powers and financial privileges similar to the CEOs in the private sector, adding layers of “bureaucratic accountability” whose costs are rarely contrasted with the costs of service provision. Such contradictory realities of implementation are completely unacknowledged in the documents that I have examined in this thesis. CIHR’s discourse of knowledge translation, and much of the literature that advances KT in general (Murphy and Fafard, 2012), constructs knowledge translation as a coherent, technical solution without recognition of the multifaceted complexities of health and policy problems it is expected to solve.

A final noteworthy aspect of the accountability and economic rationales that is important to examine is related to how Canadians, framed both as taxpayers and health service users, have been prominently mobilized in CIHR’s knowledge translation discourse. Canadians, their families, friends and communities are constructed in the discourse as active, citizen-consumers who have expectations for better health, more efficient health care services, and a more prosperous economy as demonstrations of returns on their investments in health research. In the context of the knowledge translation discourse, this implies that members of the Canadian public are constructed as stakeholders in the research enterprise, informed and with considerable agency

to hold health researchers accountable for their health and their economic investment in health research. This construction is consistent with recent health policy imperatives for increased public participation in all aspects of health care decision-making (Mitton, Smith, Peacock, Evoy, and Abelson, 2009). It is also consistent with a governmentality perspective and a neoliberal political rationality that constructs citizens as autonomous actors who are responsible for their own well-being, a construction that serves to legitimize the development of governmental programs and enable their translation into technologies and programs of government. In the words of Miller and Rose:

The language of enterprise became so significant, we suggest because it enabled a translatability between the most general *a priori* of political thought and a range of specific programs for administering the national economy, the internal world of the firm and a whole host of other organizations from the school to the hospital, reframing them as discrete entities pursuing their undertakings as enterprises. (...) With these rationalities, new relations could be formed between the economic health of the nation and the 'private' choices of individuals. The citizen was assigned a vital economic role in his or her activity as a consumer. (2008, p. 49)

And yet the results of policy studies such as those of Komporozos-Athanasίου et al. (2011) who examined knowledge translation in the restructuring of stroke policies in the UK and Canada suggest that this mobilization of Canadians in the KT discourse is more of a strategic discursive device than an achievable reality. Komporozos-Athanasίου et al. found that knowledge translation functioned in Canadian stroke policy as a conduit to evidence to inform service provision rather than a mechanism of accountability to empowered Canadians as service recipients and collaborators in their care. In their words: "Knowledge translation was primarily conceived of as an exercise of moving knowledge from the domain of research to the various components of the (now integrated) services" (p. 222). In this context, the mobilization of Canadians as active participants through the KT discourse functions as a discursive device more consistent with the accountability rationale in constructing new accountabilities between the public and researchers who become responsible for ensuring better health, a more efficient health care system, and economic prosperity:

Yet, Canada's health researchers have a responsibility to ensure that public investment in their work can improve the lives of Canadians and the future of our country. (CIHR 2009c, p. 8)

## **6.5 Valuing health research and shaping researcher subjectivities**

In this section I discuss how knowledge translation operates as a technology of government and how power operates productively to construct particular, idealized effects. In so doing, I bring this discussion back to where I started with this research, examining how particular kinds of health research are privileged, and how ideal health researcher subjectivities are shaped through the knowledge translation discourse at CIHR.

The results of my critical discourse analysis clearly demonstrate that, for health research to be considered useful, it must be processed in particular ways to ensure that the expected beneficial outcomes associated with the gap, accountability, and economic prosperity rationales will occur. Specifically, my results show that, for health research to be considered useful, it must be “sifted”, “synthesized”, and re-valued in economically measurable ways to meet knowledge user needs and demonstrate accountability through: improved health and health care; improved economic prosperity with commercially viable products and services; and, ensuring an internationally competitive edge for Canada. And while the past successes of health research and its traditional “intrinsic” value are acknowledged within the discourse, valuing health as economically measurable outcomes is preferred for the new “research enterprise”.

The technical solution constructed through the discourse is to measure the value of health research as a “return on investment” (ROI) that will facilitate the demonstration of the beneficial outcomes to Canadians for their financial investment in health research. This revaluing of health research in terms of measurable economic outcomes is consistent with Frank and Nason’s (2009) description of the ‘logic-model’ approach to measuring the social, health and economic value of health research that CIHR adopted. It is based on an existing ‘payback’ model, a name that explicitly describes its NPM accountability and economic purposes. The need for this approach, according to Frank and Nason, is based on the perception of high costs associated with health research and the difficult challenges and assumptions in defining its return on investment. The model uses 66 indicators in five different domains of evaluation: (i) knowledge production; (ii) research targeting, capacity and absorption; (iii) informing policies and product development; (iv) health and health sector benefits; and (v) “broader economic benefits”. These domains are oriented to knowledge user needs, constructed to help “stakeholders to answer a wide variety of questions that address the value of research and research funding” (p. 528). The authors



acknowledge that there will be challenges in implementation. This includes collaboration among organizations using it to develop a national standard to “quantify return on investment”, an observation that suggests an “adopt first, prove later” quality and echoes the previous discussion related to efficacy evidence for knowledge translation.

The discursive revaluing of health research in new, economically measurable ways positions it to be used “productively” as an “engine of progress” and as the “catalyst” for the research and development (R&D) activities such as, for example, the commercialization of health care products and services. In addition to economic revaluing, the processes of “sifting” and “sorting”, and knowledge “synthesis” are all examples of the technical means through which knowledge translation operates as a technology to ensure health research is shaped in desired directions consistent with the outcomes expected through the three rationales.

In addition to shaping what counts as desirable and valuable research, knowledge translation is constructed through the discourse to operate as a technology of governance by defining new expectations and desirable subjectivities for health researchers. A governmentality theoretical perspective suggests that the discourse works through health researchers’ activities, aspirations, goals, needs, and practices (e.g. to be funded, to publish their work, to connect with colleagues and populations of study) to achieve the solutions of the problematic use of health research. My results, and the KT literature (e.g. Estabrooks, Norton, Birdsell et al., 2008; Lehoux et al., 2010) suggest that strong expectations for researchers are communicated through CIHR’s knowledge translation discourse. Health researchers are indeed expected to add the expertise and capacity to engage in knowledge translation activities in addition to their existing research work. Further, I argue that the transformation of the health research culture through the discourse is powerful, and complex in its discursive shaping of the particular subjectivities for health researchers. For example, all health researchers are discursively gathered into a singular research “community” and powerfully charged through the expectations of the rationales with the “responsibility” to create research that will ensure the “future” of the entire country. In this endeavor, researchers are expected to adopt one kind of knowledge translation subjectivity through engagement in “innovative”, “world class” research that ideally results in better health for Canadians, and commercially viable products and services. At the same time, health researchers are expected to adopt a another type of knowledge translation-oriented subjectivity that expects them work

outside of their comfort zone and provide the technical research expertise to meet the “real world” needs of knowledge users whom they have identified, and with whom they are collaboratively engaged as stakeholders in the research enterprise. At the very least, health researchers are expected to identify and contact the “appropriate” knowledge users for their research results, and ensure those results are properly packaged, disseminated and implemented through “end of grant” knowledge translation.

