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Factors that impact the sustainability of wait time management strategies for total joint replacement surgeries in canadian provinces

Par
CLAUDIA AMAR

Département d'administration de la santé
Faculté de Médecine

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présenté par :

Claudia Amar

a été évalué par un jury composé des personnes suivantes:

Claude Sicotte

président

Marie-Pascale Pomey

directeur de recherche

Nicole Dedobbeleer

membre du jury

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Résumé

Pour répondre aux exigences du gouvernement fédéral quant aux temps d'attente pour les chirurgies de remplacement du genou et de la hanche, les établissements canadiens ont adopté des stratégies de gestion des listes d'attentes avec des niveaux de succès variables. Notre question de recherche visait à comprendre *Quels facteurs ont permis de maintenir dans le temps un temps d'attente répondant aux exigences du gouvernement fédéral pendant au moins 6-12 mois?*

Nous avons développé un modèle possédant quatre facteurs, inspiré du modèle de Parsons (1977), afin d'analyser les facteurs comprenant la gouvernance, la culture, les ressources, et les outils.

Trois études de cas ont été menées. En somme, le 1er cas a été capable d'obtenir les exigences pendant six mois mais incapable de les maintenir, le 2^{e} cas a été capable de maintenir les exigences > 18 mois et le 3^{e} cas a été incapable d'atteindre les objectifs. Des documents furent recueillis et des entrevues furent réalisées auprès des personnes impliquées dans la stratégie.

Les résultats indiquent que l'hôpital qui a été en mesure de maintenir le temps d'attente possède certaines caractéristiques: réalisation exclusive de chirurgie de remplacement de la hanche et du genou, présence d'un personnel motivé, non distrait par d'autres préoccupations et un esprit d'équipe fort. Les deux autres cas ont eu à faire face à une culture médicale moins homogène et moins axés sur l'atteinte des cibles; des ressources dispersées et une politique intra-établissement imprécise.

Le modèle d'hôpital *factory* est intéressant dans le cadre d'une chirurgie surspécialisée. Toutefois, les patients sont sélectionnés pour des chirurgies simples et dont le risque de complication est faible. Il ne peut donc pas être retenu comme le modèle durable par excellence.

Mots clés: stratégies, attente, maintien dans le temps, Canada, hanche, genou, chirurgies

Summary

In response to federal government requirements regarding wait times for elective hip and knee surgery, hospitals have adopted wait list management strategies, with variable success. This research examined organizational and systemic factors that made it possible to keep wait times within federally established limits of 6-12 months.

We used a model based on Parsons' model. Four dimensions were used to analyze the following factors: governance, culture, resources, and tools. Three cases studies were done: Case 1 was able to meet the requirements for six months but unable to sustain this level; Case 2 was able to maintain compliance with requirements for > 18 months; and Case 3 was never able to meet the requirements. Documents were collected and interviews conducted with people involved in the strategies.

In all, eight interviews were conducted at each site and all documents related to each strategy were collected. The results indicated that the one hospital that was able to maintain compliance with the wait time requirements had specific characteristics: an exclusive mandate to do only hip and knee replacement surgery; motivated staff who were not distracted by other concerns; and a strong team spirit. The two other cases had to contend with a medical culture that was less homogeneous and they were less focused on meeting targets and had resources that were dispersed as well as unclear inter-organizational policies.

In the end, the *hospital factory* model is appealing in the context of super-specialized surgery. However, because patients are selected for simple surgeries, with little risk of complications, it cannot be promoted as a sustainable model of excellence.

Keywords: strategies, wait times, sustainability, factors, Canada, hip, knee, surgeries

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List of Abbreviations

ABJHI:	Alberta Bone and Joint Health Institute
APP:	Advanced Practice Physiotherapist
BJC:	Bone and Joint Canada
CEO:	Chief Executive Officer
CIHI:	Canadian Institute of Health Information
CIHR:	Canadian Institutes of Health Research
CJAG:	Concordia Joint Assessment Group
CJRR:	Canadian Joint Replacement Registry
COA:	Canadian Orthopaedic Association
CPO:	College of Physiotherapists of Ontario
F/P/T:	Federal/Provincial/Territorial benchmark
GP:	General Practitioner
HCC:	Health Council of Canada
HCO:	Health Care Organization
HKR:	Hip and Knee Replacement Surgeries
IT:	Information Technology
JHDMP:	Joint Health and Disease Management Program
LHIN:	Local Health Integration Network
LOS:	Length of Stay
MDC:	Multi-Disciplinary Clinic
MHA:	Medical Health Administration
MPAN:	Manitoba Patient Access Network
NPAT:	National Patients' Access Team
OAC:	Orthopaedic Assessment Clinic
OAS:	Ontario Arthritis Society
OMA:	Ontario Medical Association
OR:	Operating Room
PA:	Physician Assistant

PDSA:	Plan-Do-Study-Act cycles of change
PEPPA:	Participatory Evidence-Based Patient Focused Process
RC:	Research Coordinator
RHA:	Regional Health Authorities
RJAC:	Regional Joint Assessment Center
SSI:	Saskatchewan Surgical Initiative
THKR:	Total Hip or Knee Replacement
TJR:	Total Joint Replacements
UK:	United Kingdom
WCWL:	Western Canada Waiting List Project
WTA:	Wait Time Alliance
WTIS:	Wait Time Information System
WTMS:	Wait Time Management Strategies

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CHAPTER 1 - INTRODUCTION

Improving access to health care services has been a significant issue both in Canada and abroad for many years. More than ever, this concern is now being raised in the media to direct attention toward producing better wait time data and finding better ways to manage long wait lists for specialized health services. According to Barua et al. (2010), province-wide wait time 1, meaning the wait time between referral from a general physician (GP) to a consultation with a surgeon, was greater in 2010 than in 2009. The total wait time between referral from a GP and delivery of elective treatment by a specialist went from 16.1 weeks in 2009 to 18.2 weeks in 2010 (Barua et al., 2010). Healthcare organizations (HCOs) as well as governments have responded to these long wait times by putting in place various strategies aimed at reducing wait times for specialized health care services.

Most of the strategies implemented thus far by Canadian entities such as the government and various HCOs have focused on the systemic level. HCOs are accountable for providing timely access to care, but their direct involvement in implementing strategies and policies in that regard has often been overlooked. We believe we can learn a lot about each HCO's unique experience dealing with wait times, and consequently, about the determinants of their successful management and measurement.

While resources, financial and otherwise, are an important explanatory factor of HCOs' action or inaction, it can also be hypothesized that governance structures, practices, organizational culture, data collection, and management patterns also count among the contributing factors (Pomey et al., 2009).

The present research report is divided into 13 chapters. First, we focus on the project background and the purpose of the study, as well as key concepts related to the topic under study. We also outline the conceptual framework. Our literature review focuses on the determinants of success for wait time management strategies (WTMS). We examine the Canadian policy put in place to better manage hip and knee replacement surgeries. We then present the research methodology used in this study, followed by the results with respect to the factors that impact WTMS success and sustainability. Finally, in the discussion section, we describe the linkages between this study and the overall research project and outline this study's limitations.

Given that this study aims to continue the work done by Pomey (2009) in a study entitled *Determinants of Waiting Time Management for Health Services: A Policy Review and Synthesis*, I received permission from Pomey to reproduce portions of that study in my masters' thesis.

CHAPTER 2 - RESEARCH PROBLEM

This chapter is divided into in three sections. The first explains the study's background. The second presents the study's objectives and research questions. The third attempts to define and clarify certain key concepts of this study: wait times, wait lists, WTMS, organizational change, innovation, implementation, sustainability and success.

2.1 Background

In 2005, Canada's federal government entered into an agreement with all the provincial and territorial governments aimed at reducing wait times for hip and knee replacement surgeries; Quebec, which had its own strategy, was not part of this agreement. To improve access to total joint replacements (TJR), Canada has implemented a number of WTMS over the last few years (DeCoster et al., 1999; Pitt et al., 2003). These include benchmarking, information technology solutions for wait list management, central booking systems, clinical assessment and prioritization tools, and clinical appropriateness guidelines (Noseworthy et al., 2003). Although these initiatives show potential, it is critical that more attention be paid to the steps taken by HCOs to implement such strategies. While the literature has analyzed a variety of strategies, seldom does it discuss the ways that those strategies were implemented or the key factors associated with their failure or success.

Once the hurdles of implementation are overcome, many of these strategies still face problems of sustainability. Little research has been done on the sustainability of WTMS: a British study and a Canadian study of Ontario's Wait Time Strategy are two exceptions (Glynn, 2006; Trypuc et al., 2006). It is questionable whether the factors Trypuc et al. (2006) mention in their Ontario-based article really led to sustainability, since it was written fairly soon after the strategy was implemented, perhaps too soon for results that could show whether sustainability was achieved. Therefore, they could not really study the factors

retrospectively. To date, no researchers have focused on the sustainability of Canadian WTMS for TJR, which constitutes the focus of this study. Therefore, our aim in this project is to elucidate the factors that enhance or inhibit the sustainability of WTMS for TJR surgeries in Canadian provinces aimed at reducing wait times for these services and respecting the federal, provincial and territorial (F/P/T) benchmark established.

Therefore, the following section explains this study's objectives and research questions.

2.2 Objectives and Research Questions

The overarching theme of our research project is the sustainability of WTMSs for TJR. More precisely, our research project targeted the following general and specific objectives:

2.2.1 General Objective

The study's general objective was to understand the pivotal factors that enhance or inhibit the functioning, adaptation, and long-term sustainability of WTMSs for TJR services in HCOs and systems in various Canadian provinces.

2.2.2 Specific Objectives

To identify which WTMSs for TJR successfully reduced wait times and were able to sustain that reduction for 6-12 months between April 2009 and September 2010, our specific objectives were to analyze: 1) which contextual and organizational factors influenced the success and sustainability of those strategies; and 2) which aspects of the interface between the organizational and contextual levels helped sustain the success of those strategies.

2.2.3 Main Research Question

Our main research question was: What factors enhanced or inhibited the sustainability, for at least 6-12 months during a defined 18-month period, of WTMSs

for TJR surgeries implemented in Canadian provinces to reduce wait times for these services and to respect the 26-week federal benchmark?

2.2.4 Secondary Research Questions

1) Were there some WTMSs for TJR that were more successful at reducing wait times and were sustainable over time?
2) What aspects of the interface between the organizational and the contextual levels facilitated the success of those strategies?

2.3 Defining Key Concepts

2.3.1 What constitutes a wait list?

McDonald et al. (1998) defined a wait list, or roster, as a group of patients waiting for a distinct service. These lists usually refer to elective services, but they also exist for urgent and emergency services. The lists are made when demand for a service exceeds the available supply (Kreindler, 2010). The term "wait time" refers to the length of time between the moment a patient is enrolled on a wait list and a moment that he/she receives the service. McDonald et al. (1998) explain that, with rare exceptions, wait lists in Canada, as in most countries, are not standardized; they are erratically organized, poorly monitored, and need serious revision. As a result, wait lists may be inflated by 20 % to 30 % by the presence of patients who have died, who have already received the procedure, who have refused the procedure, or who may even be unaware they have been scheduled (McDonald et al., 1998). According to Kreindler (2010), wait lists are more likely to be found in public systems. In fact, offering universal access to care, when combined with the government's desire to control health spending, can mean the supply of treatment is inadequate for the demand. In this sense, wait lists constitute a form of payment, or rather, a way of rationing scarce supply. The author adds that, while the existence of wait lists is not necessarily a bad thing, it reflects a value-based decision about how care should be distributed. The problem, however, is in the length of the wait times. In fact, long wait times are a source of distress to patients and, in some cases, can have adverse health and social consequences (Levy et al., 2005; Masri et al., 2005; Pacifico et al.,

2007).[1] Various initiatives have therefore sought to monitor wait list data more carefully, accurately, and routinely over the past 10 years (Sanmartin et al., 2003).

