Evidence-Informed Change Management in Canadian Healthcare Organizations

June 2012

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KEY MESSAGES

▼ Recent developments within the Canadian health sector highlight a perpetually shifting landscape, coupled with an increasing demand for practical approaches to implementing effective change.

▼ The purpose of this project was to identify a suite of evidence-informed approaches to support change in small and large systems that are applicable to a variety of contexts within the Canadian health system.

▼ Key issues that leaders and managers face in responding to and initiating change were used to identify evidence-informed approaches.

▼ A variety of theories, models, approaches, tools, techniques and instruments that decision makers can effectively use to oversee change exist; these approaches need to be deliberately chosen, with attention to stage of change and context, so as to have maximum utility and impact.

▼ More attention to change readiness and change capacity prior to initiating change would contribute to better understanding about what strategies and approaches would help to initiate and support change effectively.

▼ More formal learning regarding change in the four key areas of preparing for change, implementing change, spreading change, and sustaining change would be of benefit to decision makers.

▼ Developers of university credit and non-credit professional development programs for leaders and managers should be encouraged to make the study of change a prominent feature in their curricula.

▼ National and provincial agencies should be encouraged to develop a support platform devoted to leadership development in support of change in the Canadian health system (online access to tools and direct access to expertise).

▼ While using approaches to change may be useful, increased attention to conceptualizing the change process would likely lead to more effective implementation and results.

EXECUTIVE SUMMARY

INTRODUCTION

Significant changes within the Canadian health sector highlight a perpetually shifting landscape, coupled with increasing demand for practical approaches to organizing effective change.

PURPOSE

The purpose of this project was to identify a suite of evidence-informed theories, models, approaches, tools, techniques and instruments to support change and/or transformation in small and large systems contexts that are applicable to the Canadian health system. Research questions addressed were:

1. What approaches to creating change are potentially applicable to the needs of the Canadian health system?
2. What are the most promising evidence-informed approaches and models for change?
3. How might these findings be translated for decision makers in the Canadian context?

APPROACH

The project was conducted in three phases: 1) a limited systematic review of the literature; 2) interviews with decision makers to review the literature and assist in answering the research questions; and 3) a dialogue with the advisory board of the Canadian Health Leadership Network to verify and refine results.

The Results section outlines specific findings relevant to the three phases of the project, concluding with a section devoted to providing answers to the research questions.

The Implications section interprets the results and provides suggestions or recommendations for future action.

A final section, Future Research, suggests follow-up research that would advance understanding in this area.

RESULTS

A concept map was created to identify the key ideas, concepts and issues that leaders and managers may be required to address during a change process, including: 1) Initiation; 2) Significance; 3) Framing; 4) Challenges and Opportunities; 5) Leadership and Management; and 6) Practical Approaches to Change.

A schema to respond to decision makers' need for understandable and relevant ways to access evidence-informed theories, models, approaches, tools, techniques and instruments that they can use to respond to and oversee change was created. The schema is organized into four key areas: 1) preparing for change; 2) implementing change; 3) spreading change, and 4) sustaining change. Many of these approaches have been developed and applied in specific contexts and stages of change, but may not be useful in all settings, and are often adapted to reflect situational need.

Key evidence-informed approaches were organized according to which approaches are most appropriate to smaller contexts (micro and meso); which are most appropriate to large contexts (macro and mega); and which can be adapted, or scaled, regardless of the context.

IMPLICATIONS

The scope and breath of change called for in the Canadian health system may be characterized as transformative; some decision makers are "leading" numerous change initiatives at once.

Change is omnipresent and cannot be managed easily "off the side of one's desk". The territory of the knowledge and skill base related to managing change in health systems is vast.

Decision makers can gain access to many models, tools, techniques and instruments that assist in creating change. Decision makers need to choose deliberately among the options in order to choose the approach that has maximum utility and impact within a particular situational context, and need to be prepared to adapt the approach to suit the context.

More attention to change readiness and change capacity prior to initiating change would contribute to better understanding about what strategies and approaches would help to initiate and support change effectively.

Top-down models of change are being replaced by models that emphasize multi-stakeholder and multi-level participation.

RECOMMENDATIONS

1. Encourage decision makers to develop, possibly in the context of the provincial/federal negotiations on innovation, a national/provincial "co-led" effort to emphasize the importance and need for improved change skills for decision makers.

2. Invest in the creation of an online website clearinghouse that would bring together in one easily accessible place the resources identified and referenced in this and other studies. Additional investment in the development of new tools for newer concepts would also be timely.

3. Develop an updated version of the Iles and Sutherland report in a handbook format that advances the findings of this study.

4. Make the above-mentioned handbook and online website reources available to health leadership and management faculty to influence the development of new graduate programs, to inform curricula changes in existing programs, and to create course material for health leaders and managers.

5. Hold a national round-table forum for individuals who develop and deliver post-secondary and professional development programs and curricula to discuss the findings from this project.

6. Create a strategy to translate the project findings into programs and curricula for health leaders and decision makers across Canada.

FUTURE RESEARCH

A number of research projects would benefit from additional study, such as what is the leadership capacity of the many stakeholders (particularly managerial and clinical decision makers) in our Canadian health system to embrace and implement the changes that they are expected to carry out in a modern, complex health system?

INTRODUCTION

Like other western democratic nations, Canada confronts significant change in its health care system (Florizone, 2011; Jessamine, 2010; Boyd, 2010). Indeed, many writers and decision makers describe the magnitude of change that the Canadian health care system requires as being more like large-scale transformation: "…a process of profound and radical change that orients an organization in a new direction and takes it to an entirely different level of effectiveness" (BusinessDictionary.com, 2010, para. 1).

The perception of the need for significant change in the Canadian system is widespread (Baker & Denis, 2011). Moreover, the landscape of change facing health care systems is broad. It encompasses issues that have challenged health care systems for many years; for example, addressing the needs of an aging population, implementing effective primary care reform, improving management of chronic conditions and end of life care, addressing problems with patient safety, developing more integrated care models of care delivery, and managing increasing costs of health care (Tholl & Bujold, 2011). The challenges ahead also include other areas of focus; for example, shifting to service delivery models that promote patient-centeredness (Lewis, 2009; Horne, 2010; Canadian Medical Association, 2009; Mohapel, 2010), and implementing effective health technology and information systems (Webster, 2011).

Moreover, as our health care systems grow in size and complexity, the number of technical and people factors that must be addressed to carry out change grow exponentially (Dickson & Lindstrom, 2010; Denis, Lamothe, & Langley, 2011; Glouberman & Zimmerman, 2002). The arena for change within the Canadian system is therefore large and varied.

In face of the significant change required, Canada has a relatively weak track record of creating sustained and effective system change. Recent analysis of changes in the Canadian system suggest that there has been little progress in key areas such as primary care, where major investments have been made (Health Council of Canada, 2008; Nasmith et al., 2010). Describing Canada as "a country of perpetual pilot projects", former federal minister of health, the Honourable Monique Begin, has called for improved skills in creating large system change (Begin, Eggertson & Macdonald, 2009, p. 1185). There is clearly a need to provide Canadian health care decision makers, professionals and researchers with a well-defined and relevant set of evidence-informed approaches to change that can be applied across a range of issues as well as in a variety of contexts.