The experiences of researchers who work from critical perspectives and who have engaged in CIHR-funded knowledge translation oriented projects echo the complexity of the discursively constructed subjectivities suggested by my results. For example, Reimer-Kirkham et al. felt a “continual pull back” toward the established methods of evidence-based medicine in their efforts to translate critically-oriented health research (2009, p. 161), suggesting the need to adopt KT-oriented subjectivities instead of subjectivities as critically-oriented researchers. Lehoux et al. (2010), in their evaluation of a knowledge translation-oriented network in genetics developed to meet the needs of the new “knowledge society”, identified a KT-oriented assumption that, from their perspective, shaped how health researchers were expected to work within the network. Based on the assumption that research questions are now too complex for researchers alone to address, Lehoux et al., found that the large, cross-sector network and the emphasis on collaborative processes that focused on conflict-resistant consensus created a culture for the researchers that did not recognize the ways traditional research approaches can support knowledge transfer and exchange expectations, including researcher autonomy and motivations. As Lehoux et al. point out, researchers already work within a heterogeneous social world, and engage in a diverse range of practices (e.g. methodological, theoretical, empirical) and interactions. These are traditional activities not valued within the context of knowledge translation. And yet, their evaluation highlighted the expectation that researchers were to continue with their usual research responsibilities and subjectivities as well as adopt knowledge translation-oriented subjectivities as researcher stakeholders in the network. This echoes the expectations that are evident in my analysis of the KT discourse, that researchers add knowledge translation activities to their existing research activities.

CIHR, in its roles both as the Government of Canada’s health research investment agency and as manager of the research enterprise, employs multiple types of power relations to shape health

researchers' activities and subjectivities in knowledge translation-oriented directions. The most direct form of power is through researchers' need for research funding, controlled through agenda setting and CIHR's accountabilities to produce research that fits particular definitions consistent with its mandate and the rationales of governance that guide it. CIHR also governs through its institutes that specify the priority health-related topics to be funded. Health researchers are also expected to study the very knowledge translation technology being used to change their culture, through target funding programs and support for programs for recruitment and training of knowledge translation researchers. And CIHR shapes health researchers through what Mulderrig (2011) calls a technique of "soft power of contemporary governance" (p. 45), through the use of language and metaphors that construct particular identities for health researchers, for example, as "highly prized talent" in the research enterprise, or as part of a "workforce". Other "soft" techniques include the strategic use of phrases such as to "enable opportunities" for researchers, to engage with knowledge users, and the use of second person pronouns such as "you", and "yours". As Mulderrig summarizes:

Despite the discursive emphasis on empowerment and enabling, this paper illustrates that governance involves not so much the reduction of (governmental) power as its reinvention in a more subtle, affective, 'soft', but no less coercive form. (p. 63).

Another example of "soft" power is the use of KT language and concepts in new ways. For example, the recent CIHR guide to knowledge translation suggests that few health researchers have taken up the "opportunities" to become experts in knowledge translation, thus prompting the construction a new "knowledge gap" (CIHR, 2012, p. ii). This lack of knowledge and skills are considered within the KT discourse to be researcher deficiencies, to be remedied through the knowledge translation guides, learning modules with real-life examples, and presentations available through CIHR.

This is not to say, however, that researchers are completely dominated by these power relations; they have the capacity to resist the discursively constructed transformation of their work culture and the subjectivities constructed for them. There is some evidence of such resistance in recent knowledge translation literature. For example, Fortin and Currie, two researchers funded by the Natural Sciences and Engineering Research Council of Canada (NSERC) conducted a study challenging the current assumption that providing large research grants to a few "elite"

researchers rather than providing small grants to many researchers would result in research considered more effective in terms of impact (e.g. larger discoveries) as measured by publication citations. They conclude that: “funding strategies that target diversity (i.e. more small or independent research groups) rather than “excellence” (i.e. a few large ‘elite’ research teams) are likely to be more productive” (2013, p. 1). However, research funding is both a necessity and a powerful motivator, suggesting a limited space for researcher resistance to incorporating knowledge translation mechanisms even if researchers resist identifying themselves as KT researchers. It is more likely that researchers will try to work within the boundaries of knowledge translation as Reimer-Kirkham et al (2009) and others have done, finding ways to “play the game” and engage in more creative and subtle forms of resistance, exemplifying what Miller and Rose refer to as “regulated freedom” (2008, pp. 54-55).

## **6.6 Contributions, limitations, strengths and future research**

I have undertaken a critical examination of the discourse of knowledge translation at CIHR, and reflected on the constructions of health research and researchers through the discourse. As such, the findings of this study illuminate the shape of the KT discourse, its influences, and its potential effects in shaping health research agendas and privileging particular kinds of researcher orientations to their research programs and respective disciplines.

The results of my critical discourse analysis offer a major contribution to the growing body of critical literature on knowledge translation in Canada by providing an understanding of how CIHR’s KT discourse is constructed and legitimized through rationales that are part of a neoliberal political rationality of government and influenced by the imperatives of new public management. The three governing rationales identified through my critical discourse analysis: the “know-do” gap; health and financial accountabilities; and, economic prosperity and an international competitive edge for Canada, circulate throughout the KT discourse, problematize the use of health research, and legitimize knowledge translation as an unquestioned solution. These rationales discursively place the use of health research into a political context, with expectations and accountabilities related to ensuring national-level benefits such as economic prosperity and a competitive edge for Canada, and privileging health research and health researchers who are considered most likely to achieve those benefits. My results and discussion

also point to how CIHR is constructed within the context of a neoliberal political rationality and new public management-oriented restructuring in Canada, and how, through its roles and its accountabilities, health research and researchers are governed and managed through knowledge translation in Canada.

This research also contributes to the body of scholarly literature that employs a governmentality theoretical perspective and critical inquiry methodology, providing insight into the power/knowledge relations that operate through the knowledge translation discourse to construct the particular roles that CIHR is expected to fulfill. My results and analysis show how knowledge translation operates as a technology of governance and how power is used productively to discursively transform and construct a new health research environment that includes the revaluing of health research in measurable ways and production of “actionable” knowledge from research. These results highlight how the language of governance is used in this transformation, including the influences of both business/economic and evidence based medicine discourses in the KT discourse, and the use of metaphors and “soft” coercive discursive devices (Mulderigg, 2011) in shaping “ideal” subjectivities and constructing the boundaries for “ideal” health research within the discourse.