2.3.2 How do we measure wait lists and wait times?

There are currently no standardized methods to define and assess wait lists and wait times for a vast range of healthcare services (Sanmartin et al., 2000; DeCoster, 2002). It is important that dependable and comparable wait time data for various medical procedures be developed so that governments, healthcare professionals, and patients can all have a better understanding of the degree and nature of wait times. Until now, the main focus has been on wait times for elective surgeries and diagnostic tests. In some provinces, a difference has been made between wait time 1, the time between the GP's referral and the consultation with the specialist, and wait time 2, the time between the visit to the specialist and the actual surgery. According to the Canadian Institute of Health Information (CIHI, 2007), the definitions of wait times (1 and 2) used to collect wait time data vary from province to province.[2]

2.3.3 What is known about factors that affect wait lists and wait times?

Different hypotheses exist about the causes of wait lists. For Hurst & Siciliani (2003), the causes are essentially reduced to demand factors that influence the inflow to the wait list and supply factors that influence the outflow. The population's overall health and the state of medical technology available affect the demand for scheduled surgery. Among other things, Hurst & Siciliani (2003) attribute long wait times to the important advances in surgical technology and in anaesthesia over the last 20-30 years that have made those interventions more cost-effective, therefore causing an increase in demand for them. Both physician behaviour and patient behaviour can also contribute to wait times. For example, for administrators to be able to manage wait lists appropriately, in terms of updating, prioritizing, rescheduling cancellations, and computerizing the information, physicians need to invest a certain amount of

[1] This section is based on the research conducted by Pomey (2009) in her study entitled *Determinants*

[2] Idem.

time and effort. The ways in which doctors organize their practice may also contribute to the formation of lists (Wolinsky et al., 1983). Competitive fee-for-service payment of surgeons, unlike salaried remuneration, may encourage many to offer fast access – that is, to maintain short queues – especially where there are no gatekeepers, and when surgeons can assume primary care responsibilities for patients (Hurst & Siciliani, 2003). The supply of elective surgery varies according to public and private surgical capacity, as well as the productivity with which that capacity is utilized. It is known that wait times are decreased as the number of beds and available doctors increase (Hurst & Siciliani, 2003). Furthermore, activity-based funding is likely to encourage higher productivity compared to funding based on fixed budgets.[3]

2.3.4 What is a Wait Time Management Strategy?

A WTMS is a strategy that aims to reduce the amount of time spent waiting for access to healthcare services. Kreindler (2010) explains that the main policy levers for reducing wait times involve increasing supply, reducing demand, funding information technology and/or other resources, reviewing ways of working without funding, collaborating with the private system and/or applying comprehensive strategies to foster one or more of these levers at the organizational level. In this study, we focus on initiatives that target access to scheduled care. Examples of initiatives to increase capacity at the organizational level include: increasing the number of healthcare providers, expanding their hours of operation, investing in medical and information technologies, and developing coordinated care processes and practice guidelines to increase patient throughput. Investments in information technology involve developing centralized wait list registries, operating room (OR) booking systems and information systems to monitor performance against wait time targets. To control demand, clinical assessment (prioritization) tools and clinical appropriateness guidelines can be used. Another wait time initiative consists of using existing capacity more efficiently.[4] Pooling surgeons' wait times appears to be

[3] Idem.

[4] Idem.

another potential solution (Kreindler, 2010). However, it seems the most basic supply-side strategy would be to pay for increased activity.

Kreindler (2010) adds that obtaining capacity from the private sector can be another strategy because the private sector may be able to mobilize resources more quickly, and deploy them more flexibly, than public or non-profit organizations. However, Joshi et al. (2006) see no basis for believing that a parallel private system will shorten the queue for publicly funded Medicare or reduce the cost for healthcare, irrespective of the impact on equity of access. Moreover, encouraging capacity that is privately financed remains a difficult and quite pricey way to increase the supply of treatment, something that can be achieved much more efficiently through other means (Kreindler, 2010).

Short-term injections of funding discourage sustainable strategies that can address the root cause of wait lists, since backlogs promptly reappear once these funds run out. In contrast, recent approaches have stressed long-term funding for activities, such as fee-for-service payment to physicians, activity-based payment to hospitals, and/or bonuses for achieving extra volume while maintaining a base volume (Kreindler, 2010).

With respect to comprehensive strategies that can influence the organizational level, national wait time targets backed up with clear incentives for meeting them seem to be effective. As Kreindler (2010) explains, target setting often involves some attempt to determine the maximum medically acceptable wait time for a given procedure. A consistent problem with establishing targets is that it is difficult to know how HCOs will meet those targets. Therefore, it is helpful to include healthcare providers in the design and implementation of targets, incorporate some flexibility into the system, and promote equality by considering all possible strategies (Hurst & Siciliani, 2003; Harrison et al., 2005; Bevan et al., 2006; Walley et al., 2006).

2.3.5 The Concept of Organizational Change

To implement WTMS, HCOs face the challenge of organizational change. The concept of change invokes the idea of modifications affecting time and space, with one or more parameters. According to Thompson (2010), organizational change

is defined as a modification in the goals, structure, or operations of an organization. Change can also mean introducing an idea or behaviour that is new to an organization. More concretely, organizational change can take the form of a product, a service, a technology, a program, a policy, or a process. In fact, the term "change" has several different meanings in the business world. For Senge (1999), it sometimes refers to external changes in technology, customers, competitors, market structure, or the social and political environment. However, change can also be internal, such as an organization's adaptation in response to environmental changes. Senge (1999) adds that change can also mean top-down programs, like reorganizing or reengineering a work process within an organization. According to the author, the term profound change can be used to describe organizational change that combines inner shifts in processes, strategies, practices and systems.

Whitlock (2009) defines the types of changes as either transitional, which involves making small changes to a process, or transformational, which involves making major or radical changes in the organization, such as a large restructuring (as cited in Beckhard, 1969, p. 10). According to Thompson (2010), a change is defined as transformational when it produces simultaneous changes in multiple system elements, including structure, strategy and culture, among others, to achieve rapid and organization-wide performance improvement. The author states that this type of deliberate change is a major systemic change intended to reshape the entire organization and, accordingly, originates at the senior level of the organization. The author explains that one way to conceptualize change management is to describe the nature of the change under consideration in terms of its various dimensions: *scope* refers to the extent of the change, i.e., whether it is narrow change that affects only one area of the organization or whether it affects many areas of the organization (Thompson, 2010); *depth* refers to the complexity of the change, meaning it may be an incremental change or a significant transformation for the whole organization (Thompson, 2010); and *urgency* refers to how quickly the change needs to occur. Maxwell (2009) states that change can be either planned, in which discretionary changes are brought about by management, or unplanned, in which unexpected issues create a need for swift management action (as cited in Beckhard, 1969, p. 89). As

Doppelt (2003) points out, the organization needs to continually incorporate new ways of thinking and acting into how it does business as new knowledge is generated and employees gain know-how and skills. Senge (1999) suggests that we need to understand change as a form of "dance", which he defines as the inevitable interplay between growth processes and limiting processes.

2.3.6 The Concept of Innovation

The concept of change implies that of innovation. A planned innovation is one in which the manager has enough time to weigh different options, decide on a strategy, and put into place the change. If we look deeper into organizational development, Beckhard (1969) defines it as an effort that is (1) planned, (2) organization-wide, and (3) managed from the top, to (4) increase organizational effectiveness and health through (5) planned interventions in the organization's "processes" using behavioural-science knowledge (MacLean, 2006). Thompson (2010) explains that managers must realize that a change is needed, and should motivate staff interest and leadership when it comes time to identify opportunities for change and transformation within their organizations. The author adds that forward-thinking, proactive management is critical to changing the organization appropriately, given the dynamic external environment. Keeping in mind the external healthcare system context, healthcare managers need to focus on the performance of HCOs and act to optimize their internal functioning. Campbell (2008) explains that because organizational change impacts work tasks and employees' feelings, it is critical to explain the basis for the change, identify benefits of the change, solicit ideas on implementation strategies, and address staff and consumer concerns to increase support and decrease resistance to the pending change. In fact, Kotter (2008) suggests that an effective way to communicate the vision is to develop an engaging story that catches the attention of those affected by the change. It is important to preserve the feeling of urgency and to demonstrate how the success of the vision will lead to the steady development and growth of the organization. As a sense of urgency grows among employees, managers must turn their attention to developing a guiding team (Kotter, 2008).

According to Beckhard (1969), to be successful, organizational development efforts should have some of the following goals: (1) to develop a self-renewing, viable system that can organize in a variety of ways depending on tasks; (2) to optimize the effectiveness of both the stable and the temporary systems by built-in, continuous improvement mechanisms; (3) to move toward high collaboration and low competition between independent units; (4) to create conditions where conflict is brought out and managed; and (5) to reach the point where decisions are made on the basis of information source rather than organizational role (MacLean, 2006).

Lastly, planning the change's implementation requires analyzing alternatives for addressing the problem. Then, the organization's readiness for change must be assessed. These two steps are essential components of any organizational change process (Thompson, 2010; Greenhalgh et al., 2004).

2.3.7 First Phase of Change: The Concept of Implementation

According to Campbell (2008), implementation is a critical phase of the managerial change process, and sometimes change fails because of a flawed implementation strategy. For a change to be successfully implemented, managers, employees and workgroups must work collaboratively and shift their perceptions and behaviours. Furthermore, implementation should include active involvement of staff, dissemination of information, and clarification to generate support. Burke (2005) defines implementation as a group or series of interventions in the "workings" of an organization, its operations, its processes, and its ways of doing things so that the system will move toward a particular change goal (as cited in Rothwell, 2005). This becomes the focus of the organizational change effort.

In order for the implementation process to be a success, certain steps need to be respected, according to Doppelt (2003): 1) change the dominant mindset (compelling need); 2) rearrange the parts (teams); 3) alter the goals (visions and principles); 4) restructure the rules of engagement (strategies); 5) shift the flows of information (communication); 5) correct the feedback loops (learning and motivation); and 6) adjust the parameters (policies and procedures). Thompson (2010) adds that managing the change process within public HCOs is important

because appropriate and systematic change management is linked to improved organizational performance. These healthcare managers are challenged to respond to environmental influences by demonstrating leadership in this time of change. Senge (1999) adds that all participants in the change process should be offered training and support in order to be able to monitor and evaluate the effects of their actions.

2.3.8 Second Phase of Change: The Concept of Sustainability

The concept of sustainability will be the focus of the study. It has been defined by Tivy and O'Hare (1982) as "the management of a resource for maximum continuing production, consistent with the maintenance of a constantly renewable stock" (as cited in Brown, 1987, p. 715). Brown (1987) sees a sustainable society as one that is enduring, self-reliant and less vulnerable to external forces. More and more, sustainability is perceived as being a "desired goal of development and environmental management" (as cited in Brown, 1987, p. 715). According to Curran (2009), the concept of sustainability should encompass interrelated ideas drawn from economic, social and environmental realms. The World Commission on Environment and Development (WCED) defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UN, 1987, p. 43). This definition could very easily be applied to health care and health services. Sustainable development also implies that present generations should not be permitted to prevent future generations of their access to essential resources. (UN, 1987) It is also a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations (UN, 1987). Ulhøi & Ulhøi (2009) explain that hospitals are generally regarded as organizations whose main mission is to help human beings in need of surgery and/or medical assistance, as well as to advise people on healthy ways of living. That being said, it should be difficult for hospitals to justify behaviour that will endanger human health, cause reduction in natural resources, or encourage inefficient energy and resource management. For sustainable development to succeed, the process of development

must be participatory (Lélé, 1991). Frank et al. (2009) also point out that discussions among stakeholders informed by useful information would help overcome the barriers to creating a sustainable system of accountable care that is desired by all. Van Bueren and De Jong (2007) state that policies and initiatives are intended to promote a sustainably structured environment at local, regional, national and international levels. Achieving this will require a clear understanding of what constitutes sustainable structure, as well as of the factors that impact it. For this, a variety of actors should be included in the policy process and their knowledge put to good use.

The problem is that there is no clear understanding of what sustainable development is. This might be because "the concept includes many interrelated attributes, which makes it difficult to establish clear boundaries" (Van Bueren & De Jong, 2007, p. 549). The first step in trying to sustain a profound change process is to make a fundamental shift in thinking (Senge, 1999). We need to understand the nature of growth processes and how to catalyze them. But we also need to understand the forces and challenges that hinder progress, and to develop feasible strategies for dealing with these challenges. Doppelt (2003) explains that sustainability visions and strategies become internalized as people consider what these changes will mean to them personally. It is therefore crucial to communicate the need, vision, and strategies for achieving sustainability.

2.3.9 The Concept of Success

As a general rule, the most appropriate criteria for a project's success are the project's objectives. The extent to which they have been met determines the project's success or failure. Although measuring progress, cost and quality is largely the responsibility of project control, this activity should certainly not be confused with measuring success. In the literature, there is general agreement that project management has three main goals, termed the "triple constraint": a project must be managed on time, within budget and to quality/performance requirements (Saladis & Kerzner, 2009). According to De Wit (1988), a project is considered an overall success if it meets the technical performance specification and/or mission to be

performed and if there is a high level of satisfaction with the project's result among important people in the parent organization, key people in the project team, and essential users or clientele of the project endeavour. Hayfield (1979) lists two kinds of factors that could help determine project success. The first are the macro factors, or those relating the decision-makers: realistic and thorough definition of the project, efficient project execution, comprehension of the project "environment", and selection of the organization to carry out the project. The second kind are the micro factors, which relate to the people who put the strategy in place: budget performance, schedule performance, client satisfaction, functionality, contractor satisfaction and project manager/team satisfaction.

It is important to point out the difference between the success of the project and the success of the project management activity. In fact, project management can be successful in itself, but still be unable to prevent a project from failing. According to Cooke-Davies (2002), to be successful, a project must satisfy the interests of those who established the project (the stakeholders) and what it was that they hoped to achieve through the project (the benefits). Rosenau (2001) identifies the following as determining factors for the project management process: goal definition, project planning, leadership, project monitoring and project completion. We therefore consider a WTMS to be successful when it is able to sustain over time. Those two concepts are therefore tightly connected.