PURPOSE

The purpose of this project was to identify, with reference to the literature both within and outside Canada, and drawing upon the experience of decision makers in Canada, a suite of evidence-informed approaches to support change and/or transformation in small and large systems contexts, and that are applicable to the needs of the Canadian health system. The researchers were asked to start with the report entitled *Organisational Change: A review for health care decision makers, professionals and researchers* (Iles & Sutherland, 2001), and to review the literature forward. The researchers were asked to build on that work, and to adapt it to the Canadian context ten years later. That context differs in that the Canadian health system is likely the most de-centralized in the western world (Tholl & Bujold, 2011), with provincial governments constitutionally empowered to deliver health services within their jurisdictions. Consequently, the federal Canadian context is one with diffused decision making responsibility operationalized at four levels: national, provincial, regional, and local (Denis et al, 2011), and one "where central targets appear relatively absent in comparison with England…allowing leadership to be more collective in Canada" (Currie & Lockett, 2011, p. 296). Currie and Lockett (2011) indicate that in the UK, "…leadership is concentrated with an elite at the apex of the organization" (p. 296). As such, the dynamics of decision making differ in Canada from the UK and the challenges of change in such a system differ in that it is more diffuse, context specific, and locally driven.

BACKGROUND: A SUMMARY OF THE ILES & SUTHERLAND REPORT

Valerie Iles and Kim Sutherland produced a comprehensive review of organizational change, one year after the first major plan for investment and reform in the National Health Service was issued in 2000 (UK Department of Health, 2000). Their document provided a review of models of change management and was aimed at helping managers, professionals and researchers to meet the Plan's ambitious change agenda. It argued that many people in the NHS are not familiar with thinking about management of change that emanates from schools of management, psychology, sociology and economics; and therefore important research insights and guidance are not being used to maximum effect (Iles & Sutherland, 2001). The report aimed to describe approaches and concepts that had been developed in these academic domains, to discuss the context in which they had been developed, and to consider evidence about the efficacy of these approaches. It also initiated a discussion about the nature of evidence in the field of organizational change, and the differences between evidence useful for clinical versus managerial domains. The review was well received in the United Kingdom, receiving the British Association of Medical Managers Book of the Year award in 2002, but received limited exposure within the Canadian context.

The review noted that the literature in the field of change management differs from what is relevant and useful in the clinical arena. It noted that this domain "is dominated by descriptions of the various models and approaches, prescriptive advice and anecdotal accounts of organisational change" (Iles & Sutherland, 2001, p. 13) and that a major problem in the field "has been the dominance of gurus who prescribe courses of action without any basis in evidence" (Iles & Sutherland, 2001, p. 13). It found that empirical research is relatively rare, and that many of the most useful studies are well-conducted qualitative studies.

The report argued that organizational-level change is not fixed or linear, but contains an important emergent element. It differentiated between developmental, transitional and transformational change, and introduced concepts of systems thinking in relation to change, without exploring these concepts in detail. A major component of the report provided a selective high-level review of organizational change tools, models and approaches, together with an assessment of the associated evidence for each.

The report concluded by noting that much time and publicly-provided money are devoted to change in health and health care settings, and therefore health care managers "bear a responsibility to adopt practices that are supported by evidence or by well-formulated concepts that draw on well-tested theory in other settings" (Iles & Sutherland, 2001, p. 75). The report also acknowledged that formalized research evidence is not the only source of knowledge about what works, and recognized that much of the knowledge about the effectiveness of change management is tacit in nature, yet to be codified and rigorously studied. It recognized that the type of evidence useful to guide organizational or system change is likely to differ from the type that is useful to guide clinical practice, and may require skills development among researchers who have primarily focused on more quantitative methods. It also suggested that managers and health care leaders have a responsibility to generate evidence about change processes and outcomes, to present it in a form that can be useful to others, and to contribute to the development of theory. To do so, they must build evaluation into the design of change interventions as an integral component.

APPROACH

This paper is structured in the following fashion. First, the foundation for the study, assumptions and research methodology, are outlined. Second, specific findings relevant to the three questions of the project are described. Third, key lessons learned regarding change in the health system, and how to translate knowledge regarding evidence-informed change to decision makers, are presented. The paper concludes by examining the implications of this project and presenting ideas for future research that emerge from the work.

Assumptions:

The following assumptions guided and shaped the project.

1. Change as conceptualized within the health sector has similarities to change as comprehended in other sectors (private or public). Nonetheless, the health sector is unique in its complexity, purpose, and reach. It is often called a "system" but is more accurately described as a mélange of systems not necessarily working in concert. [1]

2. Health care decision makers increasingly have the formal responsibility to stimulate change in the context of their work, working beyond an older understanding of adapting to change.

3. Health care decision makers must also assume responsibility to contribute to advancing the emerging evidence on creating successful change in health care. Evidence can take the form of empirical findings based on the application of quantitative research methods in a controlled context, as well as "interpretive" insights, based on learning from more qualitative, conceptual and theory-driven approaches.

4. The Canadian health sector, due to its predominantly de-centralized governance structure, poses unique, context-specific challenges for change to the decision makers operating in federal, provincial, and regional jurisdictions and at all levels of those systems.

RESEARCH METHODOLOGY

Research Questions

Three research questions guided this study:

1. *What approaches to creating change are potentially applicable to the needs of the Canadian health system?*

The phrase "creating change" was chosen deliberately. Increasingly, health leaders are expected to "create" change, in contrast to managing it. Decision makers in today's modern health system always have to confront change, whether the changes are imposed by shifts in the surrounding environment (i.e., sociological, economic, political, or technological), whether they are inherited from the decisions of other decision makers in the health system, or whether they are self-determined. Regardless, the decision maker's job is to ensure that the inevitable change that s/he faces is created in a positive and productive manner.

2. *What are the most promising evidence-informed approaches and models for change?*

The term "evidence-informed" as opposed to "evidence-based" is used in this question to reflect two circumstances. First, the researchers, and as earlier identified by Iles and Sutherland (2001), determined very quickly that the traditional use of the term evidence is applicable to very few contexts in which change is studied in health. Second, the researchers acknowledge that many intellectual constructs that are evidence-informed may well be adapted, adjusted, and altered to correspond to situation or emergent circumstance, or to reflect the decision maker's world view. Grey literature contains many such practical approaches, and they are in use in many jurisdictions (Institute for Health Improvement, 2010; Institute for Innovation and Improvement, 2010; Agency for Healthcare Research and Quality, 2011).

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[1]   For example, the economic model is unique in that the major drivers of demand for service, physicians and patients, have no direct connection to the leadership challenge of paying for the demand they generate.