My research also adds to the body of literature that critiques knowledge translation (e.g., Bacchi, 2008; Reimer-Kirham et al., 2009; Kitto et al., 2012; Lehoux et al., 2010) by highlighting the complex nature of the relationship between the evidence based medicine discourse and knowledge translation. Parker (1992) reminds us that discourses support institutions and reproduce power relations through reproduction of discursive practices. As I argue in this discussion, my results and analysis point to the use of the EBM discourse in the transformation of the health care environment, both in language of the “know-do gap” rationale, and as a rhetorical device that adds strength and legitimacy to knowledge translation as an unquestioned solution to the problematization of the use of health research. My critical perspective allows me to suggest that this influence of EBM in CIHR’s KT discourse is far greater than just an historic contributor as implied in the knowledge translation literature (e.g. Estabrooks, Derksen and Winther et al., 2008). These observations are consistent with work of researchers such as Shaw (2007), Shaw and Greenhalgh (2008) and others (e.g., Winch et al, 2002; Estabrooks, Derksen, Winther, et al., 2008) whose work demonstrates that broad-based strategies of governance such

as knowledge translation and evidence based medicine have the potential for both expected and unexpected impacts on health research, health researchers, and entire disciplines. In Canada, there have been important critiques (e.g., Goldenberg, 2006; Holmes, Murray, Perron, and Rail, 2006) that have highlighted serious epistemological and methodological challenges with evidence based medicine approaches and have stimulated considerable reflection and important qualifications.

There are limitations to this research that need to be highlighted. My interpretations and characterizations of CIHR's knowledge translation discourse reflect the types of documents I have chosen, my theoretical perspective and associated research questions, and my subjective experiences as a researcher. As such, my results and interpretations represent one possible critical interpretation of knowledge translation.

While I employed purposeful sampling of documents, and not all of my documents were KT-specific, the focus of my analysis is limited to the knowledge translation discourse as it is articulated through CIHR. Knowledge translation as a discourse and as a process may operate differently through other funders of health research in Canada or elsewhere. Similarly, my analysis does not address how knowledge translation has been implemented in practice, or how health researchers have interpreted the discursive transformation of the health research environment or the construction of subjectivities in the discourse.

My results also reflect CIHR's knowledge translation discourse at a particular point in time (2000-2012). Since 2012, CIHR's formal department of "Knowledge Translation and Commercialization" has been dismantled, and, according to CIHR's website (as of May 2014), KT is now part of its "signature initiative" of "Evidence Informed Healthcare Renewal" and used to "stimulate targeted areas where a need has been identified" (<http://www.cihr-irsc.gc.ca/e/38924.html>). As well, discourses cannot be considered static and unchanging, but are constantly evolving. The knowledge translation discourse is being reshaped by those who engage with it, critique it, and/or resist it from both critical and non-critical perspectives (e.g. Fortin and Currie, 2013; Kitto et al., 2012; Lehoux et al., 2010; Martimianakis, 2011).

This research highlights a number of problematic implications of knowledge translation as a strategy of governance of health research and researchers in Canada. CIHR's discourse of

knowledge translation sets new expectations for how health research is to be valued, and in ways that seem short sighted. For example, an exclusive focus on knowledge user-defined problems takes the research emphasis (and research funding) away from what is still unknown at a basic, physiological level about complex health issues, for example, diabetes, stroke, or sepsis. The results of research that is considered to have little immediate clinical or policy use in the present may yield unexpected but necessary insights and important connections in the future. Likewise, the emphasis on research that is considered economically-valuable, with the expectation that it will stimulate economic prosperity does not acknowledge the social and ethical complexities of health research or, more importantly, health and health care situations. As well, the increased responsibilities associated with knowledge translation takes time away from health researchers' practice of research and training. Finally, as the knowledge translation discourse becomes entrenched and embedded in every aspect of what health researchers are expected to do and how health research is valued, it becomes a "truth" that is increasingly difficult to question.

This research tells part of the story of CIHR's discourse of knowledge translation and its discursive construction and shaping of health research and researchers. As such, it provides a strong foundation for further research. For example, my results highlight particular concerns related to the magnitude and all-encompassing nature of the discursive transformation of the health research environment. The knowledge translation discourse at CIHR provides little understanding of the potential impacts of the changes, and leaves little room for reflection on or incorporation of more traditional approaches to health research that has led to the "revolutionary strides" of the last 50 years (e.g., curiosity- and disciplinary based). What is left unexamined in the discourse are the potential consequences of privileging particular approaches to health research while deemphasizing, or simply subsuming others into the "science" of KT (e.g. participatory research approaches).

My own research experiences suggest that both knowledge translation and health research processes are far more complex than suggested in the documents I analyzed. I agree with Lehoux et al., (2010) that more consideration of the expertise and understandings that health researchers can bring to knowledge translation is necessary. With my critical inquiry stance, I engaged in this research with the hope that my results are transformative in ways that encourage health researchers to question the all-encompassing and powerful changes brought on through

the knowledge translation discourse. A next step would be to more thoroughly examine how researchers are conforming, circumventing or resisting (Motion and Leitch, 2007) the shaping of their work and subjectivities through knowledge translation.

As well, an exploration of how advanced liberal techniques of governing through communities, such as knowledge translation “communities of practice” like, for example, the CIHR-funded “KT Canada” (<http://ktclearinghouse.ca/ktcanada>), operate to shape health researchers would be an important contribution. Such communities of practice are considered to play a role in the larger shift from production-based to knowledge based economies in which knowledge expertise, creation, and sharing is more controlled (Luque, 2001), offering new spaces for both micro- and macro-level political technologies and “government through community” (Rose, 1999, p. 136).

Finally, the prominence of the rationales and new public management-related imperatives raise questions about the roles of accountability, the mobilization of Canadians as “active” participants, and the considerable responsibilities placed on health researchers to ensure national-level benefits. These are issues that need to be explored in more detail in future research.

Health research needs to be done to address health problems and the serious concerns associated with our health care systems. Research funders such as CIHR are an integral part of these systems. My results provide a foundation for critical reflection on how knowledge translation has come to be constructed as a discursively dominant mode of governing health research in Canada. To the extent that knowledge translation is expected to have positive effects on the health care system and health outcomes (e.g., by addressing the ‘know-do gap’), such critical reflection is necessary and timely.