CHAPTER 3 - CONCEPTUAL FRAMEWORK

This chapter is based on the work done by Pomey (2009) in her study entitled *Determinants of Waiting Time Management for Health Services: A Policy Review and Synthesis.* We have adapted the conceptual framework developed by Pomey (2009). Our conceptual framework was structured to ensure that we would capture all the dimensions within the WTMS being studied that might have contributed to sustain the surgical wait times below 26 weeks during at least 6-12 months in an 18-month period.

To classify factors that helped sustain successful WTMS, we used a conceptual framework based on Parsons' widely recognized four-quadrant model (Parsons, 1977). The Parsonian view offers a structuro-functionalist vision of organizations and concentrates on the four functions they need to survive: goal attainment, environmental adaptation, production and culture. This framework was chosen in this study for many reasons, primary among which was its robust nature. It has been used in disciplines as different as sociology, administration, and management over several decades. It has also been used in organizational contexts of all kinds, including industry, health, and others. In this study, the framework allows us to take into consideration not only factors such as resources and tools that are usually considered, but also political and cultural factors that are often ignored.

With regard to presentation, we have modified the arrangement of dimensions in Parsons' paradigm. The four dimensions we used are present at the contextual and organizational levels:

1. *Governance factors (goal accomplishment and environmental adaptation), defined as "the conduct of collective action from a position of authority"* (Hatchuel, 2000, p. 42).

   In fact, Doppelt (2003) points out that

for an organization to make the kind of transformation required to become truly sustainable, power and authority must be skilfully distributed among employees and stakeholders through effective information-sharing, decision-making, and resource allocation mechanisms. One example of contextual level governance would be stakeholder involvement, and an example of organizational governance would be leadership exercised by healthcare managers.

2. *Cultural factors (culture), defined as "underlying beliefs, values, norms and behaviours*" (Shortell et al., 1995, p. 22).

To reiterate the importance of cultural factors for the survival of an organization, Doppelt (2003) recognizes that the ultimate success of a change initiative occurs when sustainability-based thinking, perspectives, and behaviours are embedded in everyday operating procedures, policies and culture. An example of this in contextual-level culture would be consultation with front-line actors, whereas an example in organizational-level culture would be the trust among coworkers.

3. *Resource factors (production), whether human, financial, infrastructure or informational.*

An example of contextual resources would be funding levels, and of organizational resources, the number of nurses working in the OR.

4. *Tools (production), the instruments or procedures seen as helpful in implementing a strategy.*

A contextual-level example of a tool would be the collection and standardization of data, while an organizational-level example would be information management systems.

Combining the two levels of analysis (contextual and organizational) with the four dimensions of determinants at each level produced the model presented in *Appendix 1*.

CHAPTER 4 - LITERATURE REVIEW ON THE DETERMINANTS OF THE SUCCESS OF WTMS

The literature review is based on the previously mentioned work by Pomey (2009). For this study, we considered change to have two phases: implementation and sustainability. There are few studies that have leaned in on the factors that impact the sustainability of WTMS. In fact, most studies explain the factors that impacted the implementation phase of a WTMS. WTMS implementation can be regarded as a type of change introduced at both the organizational and contextual levels. Therefore, the purpose of the literature review is to identify the types of factors that influence implementation success, as a prelude to subsequently identifying factors that impact WTMS sustainability. Research has shown that for any WTMS to be successfully implemented at the organizational level, the following factors must be in place (DeCoster et al., 1999; Pomey et al., 2010): 1) physicians must be involved from the outset; 2) organizational culture must be taken into account; 3) policy-makers must invest in evaluation and quality improvement at the organizational level; 4) relationships between managers and physicians must allow the parties to align their objectives; 5) policy-makers must earmark funds to launch the strategy; 6) institutions must invest in tools and information management; and 7) upper-level and organizational policies must be aligned. Our literature review is organized according to the factor dimensions at each level (contextual and organizational) presented in the theoretical framework (governance, culture, resources and tools).

4.1 Organizational-Level Factors

The organizational level refers to organizations at the service delivery level, such as hospitals, clinics, or, for some provinces in Canada, health authorities that organize patient care. The organizational level differentiates itself from the contextual level, which refers to factors at the national and regional levels. Examples of contextual level factors are: wider economic conditions, nationwide or provincial regulation and policies, and human resource shortages. Coordination, dedicated funding, dedicated staff, evaluation tools, equal commitment and collaboration

among all stakeholders, as well as an innovative organizational culture have also been mentioned as key organizational-level factors.

4.1.1 Organizational-Level Governance

With respect to organizational-level governance, leadership was the factor most commonly cited in the literature (Ham et al., 2003; Maddison et al., 2004; McLeod, Ham & Kipping, 2003; Rozich & Resar, 2002; Worthington, 1991). Leadership by senior clinicians, trusted chief executive officers (CEOs) and project managers was said to be essential to promote change (McLeod et al., 2003). Having a dedicated project group (Maddison et al., 2004), pilot team (Rozich & Resar, 2002), or project manager (McLeod et al., 2003; Ham et al., 2003) was also deemed critical for success. All these factors had a positive impact on moving the strategy forward. Lastly, support from the CEO (Ham et al., 2003), effective organizational design (Rozich & Resar, 2002) and clinician accountability (Pearson & Meyer, 1991) were also considered positive factors. Other factors, such as mergers between organizations (McLeod et al., 2003), had a negative impact on WTMS implementation.

4.1.2 Organizational-Level Culture

With respect to organizational-level culture, Ham et al. (2003) point out that "organizational cultures do have an impact on the implementation of quality improvement initiatives like the booked admissions program" (p. 432). Certainly, the cultural factor that recurs most often in the literature appears to be physicians' participation in, and feelings toward, WTMS (Botten et al., 2004; Cromwell & Mays, 1999; Gauld & Derrett, 2000; Ham et al., 2003; Hanning, 1996; Hanning & Spangberg, 2000; Hefford & Holmes, 1999; Leach et al., 2004; Lundstrom et al., 1996; Maddison et al., 2004; McLeod et al., 2003; Ramchandani et al., 2002). For example, some doctors were skeptical of the strategy proposed in their HCO (Gauld & Derrett, 2000), while others displayed little interest in reducing wait lists (Gauld & Derrett, 2000; Hanning, 1996). One study on the implementation of generic wait lists for cataract surgery concluded that most physicians were skeptical about putting in place such lists. In another article, a survey on a pooled wait list for cataracts

revealed that 67 % of the ophthalmologists surveyed were against the list, while most GPs were in favour (Ramchandani et al., 2002). Also, McLeod et al. (2003) stated that consultant physicians' "reluctance to change established ways of working and to give up their freedom to determine relative priority was also widely reported to have slowed the implementation of booking" (p. 1149). Therefore, it is of utmost importance to engage physicians in quality improvement and, as in the booked admissions program, to offer support to the promoters of change (Ham, Kipping & McLeod, 2003). Because doctors work with significant autonomy, the implementation of any strategy requires their support (Cromwell & Mays, 1999). With regard to cultural factors that facilitate the implementation of a strategy, focusing on a culture that promotes quality improvement (Pearson & Meyer, 1991) and embraces innovations is essential. Other determinants included a culture that is patient-centred (Pearson & Meyer, 1991); a flexible system that accommodates clinicians' preferences (McLeod et al., 2003); good organizational memory within a learning organization built on previous achievements (Pearson & Meyer, 1991); and organizational values, norms and beliefs shared by all employees of the organization. Implementing new strategies is easier when staff members embrace the change within their HCO: "Staff in the clinical units led the change process but was supported by others willing to run with the vision" (Pearson & Meyer, 1991, p. 98). An organizational culture that encourages the participation of staff members also tends to facilitate change (Rozich & Resar, 2002). Moreover, the lack of trust between managers and clinicians when clinicians are not involved in changes that affect clinical decisions can sometimes be damaging to the implementation of an initiative (Channer, 2001). Likewise, distrust between managers and physicians may also result in physicians' feeling they have been marginalized and have no influence on decision-making for policies or strategies (Channer, 2001). Management often relies on nurses to maximize the use of beds to help implement new tools for patient flow (Rozich & Resar, 2002). According to Ham et al. (2003), staff members affected by quality improvement programs need to know there will be benefits for them attached to those programs. Finally, it is important not to underestimate the need to

allow time for innovations to occur and to create conditions that will foster change and reform within hospitals and other HCOs (Ham et al., 2003).

4.1.3 Organizational-Level Resources

Human, financial and infrastructure resources are the most typical resources mentioned in the literature. Successful implementation of WTMS requires resource capacity that is both adaptable and adequate. Indeed, the lack of infrastructure resources was mentioned in several articles (Cromwell & Mays, 1999; McLeod et al., 2003; Rozich & Resar, 2002; Taylor et al., 2005) as a restraining factor. Capacity constraints, both in the OR and in post-surgery beds (Ham et al., 2003; Tandon et al., 2005) were highlighted as hampering WTMS implementation. Often surgical capacity is increased to meet wait time guarantees (Lundstrom et al., 1996). Reducing bed blocking also clears the way for increases in surgeries by adding bed capacity (Hanning, 1996; Hanning & Spangberg, 2000). Bed blocking is a situation in which someone occupies a hospital bed even if they are medically stable because there is no more suitable place where they can be taken care of. On the human resources side, having sufficient staff members dedicated to the WTMS is critical (Bourne et al., 2001; Brunenberg et al., 2005; Cromwell & Mays, 1999; Ham et al., 2003; Karvonen, Rämö, Leijala & Holmström, 2004; Kingston, Carey & Masterson, 2000; Maddison et al., 2004; Mills & Heaton, 1991; Mobb, Pugh & Peeling, 1994; Rozich & Resar, 2002; Tandon et al., 2005). Certain articles mentioned the key role of a dedicated project manager or coordinator, although in organizations without those necessary resources, the model may still be made to work (Cromwell & Mays, 1999). Both professional staff shortages (Karvonen et al., 2004) and limitations on the length of contracts for staff recruitment (Gauld & Derrett, 2000) constrained organizations' ability to implement new strategies. In Gauld & Derrett's (2000) study, one respondent suggested that, "If the contract system had a longer-term focus and hospitals could offer staff contracts for three years instead of six months or one year, then opportunities to perform additional procedures would be enhanced in the context of booking system initiatives, which initiatives involve much planning ahead" (p. 268). This is made all the more difficult because demand for this service exceeds

available surgeon capacity (Tandon et al., 2005). On the financial resources side, incentives at the individual or the team level were also cited as contributing to the success of the result. One contributing factor was the purchase of computers to enable doctors to schedule patients themselves (Ham et al. 2003). Contrarily, the unavailability of overtime salaries for nurses and support staff constitutes a disincentive. However, disincentives can sometimes be effective. In Sweden, hospitals run the risk of being forced to send patients elsewhere at their expense if they don't meet the maximal wait time guarantees (Hanning, 1996; Hanning & Lundstrom, 1998).

4.1.4 Organizational-Level Tools

Organizational tools are instruments or processes used at the organizational level. Examples include intranet systems (Rozich & Resar, 2002) or websites that offer tools for family physicians and allow physicians to communicate with each other (Maddison et al., 2004). A continuous focus on quality improvement and a customer service delivery approach aimed at obtaining good quality patient outcomes should constitute the drive for change (Pearson & Meyer, 1991). Information management systems implemented to meet the high information demands of WTMS were the most cited tool. Databases for recording information (Botten et al., 2004; Maddison et al., 2004; McLeod et al., 2003; Cromwell & Mays, 1999; Kingston & al., 2000) and scheduling software (Hefford & Holmes, 1999; Gauld & Derrett, 2000) are two examples. Conversely, overly complex systems can be barriers to WTMS implementation (McLeod et al., 2003). Easy, accessible, and effective solutions for information presentation are essential, according to Cromwell & Mays (1998, 1999). The ability of participants in the initiative to easily access pertinent information (Cromwell & Mays, 1999) and the accuracy and reliability of the data (Hanning, 1996) are crucial. Training and support for users is an important tool. In fact, given the increased use of quantitative data, it is important that staff be coached to analyze fundamental statistics and time series data and to gain a basic understanding of spreadsheets (Cromwell & Mays, 1998, 1999). Training in service redesign provided by a national team also helps (Ham et al., 2003). Providing GPs with templates for

referral letters is also useful (Maddison et al., 2004). The Harris Hip Score and the American Knee Society Score were also mentioned as important clinical instruments for assessing and scoring the need for hip and knee arthroplasty (Kingston, et al., 2000) and for determining which patients were appropriate for placement on a pooled wait list (Leach et al., 2004).

4.2 Contextual-Level Factors

Contextual-level factors relate to the socio-economic and political setting in which organizations function (Pomey et al., 2010). These factors are not specific to one organization. Associations representing physicians are one example. Individual physicians work at the organizational level while their associations function at a higher level. Issues that extend beyond the individual organization, such as broader financial conditions that would impact on healthcare systems, are further examples of contextual factors.