3. *How might these findings be translated for decision makers in the Canadian context?*
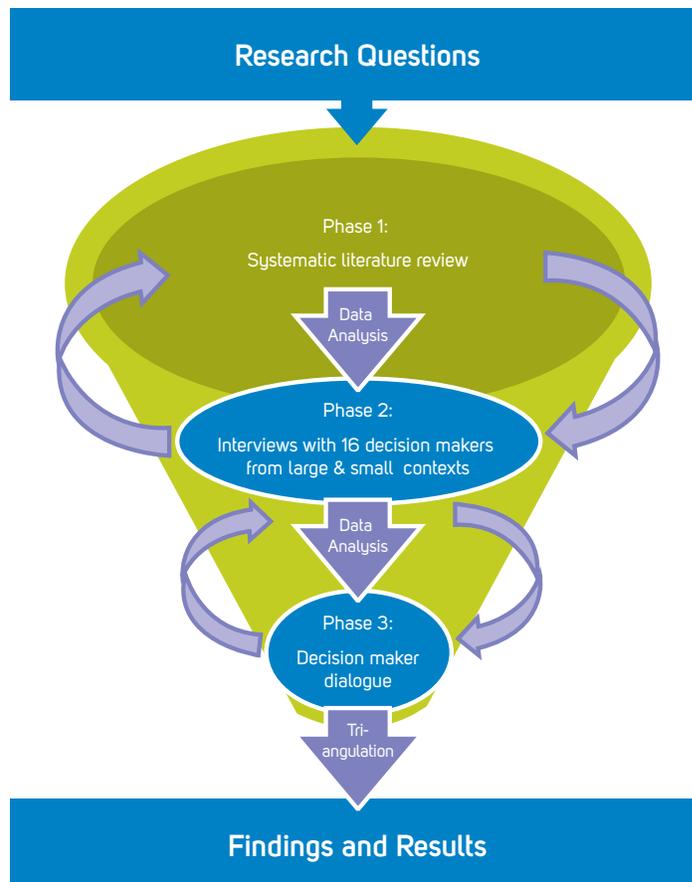
Assuming that we might identify useful models and approaches for change from a review of the literature, Perla, Bradbury, and Gunther-Murphy (2011) remind us that in the case of large-scale transformation, "the question practitioners of large-scale change… [should]… ask in a healthcare improvement context is not so much *which* interventions are the most appropriate for a particular setting, but rather *how* such interventions can be delivered reliably and consistently to all patients" (p. 1). We therefore attempted not only to examine which interventions were most appropriate in what context, but also to determine the factors and conditions that would make knowledge of the virtues of those interventions accessible to decision makers. We also attempted to isolate the factors that those decision makers had to consider in order to implement reliable and consistent change to all stakeholders affected by it (small or large scale).

Research Design

The overall research design was qualitative (Creswell, 2003; Mason, 2002; Palys & Atchison, 2008) and combined a limited systematic review of the literature with focus groups and semi-structured interviews with decision makers in the Canadian health system. The search method generally followed a scoping review schema but also went beyond scoping to include a synthesis of the literature (Centre for Reviews and Dissemination, 2008).

Literature was reviewed and data gathered in three overlapping and iterative phases (see Figure 1).

Figure 1: Research methodology visually represented

Research Questions

Phase 1: Systematic literature review

Data Analysis

Phase 2: Interviews with 16 decision makers from large & small contexts

Data Analysis

Phase 3: Decision maker dialogue

Tri-angulation

Findings and Results

In Phase 1, a limited literature review was undertaken to identify current publications from both traditional academic and grey literature sources. In Phases 2 and 3, decision makers in different work contexts in the health system across the country were engaged in an effort to bridge research and practice, with a specific focus on understanding what is relevant in their respective contexts.

Phase 1: Review of the Literature

A review of the literature was conducted. Excluded were non-English publications except French for pertinent literature from Quebec. Inclusion criteria parameters for the literature search included:

◤ Years: 2001-2012

◤ Examples of types of studies: systematic reviews; meta-analyses and other secondary studies; guidelines; primary research (clinical trials, qualitative); economic evaluations; expert opinion

◤ Jurisdictions: Canada; United States; International

◤ Settings: Health care agencies and facilities, including health systems in the broad sense

◤ Languages: English

Contemporaneously, the researchers conducted focus group sessions with students in a graduate-level leadership program geared to entry-level and mid-career decision makers in the health system, and with working alumni from another graduate-level leadership program. The researchers also conducted interviews with two graduates of the Canadian Health Services Research Foundation's Executive Training in Research Applications (EXTRA) program. The purpose was to identify key knowledge areas in change management that resonated with decision makers in the context of their work challenges (from past experience and/or coursework). Feedback from these groups helped to narrow down the relevant articles within the limited systematic review. These articles were then analyzed.

The researchers reviewed 153 scholarly articles, 57 publications from the grey literature, and 20 theses from the Royal Roads University database. Approximately 35 additional articles were identified during phases two and three of the study and were also analyzed.

The researchers incorporated a number of triangulation methods: data; investigator; and, theory (using more than one theoretical schema in making sense of change (Cohen & Manion, 1989; Altrichter et al, 2006). This was accomplished by agreeing on pre-determined criteria, having each researcher apply those criteria independently and, finally, conducting a dialogue session to refine criteria, gain consensus, and validate the findings.

Phase 2: Incorporating Phase 1 Findings with Decision Maker Experience

In the second phase of the study, a more in-depth analysis of the evidentiary foundations was conducted to identify content relevant to the research questions and to create a short list of concepts and approaches that could be subjected to further scrutiny.

These results were examined in context of the views provided by decision makers who were engaged in change management projects in Canada. Eighteen decision makers who worked in different contexts in the Canadian health system were interviewed, and they identified concepts and approaches to change that were then included in Phase 3. At this point, additional literature was reviewed (e.g., key texts and resources not necessarily specific to health) to ascertain whether gaps existed between what is known in the literature and what is practiced in the health sector in terms of change.

Phase 3: Refining, Validating, and Translating Knowledge with Decision Makers

The third phase focused on refining and understanding how to translate knowledge about key concepts and practical approaches to change into resources that decision makers can use. The process included a focus group with members of the advisory board of the Canadian Health Leadership Network (CHLNet). This group was chosen because of its national membership, size, and the experience of its members, as well as their expressed interest in leadership of change (Tholl, 2010). A short list of key concepts and approaches was developed and methods were suggested for the translation of those concepts and approaches into products and services that would appeal to decision makers.

RESULTS

The researchers identified two schemata that can provide support to decision makers in understanding the challenges of creating change. The first is a map of the "territory of change" that identifies two major landscapes; the first related to conceptualizing and preparing for change, and the second related to implementing and sustaining change. The second schema is an overview of the major evidence-informed concepts, approaches, tools, techniques and instruments, mapped to a framework of the stages of creating change that is more relevant to the decision maker community.

The Territory of Change: The Change Map

The articles and interviews profiled an overall territory of change that has a depth, breadth and scope that challenges practicing decision makers within the Canadian health system. The literature reviewed is disjointed, and while in most cases individual articles are grounded in a solid conceptual foundation, the overall literature is not collectively situated within a strong conceptual base. As identified in the Iles and Sutherland report, for the most part, publications primarily report on individual projects. This circumstance was also faced by Perla et al. (2011) in their systematic review of large-scale change projects worldwide. From the decision maker perspective this represents a problematic situation; as one interviewee stated, "Upon reflection, I am not sure that I have come across a model that reflects the reality of change".

As a consequence, the researchers endeavoured to bring some conceptual clarity to what we call "the territory of change" through a change map (Figure 2). The change map is an effort to reflect the dynamic, non-linear and interdependent nature of the change process, in a manner consistent with the principles of a complex adaptive system. At the centre of the map is the decision maker, who is essentially (either individually or collectively) the "integrator" for a change process, and consequently is the focus of this paper.