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## Appendix A: Parker's (1992) Critical discourse analysis framework

Parker's (1992) conceptual checklist for distinguishing discourses and analysis statements	Shaw and Greenhalgh's explanation of Parker's criteria (2008, p. 2509)
<p><b>Discourse is realized in texts</b></p> <ul style="list-style-type: none"> <li>• “Treating our objects of study as texts which are described, put into words; and</li> </ul> <p>Exploring connotations through some sort of free association, which is best done with other people.” (p. 7)</p>	<p>“As world around us is textual, we need to treat objects of study (e.g., documents) as texts which are described and put into words”</p>
<p><b>A discourse is historically located</b></p> <ul style="list-style-type: none"> <li>• “Looking at how and where the discourses have emerged; and</li> <li>• Describing how they have changed, and told a story, usually about how they ref to things which were always there to be discovered.” (p. 16)</li> </ul>	<p>“Discourses are embedded in history and should be considered in relation to time. Need to explore how and where discourses emerge and describe how they change”</p>
<p><b>A discourse is a coherent system of meanings</b></p> <ul style="list-style-type: none"> <li>• “Mapping a picture of the world this discourse present; and</li> </ul> <p>Working out how a text using this discourse would deal with objections to the terminology” (p. 12)</p>	<p>“Discourse is made up of groups of statements that present a particular reality of the world. The task of the analyst is to map the world a discourse represents.”</p>
<p><b>A discourse is about objects</b></p> <p>“A discourse is about objects, and discourse analysis is about <i>discourses</i> as objects.”</p> <ul style="list-style-type: none"> <li>• “Asking what objects are referred to, and describing them; and</li> </ul> <p>Talking about the talk as if it were an object, a discourse.” (p. 9)</p>	<p>“Using language means referring to objects and representing them in particular ways. Hence we unpick what objects are referred to and how they are talked about.”</p>
<p><b>A discourse contains subjects</b></p> <ul style="list-style-type: none"> <li>• “Specifying what types of person are talked about in this discourse, some of which may already have been identified as objects (...); and</li> </ul> <p>Speculating about what they can say in the discourse, what you could say if you identified with them (what rights to speak in that way of speaking)” (p. 10)</p>	<p>“As discourse addresses us in particular ways and allows us to perceive ourselves in certain roles, <u>we need to identify the rights</u> we have to speak in relation to any discourse.”</p>

<p><b>A discourse refers to other discourses</b></p> <ul style="list-style-type: none"> <li>• Setting contrasting ways of speaking, discourses, against each other and looking at the different objects they constitute (...); and</li> </ul> <p>Identifying points where they overlap, where they constitute what look like the ‘same’ objects in different ways.” (p. 14)</p>	<p>“Describing discourses necessarily involves the use of other discourses. Contrasting different ways of speaking helps to disentangle this.”</p>
<p><b>A discourse reflects on its own way of speaking</b></p> <ul style="list-style-type: none"> <li>• “Referring to other texts to elaborate the discourse as it occurs, perhaps implicitly, and addresses different audiences (...); and</li> </ul> <p>Reflecting on the term used to describe the discourse, a matter which involves moral/political choices on the part of the analyst.” (p. 15)</p>	<p>“Each discourse comments upon the terms it employs, referring to other texts to elaborate. Hence there is a need to reflect on the terminology used.”</p>
<p><b>Discourses support institutions</b></p> <ul style="list-style-type: none"> <li>• “Identifying institutions which are reinforced when this or that discourse is used; and</li> </ul> <p>Identifying institutions that are attached or subverted when this or that discourse appears.” (p. 18)</p>	<p>“Discursive practices involve the reproduction of institutions. Analysis involves identifying institutions that are reinforced or subverted when a discourse is used.”</p>
<p><b>Discourses reproduce power relations</b></p> <ul style="list-style-type: none"> <li>• “Looking at which categories of person gain or loses from the employment of the discourse; and</li> </ul> <p>Looking at who would want to promote and who would want to dissolve the discourse.” (p. 19)</p>	<p>“Discourse and power are intimately related so we need to look at <u>which categories of person</u> gain and lose from employment of a discourse.”</p>
<p><b>Discourses have ideological effects</b></p> <ul style="list-style-type: none"> <li>• “Showing how a discourse connects with other discourses which sanction oppression; and</li> </ul> <p>Showing how the discourses allow dominant groups to tell their narratives about the past in order to justify the present, and prevent those who use subjugated discourses from making history.” (p. 20)</p>	<p>“Different versions of how things <i>should</i> proceed can coexist and compete within discourse. Hence there is a need to show a discourse connects with other discourses to sanction control.”</p>



## Appendix B: List of CIHR documents

Knowledge Translation Foundational Documents		
Document, URL/Date Retrieved	Analysis	Rationale for Selection
<p>Canadian Institutes of Health Research. (Original Date ? 2010). More about knowledge translation at CIHR. Web-based Document No. 39033. Modified May 27, 2010.</p> <p><a href="http://www.cirh-irsc.gc.ca/e/39033.html">http://www.cirh-irsc.gc.ca/e/39033.html</a></p> <p>Retrieved: March 18, 2011</p>	<p>Foundational document for analysis for Research Q. 1</p>	<p>CIHR Web-based document that provides descriptions, definitions, sources and links to additional resources; provides definitions for KT at CIHR, why KT is important to CIHR. Accessible to anyone looking for more information about KT.</p> <p>Selected as a starting point for KT at CIHR, how it is defined, why CIHR considers KT important. It provided topics for moving forward into more depth about KT as a discourse.</p>
<p>Tetroe, J.M. (2007). Knowledge translation at the Canadian Institute of Health Research: A primer. <i>Focus, A Publication of the National Center for the Dissemination of Disability Research (NCDDR)</i>. Technical Brief No. 18.</p> <p><a href="http://www.ncddr.org/kt/products/focus/focus18">http://www.ncddr.org/kt/products/focus/focus18</a></p> <p>Retrieved: October 3, 2008</p>	<p>Foundational document for analysis for Research Q. 1</p>	<p>Published as a technical brief for a US-government funded project of a private non-profit research, development &amp; dissemination corporation. Author is with the KT Institute of CIHR and co-author of other CIHR-linked KT resources.</p> <p>Selected because it was one of two documents suggested for more information about KT at CIHR and the knowledge to action process. As a presentation to a non-Canadian audience, it provided insight into what was considered important to the author about KT at CIHR.</p>
<p>Graham, I.D., Logan, J., Harrison, M.B., Straus, S.E., Tetroe, J., Caswell, W., &amp; Robinson, N. (2006). Lost in translation: Time for a map? <i>The Journal of Continuing Education in the Health Professions</i>, 26(1), 13-25.</p> <p><a href="http://www.jcehp.com/vol26/2601_graham.asp">http://www.jcehp.com/vol26/2601_graham.asp</a></p> <p>Retrieved: October 3, 2008</p>	<p>Foundational document for analysis for Research Q. 1</p>	<p>Published as a journal article and considered a key background article for KT. Lead author became VP of KT at CIHR after article was published. Develops KT strategy: 'Knowledge to Action'</p> <p>Selected because it was one of two documents suggested for more information about KT at CIHR and the knowledge to action process and because it is considered a key background article for KT.</p>
<p>Canadian Institutes of Health Research. (2009). Knowledge</p>	<p>Educational document for</p>	<p>CIHR web-based document – PowerPoint presentation providing introduction to KT at</p>