4.2.1 Contextual-Level Governance

High-level coordinating, reporting and monitoring structures constitute the first contextual governance factor (Gauld & Derrett, 2000; Ham et al., 2003; Hefford & Holmes, 1999; Lundstrom et al., 1996; Worthington, 1991). In Sweden, reporting was part of all agreements between Regional Health Authorities (RHAs) (Lundstrom et al., 1996) and dedicated policy monitoring structures, which also seemed to have a positive impact (Gauld & Derrett, 2000). Political support was also cited as a determining factor (Worthington, 1991); without it, participants were discouraged from investing effort into putting in place a new WTMS (Hanning & Spangberg, 2000). Stakeholder commitment, whether in the form of involvement of professional associations such as a provincial orthopaedic association or of other partners such as patients' groups (Mullen, 1994) or Ontario's Ministry of Health and Long Term Care (Bourne et al., 2001), represented yet another favourable contextual-level governance factor. Lundstrom et al. (1996) reported that stakeholders were solicited for information on data, for advice on existing processes, for ensuring reporting as well for their ideas for improvements (Gauld & Derett, 2000). Successful initiatives had two key characteristics: they had been made a priority by political and administrative

stakeholders (Bhatti et al., 1999), and they had experienced strong collaboration between all parties (Botten et al., 2004). Collaboration was also improved when the WTMS leadership and governance were seen to be courteous and impartial.

4.2.2 Contextual-Level Culture

While the literature identified a limited number of factors in this category, consultations with frontline actors nevertheless appeared to have contributed positively to WTMS implementation (Gauld & Derrett, 2000; Ham et al., 2003; Hanning & Spangberg, 2000; Leach, et al., 2004; Lundstrom et al., 1996) as did liaison between primary and secondary care (Hefford & Holmes, 1999). At this level, involving specialists' and consulting with GPs were shown to be positive factors. Physicians' views regarding an initiative and its relevancy to themselves was also likely to have contributed. In fact, Lundstrom et al. (1996) stated that "in the early discussions about a national registry, the participating surgeons stated that if the compiled data proved to be valuable to participants after the first year, the registration should continue" (p. 140).

Public awareness was recognized as another factor. The public needs clear information on changes made to booking processes. Hefford & Holmes (1999) explained that if a clear message is shared with the public, most people quickly recognize the benefits to patients. The culture of Canada's healthcare system is in itself a contextual-level factor that cannot be overlooked. According to the Association of Canadian Academic Healthcare Organizations' report (2006) and the Report of the Federal Advisor on Wait Times (2006), the physician's role in the WTMS is of crucial importance in the system change. It is important to develop a collaborative approach among physicians and health authorities participating in the development process, and to create a culture of assessment, communication and efficient decision-making about WTMS, in order to make all progress public. Respondents talking about provincial initiatives recognized the importance of communicating information on wait times to the public.

4.2.3 Contextual-Level Resources

In terms of contextual-level resources, funding is definitely the most frequently cited contextual resource factor (Botten et al., 2004; Bourne et al., 2001; Channer, 2001; Gauld & Derrett, 2000; Ham et al., 2003; Hanning & Lundstrom, 1998; Hanning & Spangberg, 2000; Hefford & Holmes, 1999; Lundstrom et al., 1996; Maddison et al., 2004; McLeod et al., 2003; Mills & Heaton, 1991; Mobb et al., 1994). A specific strategy, such as addressing a backlog, can occasionally receive additional funding (Botten et al., 2004; Channer, 2001; Gauld & Derrett, 2000; Mobb et al., 1994) and may also be funded for a specific purchase, such as equipment or software (Bourne et al., 2001). An economic recession (Hanning, 1996) or budget cuts (Cromwell & Mays, 1999) will tend to limit the monetary resources available, thereby reducing the level of financial support, which can have a negative impact on the new WTMS. In New Zealand, a scarcity of resources led to raising of the priority criteria threshold for eye care, thereby complicating the booking process for patients in need of treatment. Such resource scarcity can thus have a negative impact on WTMS implementation at a nation-wide level (Gauld & Derrett, 2000). Conversely, HCOs in Sweden received additional resources in the form of grants destined to finance the guaranteed wait time reform, and the program's implementation was greatly facilitated by these national-level incentives (Hanning, 1996; Hanning & Lundstrom, 1998; Hanning & Spangberg, 2000). The incentives that were introduced to support the maximum wait time guarantee were mainly intended to change the behaviour of the hospital departments, but unfortunately, increasing the number of surgeries being performed could not, in itself, clear the long wait lists for elective surgery. Setting priorities and applying standardized indications were highlighted as important strategies, as was providing adequate incentives to motivate all departments to put into practice the recommended priorities (Hanning & Lundstrom, 1998). Obviously, financial resources are a necessary success factor, meaning financial incentives have to be planned, aligned and linked to efficiencies.

4.2.4 Contextual-Level Tools

Tools at the contextual level are instruments affecting multiple organizations, such as standards and guidelines (Channer, 2001; Hanning, 1996; Hanning & Lundstrom, 1998; Hanning & Spangberg, 2000; Hefford & Holmes, 1999). The implementation of a central registry is a positive factor that enables the compilation and standardization of information (Hanning, 1996; Hanning & Spangberg, 2000; Hefford & Holmes, 1999; Lundstrom, & al., 1996). Training, whether in specific professional skills or in management skills, helps during the implementation phase of a WTMS (Ham et al., 2003; McLeod et al., 2003).

As we will see in the following sections, all the factors mentioned in the literature review are inextricably tied to the initiatives that were implemented in Canada at the national level.

CHAPTER 5 - CANADIAN POLICY PUT IN PLACE TO BETTER MANAGE HIP AND KNEE REPLACEMENT SURGERIES

In September 2004, Canada's First Ministers agreed that access to timely care across Canada was the country's biggest healthcare concern and priority. According to Health Canada (2004), the First Ministers agreed on an action plan based on the following principles: (1) universality, accessibility, portability, comprehensiveness, and public administration; (2) access to medically necessary health services based on need, not ability to pay; (3) reforms focused on the needs of patients to ensure that all Canadians have access to the health care services they need, when they need them; (4) collaboration between all governments, working together in common purpose to meet the evolving health care needs of Canadians; (5) advancement through the sharing of best practices; (6) continued accountability and provision of information to make progress transparent to citizens, and (7) jurisdictional flexibility. The First Ministers of all Canadian provinces and territories (with the exception of Quebec, which had its own strategy) then committed a total of 5.5 billion dollars to achieve timely access in five areas of care over a 10-year period. The 2005 federal budget attributed another 15 million dollars of funding for the wait time initiatives. According to the Government of Canada (2009), this investment was aimed at supporting research on patient and provider awareness, and on the perceptions of different decision-makers, care providers and patients with regard to wait time issues.

The health ministers also agreed to collect and provide important data to Canadians concerning reductions in wait times (Health Canada, 2004). In fact, they did so in the following ways: 1) provinces and territories determined comparable indicators of access to healthcare professionals, diagnostic and treatment procedures, with a report to their citizens to be developed by all jurisdictions by December 31, 2005; 2) evidence-based benchmarks for medically acceptable wait times starting with cancer care, cardiac care, diagnostic imaging procedures, joint replacements, and sight restoration were established by December 31, 2005, through a process developed by the Federal, Provincial and Territorial (F/P/T) Ministers of Health; 3)

multi-year targets for achieving priority benchmarks were established in each region by December 31, 2007; and 4) provinces and territories had to report annually to their inhabitants on progress on wait times across their multi-year wait time targets. In fact, on December 12, 2005, the provinces and territories defined their benchmarks for the five priority areas of care (Government of Canada, 2009). The health ministers thereby guaranteed the provision of hip and knee replacements within 26 weeks.

The government announced three programs to support the wait time guarantees (Prime Minister of Canada, 2007). One of these programs included funding for Info-Route Santé of Canada, a non-profit organization looking to develop and adopt IT systems on health. Second, a fund for wait time guarantees was set up. According to CIHI (2009), the 2007 budget attributed 612 million dollars to accelerate the implementation of wait time guarantees for patients. Of that sum, 112 million dollars was to be divided among the provinces and territories that agreed to establish wait time guarantees before March 31, 2010. The remaining 500 million dollars was to be divided according to the proportion of citizens in each province and territory and put into a third-party trust. Third, an additional sum of 30 million dollars for pilot projects on wait time guarantees was reserved for the period 2007–2010, to be offered to provinces and territories that created innovative new projects to reduce wait times and to respect their wait time guarantees.

On another note, the Health Council of Canada (HCC), which had been created by the 2003 Agreement of the First Ministers on Health Care Renewal, was given responsibility in the 10-year period for reporting on the population's health outcomes. The HCC also recommended: (1) continued research to support comparative analysis and operational progress; (2) adoption of modern and innovative management practices in the healthcare system; (3) acceleration of information technology (IT) implementation; (4) culture change for healthcare professionals in order to improve intervention capacity in crisis regions; and (5) increased public awareness about transformation of the system (HCC, 2007).

CIHI has been responsible for reporting progress made across jurisdictions since the 2004 Health Accord (CIHI, 2009). Apart from consolidating the

information on wait times submitted by each province, CIHI incorporates into its report the data on a strategy adopted by most provinces to improve access, which is to increase the number of surgeries in priority areas of care. In fact, CIHI publishes an annual report of health indicators including health status, non-medical determinants of health, health system performance, and community and health system characteristics. CIHI also produces a document entitled *Tables on Wait Times: A Comparison by Province*. However, it is impossible to determine to what extent provincial differences in wait times, as reported in that document, can be attributed to differences in definitions or constitute actual deviations (CIHI, 2009). CIHI (2009) also solicits research proposals on evidence-based benchmarks for the five priority areas.

According to CIHI (2009), the Canadian Joint Replacement Registry (CJRR) is a pan-Canadian registry that collects information on Total Hip and Knee Replacement surgeries performed in Canada and follows joint replacement recipients over time to monitor their outcomes, including revision rates. Other groups have also focused on developing knowledge about the outcomes of waiting. The Wait Time Alliance (WTA) was created in the fall of 2004. It includes members of the Canadian Medical Association and specialty associations related to the wait times matter and was created in response to physician associations' concerns about Canadians' access to health care. It has published a report with recommendations to governments and certain organizations on how to achieve the pan-Canadian benchmark for wait times and how to improve access to care. Each year, it publishes a bulletin on wait times that presents data on the country's accomplishments in that area.

Other organizations have been taking action in order to reduce wait times. For example, the Fraser Institute publishes annual surveys that report physicians' estimates of hospital wait times across the country. The WCWL released a set of maximum acceptable wait times in 2005. Bone and Joint Canada (BJC) is an organization leading other HCOs and individuals to improve access and quality of care for people with musculoskeletal problems across Canada. One of their accomplishments has been the attainment of consensus in regard to the National Core Model of Care for Hip and Knee Replacement Surgery and the development of a

Toolkit to guide implementation across the country. Certain organizations promote sharing on best practices, exchanging ideas on what experiences work. For example, the Taming of the Queue holds colloquia and the Association of Canadian Academic Health Care Organizations publishes reports in order to share WTMS used by their members (CIHI, 2009). Together, these organizations try to monitor and improve wait times in Canada.

A description of the provincial initiatives undertaken following this national initiative can be found in *Appendix 3*.

CHAPTER 6 - THE METHODOLOGY

This chapter summarizes, in five sections, the methodology used in this research to address each of the study's objectives. The first section explains the research team as well as my specific involvement in the study. The second presents the research design. The third explains the recruitment method and sample population. The fourth illustrates the method and technique for data collection. The fifth and final section explains how the data was analyzed.

6.1 The Research Team

The overall research project has been funded by the Canadian Institutes of Health Research (CIHR). The team is comprised of professors and students from universities in Alberta and Quebec, including the University of Calgary (Dr. Tom Noseworthy) and the University of Montreal (Dr. Marie-Pascale Pomey). It also includes Claudia Sanmartin**,** Senior Researcher in the Health Analysis Division at Statistics Canada, and Carolyn DeCoster, Director of Clinical Service Optimization and Data Integration at Alberta Health Services. As a masters' student in health administration at the University of Montreal, I was invited to participate in this study by Marie-Pascale Pomey. *As a participant in this study, I actively contributed by recruiting the various case study sites, going on-site to conduct the interviews with the participants, collecting and analysing the data and lastly, writing the final report. I also made sure to ensure a constant level of communication and collaboration with the research group.