Figure 2: The Territory of Change: The Change Map
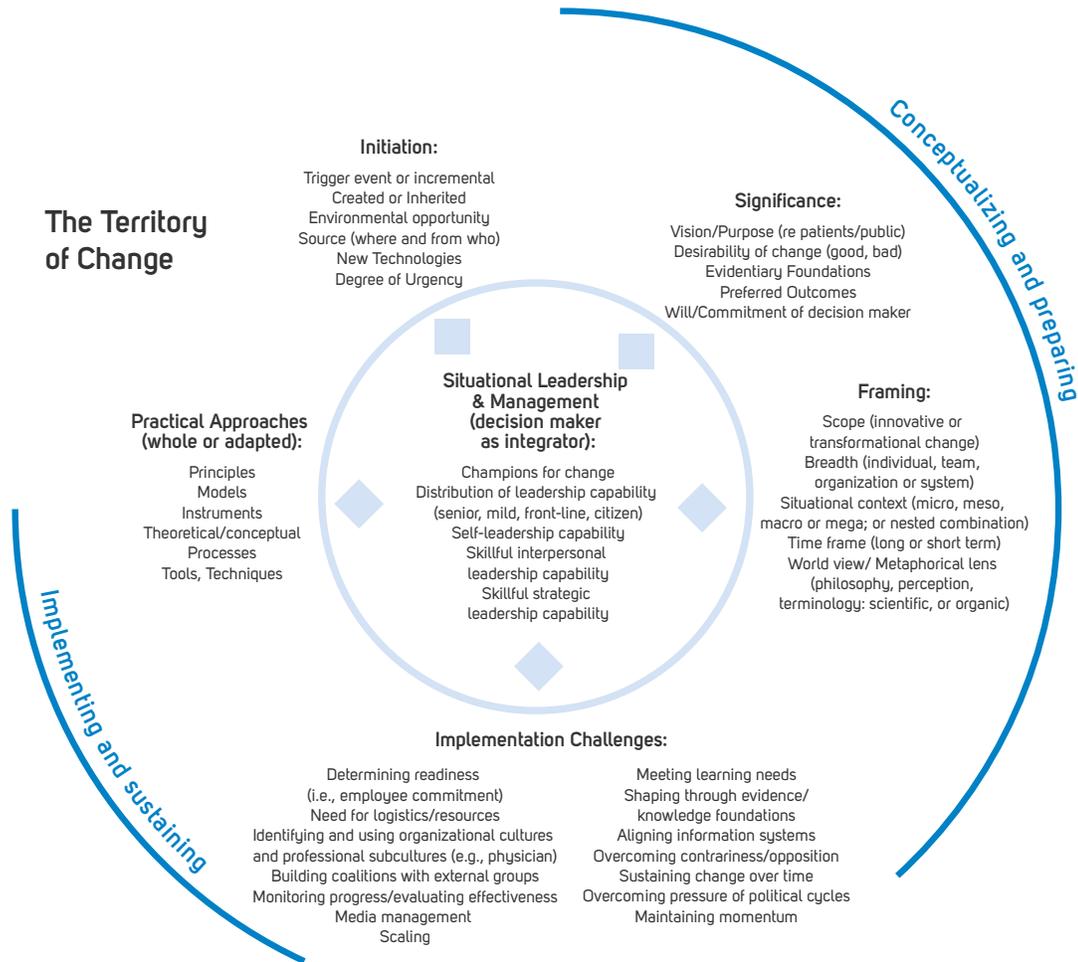
The change map presents a complex schematic of the process of conceptualizing, implementing and sustaining change. Importantly, decison makers traverse two main landscapes, the first relating to conceptualizing and preparing for change, and the second relating to implementing and sustaining change. The first of these two landscapes outlines the three main thought processes that help shape a decision maker's ability to influence change. *Conceptualizing and Preparing for Change* is the "intention, understanding and mental preparation" stage of the change journey, the "thinking about" process. The importance of conceptualizing was expressed by one interviewee this way: "In (my organization) there is a tendency to 'do it' without doing the background work re culture, readiness, strategies to implement. [We]…don't do the background stuff well".

In order to get the most out of an exploration through the territory of change, the decision maker needs to understand the reason for the change (*Initiation*), the importance of the change, from a personal, organizational, or political point of view (*Significance*), and the fit between the worldview s/he brings to the experience of change and the worldview of the people of the territory into which s/he is moving (*Framing*). The literature is clear that these stages of conceptualization happen either consciously or unconsciously during a change process. Our project suggests that conscious deliberation relative to each of these contextual factors would assist the decision maker in implementing meaningful change.

The second landscape, *Implementing and Sustaining Change,* is focused on action dealing with practical issues and approaches to change. It has two dimensions: Challenges and Opportunities and Practical Applications. In these dimensions of the change process the decision maker converts thinking into action through planning, decision making, and doing in order to create the change required. The last of the major constructs, *Practical Applications*, is indeed a second focus of this paper, in that the researchers did attempt to identify evidence-informed approaches that can be utilized to assist Canadian decision makers in change.

As depicted in the change map, the decision maker's skills as a leader/manager are central to his/her integration role. Similarly, an organization's distributed leadership, that is, the overall distribution of those skills among different individuals at different levels, is important in large change projects. Because decision makers have to move back and forth between issues and territories, it is clear that change does not progress in a linear fashion. A change process is much more fluid and organic. Change also goes through numerous cycles over time. The issues that manifest themselves that require decision maker attention flip back and forth from a need to conceptualize and to implement and back again. One cannot proceed through change by following a linear path; indeed, a decision maker must understand the territory well enough so as to know where to travel at an appropriate time in order for the change to succeed.

A full description of the change map is not possible within the limited constraints of this report; it will be described more fully in a subsequent publication.

A Practical 'Change Framework' for Decision Makers

The change map provides the conceptual landscape of a change process. However, decision makers found the change map informative, but not particularly useful. The change map does not assist a decision maker to choose an evidence-informed approach to address change issues that s/he may be facing, which was a primary purpose of this project. Decision makers told us that the questions that guide them to look at, or to choose a particular approach are: *Why is a particular approach important? In what circumstances would I use it? What is the evidence for a particular approach?* The second stage of our research, then, was to outline and describe the change approaches that we found in the literature and to group them according to their utility and purpose.

Consequently, Table 2 was developed to provide an overview of the major evidence-informed concepts, theories, tools, techniques and instruments, mapped to a practical framework of the stages of creating change that is more relevant to the decision maker community. Brief definitions of the theories, tools, techniques and instruments are contained in an appendix document, but due to space constraints a summary table of these is presented as Table 2 in this report. These tables were developed through an iterative process of triangulation and refinement by the researchers, interviewees, and CHLNet decision makers. At this point it is important to remind the reader again that change does not proceed in a linear manner. Yet most decision makers felt the need to see the tools and approaches that can inform how they practice change presented in a linear sequence of activity. Therein may lie some of the major challenges of change: it demands a flexibility of process and thinking that are contrary to the traditional 'management' approaches that have previously been promoted in the literature.