<p>Translation of CIHR. PowerPoint Presentation. Web-based document No. 39158. April 2009.</p> <p><a href="http://www.cihr-irsc.gc.ca/e/39158.html">http://www.cihr-irsc.gc.ca/e/39158.html</a></p> <p>Retrieved: September 16, 2009</p>	<p>Analysis for Research Qs 2&amp;3</p> <p>Reinforces analysis for Research Q 1</p>	<p>CIHR.</p> <p>Selected because, as a presentation about KT at CIHR it offers what CIHR may consider the important points about KT, the ‘take away’ messages. It is linked as a CIHR knowledge translation publication, and offers definitions, explanations, and descriptions of KT policies that would be relevant for audiences who may or may not be familiar with KT at CIHR (e.g., stakeholders, researchers). Provided initial background for analysis for Research Questions 2 and 3.</p>
<p>Canadian Institutes of Health Research. (2004). Innovation in action: Knowledge translation strategy 2004-2009.</p> <p><a href="http://www.cihr-irsc.gc.ca/e/documents/kt_strategy_2004-2009_e.pdf">http://www.cihr-irsc.gc.ca/e/documents/kt_strategy_2004-2009_e.pdf</a></p> <p>Retrieved: October 17, 2010</p>	<p>CIHR strategic plan for KT</p> <p>Analysis for Research Qs 1, 2 &amp; 3</p>	<p>This document represents the ‘middle’ timeframe of CIHR’s promotion of KT (four + years in) and therefore mentions what has been accomplished, how CIHR’s KT activities are evolving, and, as a strategic plan, new KT activities and expectations.</p>

### CIHR Organizational Planning and Policy Documents

<b>Document, URL/Date Retrieved</b>	<b>Analysis</b>	<b>Rationale for Selection</b>
<p>Canadian Institutes of Health Research. (2004). Investing in Canada’s Future: CIHR’s Blueprint for Health Research and Innovation. Cat. No.: MR21-47/2004E-PDF. Ottawa: Her Majesty the Queen in Right of Canada (2004).</p> <p><a href="http://books.scholarsportal.info/viewdoc.html?id=22667">http://books.scholarsportal.info/viewdoc.html?id=22667</a>.</p> <p>(Not available through CIHR website)</p> <p>Retrieved: June 21, 2012</p>	<p>CIHR Strategic Plan</p> <p>Applicable to Research Qs 1, 2 &amp; 3</p>	<p>2004: The first strategic plan for CIHR, covering 2003/04-2007/08.</p> <p>This is CIHR’s first publicly available strategic plan since the agency’s creation in 2000. It took the agency four years to produce it. Thus it presents the aims, objectives and plans for the four-five year period ending in 2008. It includes the agency vision for what health research should look like, the types and characteristics of the health research and health researchers (and their roles), and introduces KT concepts and language. This documents was produced before Ian Graham became VP of KT at the agency.</p>
<p>Canadian Institutes of Health Research. (2009). Health Research Roadmap: Creating innovative research for better health and health care. CIHR’s</p>	<p>CIHR Strategic Plan</p> <p>Applicable to Research Qs</p>	<p>2009: CIHR’s second strategic plan, covering 2009/10 to 2013-14. As a strategic plan put out five years after CIHR’s first strategic plan and KT strategic plan, this document provides insights into how CIHR’s KT plans have</p>

<p>Strategic Plan 2009-10 - 2013-14. Cat. No.: MR21-141/2009E-PDF. Ottawa: Her Majesty the Queen in Right of Canada (2009).</p> <p><a href="http://www.cihr-irsc.gc.ca/e/documents/strat_plan_2009_e.pdf">http://www.cihr-irsc.gc.ca/e/documents/strat_plan_2009_e.pdf</a></p> <p>Retrieved: January 18, 2010</p>	<p>1, 2 &amp; 3</p>	<p>evolved. The third strategic direction is about CIHR's role in KT, however all four directions provide insights into how health research (e.g., 'as a lever') and health researchers are constructed within CIHR.</p>
<p>Canadian Institutes of Health Research. (2007). CIHR policy on access to research outputs. September, 2007. (html doc, no other copyright or publishing information).</p> <p>Full policy:</p> <p><a href="http://www.cihr-irsc.gc.ca/e/34846.html">http://www.cihr-irsc.gc.ca/e/34846.html</a></p> <p>Retrieved" May 3, 2011</p>	<p>CIHR policy for funded researchers with relevance for KT</p> <p>Research Qs 2 and 3</p>	<p>This is KT-related and reflects KT assumptions regarding health research. Relevant for research questions 2 and 3 about health research and health researchers.</p>
<p>Canadian Institutes of Health Research (2010). Research. Knowledge. Impact. Cat. No. MR21-146/2010E-PDF. (note: no other copyright information)</p> <p><a href="http://www.cihr-irsc.gc.ca/e/documents/cihr_research_knowledge_impact_e.pdf">http://www.cihr-irsc.gc.ca/e/documents/cihr_research_knowledge_impact_e.pdf</a></p> <p>Retrieved July 20, 2012</p>		<p>A glossy color pamphlet with photographs that provides a mandate statement about KT and strategic KT-oriented statements about CIHR's goals and values (e.g., 'what drives us', 'collaboration' 'partnerships'). It also provides statements about CIHR's research agendas (e.g., 'patient-oriented research', 'knowledge translation'), and descriptions about CIHR's 13 virtual research institutes. It seems oriented towards non-researchers stakeholders and audiences not familiar with CIHR or its KT agenda.</p>
<p><b>Knowledge Translation-Related Resource Documents for CIHR-Funded Researchers</b></p>		
<p><b>Document, URL/Date Retrieved</b></p>	<p><b>Analysis</b></p>	<p><b>Rationale for Selection</b></p>
<p>Canadian Institutes of Health Research. (2012). Guide to knowledge translation planning at CIHR: Integrated and end-of-grant approaches. Cat. No. MR4-11/2012E-PDF. Ottawa: Her Majesty the Queen in Right</p>	<p>Most recent guide to knowledge translation</p>	<p>A knowledge translation-specific document intended for CIHR-funded health researchers and knowledge users. Provides a good summary of CIHR's approach to knowledge translation with extensive planning suggestions.</p>