6.2 Research Design

The study's research strategy is a multiple case study of three WTMSs implemented in Canadian HCOs with two embedded levels of analysis: contextual and organizational levels. By means of an in-depth analysis of organizations' and key informants' experiences implementing WTMSs for TJR surgeries, we analyze the tools, resources, cultural and governance factors linked to the success of these strategies and to the organizations' capacity to sustain wait times for hip and knees

below the federal benchmark. As Baxter and Jack (2008) explain, using qualitative case studies facilitates exploration of a phenomenon within its context using a variety of data sources. Co-researchers from the Western Canada Waiting List (WCWL) project reviewed and validated each step of the study. Direct quotes from interviews with key informants are used to support and to reinforce the credibility and verifiability of our results. Moreover, transcripts of the interviews were provided to the participants for their feedback. The information from those interviews was triangulated with internal documents from the three HCOs to validate the findings. Each site's main participant has reviewed the interpretation of data to ensure accuracy. Finally, the robustness of our conceptual framework supports the study's conclusions. For all these reasons, we consider the chosen research strategy to be appropriate.

6.3 Recruitment Method and Sample

6.3.1 Sampling

I decided to select three types of WTMSs for TJR that would be classified as sustainable, moderately sustainable and unsustainable, from three Canadian provinces. Bone and Joint Canada (BJC) and the Canadian Orthopaedic Association (COA) helped us identify these cases. With the information provided by these organizations, we were able to select the three cases.

6.3.2 Classification of WTMS

To select our three case studies, we needed a classification system. We developed this system in collaboration with the research group. Appleby et al. (2005) used three categories to define a WTMS's success: 1) successful – consistently low proportions of patients waiting over six months; 2) variable performance – some success in reducing the proportion of people waiting over six months but not sustained; and 3) unsuccessful – consistently high proportions of patients waiting over six months. Based on that study, we developed our own classification system:

1. Sustainable: WTMSs that have resulted in all patients waiting less than the federal benchmark of 26 weeks for TJR for at least 6–12 months within an 18-month period (April 2009–September 2010).
2. Moderately sustainable: WTMSs that temporarily reduced wait times to less than 26 weeks for TJR for at least 6–12 months within an 18-month period (April 2009–September 2010).
3. Unsustainable: WTMSs that failed to reduce wait times to less than 26 weeks for TJR for at least 6–12 months within an 18-month period (April 2009-September 2010).

6.3.3 Recruitment of health care organizations and key informants

To recruit HCOs, we consulted with BJC to identify hospitals in different provinces that would fit the type of WTMS we were looking for and to validate our

choices. Then, focusing on these HCOs, we analyzed the data from the various Health Ministries regarding wait times for HKR surgeries to determine whether they revealed initiatives that were sustainable, moderately sustainable or unsustainable. We then collected more detailed information on the initiatives themselves from various websites and articles. We contacted people from those HCOs via email to inform them we were interested in studying their WTMS; if they did not respond to our first email, we sent one to three reminders. Once contact was established, we obtained from them the name of the person to contact in order to apply for approval from the hospital's ethics board. To recruit participants, we also asked these main contacts at the HCOs to provide us with the names of surgeons and key informants involved in the initiative. In the end, we recruited our first case in Ontario. We recruited our second case in a metropolitan city in Ontario and our third case in Nova Scotia.

Our research coordinator (RC) managed the ethics board approval process. In each case, the main contact person at the HCO was designated the site Principal Investigator (PI) for ethics board purposes. Once the approvals were obtained, the RC asked the site PI to contact the other potential participants to inform them of the study. We then sent an email to each potential participant describing our study and asking them about the objective of the initiative, whether the status assigned to it in our classification system (sustainable, moderately sustainable or unsustainable) was accurate, and whether the site was exclusive to TJR surgeries, and to confirm the surgical volumes for HKR surgeries between April 2009 and September 2010. We then conducted on-site visits for a period of two days at each site.

When the data from each of the case study sites were reviewed and analyzed, all the data were combined and overall findings produced. The results of this data analysis can be found in chapters 8–10.

6.3.4 Ethical consideration

The project received a certificate of approval on October 14, 2010, from the University of Montreal research ethics committee. Ethics approval was also obtained from each hospital that agreed to participate in the study. Participants in the study

read and signed the consent form developed by the research team before their interviews. Participants were informed they were free to withdraw from the study at any time, before or after the interview, and that they could refuse to participate in the study entirely or to answer certain questions during the interview. They were also assured that the information they provided would remain confidential and that anonymity would be guaranteed during the collection, analysis and publication of the data. Finally, transcripts have been stored in a computer with a private access code, in a locked office at the University of Montreal. This database, which forms part of a larger study that includes three other projects, some of which are expected to continue until 2013, will be securely conserved for a minimum of five years to a maximum of 10 years from that time.

6.4 Data Collection and Materials

The primary data source consisted of semi-structured, in-person interviews with key informants; only two interviews were conducted by telephone due to participants' schedules. Interviews dealt with questions on factors that inhibited or enhanced the sustainability of WTMSs implemented in Canadian HCOs and the informants' involvement in these initiatives (see *Appendix 2 f*or the interview guide). Secondary data sources included pertinent documentation on the initiatives being studied, wait times between April 2009 and September 2010, and surgical volumes for that time period, as well as various sources and studies regarding the different WTMS.

6.4.1 Interviews

For the interviews we used a semi-structured format. The interview guide we developed was based on the previously mentioned study by Marie-Pascale Pomey (2009). The guide made it possible to translate one or more research questions into verifiable indicators. It was structured around our conceptual framework and covered the same four dimensions (governance, culture, resources and tools). The same interview guide was used for all participants. Unlike a questionnaire with closed questions, the guide was a flexible instrument that could be adapted to the nature of the case study, while the research question explained the content and nature of what

we were looking for. Thus, the questions could vary from one case to another. This guide could be applied to people involved in wait time management for HKR in a variety of settings: Health Ministry, hospitals or clinics. Our aim was to interview a variety of healthcare professionals at the organizational level, including the medical director, the director of operations, the orthopaedic OR chief officer, other orthopaedic surgeons and high-volume surgeons, healthcare professionals involved in triage or initial assessment, the person responsible for surgical bookings, as well as nurses involved in wait time management. At the contextual level, our aim was to interview participants working at the Ministry level whose role was to collaborate with the hospitals who put in place a WTMS. For data collection purposes, we planned to encounter five people per site for a total of 15 interviews; we ended up doing 24 interviews. For our first case study, we conducted nine interviews with the following participants: director of surgical services, post-operative nurse, chief of surgery, pre-operative nurse, orthopaedic surgeon, operating room coordinator, advanced practice physiotherapist, decision support manager and a responsible at the LHIN (Ministry level). For our second case study, we conducted eight interviews with the following participants: pre-operative coordinator, orthopaedic surgeon, operations director at the musculo-skeletal program, medical director, post-operative nurse, physiotherapist, booking clerk and a project manager. For our third case study, we conducted seven interviews with the following participants: two orthopaedic surgeons, two nurses, two managers and a decision support manager. Interviews lasted between 15 minutes and 60 minutes and were conducted in English. The interview guide contained six sections:

- Background
- WTMS/Policy at the provincial level
- WTMS at the site of the case study
- Implementation phase
- Sustainability phase
- Conclusion

The interview questions were originally drafted in French, then translated into English and re-evaluated in English by two key informants to test the validity of the interview guide. (See *Appendix 2* for the complete interview guide.)

6.4.2 Timeframe for Data Collection

The in-person interviews were conducted between June and November 2011. The three researchers who visited the case study sites were Marie-Pascale Pomey, a masters'-level student from the Faculty of Medicine who was specifically interested in the unintended consequences of WTMSs, and myself.

6.5 Data Collection and Analysis

The following section outlines how the data was collected and analyzed.

6.5.1 Data Collection

During the on-site visits, each interview was audio taped. One researcher asked questions while the others took notes. All interviews were transcribed by the same person and checked for accuracy by the site PI and myself.

6.5.2 Data Analysis

Content analysis was chosen as the method of data analysis. Content analysis is a research technique for making replicable and valid inferences from texts to the contexts of their use (Krippendorff, 2004). According to Neuendorf (2002), content analysis can be defined as the systematic, objective, quantitative analysis of message characteristics. Hsieh and Shannon (2005) defined it as a research method for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns. Huberman (1994) distils content analysis into three steps: data reduction, data displays, and conclusion drawing and verification. According to the author, data reduction consists of selecting, simplifying and transforming the data that appear in transcripts. Data can be reduced either through selection, summary or paraphrase. It is essential not to strip the data from its original context. The second major component of content analysis is data display. According to Huberman (1994), a display is an organized, compressed

assembly of information that permits conclusion drawing and action. The author adds that deciding on the rows and columns of a matrix for qualitative data and on which data should be entered in the cells constitutes an analytic activity. The last step, conclusion drawing and verification, is a dynamic process that begins when data starts being collected. As the researcher proceeds, he holds the conclusions lightly while maintaining a critical view of his preliminary conclusions. The meanings emerging from the data have to be tested for their plausibility, their sturdiness, and their validity (Huberman, 1994).

In our study, each transcript was read twice. We developed a color code used to draw squares around the verbatims according to themes. Once this was done, the data from each respective theme was extracted and placed into different files representing the factors in our framework (themes): contextual governance, contextual culture, contextual resources, contextual tools, organizational governance, organizational resources, organizational culture, and organizational tools. Sub-themes were associated with each theme and then the results were analyzed. This was done for all 24 transcripts.

CHAPTER 7 - RESULTS

The results of the three case studies are presented in the following three chapters. Each case presentation is organized according to the factors that influence the success and sustainability of the WTMSs implemented in three different Canadian cities, and includes excerpts from interviews expressing the opinions of various respondents.

In presenting the cases' results, we begin by describing the type of HCO involved, the province in which it is located, our classification of the case, the provincial wait time management initiative adopted, and the organizational initiative implemented at the HCO level. Then we present the organizational and contextual factors relevant to each case, as the interviewees perceived them.

As mentioned in our methodology chapter, the information gathered from the different interviewees was also validated by means of the many documents provided to us by the sites' participants, including published articles, balanced scorecard templates, wait time monitoring templates, wait time data, and so on.

CHAPTER 8 - CASE 1

8.1 Description of the case

8.1.1 Type of health care organization

This HCO is a community teaching hospital that offers acute medical and surgical care to a North-western Ontario population. They collaborate with different HCOs in the region to offer care to a demographically diverse population. There are 375 acute care beds in the hospital. The ER receives 95,000 visits per year.

8.1.2 Classification of the case

Originally, there were supposed to be five interviews but over the course of the on-site visit, nine interviews were conducted in total. We had classified the initiative as moderately sustainable based on the wait time data available from the Health Ministry's website. In fact, we found that the average wait time for hip replacement surgeries was at 135 days between April and June 2009, while it was at 181 days between July to September 2009. From April to June 2009, the average knee replacement wait time was at 232 days, while it was at 278 days from July to September 2009. Based on our classification system, we considered the case to be moderately sustainable because they had been able to maintain wait times within 26 weeks for six months during the April 2009–September 2010 period for hip replacement surgeries. However, once we were able to get and review the monthly wait time trends for April 2009 to September 2010 from the HCO's financial specialist, it became clear the initiative was in reality an unsustainable case. In fact, wait times for hip surgeries ranged from 113 days to 285 days between April 2009-September 2010. Wait times for knee surgeries ranged from 170 days to 356 days from April 2009-September 2010.

8.1.3 The Provincial Wait Time Management Strategy

As a result of the national Wait Time Strategy declared by Canada's First Ministers in the fall of 2004, the Ontario Ministry of Health and Long-Term Care invested 410 million dollars on May 18, 2006 for additional procedures, including 43,850 cataract surgeries, 18,210 hip and knee replacements, 16,650 cardiac procedures, 11,260 cancer surgeries and 182,700 MRI scans (Ministry of Health and Long-Term Care, 2006). Most of Ontario's 14 Local Health Integration Networks (LHINs) decided to implement initiatives to reduce HKR surgery wait times. Their role was to work with the Ontario government, local health service providers, community agencies, residents and others to ensure a well-coordinated system of health services. They established accountability agreements with HCOs that specified expectations regarding outputs (e.g. access requirements, websites, and provincial access targets) and short-term outcomes (clear roles and responsibilities and performance measured against expectations) (Solomon, 2006).

8.1.4 The Hospital's Wait Time Management Strategy

In response to the national WTMS, this regional hospital decided to create its own Regional Joint Assessment Centre (RJAC) in January 2009. In this RJAC, an advanced practice physiotherapist (APP), a physiotherapist specially trained to manage patients with hip and knee arthritis, triages and screens patients and arranges a consultation with an orthopaedic surgeon if needed. This is usually done within two to four weeks after receiving the referral. The APP sees the patients for follow-up assessments after surgery. If patients are not fit for surgery, the APP offers them conservative management treatment options and provides education, exercises and referrals to physiotherapists, nutritionists and other healthcare providers. According to Larmour (2011), GPs from across the territory refer patients to the RJAC and are kept in the loop through timely reports. To further expedite the process, GPs and patients may opt for the first available surgeon rather than their surgeon of choice. In terms of surgical volume, the hospital performs approximately 650 cases per year. The surgical unit consists of 10 beds located in one surgical unit; it is staffed by

nurses, physiotherapists and occupational therapists with the knowledge and experience necessary to offer HKR patients a high quality of care.