Before presenting Table 2, it is important to highlight some of the key findings in our work that differed from those in the Iles and Sutherland report, as these differences clearly influence the content of the table. First, approaches that are representative of a need to understand and explain the dynamics of change from a large systems perspective have emerged since the Iles and Sutherland (2001) report. Second, recent literature (as authenticated by input from our decision makers) has identified the powerful, intangible roles that culture and complexity play in change. One interviewee put it this way:

As a change agent, it is not sufficient to treat humans as a "source of variability" that need to be controlled to keep us out of trouble, and therefore "fixed". It is precisely the human variability that indeed keeps us out of trouble, as people diverge from the linear process to adapt to the emergent needs of the patient or circumstance being faced. If we don't adapt, adjust naturally, we will simply "drift into failure".

This perspective suggests that decision makers need to be aware of and engage with the ideas, actions, questions and doubts of stakeholders including front-line staff, clinicians, patients, and community members.

A third difference is the emphasis on the role of knowledge and evidence in change. Strategies such as action learning, whole systems thinking and development of communities of practice have more recently been identified as effective processes to support change in service development (Heading, 2009). Large-scale change approaches that signal the need for health system transformation, either through dealing with the challenge of spread, or through initiating transformation on its own, have given rise to such practical applications such as the IHI large-scale change approach, Perla et al's (2011) large-scale diagram, Greenhalgh et al's (2004) systematic review-based model for considering the diffusion of innovations in health service organizations, and practices such as the QUERI quality improvement approach from the US Veteran's Administration (Graham & Tetroe, 2009). In all of these examples, research and knowledge translation practices are integrated into models that engage people across a system in a disciplined large-scale approach to change.

A fourth difference is that there seems to be a much greater emphasis on broadening the horizon of sources of advice on change. Related to that is a greater emphasis on combining methods, theories, and models in a manner meant to reflect the unique situational context of the change. For example, a number of studies outlined the benefits of combining Lean and Six Sigma methodologies to address micro-system change (Hoerl & Gardener, 2010; Dellifraine et al, 2010).

The researchers created Table 2 based on these findings, on an understanding of the major approaches to creating change that emerged in the literature, and based on the questions that decision makers need to answer: *Why is a particular approach important? In what circumstances would I use it? What is the evidence for a particular approach?*

The researchers organized the findings in a four-stage process model in which the description for each stage provides an answer to the question, *Why is a particular approach important?* The four stages are: 1) Getting ready for change; 2) Implementing change; 3) Spreading change; and 4) Sustaining change.

To answer the second question, *In what circumstances would I use it?*, the researchers provided sub-categories to explain the circumstances that would be appropriate for use of the evidence-informed approach. To answer the third question, *What is the evidence for a particular approach?*, the right-hand column of the table lists the evidence-informed approaches that are appropriate to the purposes outlined in the first two columns.

Table 2: Four categories of change, with examples of related approaches

	Category	Definition	Concepts, Approaches, Models, Tools, Instruments
		Four Categories of Change	
1	**Getting ready for Change**	**Being sensitive to, understanding, and preparing for the change process**	**Practical Approaches (examples)**
	Understanding the context and dynamics of change	Despite often externally imposed conditions and time limitations, leaders/decision makers may want to reflect on how to initiate change, or whether to become actively involved in an existing change process. They may already be engaged in a change process initiated elsewhere. They also should scope out potential partners/networks to support the change process. Approaches in this category can be used by leaders/decision makers to conceptualize and more fully understand the context of a change initiative and the dynamics of the change process.	▼ Complexity/CAS constructs (Wheatley's complex systems; Senge's systems thinking) ▼ LEADS model ▼ IHI models ▼ Bridges model
	Determining readiness and/or capacity for change	Before undertaking a change initiative, leaders/decision makers should consider determining the readiness and/or capacity of individuals and the organization(s) that will be affected by change (including external partners). Approaches in this category can be used by leaders/decision makers to assess the readiness of people situated in different levels of their organization or broader health system to be receptive to, and genuinely engaged in, implementing a change initiative.	▼ ORCA ▼ Change-Related Commitment measure ▼ Readiness for change instrument ▼ Commitment to Change measure ▼ Klarner model
2	**Implementing Change**	**Taking action on change initiatives**	**Practical Approaches (examples)**
	Setting direction to improve effectiveness, i.e., safety and quality	Patient and workplace safety, and quality improvement represent a specific focus of change within the health sector. Approaches in this category can be used by leaders/decision makers as a specific lens through which an organizational change initiative can be developed, conducted, and evaluated.	▼ PDSA cycles ▼ IHI rapid cycle ▼ QUERI ▼ Donabedian quality framework
	Setting direction to i mprove efficiency, accountability, & financial sustainability	The application of scientific process redesign techniques has been a primary focus in changing service delivery models at a unit or department level for many years. Approaches in this category can be used by leaders/decision makers as another specific lens through which an organizational change initiative can be developed, conducted, and evaluated.	▼ Kotter model ▼ Process mapping ▼ LEAN (Lean/Six Sigma combined) ▼ CANDO ▼ Six sigma ▼ Business process engineering ▼ HFE: (Human Factor Engineering) ▼ Balanced Scorecard

Four Categories of Change

Category	Definition	Concepts, Approaches, Models, Tools, Instruments
Enhancing the impact of scientific approaches and learning across silos and coalitions	Regardless of whether a change focuses on efficiency or effectiveness, there is increasing emphasis on maximizing the potential for researchers and decision makers to 'translate knowledge' and communicate and learn from each other so as to ensure that emergent knowledge and evidence continues to shape the change process. Approaches in this category can be used by leaders/decision makers as a way to ensure that the changes they wish to implement benefit from relevant research input. This also applies to implementing change on a large scale.	▼ Knowledge translation ▼ Communities of practice ▼ Action researchLomas modelTransformational change/leadershipPARHIS framework ▼ RAP (Reflective Adaptive Processes – CAS theory-based ▼ Practice Change and Development (PCD model) – CAS theory-based
3. Spreading Change	**Taking action to transform systems**	**Practical Approaches (examples)**
Strategies and tactics to transform regions, provinces	Implementing and spreading change across increasingly larger health systems – communities, regions, provinces – is very complex. Some researchers and decision makers refer to this scale of change as 'transformation' because of the scale and scope of change envisaged, and to predict, except in visionary terms, the final result. This category can be used by leaders/decision makers to identify those that have been proven to work and adopt such practices to their own organizations.	▼ Large-scale action research (e.g., community-based; Participatory Action Research; Appreciative Inquiry) ▼ NHS large-scale change ▼ Charters (e.g, Ottawa charter) ▼ LEADS model ▼ Transformation Cycle
Strategies and tactics to spread change across large systems	How to 'spread' change that works in smaller contexts to larger systems requires attention to both strategy and tactics. This category can be used by leaders/decision makers to identify those approaches that have been proven to work and adopt such practices to their own organizations.	▼ Positive deviance ▼ Complex adaptive systems approaches ▼ IHI framework for spread ▼ QUERI ▼ IPIP (improving Performance in Practice Program)