<p>of Canada (2012).  <a href="http://www.cihr-irsc.gc.ca/e/documents/kt_lm_kt_plan-en.pdf">http://www.cihr-irsc.gc.ca/e/documents/kt_lm_kt_plan-en.pdf</a>  Retrieved July 20, 2012</p>		
<p>Parry, D., Salsberg, J., Macaulay, A.C., &amp; Canadian Institutes of Health Research. (2008?). A guide to researcher and knowledge-user collaboration in health research. (no other copyright or publishing information).  <a href="http://www.cihr-irsc.gc.ca/e/documents/Guide_to_Researcher_and_KU_Collaboration.pdf">http://www.cihr-irsc.gc.ca/e/documents/Guide_to_Researcher_and_KU_Collaboration.pdf</a>  Retrieved October 16, 2009</p>	<p>A CIHR knowledge translation &amp; commercialization learning resource module</p>	<p>It is explicitly stated that this very long document (83 pages) was created for a researcher audience, but would be accessible to non-academics. As such, its goal is to offer help to researchers in framing questions “that move knowledge translation from its traditional place at the end of research (‘end of grant’ knowledge translation) to its <i>integration</i> through all stages of the research process (“integrated knowledge translation”, IKT).” (p. 2). The chapters offer topics relevant to an integrated approach to KT (e.g., identifying and recruiting researcher partners, engaging in collaborative research design, governance, ethics, dissemination and knowledge to action).   Particular for research questions 2 &amp; 3.</p>
<p>McCarthy, R., and Mota, A. (2011). Applying to integrated knowledge translation funding opportunities at CIHR: Tips for success. PowerPoint presentation for KT Canada Seminar Series, September 8, 2011 (video-linked).  <a href="http://ktclearinghouse.ca/ktcanada/education/seminarseries/2011/20110908">http://ktclearinghouse.ca/ktcanada/education/seminarseries/2011/20110908</a>  Attended presentation  September 18, 2011</p>	<p>Educational document;  PowerPoint Presentation to Researchers &amp; potential grant applicants</p>	<p>CIHR sanctioned PowerPoint presentation (logo on every slide), available through the CIHR website. Authors were providing a presentation to researchers across Canada (video-linked) organized through a separate organization, KT Canada. Presentation is about integrated KT at CIHR and offers descriptions and examples of IKT project and grant opportunities at CIHR, and ‘tips for success’.</p>
<p>Canadian Institutes of Health Research. (2011). Communicating the value of health research: A guide to public communications for CIHR-funded Researchers. Cat. No. MR21-69/2011E-PDF.  Link: CIHR Home page &gt;</p>	<p>A corporate reference document put out by CIHR Communications and Public Outreach</p>	<p>Although not KT-specific, this brief document aimed at CIHR funded researchers is about many of the themes associated with the KT discourse at CIHR (e.g., ‘Promoting your research – Canadians want to hear about it!’; ‘CIHR enables the creation of evidence-based knowledge and its transformation into improved treatments’; ‘Research. Knowledge. Impact.’). It offers very specific guidelines about how</p>

<p>Publications &gt; Corporate &gt; Corporate Publications &gt; Reference Documents &gt; present doc</p> <p><a href="http://www.cihr-irsc.gc.ca/e/documents/CIHR_Guidelines_E_webAug2_11.pdf">http://www.cihr-irsc.gc.ca/e/documents/CIHR_Guidelines_E_webAug2_11.pdf</a></p> <p>Retrieved July 19, 2012</p>		<p>researchers should communicate their health research.</p> <p>Particularly relevant for research questions 2 and 3.</p>
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## Appendix C: Example of analysis topics and texts

### List of topics/objects and subjects from discursive phase of analysis (codes)

'Characteristics of KT'	Other	Elements of KT Processes
KT as action KT is about change KT mandate & goals KT is all-encompassing & inclusive KT process is universal Terminology confusion KT is more than terminology KT as 'organic' KT/KTA as a process KT as a concept KT is about accountability Neutralized accountability KT not exclusive to CIHR The 'gap' Governing health research KT as a discourse KT as a field KT as a science KT as a journey Not an evidence problem Historical context Link historical context to present Complexity of KTA process	<b>CIHR-Specific</b> About CIHR CIHR responsibilities KT at CIHR Researchers 'work' for CIHR End of Grant KT Integrated KT (IKT)  <b>People ...</b> Authorities in KT 'field' Researchers Stakeholders & knowledge users Shared interests  Metaphor  KT Responsibilities	KT/KTA as a process Creation of new knowledge Knowledge Research Interactions Synthesis Knowledge synthesis CIHR KT process Knowledge tools or products Knowledge uptake & application Dissemination Knowledge dissemination Knowledge Exchange Commercialization of 'scientific discovery'