A hip and knee care pathway had also been developed, prior to the RJAC, in July 2007. According to this pathway, in the pre-operative process patients are separated into three groups according to the expected length of stay (LOS) and level of care they will need. Patients in the fast track can expect to be discharged two to four days after surgery. Patients in the average track generally leave the hospital on the fourth day. Patients in the slow track are transferred to a regional rehabilitation centre on day two. The hospital website offers information booklets on Total Hip or Knee Replacement (THKR) surgeries as well as guidelines on activities, although in actual practice, these varied depending on the orthopaedic surgeon who operated the patient.

8.2 Factors that influence the WTMS's success and sustainability

8.2.1 Contextual Governance

Since the implementation of the WTMS, the provincial Health Ministry guaranteed that hip and knee surgeries would be done within 182 days. To achieve this, the Ministry designated a person at the LHIN to monitor implementation of the strategy in HCOs. Thus far, in this case, the LHIN has clearly taken its job seriously.

> *The LHIN has set a target for us which is the same as the Ministry's target, essentially 182 days. We haven't set an internal target. We're struggling to do 182 days so… we have a demand that makes it difficult for us to keep up with the supply of service so... it's been a challenge for us to get to 182 days on a consistent basis. (I.9.)*

Accountability agreements were signed between the LHIN and the HCO specifying the agreed-upon goals. Consequently, the LHIN expected the organization to give them regular reports, including data on how the hospital was performing.

> *We don't micromanage the providers and tell them specifically what activities to undertake. They're basically required to meet the accountabilities in their agreements so... there is an accountability agreement there that specifies that […] they have to hit... 182 days is the number for wait times, and basically whatever reasonable activities they need to undertake to do that is up to them. (I.3.)*

The LHIN also tried to be involved, without micromanaging the team, in the co-ordination of certain activities the hospital wished to implement to reduce surgical wait times. An example of this was helping the team implement care pathways.

Certain differences in opinion, however, caused some friction between the LHIN and the orthopaedic surgeons. For example, the LHIN did not recognize the benefits for the team of surgeons to hire an APP.

> *When we went to the LHIN […] this is what their perspective was: "Why are we doing something that's going to help the doctors? This is simply doing a doctor service." (I.6.)*

> *A large percentage of the problem is related to their perception that they were providing a service that was covering surgeon overhead and that, "Why would we be doing something like that? Surgeons have to pay an overhead for their office, why shouldn't they be hiring these people?" (I.6.)*

As a partial response to this debate, the Health Ministry conducted its own evaluations with an independent evaluator of certain aspects of the WTMS in order to determine how well it was functioning.

On another note, the orthopaedic surgeons were given the opportunity to participate in the hip and knee working group created by the Health Ministry right before the strategy was implemented. This allowed the HCO and the LHIN to get the strategy up and running. Since its debut, the organization no longer participates in the working group because both parties feel it is no longer relevant in order for the organization to function successfully.

> *I was on the hip and knee working group with the LHIN when […] these discussions first started in 2007/2008. Since this program started up and [is] running we no longer have those working group meetings, we just don't need them. (I.8.)*

Another stakeholder, the Ontario Medical Association (OMA), also became involved. However, their involvement revolved around opposition to a request from the LHIN that each orthopaedic surgeon's individual wait list be made public. This opposition made orthopaedic surgeons' involvement that much more difficult, according to the hospital's decision-support manager.

> *The wait time system as it was originally conceived in Ontario was expected to publish individual physician wait times. […] the Ontario Medical Association got involved and forced the province to back down from that, which is unfortunate in many ways because it's made our job of engaging physicians much more difficult (I.9.)*

Lastly, the LHIN is responsible for ensuring the organization receives the funding needed to increase surgical volumes and for monitoring whether this leads to reductions in wait times. For an organization to get the funding, it needs to show the LHIN specific data about its wait times. If the LHIN does not see an improvement, it can choose to withdraw the funding.

> *The LHIN got really upset about our wait times probably about seven months ago because they had been funding and they weren't seeing improvement, and I was trying to tell them, well we're doing our volumes so[…] what do you want us to do? So it's a bit back and forth, useless […]. The only way they're going to give us money is if they see what they think are results. (I.1.)*

The problem with this is that the funding received is to increase the volumes. However, increasing volume does not necessarily reduce the wait list. Once the organization has achieved its target in terms of volume, there is not much else it can do to reduce wait times. These two goals are not always easy to pursue at the same time, according to certain interviewees.

8.2.2 Contextual Resources

The main factor that had an impact on the program's sustainability was the external funding they received, as previously mentioned. In this particular case, the amount of funding was approved by the Ministry and given to the HCO by the LHIN. This point was raised in all the interviews conducted at this site. The problem did not lie in the base funding the program received from the hospital, but rather in the incremental funding received yearly from the LHIN. This amount was negotiated each year between the LHIN and the hospital's surgical director. Together, they determined the following year's surgical volume based on the current queue and the surgical team's capacity. Because the HCO in this case was associated with teaching activities, they received the academic funding rate for hip and knee surgeries. Since funding was re-evaluated yearly, there was no guarantee the program would receive funding from one year to the next.

> *Each year we provide one-time funding to the hospitals to perform incremental cases above and beyond their base volumes […]. The LHIN is responsible for funding the program. It does not take any responsibility for the actions taken by the organization or the obstacles they face in trying to respect their accountability agreements and ultimately, their goals. (I.3.)*

> *For 2010/11 they were funded for[…] 545 or 585, I'm not sure, cases is what they had as a base. Basically they were funded for 700 cases total last year, so they're expected to do a certain volume out of their base volume, so the hospital covers that through their global budget, and then they get incremental funding for the difference. (I.3.)*

In theory, the principle is simple. If a program receives increased funding to increase volumes, more surgeries will be done to clear the backlog, which may cause

increased wait times at first. However, there has been back and forth tension between the LHIN and the HCO on this matter.

> *In an ideal steady-state environment, if there was an increase in volumes, you would see wait times drop, but in many cases there's actually an inverse relationship because […] the wait time isn't measured until the procedure is done. So I often say on a lot of these indicators that it's going to get worse before it gets better. (I.3.)*

There had been an apparent improvement in the way the funding had occurred in recent years. Initially, the funding needed to be negotiated and reallocated every three months; this was now done on a yearly basis. However, the HCO still faced the risk of having a deficit because of the way the Ministry funding was structured.

It was clearly very important for the HCO to establish a good relationship with the LHIN to be able to negotiate additional resources when needed. In fact, an important factor seemed to be the trade-offs that the organizational level was willing to make to get additional resources from the contextual level.

> *So we were funded for initially 630, so once I got to the point where… I knew 630 wasn't going to be enough to keep the wait times to where the LHIN wanted them, I started making deals with the LHIN and saying: Okay, we need more resources; give us more money and we'll try to drive some changes […] even though I don't see that being directly relatable. I'd see the average wait time being more relatable to the number of cases you're doing than this 90th percentile number that the government uses. (I.1.)*

It seems that despite the HCO's best efforts to achieve its goals and to report to their direct authority, the LHIN, they risked seeing their budget reduced due to certain political events. In fact, it seemed that the funding level could vary according to who was in power at the Ministry level.

This lack of alignment between perceptions at the contextual and organizational levels in relation to funding could have unintended consequences. In fact, actors at the organizational level could decide to do the opposite of what they were required to do, for fear of losing their funding if they were doing too well.

Apart from the funding from the LHIN, the program also received funding from an external source to kick-start the initiative, Healthforce Ontario. Healthforce Ontario is a collaborative initiative involving Ontario's Ministry of Health and Long-Term Care and Ministry of Training, Colleges and Universities. However, this funding was not sustained beyond the first year of the strategy's implementation. As for the RJAC, it was funded from the hospital's annual budget from the Ministry. The

reason the Ministry had funded this initiative so far is because they were trying to prioritize activities aimed at reducing wait time 1. Although some interviewees mentioned that the cost of funding the RJAC program, including the APP's salary, was quite high, it was still one of the least costly assessment centres operating in the province. The situation was the same as with the wait times funding, in the sense that there was no guarantee they would continue receiving funding from one year to the next. This uncertainty regarding the recurrence of funding has created an important level of tension among the team around the fear of losing that money.

8.2.3 Contextual Culture

There were contextual culture factors mentioned throughout the interviews. Public awareness was not really taken into consideration at the contextual level. Of course, wait times data was available to the public, mainly through the provincial Ministry website giving the public access to information on wait times per hospital. However, because these wait times could be due to more than one thing: backlog, surgeon's popularity, etc., patients may not have been able to interpret this data adequately. Little work went to explaining the data to the public.

> *The public doesn't see these kind of things, but the problems make it the public's problem, or the hospital's problem by saying the hospital will manage its wait times. We can manage volumes, but we can't necessarily manage physician lists. (I.6.)*

Effective communication between primary and secondary care was made possible by certain professionals' commitment. In fact, the APP responsible for the RJAC put enormous effort into teaching GPs how to assess patients and refer them to the RJAC, did marketing to the public, gave presentations, engaged with the media, and did mail-outs to the GPs. In addition, this APP sent GPs updates on how many patients were seen at the RJAC, what the wait times were and how many patients went on to surgical consultations. However, this was no easy task to accomplish and it has been an ongoing process.

> *So we did marketing to the public and to the family physicians to redirect referrals to one central intake, being the Regional Joint Assessment centre, so that you've got one point of contact for entry into the system. Now there are still family doctors that continue to refer to the orthopaedic surgeons, and most of the time the orthopaedists will pass the referral on to the physiotherapist. (I.8.)*

> *It's difficult to tell a practitioner – a medical doctor – that they're going to send their patients to a physiotherapist and the patient's going to get more information than the medical doctor's going to give them. So that takes self-awareness on the part of the family physician that's not common. (I.6.)*

An important contextual factor was the fact that the LHIN made an effort to work with the physicians and managers at the organizational level, as previously mentioned. This participative approach between these two parties was seen as a positive factor reflecting a culture that promotes innovation at the organizational level.

> *If they're trying to implement specific strategies or pathways or that sort of thing, then we'll work with them, but […] we don't generally tell them "you have to operate this way" or "to use this type of...", whatever clinical practice or whatever; that's really to the discretion of the hospital. (I.3.)*

8.2.4 Contextual Tools

There seemed to be a lot of difficulty in regard to how the province measured, and therefore, collected data on wait times for surgical procedures. This seemed to provoke strong reactions among personnel and managers at the hospital. In fact, looking at the 90th percentile of wait times for hip and knee surgeries may not give the full picture. The Ministry asked HCOs to measure the 90th percentile because they wanted to know how long the longest-waiting patients were waiting. The 90th percentile wait time means 90 % of the people admitted to hospital are admitted by this time, i.e., a 90th percentile wait time of 10 weeks means that 90 % of patients admitted were admitted within 10 weeks of going on the list. However, when 700 procedures are done in year, looking at the 90th percentile is essentially looking at the longest-waiting 70 patients. On a quarterly basis, this means they are evaluating 15 or 20 patients out of the 700 patients operated on during the year. To counterbalance this way of collecting the data, i.e., having to look at the 90th percentile guideline established by the Ministry, interviewees stressed the need to look at the 'big picture'.

> *I see so many problems with the way they measure wait times and the way that all of that was rolled out in the province of Ontario (I.3.)*

> *It's just crazy because they're measuring the wrong things. They're measuring what they think they should be measuring but it just doesn't make any sense! (I.1)*

> *[…] talking to the providers, I'll say "Let's look at the 90th percentile, but let's also look at the entire picture." I generally like to have […] the distribution curve... and then you can really see what's going on there. If you have every case logged in a distribution curve you can see a more meaningful picture. (I.3.)*

8.2.5 Organizational Governance

Analysis of the governance of the organization yielded a few observations. The first was the fact that two key individuals exercised significant organizational leadership. In fact, the director of surgical services and the APP acted as instigators for change. It was also interesting to see that the director did not have a clinical background. He was therefore able to bring his own expertise from his accounting and management background, and get the clinical input from his colleagues.

> *We were a little sceptical when it first happened… I mean, the director of surgical services used to work beside me, and he was just the analyst for the surgical services, and then the director job became open and they filled it with him. So everybody kind of went, "Okay, so he's got no clinical background but he's running the place." But it's worked out really well and he knows […] that he doesn't have the clinical background, and he's not afraid to ask. (I.7.)*

Second, it was interesting to learn that no new governance mechanisms had been created in relation to the implementation of the WTMS. The current committees already existed prior to implementation of the strategy. There was the Surgical Executive Team, responsible for business decisions, time allocation and physician engagement programs. Another committee was the Surgical Care Team, essentially responsible for nurse practice issues, patient-centred issues, policy-making and reporting. There was also a board-level Quality Utilization Committee, where the wait time data was now reported. Another quality committee had been disbanded a few months before our visit, according to the decision support manager. Lastly, the lack of involvement on the part of the hospital's CEO with regard to reducing surgical wait times was not helpful for the team. In fact, it was evident that the staff thought wait time reduction was not a priority for their CEO.