Four Categories of Change

	Category	Definition	Concepts, Approaches, Models, Tools, Instruments
	Strategies and tactics to influence organizational culture	When implementing change, the customs, traditions, and ways of doing business that characterize the 'old' workplace often have to be actively shifted to support a new approach to service delivery. Approaches in this category can be used by leaders/decision makers to actively consider and address the cultural challenges and opportunities inherent to different levels within organizations, including subgroups and individuals, and to enhance their support for change over both the short and long-term.	▼ Lewin model ▼ CAS tools such as open space, dialogue conferences, etc. ▼ Holman's Change Handbook ▼ Instruments to measure culture ▼ Force field analysis
4	**Sustaining Change**	**Monitoring and adjusting the change process as practical experience is gained over the course of the initiative**	**Practical Approaches (Examples)**
	Monitoring and assessing change effectiveness and success	Throughout the change process it is important to assess how well the change initiative is proceeding in relation to its intended purposes, so that adjustments can be made along the way. Leaders/decision makers may also want to know how to retrospectively determine whether a change process was implemented effectively in order to plan for new change processes, or to spread existing ones. Approaches in this category can be used by leaders/decision makers to assess the success of change initiatives and make the necessary adjustments in real-time rather than after-the-fact.	▼ Realist method ▼ Balanced scorecard ▼ IHI Triple aim ▼ Baldridge

Table 2 provides a high-level overview of many examples of approaches that may prove useful to decision makers in understanding, conceptualizing and creating change within the Canadian health system. It is important, however, to remind the reader that the most recent trend observed in the literature is to combine methods appropriate to the change situation, circumstance, and context; therefore, a multi-method approach might be most suitable in many change situations.

CONCLUSIONS AND IMPLICATIONS FOR DECISION MAKERS

This project represents a first step in outlining the territory of change facing Canadian health decision makers and identifying potential strategies and approaches that may be relevant for the work of preparing for change, implementing change, spreading change, and sustaining change. While a first step, it has significant implications for decision makers who work in the Canadian health system. A number of conclusions and implications for decision makers are outlined below:

▼ The frequency, pace, substance, and demand for change clearly challenges the capacity of individual decision makers to provide quality responses. For example, at the senior decision making level, there may be numerous change agendas operating at one time, while at the front-line level these all have to be integrated into ongoing patient care processes. According to the decision-maker community engaged in this project, change will only grow in frequency, pace and scope over the coming years. Mechanisms for priority setting at the provincial, regional and institutional level would be welcomed.

▼ Change is omnipresent and often defines significant practical challenges faced by decision makers in today's health system. It cannot be managed "off the side of one's desk". The territory of the knowledge and skill base related to managing change in the health system is vast. Decision makers need to devote as much time as possible to learn about the dynamics of change in the Canadian health system, beginning at the outset of their training and continuing throughout their career, in the spirit of lifelong learning.

▼ There is little evidence that clearly demonstrates the effectiveness or ineffectiveness of "structural" approaches to change (e.g., regionalization). There is a growing awareness that structural change (e.g., shifts in regional configurations, or re-distribution of decision maker roles and responsibilities) is insufficient to create change without concomitant strategies to deal with the numerous factors identified in the schema.

▼ The de-centralized nature and complexity of the Canadian health system cannot be used as an excuse to let change happen or to abrogate decision makers' responsibilities in the change process. In the Canadian health system, the responsibility for change resides with the provinces as per Canada's federal distribution of responsibilities. Therefore centralized approaches to change, such as those profiled in the literature from the UK and other more unitarian jurisdictions, are more applicable in a provincial context in Canada than at the national level.

▼ Although many decision makers believe that they don't have the time to address issues such as change readiness and change capacity prior to initiating change, such activities would undoubtedly contribute to supporting and enhancing success of the change process.

▼ There are many evidence-informed approaches outlined, for example, in Table 2 and the appendix that may assist decision makers in their roles of creating, managing, and supporting change.

▼ Although there continues to be a plethora of models, approaches, and techniques to use to conceptualize and implement a change process, there is still little solid, scientific evidence to identify those that have a clear impact on improving patient outcomes (this reinforces a major finding in the Iles and Sutherland study). For example, Dellifraine et al (2010) conducted a systematic review of 177 articles to analyze the impact of Lean and Six Sigma interventions, and found that there 'is very little solid evidence of the effectiveness of Six Sigma and Lean' (p. 224). More research specific to the desired impacts of change processes and their success is required.

- Despite this lack of scientific evidence regarding change approaches that have a clear impact on improving patient outcomes (i.e., clinical evidence), the interpretive evidence does suggest that there are many processes, models, tools, techniques and instruments that decision makers can use to lead and manage change processes so as to minimize the potential for failure and change fatigue. Many are applicable to multiple contexts. This evidence can encourage all stakeholders to participate in the change process, and is more motivating than citing evidence for improvements in efficiency.

- Top-down models of change are being replaced by models that emphasize multi-stakeholder and multi-level participation, including the active engagement of decision makers, providers, patients, and community members. Top-down directive change management approaches will have less success than strategies that are more engaging, inclusive and collaborative of those involved in implementation of change.

- The construct of distributed leadership is being explored as an operationalization of the above-mentioned concept. Meaning-making and effective communication approaches emphasize treating each other more as equals than perpetuating and exploiting positional, informational, resource and power differentials; it also suggests the importance of understanding one's role and responsibility in the change process.

- Many different ways of translating and packaging change resources have been identified in jurisdictions outside of Canada, e.g., books, online resources, and toolkits. Few dedicated change resources exist in Canada. Resources that can be readily and easily accessed by decision makers need to be developed.

- National agencies can maximize the collective resources (both human and fiscal) available to them by developing a network of resource centres dedicated to providing real-time support to decision makers who are leading significant change. As health service demands and delivery methods change exponentially, so too will the demand for decision makers at all levels, micro-to-mega, who are well-skilled in the dynamics of change.

- The previous finding suggests a dramatic shift within education and training programs, from focusing primarily on traditional health administration and management, to a much greater emphasis on leadership of change and change management. These programs might have to be expanded in both duration and curriculum. A related point is that the relationships between the decision maker community, the education community, and the research community need to be strengthened to enable more research into change, and to ensure that ongoing learning to regularly inform curricula take place in a more timely manner than they have in the past.

RECOMMENDATIONS

General

In order to take the findings of this project and use them effectively in the future, recommendations include:

1. *A National/Provincial "Co-led" Effort to Emphasize the Importance and Need for Learning to Improve Change Skills for Decision Makers.*

Create an "innovation and transformation" network of organizations dedicated to creating system change. Given the provinces' central role in change, the role of the federal government and national agencies in supporting and facilitating change should be re-assessed and addressed in the current dialogue that is occurring in Canada regarding the Premiers' recent commitment to collaborate and lead an innovation agenda. The purpose would be to encourage and enable national and provincial health organizations seeking improvements in quality, safety, primary care, public health, information systems, drug and

technology use, etc., all of which will require change processes, to work together to ensure that there is adequate resource support, program support, and knowledge support for decision makers to learn and practice the skills of change (Tholl, 2012).

2. *Web-based Repository of Resources*

Invest in the creation of an online website clearinghouse, consistent with the findings of this project and outlined in Table 2, that would bring together in one easily accessible place the resources referenced. Additional investment in the development of new tools for newer concepts would also be timely.