**Examples of statements grouped by topic/object and subject (i.e. people). The numbers refer to document number**

Analysis 'code'	Original quotes and sources
<p><b>Researchers/knowledge creators</b></p> <p><b>... and their responsibilities</b></p> <p>Note: Source annotations are my notes, reflections, and questions associated with a particular code and quote.</p>	<ul style="list-style-type: none"> <li>• "This process takes place within a complex system of interactions between researchers and knowledge users which may vary in intensity, complexity and level of engagement depending on the nature of the research and the findings as well as the needs of the particular knowledge user. (1 &amp; 3)</li> <li>• "The exchange of knowledge refers to the interaction between the knowledge user and the researcher, resulting in mutual learning. (1)</li> <li>• "According to the Canadian Health Services Research Foundation (CHSRF), the definition of knowledge exchange is "collaborative problem-solving between researchers and decision makers that happens through linkage and exchange." (1)</li> <li>• "In end of grant KT, the researcher develops and implements a plan for making knowledge users aware of the knowledge that was gained during a project. Therefore, end of grant KT includes the typical dissemination and communication activities undertaken by most researchers, such as KT to their peers through conference presentations and publications in peer-reviewed journals." (1)</li> <li>• "An important implication of this is that while we encourage researchers to translate the results of their studies, they, at the same time, need to be thoughtful about their message and who the appropriate audience is for this message. " (2)</li> <li>• "Consideration of the potential research user is equally important for both basic and applied scientists working within any of CIHR's four pillars of health research." (2)</li> <li>• "...CIHR clarification that the interactions are between researchers and users and researchers tend to only produce research or science." (3)</li> <li>• "At each phase of knowledge creation, knowledge producers can tailor their activities to the needs of potential users." (3)</li> <li>• "As Lavis et al.<sup>31</sup> and others<sup>32</sup> have noted, knowledge producers can facilitate the uptake of research by addressing five questions: What should be disseminated? To whom should it be disseminated? By whom should it be disseminated? How should it be disseminated? and With what effect should it be disseminated?" (3)</li> </ul> <p style="margin-left: 40px;">Source Annotation: Note in applying this code to this quote, I am assuming that researchers are also 'knowledge producers'. Not too much of a stretch given the authors suggest that the 'knowledge producers' can tailor their 'research questions'. Note also the expectation that it is the role of the 'knowledge producers' to do the 'work' of tailoring and 'facilitating the uptake' of 'research' ... Who else could do this within their model? Why is this the role of the researcher? Whose job is it to manage the second-generation knowledge in creating the knowledge 'tools and products'?</p>
<p><b>Metaphors</b></p> <p><b>See also:</b></p> <p><b>KT as a journey</b></p> <p>Note: Source annotations are my notes, reflections, and</p>	<ul style="list-style-type: none"> <li>• "The Knowledge to Action Process conceptualizes the relationship between knowledge creation and action, with each concept comprised of ideal phases or categories. A knowledge creation "funnel" conveys the idea that knowledge needs to be increasingly distilled before it is ready for application. The action part of the process can be thought of as a cycle leading to implementation or application of knowledge. In contrast to the knowledge funnel, the action cycle represents the activities that may be needed for knowledge application." (3)</li> <li>• "Making Sense of the Black Box That Is KTA" (3)</li> <li>• "Lost in Knowledge Translation: Time for a Map?" (3)</li> <li>• "The knowledge funnel represents knowledge creation and consists of the major types of knowledge or research that exist and can be used in health care. Some of the phases are similar to those proposed by Haynes.<sup>29</sup> As knowledge moves through the funnel, it becomes more distilled and refined and presumably more</li> </ul>

<p>questions associated with a particular code and quote.</p>	<p>useful to stakeholders.” (3)</p> <ul style="list-style-type: none"> <li>• “Another analogy would be to think of the research being sifted through filters at each phase so that, in the end, only the most valid and useful knowledge is left.”(3)</li> <li>• “For example, the phase of knowledge inquiry represents the unmanageable multitude of primary studies or information of variable quality that is out there and that may or may not be easily accessed. This can be thought of as first-generation knowledge that is in its natural state and largely unrefined, like diamonds in the rough.” (3)</li> </ul> <p>Source Annotation: Multiple metaphors: funnel - wider at the top, narrowing at the bottom, suggesting that a lot of 'knowledge' goes in and less comes out. They have mixed metaphors in using 'distilled' and 'refined' to describe what happens to the knowledge as it goes through the funnel. Both 'distilled' and 'refined' can refer to industrial processes (OED): "Purified; freed from impurities or extraneous matter", or 'polished, not crude or vulgar'. Also the 'diamond in the rough' ... "that is in its natural state and largely unrefined". Also: 'first generation' (e.g., technology, computers). Also research as being 'sifted through filters' at each phase. Note: I think if the funnel really represented research or knowledge creation, the funnel would be the other way around, representing the idea or hypothesis that generates ...</p> <ul style="list-style-type: none"> <li>• “Knowledge synthesis, or second-generation knowledge, represents the aggregation of existing knowledge.” (3)</li> </ul> <p>Source Annotation: 'second-generation' as a metaphor suggests the KTA process is like technology, where each generation is an improvement on the previous. Or as evolutionary biology. Is this how knowledge behaves?</p> <ul style="list-style-type: none"> <li>• “Third-generation knowledge consists of knowledge tools or products.” (3)</li> <li>• “Huberman noted many years ago, research is not used as a can opener is used. (37) Generic knowledge is seldom taken directly off the shelf and applied without some sort of vetting or tailoring to the local context.” (3)</li> </ul> <p>Source Annotation: Is this equating research with 'generic knowledge'? Also the idea of 'generic knowledge' being taken off of a shelf could suggest it is like a book in a library ... brings up an image of needed to 'dust off' generic knowledge. This also goes against my idea of research - which is done within a local context, and thus, is NEVER generic. Does this perpetuate the idea of research as done in an ivory tower, divorced from context, problem or hypothesis? It almost suggest that research as done out of self-interest, not in relation to a problem. I do not understand the can opener analogy at this point. Was Huberman suggesting that research has a generic application in that it can be used on any 'can', in any context?</p> <ul style="list-style-type: none"> <li>• “...and strategic use (the research-as-ammunition tradition)35 (3)</li> </ul>
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Analysis 'code'	Original quotes and sources
<p>The 'gap'</p>	<ul style="list-style-type: none"> <li>• “The creation of new knowledge often does not on its own lead to widespread implementation or impacts on health.” (1p1)</li> <li>• “But why did the parliamentarians who crafted the act that created CIHR include this component? There are two primary reasons. First, the creation of new knowledge often does not, by itself, lead to its widespread adoption or impact health.” (2p2)</li> <li>• “Second, the past 10 or 15 years have seen increased emphasis on research governance and accountability from the federal and provincial governments, as well as from the public. All of these interested parties want to see the benefits reaped by the taxpayers' dollars invested in health research by moving research into practice/action.” (2p2)</li> </ul>