It should also be mentioned that the hospital had established an effective partnership with the regional rehabilitation centre. In this respect, the clinical pathway created for the strategy allowed for continuity of care. If ever the staff from the rehabilitation centre had questions about specific matters, they could simply get in touch with the patient's surgeon at the hospital.

We do have orders for the regional rehabilitation centre we partner with. That pathway that we send with the patient, sometimes they're filled out by the physicians, sometimes they're not, but they follow the patient to the regional rehabilitation centre regardless of whether they're written on or not. (I.2.)

8.2.6 Organizational Resources

With regard to organizational resources, there initially was a shortage of human resources during the implementation phase of the strategy, which seemed to have been resolved over the past three to four years. Hiring more healthcare professionals, especially nurses and anaesthesiologists, provided more stability with regard to human resources, and consequently, helped increase surgical volumes. However, a more recent problem has been to deal with the upcoming retirement of anaesthesiologists.

In a community like this there's always a pendulum. We either have too many anaesthesiologists, not enough anaesthesiologists, too many nurses, not enough nurses. (I.1.)

So we had to hire some nurses, but the first thing that we did was we went into trying to increase the number of multi-joint days that were done. (I.6.)

It looks like we're probably going to lose up to three anaesthesiologists this year, maybe another two next year due to retirement. So to me that's the biggest threat right now. (I.1.)

Luckily, the HCO's university affiliation provides a steady source of additional surgeons through the university's medical residency program. Students who have done a residency program in surgery and anaesthesiology have a higher chance of working at their training hospital once their residency is complete.

The most critical factor in accomplishing the goal targeted by the strategy—reducing wait times—centred on whether the program would continue to receive proper and constant funding from the Ministry. Moreover, as previously mentioned, the funding was essentially focused on increasing the surgical volumes and not necessarily on reducing surgical wait times.

They think that once they have solved the wait time problem, they should cut back the funding, because now it's not paying for anything, right? It's just stupid, I don't know why they think this way, but they do. You can't pull the funding, because as soon as you do, all the resources get pulled and then the wait times start to grow again. I mean…it makes perfect sense. (I.1.)

Another problem seemed to be budget shortfalls in the first years of the strategy's implementation. Due to the team's efforts, they were able to justify getting ongoing funding from the hospital by demonstrating the benefits of accomplishing

their targets and getting additional funding from the Ministry. Despite these best efforts, this year the program experienced its first deficit in five years.

On another note, the available infrastructure was an important element of the strategy in this particular organization. Significant capacity-related issues were mentioned. Although there was a sufficient number of ORs, with 12 OR theatres for seven orthopaedic surgeons, the utilization of OR rooms was not as efficient as it could be, such that certain surgeons would spend half their day sitting in the lounge watching TV when they could have been performing four or five more surgeries that day. One surgeon proposed that all the surgeons could do a "surgical blitz", either by running double OR rooms exceptionally or by asking the booking clerks to book time for orthopaedic surgeons when other types of surgeons did not need the OR time. However, this was not a sustainable solution because it was too resource-intensive. For one surgeon, the answer was simple: extend arthroplasty days by 25 % to 30 %. The problem with that surgeon's plan was that other healthcare professionals would also have had to extend their work time by 25 to 30 %.

> *The barriers to that are anaesthesia and nursing. So no matter what kind of practice they choose to run, no matter how slow they are, no matter how unwilling to work late they are, we don't have somebody to replace them, so they can basically act any way they want to! (I.6.)*

> *If we had a free room we would run a double room during the week. So that means I had two sets of staff ready to go, so that as one was setting up, he was operating in the other room so… a lot of our numbers came from double joint days. That's what we called it: double joint days. (I.7.)*

Proper organization of the operating schedule according to the complexity of the cases also helped maximize surgical capacity in this case. However, some interviewees mentioned difficulties around efficient bed management and utilization. The fact that few beds were reserved for orthopaedic patients was, according to some surgeons, a negative factor that hindered proper planning of surgeries. One common problem was that poor bed management caused a lot of surgical patients to be hospitalized near the end of the fiscal year, when surgeons were under pressure from management to reach the volume target. Unfortunately, since this was also flu season, these patients were more at risk of developing nosocomial infections. Proper bed

management would encourage a higher number of surgeries to be done in the summertime.

> *There's really not a good way to manage beds, because all of a sudden you come in and you have eight joints plus whatever else was going on. So we've been struggling... My perception is that's not the right way to do it. If you allowed an orthopaedic surgeon to get to another hour and a half, then he would definitely do six primaries in a day, and […] that's completely sustainable. (I.6.)*

> *We could do more. There's no question we could do more... and I think, to do that, the steps are going to be beds that are pure arthroplasty and that nobody other than a primary well patient goes into it. So our bed management needs to improve for us to be able to do this. So we need Saturday and Sunday physiotherapy at the same level as normal. (I.6.)*

However, this type of surgical capacity increase would also require further structural changes, such as having seven-day-a-week physiotherapy and staff to co-ordinate regional patients' discharges.

Lastly, the informational resources used by the team essentially consisted of internal wait time reporting sheets. The healthcare professionals, as well as upper management, review the wait times on a monthly basis in order to get feedback and to be able to act accordingly.

> *We've been doing it at least for three or four years now for the wait time data. So we review the wait time summary data with the board every month and provide a written report, sometimes monthly but more often quarterly, it depends whether we have enough content that's changed to make it meaningful. And then we actually have more of an operational quality committee; we used to call it our quality and utilization management committee. It's comprised of managers and directors and physician leads from various areas, and we would review our wait time data at length with them as well. (I.9.)*

8.2.7 Organizational Culture

A first observation regarding the organizational culture was that the surgeons appeared to exercise significant authority over the entire team of healthcare professionals. For the surgeons to become involved in the initiative, they first needed to see that the initiative would benefit them and their patients in both the short and long terms.

> *Physicians are independent practitioners, they're not employees of the hospital, so unless you're partners with them and doing some of these creative collaborative things and getting them on your side, you can maybe get some traction but otherwise… there's no incentive. (I.1.)*

Second, one surgeon's leadership was also a contributing factor in that organization when it came time to implement concrete interventions for the WTMS. In fact, he essentially sold the idea of change to his colleagues and created a sense of

urgency. He was able over time to motivate his colleagues to take part in the strategy. As one surgeon put it, the team had achieved what it had because it remained focused and determined.

> *The orthopaedic surgeon's forcing the change, because he believes in the program, and everyone tied to his clinic is the same, so he's sort of the managing partner of the orthopaedics organization. (I.1.)*

Third, there was an evolution in the culture, which went from being very hierarchical and fearful of change to one based more on innovation and trust. To achieve this meant navigating a long and sometimes difficult road. Initially, there was a negative subculture between surgeons and nurses that could have been a negative factor in terms of establishing a participative culture. In fact, interviewees used the term "adversarial", and some nurses even felt as if they were working for the surgeons rather than working for the opportunity to provide more surgical care to the community. A similar adversarial subculture existed between surgeons and anaesthesiologists. In fact, the underlying root of this animosity between professionals was the work team's negative perception of surgeons' intentions. They believed the surgeons' sole aim in this initiative was to make more money by doing more surgeries. What seemed to bring together nurses, anaesthesiologists and surgeons was the influence of the director of surgical services, who was impartial and had a neutralizing effect on the tensions between these professionals. Over time, a culture has evolved built on trust, collaboration and commitment for the common good.

> *I'm not a nurse or a surgeon. I came in and said, well, this doesn't really make any sense. We need to work together. So… over the years we've really improved that. It was very adversarial before; nobody was listening to the other side of things (I.1.)*

> *I keep trying to tell people that if an orthopaedic surgeon doubled his income, his lifestyle wouldn't change. They already earn enough to live the way they want, even at half their income […] so it really is, from my perspective, silly... It's a silly argument, but it is unfortunately a very real barrier and probably the biggest barrier for co-operation in the operating room. (I.6.)*

> *I think the culture is much better in the OR than it was when we first came here, and there's a greater sense of cooperation for the common good. (I.4.)*

8.2.8 Organizational Tools

The total knee and hip clinical pathway adopted in July 2007 was a collaborative effort to standardize patient care among nurses, physiotherapists, as well as orthopaedic surgeons. The pathway consists of three different paths: the slow track, the regular track and the fast track. These tracks are a way of orienting patients according to how long they are expected to take to recuperate after their surgery. For example, the regular track means the patient will go home four days after surgery. The fast track means the patient recuperates quickly enough to go home two days after surgery. Lastly, the slow track means the patient is transferred to the regional rehabilitation centre two days after surgery for an eight-day rehabilitation. Because of this, the program has progressed toward a process-based organizational design. In fact, this pathway specifies the goals of the orthopaedic surgeons' treatment and the order and timing of interventions necessary to attain these objectives with optimal efficiency. Furthermore, the pathway has fostered continuity of care beyond the confines of only one department and has led to an optimization of work processes.

> *[…] not everybody's going to follow the same pathway as everybody else. You have to make allowances for that, every case is different. The pre-admission clinic does have a checklist of things that have been done pre-operatively for the patient and things that are missing, and that goes on the patient's chart when they're seen in pre-admission clinic and it transfers over to surgical daycare so that they see what's still missing off of the chart. So that's where that communication goes, and then the patient [is] sent from surgical daycare to the OR, to recovery, and then to 3A. (I.2.)*

Nurses working with the tool perceived the pathway as an added task at the beginning of its implementation. However, once they had gotten used to using it, they saw an improvement in their work.

> *When we first started the pathway it was difficult, because, you know, it's not just a set of orders. Like being a surgeon if you're doing an appendectomy, you write the orders, you've got about that many orders to follow, like maybe […] eight to ten orders. This […] is four pages of orders, and at the beginning it was quite overwhelming because you felt that you're responsible… (I.2.)*

Not only has the hip and knee pathway been beneficial to the team of surgeons and nurses working on all levels of patient care, but it has also been an incentive, influencing other areas of care to develop their own pathway.

> *I think it has been a catalyst. I think they've gone into other clinical pathways now for cardiac patients and things. (I.5.)*

On another note, the wait time data collection, before 2004, had been the responsibility of a surgical manager who was basically trying to manage this in her spare time. Having a background in nursing with no formal training in IT systems, she lacked skill in data or computer systems. Then the decision support manager took over this responsibility, and his passion for data collection was evident. His strong background in IT was a facilitating factor for him.

The initial wait time system used by the decision support manager and the IT department was a province-based wait time system software. However, they quickly realized the data collected was of poor quality, and a lot of manual manipulation and extraction of data was needed to compensate for this problem. In fact, this led the decision support manager and the IT team to use it only for simple data. They did, however, use another provincial tool provided to them called Iport. They also decided to transform the existing tools into their own, using Excel. The decision support manager mentioned that the WTMS' outcomes are also included in the organization's balanced scorecard. He and his team also get involved in the overall organizational scorecard in various components of reporting for the organization.

> *So we were asked to take it on and we've been doing that ever since. We work with our IT – our information technology, our information systems department – when we make changes or when we ramp up and add new functionality to the wait times reporting system. But for the most part we handle the day-to-day operations of the reporting of results and we work very closely with our surgical team. We actually work on the data side and on the reporting side. (I.9.)*

> *We have an internal score card, and we do some of the reporting that […] rolls up into the Ontario hospital report, but we also get involved in the overall organizational score card, in various components of reporting for the organization. (I.9.)*

With regard to data collection, an important factor was that the group of orthopaedic surgeons resisted entering their own data in the system, even though they had received the proper training to do so. Because of this, the data quality was poor and the organization was unable to produce accurate results.

> *They're not really big fans of the wait times system or the requirements under them. So the quality was poor, the data… the reporting was inconsistent, and there were some accuracy issues, so we started to streamline the reporting, started to feed the data back to our surgical group. (I.9.)*

> *We've kind of made significant improvements in data quality but also on physician engagement and trying to figure out how we can achieve some improvements. (I.9.)*

Although clerical staff were also trained in data management, the problem of poor data could also be explained, in part, by the high turnover of clerical staff in the hospital.

> *There is a fair bit of turnover among physician clerical staff. They're not paid particularly well, so they're making… 13 maybe to 17 dollars an hour. Our clerical staff at the hospital here would make 20 to 25 dollars an hour, so whenever we post a clerical position in the hospital we'll get a flood of applications from physician offices, from their staff […] So it's hard to keep staff in those positions, and that means we're always training. (I.9.)*

On a positive note, being able to understand the data from the wait time trends has helped managers plan better strategically and has made professionals more aware and accountable for their daily actions. To help the team better understand the collected data, which can be somewhat overwhelming at times, the person in charge at the LHIN has worked with the team of professionals on how to improve data collection and interpretation.