3. *Change Handbook*

Develop an updated version of the Iles and Sutherland report in a handbook format that reflects the findings of this project. It should be made available to health leadership and management graduate and professional development programs in the Canadian health sector. These resources could also inform curricula changes at the graduate level and also be used to create course material in new programs for health leaders and managers.

4. *National/Provincial Round Table*

Hold national and provincial round-table forums involving individuals who develop and deliver post-secondary and professional development programs and curricula to discuss the findings from this project. A strategy to translate this knowledge into programs and curricula for health leaders and decision makers across Canada also needs to be developed.

FOR FUTURE RESEARCH

This project raises a number of additional research questions to build on the researcher and decision maker collaboration that fueled this project. Additional research should focus on answering some key questions that emerged, and contribute to a collective understanding of the dynamics of change in health systems, particularly in the Canadian context. Also, it is important to consider the engagement of researchers in the early stages of major system changes (e.g., embedded researchers) supporting some of the change initiatives taking place across Canada (e.g., Lean implementation in Saskatchewan).

Sample research questions to be explored between researchers and decision makers include:

◣ What impacts do particular change processes, when employed in Canada, actually have on performance outcomes (e.g., improved patient results and cost and waste reduction).

◣ What practical applications are currently in use in health authorities, health agencies, and provinces to guide change in their organizations? An up-to-date and continually maintained inventory of approaches, which is beyond the scope of this project, would assist in the creation of a resource network to support decision makers through the change process.

◣ What is the 'real' readiness and leadership capacity of the stewards of our Canadian health organizations (e.g., policy, managerial and clinical decision makers) to embrace and implement the changes that they are expected to initiate and implement in a highly complex health system? In this regard, what is the leadership capacity of stakeholders involved in governance at various levels of the health system and their understanding of, and influence in, change?

- What impacts do top-down, government-driven changes have on the willingness of leadership and management teams, professional groups, and individuals at other levels of the system to take ownership of, implement and evaluate the transformative changes necessary for the long-term sustainability of the Canadian health system?

- What conditions are required to support sustainable change and mitigate the temporal side effects in an environment characterized by shifting priorities commensurate with national and provincial four-year election cycles?

- What principles of change and change management approaches might be endorsed by the community of decision makers throughout the Canadian health system?

- How would comprehensive professional development programs (and/or university graduate programs) on leadership and management of change impact the effectiveness of change processes within a jurisdiction willing to carry out such a program?

- How could stakeholder stories illustrate the opportunities, challenges, successes and failures of various change approaches in action and the key learnings that arise from them?

CONCLUSION

This paper summarizes the efforts of a team of researchers and decision makers to shape an understanding about the processes of change that are likely to provide utility and value to leaders and decision makers in the Canadian health system.

Specifically, the researchers set out to answer three questions:

1. What approaches to creating change are potentially applicable to the needs of the Canadian health system?
2. What are the most promising evidence-informed approaches and models for change?
3. How might these findings be translated for decision makers in the Canadian context?

The findings are shared in the form of a change map that describes the territory of health system change, a table that provides a summary of the most promising evidence-informed approaches and models of change, and recommendations for translating and mobilizing the results of the project into resources for decision makers in the Canadian context.

There are strong indications that current efforts to educate and train leaders, decision makers, and clinicians about the full continuum of the change process are inadequate to prepare them to meet the challenge of change throughout the Canadian health system. However, there is an appetite for improved approaches to address that gap. It is hoped that this project report provides a first step in providing a better understanding of the dynamics of change and a foundation for future work to build an understanding and culture of successful change within the Canadian health system.

APPENDIX: KEY EVIDENCE-INFORMED APPROACHES TO CHANGE IN THE CANADIAN HEALTH SYSTEM

Examples of practical approaches as related to Table 2		
Approach	**Type**	**Purpose**
Action research (e.g., Community-based; Participatory Action Research)	Technique	Action research is a cyclical approach to change in which researchers and decision makers work together (in large or small contexts) to initiate change. There are many adaptations but essentially all adapt and adjust the change process based on lessons learned through a disciplined process of planning, initiating, implementing, and reflecting on the change process.
Appreciative Inquiry	Technique	Appreciative Inquiry is a form of action research that articulates a future vision, and then uses a disciplined process of identifying strengths, designing changes to maximize those strengths, and then implementing those designs.
Balanced Scorecard	Tool	The Balanced Scorecard integrates measures derived from strategy so managers can guide an organization to achieve results under a balance of related management perspectives. The perspectives focus on achieving the vision of the organization. In its classic form, a Balanced Scorecard defines performance objectives under financial, customer, internal business processes and learning and growth perspectives.
Malcolm Baldridge Excellence Model for self-assessment	Criteria and Tool	The Baldridge Criteria for Performance Excellence provide the framework and an assessment tool for understanding organizational strengths and opportunities for improvement. Performance excellence refers to an integrated approach to organizational performance management that results in delivery of ever-improving value to customers and stakeholders, contributing to organizational sustainability; improvement of overall organizational effectiveness and capabilities, and organizational and personal learning
Bridges Transition Model	Model	Bridges approach addresses the psychological transitions of the people impacted by the change It is a three-phase process of: (1) ending, losing, and letting go of previous processes; (2) getting through the neutral zone; and (3) accepting a new beginning.
Business process engineering	Technique	The primary goal of Business Process Engineering (BPR) is to effect change to improve either efficiency or effectiveness of core business processes.
CANDO	Model	CANDO is a disciplined, bottom-up approach to improving conditions in a work environment so as to improve and maintain high levels of safety.
CAS tools: dialogue conferences, communities of practice etc.	Tools	These tools attempt to bring diverse and sometimes competing individuals and groups together and takes them through disciplined processes of interaction and communication, aimed at 'meaning making' together; and gaining multi-individual and group support for actions required for change to happen.
Change Handbook – a Definitive Resource	Tools, techniques	A compendium of 61 practices and processes (e.g., future search; open space) aimed at supporting individuals who are committed to changing whole systems – organizations and communities. Individuals pick and choose the particular approach germane to their context and purpose.
Change-Related Commitment Measure	Instrument	Jansen (2004) developed a Change-Related Commitment measure consisting of eight items assessing organizational members' agreement and willingness to work toward the change goal. It can be used to assess readiness for change in a sample of organizational members.