	<ul style="list-style-type: none"> <li>• “Translating knowledge from the research setting into real-world applications for the benefit of Canadians is a key component of CIHR’s mandate and is the topic of this issue of <i>Focus</i>.” (2p1)</li> <li>• “Although it has been ongoing since the early quality assurance work of Donabedian in the 1960s,<sup>14</sup> the growing awareness that research findings are not making their way into practice in a timely fashion, coupled with the current emphasis on evidence-based, cost-effective, and accountable health care, has stimulated increased interest in finding ways to minimize what might be described as the knowledge-to-action (KTA) gap.” (3p14)</li> <li>• “What is key in the CIHR and NCDDR definitions is that the primary purpose of KT is to address the gap between what is known from research and knowledge synthesis and implementation of this knowledge by key stakeholders with the intention of improving health outcomes and efficiencies of the health care system.” (2p7)</li> </ul>
<p><b>KT at CIHR</b></p>	<ul style="list-style-type: none"> <li>• “KT is important to CIHR because:             <ol style="list-style-type: none"> <li>1. The creation of new knowledge often does not on its own lead to widespread implementation or impacts on health.</li> <li>2. With the increased focus on research governance and accountability from the federal and provincial governments, as well as from the public, it becomes increasingly important to demonstrate the benefits of investment of taxpayer dollars in health research by moving research into policy, programs and practice.” (1p1)</li> </ol> </li> <li>• “Ultimately, KT is a fundamental part of CIHR’s mandate: “The objective of the CIHR is to excel, according to internationally accepted standards of scientific excellence, in the creation of new knowledge <b>and its translation</b> into improved health for Canadians, more effective health services and products and by strengthening Canadian health care system, by .” (<a href="#">Canadian Institutes of Health Research Act</a>, 2000, p.7).” (1p1)</li> <li>• “The Canadian Institutes of Health Research defined the term in 2000 ... Based on the CIHR’s definition, the US National Center for the Dissemination of Disability Research (NCDDR) subsequently produced its own definition of the term.19” (2p14)</li> <li>• “What is key in the CIHR and NCDDR definitions is that the primary purpose of KT is to address the gap between what is known from research and knowledge synthesis and implementation of this knowledge by key stakeholders with the intention of improving health outcomes and efficiencies of the health care system.” (2p14)</li> <li>• “Implicit in what is meant by <i>knowledge</i> is primarily scientific research, as made clear by the CIHR clarification that the interactions are between <i>researchers</i> and users and researchers tend to only produce research or science.” (3pp14&amp;16)</li> <li>• “Another important element of this definition is the acknowledgement that the KT process occurs in a complex social system of interactions among stakeholders. Unfortunately, the CIHR definition is not explicit about what is meant by interactions that can range from simple communication to exchange of knowledge; however, the NCDDR definition is clear that the interaction is collaborative and two way.” (3p16)</li> </ul>

## Curriculum Vitae

**KATHLEEN S. ELLIS**

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### EDUCATION

Ph.D. Candidate, Health & Rehabilitation Sciences Faculty of Health Sciences, The University of Western Ontario, 2006 – Present.

Working Title: Knowledge translation and the governance of health research in Canada: A critical discourse analysis.

M.Sc. Consumer Studies, University of Guelph, Guelph, Ontario.

B.Sc. Biology, Central Michigan University, Mt. Pleasant, Michigan.

### AWARDS

Canadian Institutes of Health Research (CIHR) Doctoral Research Award,

### SELECTED PRESENTATIONS, REPORTS, AND PUBLICATIONS (Since 2002)

#### Presentations and Invited Lectures

“Health research and knowledge translation in a knowledge economy”. British Sociological Association Medical Sociology Group 45<sup>th</sup> Annual Conference, September 11-13, 2013, York, UK. **K. Ellis**, Presenter; J. Polzer, A. Kothari, D. Rudman.

“Shaping health research and researchers in Canada through a discourse of knowledge translation”. 5<sup>th</sup> International In Sickness and In Health (ISIH) Conference, July 18-20, 2013, Montreal Quebec. **K. Ellis**, Presenter; J. Polzer, A. Kothari, D. Rudman.

”A bold, transformative mandate”: Shaping health research and researchers in Canada through the discourse of knowledge translation”. British Sociological Association, Medical Sociology Group Annual Conference 2012. September 5-7, 2012, University of Leicester, UK. **K. Ellis**, Presenter; J. Polzer, A. Kothari, D. Rudman.

“Governmentality”, Invited Guest Lecture, LIS Seminar Course: Social Contexts of Information A Critical Review of Theory and Research, Faculty of Information and Media Studies, University of Western Ontario, March 9, 2011.

“A Critical Perspective of Knowledge Translation”, Invited Guest lecture, Health Sciences Graduate Course: Perspectives in Knowledge Translation, Faculty of Health Sciences, University of Western Ontario, April 7, 2010.

“Knowledge Translation in a Real Life Setting” Invited Guest Lecture, Co-presented with Ryan DeForge, Health Sciences Course 2091: Knowledge Translation, Faculty of Health Sciences, University of Western Ontario, September 2007 & 2008.

“Challenges and Solutions Experienced by Primary Health Care Teams”. Judith Belle Brown, Thomas Freeman, Laura Lewis, Moira Stewart, **Kathy Ellis**, Julia Bickford, Jan Kasperski.

Sustaining Primary Healthcare Renewal, 2006, Canadian Association for Health Services and Policy Research (CAHSPR) Canadian Primary Healthcare Network Symposium, Vancouver, B.C. September 19-20, 2006.

“The Rebel Sell: Knowledge Exchange on the Ground Floor”. Anita Kothari and **Kathy Ellis**. Research & Practice Symposium, Middlesex London Health Unit, London Ontario, December 5, 2005.

“A Model of Knowledge Integration in a Clinical Setting”. Nicole Gauthier, **Kathy Ellis**, Alison Greenhill, Paul Stolee, Research & Evaluation, SGS, SJHC-London. The 3<sup>rd</sup> Canadian Cochrane Symposium, Hamilton, Ontario, November 21, 2003.

### **Peer Reviewed Publications**

Harris, R., Wathen, N., MacGregor, J., Dennhardt, S., Naimi, A., and **Ellis, K.** (2014). Blaming the Flowers for Wilting?: Idealized Aging in a Health Charity Video. Manuscript submitted to: Qualitative Health Research.

Brown, J.B., Lewis, L., **Ellis, K.**, Beckhoff, C., Stewart, M., Freeman, T.R., and Kasperski, M.J. (2010). Sustaining primary health care teams: What is needed? Journal of Interprofessional Care, 24(4), 463-465.

Brown, J.B., Lewis, L., **Ellis, K.**, Stewart, M., Freeman, T.R., and Kasperski, M.J. (2009). Mechanisms for communicating within primary health care teams. Canadian Family Physician, 55, 1216-1222.

Gauthier, N., **Ellis, K.**, Bol, N., and Stolee, P. (2005). A model of knowledge integration in a clinical setting. Healthcare Management Forum, 18(4), 40-53.

### **Reports & Non-Peer Reviewed Publications**

**Ellis, K.** and Kothari, A. (2007). An Assessment of Wound Care Education Modules Using Knowledge Translation Principles. Report presented to 3M Canada, September 28, 2007.

Stewart, M., Freeman, T., Brown, J.B., Trim, K., Lewis, L., McLean, S., **Ellis, K.**, Bickford, J. & Kasperski, J. (2006). Actively building capacity in primary health care research (ABC Project). Executive Summary of the Report to the Ministry of Health and Long-Term Care Primary Health Care Transition Fund. July 31, 2006.

**Ellis, K.** (2003). The Canadian Task Force on Preventive Health Care as a Resource for the Ontario Ministry of Health and Long-Term Care: Recommendations from a Review of Literature and Key Informant Interviews. Canadian Task Force on Preventive Health Care.

**Ellis, K.** (2002). A review of literature on policy development and research utilization. Canadian Task Force on Preventive Health Care.