Examples of practical approaches as related to Table 2		
Approach	**Type**	**Purpose**
Charters (e.g, Ottawa Charter, Design Rules, Proclamation for Change)	Conceptual Processes	The purpose of these approaches is to gain commitment and support for generation of large-scale change by taking different groups affected by a change through disciplined processes aimed at expressing and gaining that commitment.
Chronic Care Model	Model	The Chronic Care Model (CCM) is used to improve services to chronic disease patients through developing productive interactions between prepared practice teams and informed, activated patients.
Complex adaptive systems approach	Conceptual Process	A four-stage conceptual approach, employing a Complex Adaptive Systems (CAS) perspective, is based on the premise that in large systems, CAS is more applicable than the more linear approaches that are used in clinical redesign.
Donabedian's Quality Assurance Model	Model	Donabedian's three component (structure, process, and outcome) model is used for assessing safety and quality infrastructure. It can be adapted to assist in measuring whether or not the appropriate elements are in place to assure quality and/or safety.
Force-field analysis	Tool	Force field analysis identifies the driving and resisting forces associated with any change, and to achieve success, ensures that driving forces outweigh resisting forces.
HFE (Human Factor Engineering)	Process for Quality Improvement	HFE is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data and methods to design in order to optimize human well-being and overall system performance.
IHI Framework for Leadership for Improvement	Model	Based on learnings from organizations, national initiatives, large-scale programs, fieldwork and interviews with healthcare clients and leaders outside of health care, IHI has developed a seven-factor framework for leadership of large scale quality improvement.
IHI framework for spread	Conceptual Processes	IHI Framework for Spread identifies six components for planning and implementing spread. This framework suggests general areas that should be considered. Also included are 'checklists for spread' pertinent to leadership; knowledge transfer and communication; and measurement and knowledge management..
IHI rapid cycle Model for Improvement	Conceptual Processes	The IHI Rapid Cycle Model for Improvement is described as a simple yet powerful tool for accelerating improvement. The model is not meant to replace change models that organizations may already be using, but rather to accelerate improvement.
Instruments to measure culture	Instruments	Nine instruments identified by Scott et al (2003) are available to assess organizational culture, all of which have limitations in terms of their scope, ease of use, or scientific properties. The choice of instrument should be determined by how organizational culture is conceptualized, the purpose of the investigation, intended use of the results, and availability of resources.
Instruments to measure readiness	Instruments	Five instruments are suggested. Klarner et al's (2007) instrument measures organizational capacity for change. Jansen (2004) developed a Change-Related Commitment measure. Holt and colleagues (2007) developed a Readiness for Organizational Change Instrument. Herscovitch and Meyer (2002) developed a Commitment to Change measure. The ORCA (Helfrich et al, 2009) was designed to test readiness for change related to implementing evidence-based improvements in practice. The choice of instrument should be determined by what aspects of readiness need to be determined.

Examples of practical approaches as related to Table 2		
Approach	**Type**	**Purpose**
IPIP (Improving Performance in Practice Program)	Process	Improving Performance in Practice (IPIP) is a large system intervention designed to align efforts and motivate the creation of a tiered system of improvement at the national, state, practice, and patient levels, assisting primary-care physicians and their practice teams to assess and measurably improve the quality of care for chronic illness and preventive services using a common approach across specialties.
Klarner model	Assessment Tool	Klarner et al's (2007) instrument measures organizational capacity for change, based on a conceptual model for change that combines both the process and context determinants of change. An analysis of an organization's change capacity allows it to better deal with the determinants of change capacity, which increases adaptation and survival.
Kotter's 8 stages of change	Model	Kotter's model outlines eight critical components of generating transformation in organizations. These components take the manager through a disciplined process of initiating change, planning change, implementing change, and institutionalizing the change (drawn from private sector).
Knowledge Translation (KT)	Process	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. This process requires 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.
LEADS in a Caring Environment framework	Model	LEADS is a model for change that takes the leader through a virtuous cycle of change based on the relationship between three primary components: clarity of intended results; relationship building; and understanding/executing change.
LEAN	Model/ Technique	Lean is a core methodology for a total redesign of clinical health systems. Lean thinking brings together several strands of process improvement. Adaptations of Lean to many contexts and environments are popular in the Canadian health sector.
Lewin Model	Model	Kurt Lewin's change model is a simple three-step change model. The first step in the process of changing behavior is to unfreeze the existing situation. Only then can change, or movement, occur. Finally, to make the new behaviors stick, a third, refreezing step is necessary.
Lomas' change approach	Model	Theoretical framework for connecting research and policy to facilitate change. This framework emphasizes the importance of not only sharing information and evidence to impact policy, but also using formal and informal networks for dialogue and exchange with stakeholders.
NHS large-scale change	Conceptual Process	The Academy for Large-Scale Change has been created in the NHS. Their view was that leaders need a grounded theory of large-scale change in order to be confident, competent, and, ultimately, effective in their leadership actions. A theory of large-scale change is presented, and a seven-element model of large-scale change is proposed.
ORCA	Instrument	Organizational Readiness to Change Assessment instrument (ORCA) is an assessment instrument organized according to the core elements and sub-elements of the PARIHS framework ((1) Strength and extent of evidence for the clinical practice changes represented by the QI program, assessed with four subscales, (2) Quality of the organizational context for the QI program, assessed with six subscales, and (3) Capacity for internal facilitation of the QI program, assessed with nine subscales.), and reports on initial validation.

Examples of practical approaches as related to Table 2		
Approach	**Type**	**Purpose**
PDSA cycle	Technique	This model tests ideas in rapid cycles for improving a component of the system, primarily related to quality and safety. The four steps are Plan the work; Do the work; Study whether the outcome was achieved, or not; Act on the change by adopting/adjusting as needed.
Positive Deviance	Conceptual Process	Positive Deviance is predicated on the concept that no matter how seemingly intractable a problem, in every community there are individuals whose uncommon practices/behaviours enable them to find better solutions to problems than their neighbours. It is a disciplined process to discover unique and uncommon successes in one setting; examine the conditions for success; and attempt to replicate these successes where possible in other settings.
Practice Change and Development (PCD model – CAS theory based)	Conceptual model	Primary Care practice development is enhanced through systematically using strategies that involve setting direction and boundaries, implementing sensing systems, focusing on creative tensions, and fostering learning conversations.
Process Mapping the Patient Journey	Technique	Process mapping is an explicit process that allows the provider to "see" and understand the patient's experience by separating the management of a specific condition or treatment into a series of consecutive events or steps (activities, interventions or staff interactions, for example).
QUERI approach	Conceptual Process	The Quality Enhancement Research Initiative (QUERI) was designed to generate research-driven change initiatives that enhance health care quality. It is an evidence-based organizational framework focused on three contextual elements: re-orienting cultural norms and values; capacity building; and supportive infrastructures.
RAP (Reflective Adaptive Processes – CAS theory based)		The Reflective Adaptive Process (RAP) applies complexity science principles to select, develop, and implement a change in health care delivery systems. RAP has five guiding principles that offer focus to implementation efforts without prescribing specific actions.
Readiness for Change Instrument	Instruments	Holt and colleagues (2007) developed a Readiness for Organizational Change Instrument. Herscovitch and Meyer (2002) developed a Commitment to Change measure.
Realist Method	Method	Realist evaluation employs qualitative, case study approach, employing ethnographic observation of meetings and service delivery, interviews, group interviews and informal discussions, and scrutiny of papers, reports, etc. concerned with testing and refining large change.
Six sigma	Technique	Six Sigma seeks to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in clinical care practices.
Swedish Change Model	Model	This 'top down, bottom up' model outlines a set of 11 criteria by which to examine the quality of the change process and how likely it will succeed. The model seems to work well for adaptability and handling contextual dependency.
Triple Aim	Conceptual Process	The Institute for Healthcare Improvement (IHI) has developed a concept design and described an initial set of components of a system that would fulfill a Triple Aim: Improve the health of the population; enhance the patient experience of care (including quality, access, and reliability); and reduce, or at least control, the per capita cost of care.
Transformation Cycle	Conceptual Approach	The transformation cycle integrates key cornerstones of transformational change; a model of transformational leadership; connecting them with strategic/business planning, execution, and performance monitoring.

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