> *The director of surgical services is looking at the wait time data as a tool to be able to assess where we need to put more OR time […] (I.9.)*

> *We've now provided the data in a framework that they can start to understand what the trends are, what's happening, and start to make some strategic decisions around where they're going to put additional OR time, who needs it badly. (I.9.)*

> *They had so many priorities there. It's just staying on top of the data and staying on top of the information and looking at it all the time. Because it can get away from you very quickly... they've done quite a bit of work there. (I.3.)*

According to the decision support manager, another possible issue related to electronic information systems is that no integrated regional data system exists at this time. Although this problem has been brought to the attention of the LHIN, nothing has been done about it. Such a system would facilitate electronic referrals across the region from physician to physician.

> *We don't have a single system right now. I mean we've kind of been talking to our LHIN about what some of the advantages might be at establishing a regional system where we could rely on referrals to happen electronically from physician to physician. (I.9.)*

Additionally, there is no internal performance-recording tool yet, although the decision support manager and his team are actively working on one.

> *We don't have [an] internal performance recording tool yet. We just bought a brand new administrative suite of applications, finished the implementation a little over a year ago. We were not happy with the performance tools that came from the vendors, so we actually chose not to buy them. So we're looking now for an additional product which will allow us to do*

> *what we think we need to do for performance reporting, score carding, dashboards, and that sort of thing. (I.9.)*

Finally, patient satisfaction surveys were administered to patients to assess how useful the RJAC had been for them. The development of this tool was the APP's initiative.

> *We were able to do an internal rate of reliability study, a patient satisfaction study, and all of that. We were able to use that evidence to the Ministry to support our program. That's what got us off the ground. (I.8.)*

Table 1
Organizational factors that impact WTMS success and sustainability

Organizational Governance	**Organizational Resources**
- Strong managerial leadership from director of surgical services - Inter-organizational partnership with rehabilitation centre - No new governance structures developed	- Shortage of human resources during the implementation phase of the strategy - Upcoming retirement of anaesthesiologists - Inefficient use of OR
Organizational Culture	**Organizational Tools**
- Physician Leadership ++ - Trust + - Important clinical governance by surgeons and manager - Physician buy-in not easy initially - Negative subcultures among surgeons, anaesthesiologists and nurses - Evolution from culture based on hierarchy and fear to innovation and trust	- Information technology - Reporting to the LHIN - Hip and knee clinical pathway - Training for surgeons on data collection - Lack of involvement from the surgeons for data entry - High turnover of clerical staff

Table 2
Contextual factors that impact WTMS success and sustainability

Contextual Governance	**Contextual Resources**
- Benchmarks - Accountability agreements - High level coordinating, reporting, monitoring structures - Stakeholder engagement: OMA	- Funding from the government - Funding reassessed yearly - Tension between the hospital and the LHIN in regards to funding
Contextual Culture	**Contextual Tools**
- Collaboration between organizational and high levels has improved with time - Public awareness + - Improvement of consultation with front-line actors due to APP's commitment	- Standards and Guidelines + - Difficulty with how the province measures, and therefore, collects data on wait times for surgical procedures - Provincial website presents wait time data - No central registry

In the end, this case can be summarized by certain elements that truly make it what it is. The initiative was lead by a few people, namely one orthopaedic surgeon, the director of surgical services and the APP. Their leadership allowed the initiative to take off. This also contributed into making the culture progress from its

hierarchical nature to something more based on trust and collaboration among colleagues.

The LHIN has tried to be involved in the initiative by supporting the team but without micromanaging them. Nonetheless, certain members of the team have had difficulties in understanding how the province measures wait times and how they finance them on a yearly basis to increase their hip and knee surgical volumes.

In order to improve care, the APP has improved the communication and collaboration with family doctors in the community in order for them to know how to refer their patients to the RJAC. The hospital has also been able to establish a partnership with the regional rehabilitation center.

The clinical pathway developed by the team has helped them to insure continuity in the care they offer as well as the care offered by the rehabilitation center.

Nonetheless, their bigger obstacles have to do with capacity. They have dealt with a shortage in human resources at the early stages of the initiative, which have progressively been able to solve. Oppositely, they have had a difficult time with OR scheduling and management of post-operative beds up until now. It is something they are still trying to improve. In regard to the IT system they are using, it is a province-based WTIS. Over time, the decision support manager has tried to tweak it in order to make the data collected more valuable for decision-making. Overall, the team is conscious of their weaknesses and working on making the program better.

CHAPTER 9 - CASE 2

9.1 Description of the case

9.1.1 Type of health care organization

The HCO in this case is a satellite hospital centre that operates at a different location than the main regional hospital with which it was merged 10 years previously; the main hospital offers acute medical and surgical care to patients in a metropolitan city in Ontario. The satellite hospital focuses primarily on hip and knee surgeries (assessment of hip and knee related problems, education, joint surgeries, rehabilitation) and accepts patients from outside the city. In fact, the current volume for hip and knee surgery is 2,100 cases per year. The satellite site's budget is protected in relation to activity at the main site.

9.1.2 Classification of the case

We classified this case as sustainable. We conducted eight interviews of up to 60 minutes each. Thanks to the centre's project manager, we were able to confirm that wait times for all hip patients were less than 26 weeks, in accordance with the federal benchmark for TJR, for all 18 months between April 2009 and September 2010. In fact, the wait times for that period ranged from 83 days to 166 days. As for knee replacements patients, wait times were less than 26 weeks for nine consecutive months between April 2009 and September 2010. In fact, wait times ranged from 95 days to 235 days.

9.1.3 The Provincial Wait Time Management Strategy

This case is located in the same province as Case 1. Therefore, the provincial WTMS described in Case 1 applies also in this case.

9.1.4 The Hospital's Wait Time Management Strategy

In response to the provincial initiative, this region's LHIN created a Joint Health and Disease Management Program (JHDMP) Steering Committee to

implement a comprehensive program for effective management of patients needing hip and knee replacement surgery across the complete continuum of care. A standardized model of care for arthritis was established that promoted local planning, consolidation of primary care, and optimization of current resources and expertise. The Hip and Knee Replacement Program (HKRP), launched in May 2007, was created to reduce wait times for TJR in the region. Most of the development and pilot work was done at this satellite centre. The model, named the Central Intake and Assessment model, focused on the surgical component of the overall JHDMP, from the initial referral through discharge and follow-up. Its major component has been the APPs. Their role was initially introduced in 2006 at the site and then expanded beyond (MacLeod et al., 2009) after the Ministry launched the Health Human Resources Strategy to create innovative and extended roles to meet human resource needs (Robarts et al. 2008). According to MacLeod et al. (2009), these APPs triage patient referrals, conduct comprehensive physical screening, provide education, and recommend treatment. Physiotherapists are more likely to suggest comprehensive evidence-based actions, like exercise and weight loss, as well as to refer patients to other professionals such as occupational therapists and social workers (Glazier et al. 2003). After surgery, APPs conduct patients' follow-up appointments. They are also allowed to order diagnostic tests on behalf of the orthopaedic surgeons under specific conditions, as well as to play a role in communication, decision-making and patient management. Algorithms for clinical decision-making were also developed. Practice-based development programs were designed and formal training was provided (Robarts et al. 2008).

The HKRP was used as a pilot for development of the provincial wait time information system (WTIS). The WTIS is, to date, able to report on wait time 2, i.e., the period from the date of decision to treat to the date of the procedure. The referral tracking system tracks and reports on patient waits from the date of referral to the date of the first consultation with an orthopaedic surgeon (wait time 1). This system was developed by the satellite hospital's IT department in partnership with its care team and a division of the provincial Health Ministry. Methods to improve workflow for hip and knee surgery were also developed that included four initiatives:

anaesthesia block-room opportunities, pre-admission improvements, a two-OR model, and an OR scheduling algorithm to improve the bed count. Ultimately, this produced a "tool kit" offered as a knowledge transfer tool to hospitals wishing to improve their surgical performance (MacLeod et al., 2009).

9.2 Factors that influence the WTMS's success and sustainability

9.2.1 Contextual Governance

Generally, interviewees thought collaboration between the hospital and the LHIN was good, but this varied according to their interactions with the LHIN. Professionals who had less contact with the LHIN perceived it as less involved than did those who had more frequent contact. In fact, one participant thought the LHIN wasn't sufficiently implicated and had little authority, while others had a different opinion. For example, one surgeon who was interviewed thought there was little need for an added level between the Ministry and hospitals, while the project manager seemed to consider the level of collaboration between the wait time office of the LHIN and her team to be important for the development of their electronic referral tracking system.

Likewise, other interviewees said there had been a lot of communication between the Ministry, the LHIN and the regional hospitals regarding their various mandates. For example, the Ministry had decided to establish a new benchmark for patients' hospital LOS. Therefore, the satellite hospital had to reorganize care to get 90 % of patients discharged on day four post-operatively. One interviewee mentioned that these Ministry wait time targets were set through the Orthopaedic Expert Panel and reflected that many hospitals in Ontario were achieving these targets.

> *They're on the units for a shorter period of time. The government has decreased what they consider to be the length of time that the patients are on the unit […] We used to tell patients three to five days, now the government says four days, so they need to go home in four days. The new provincial goal is for 90% of patients to go directly home. So more people go home in four days, and less people go to rehab, so more people are going home than they did before. (I.2.5.)*

> *I don't think they've been delegated the financial control that they were promised in the first place, and the trouble with that is they don't have the stick they need to make people move, and if they don't have it yet, the chance of them ever getting it is... So that experiment, I think, is over, and the trouble is that they've created another level of bureaucracy between the Ministry of Health and the hospitals. There's this middle layer that's got no authority. (I.2.2.)*

> *In our development of that electronic system to track wait 1, we wanted to make sure that we had definitions that were aligned with the provincial wait time office, so we worked with the provincial wait time office to build that. We wanted to make sure it was also aligned. (I.2.8)*

The creation of the JHDMP Steering Committee for the regional LHIN's HKRP to implement the province's strategy reflected stakeholder engagement. That committee included one (non-surgeon) representative from each of the six regional hospitals as well as one surgeon leader from each hospital. The LHIN invested a great deal of time and resources in supporting the new Intake and Assessment Centre model through the JHDMP Steering Committee.

At the time of our visit, the LHIN was involved with the hospital in analyzing the wait time reports. A person from the LHIN who is in charge of the wait time portfolio reviewed the data on a monthly basis to assess the hospital's performance, in keeping with the accountability agreement between the LHIN and the hospital.

> *So there's a steering committee for the LHIN hip and knee arthritis program, so those results are shared with that committee level. And on that committee there's representation from all six hospitals and the LHIN, and the six hospitals have a surgeon lead as well as the administrative lead. (I.2.8.)*

> *At the hospital we have an accountability agreement with the LHIN, we have to report… Who's accountable for that is our president from our senior leadership or… our medical director and our operations director; but I don't have any direct reporting to the LHIN, I work through her. (I.2.8.)*

The Orthopaedic Expert Panel, linked to the Ministry, had conducted a review of the program two years prior to our visit and had made recommendations. Following this, the team asked the other regional hospitals if they wanted to create their own assessment centre. Each hospital took a different approach. There are presently two assessment centres in the region, including this hospital's.

> *It made sense in some ways, because you could have a critical mass of advanced practice physios in two centres rather than having bits and pieces of them… But it really didn't go over well, so there was an external review of the program a year, or two years maybe, into the work, and the panel that did the review recommended that there be more assessment centres in place. (I.2.3.)*

On another note, the team has developed many local partnerships. In fact, they have incorporated the Ontario Arthritis Society's (OAS) resources into their model in order to give non-surgical patients access to those resources. The College of Physiotherapists of Ontario (CPO) helped the team by providing guidelines to

improve processes as well as feedback when they were developing the APP role. They have also been very helpful in advancing the physiotherapist profession, in regard to promoting legislative changes related to communication with patients and diagnosis.

> *We met with the College of Physiotherapists of Ontario before we even started the model […] to get their feedback. They were giving us guidelines in terms of the medical directives scope, and we kept tabs with them, and then we did presentations with them, and we've kept a very close relationship with them. (I.2.6.)*

The model of care developed in this satellite hospital has been well received by many local organizations as well as national ones. Even the Canadian Orthopaedic Association (COA) has expressed support of their model. The centre has networked with many other hospitals at regional, provincial, national and even international levels. For example, the director of operations spent a few days with a HCO in Halifax explaining the APP model to them. They also partnered with Shoppers Home Health to offer pre-op classes for patients before surgery. As mentioned above, a tool kit was also developed to encourage knowledge transfer. The interdisciplinary care model has served as the framework for the LHIN's Hip and Knee Arthritis Program. Finally, the team was also the recipient of the 3M Health Care Quality Team Awards in 2010.

> *The Canadian Orthopaedic Association is very supportive of these models, obviously, there's lots of them across the country that have developed – some independently, but a lot of them using a model based on our model here. (I.2.4.)*

9.2.2 Contextual Resources

Government funding to increase the volume of hip and knee surgeries was the main helpful contextual resource factor during both the implementation and sustainability phases of this strategy. In fact, the Ministry provided incremental funding at a rate of $8,000–$10,000 for each hip or knee procedure. This funding helped cover the costs of OR and inpatient care so that more patients could have surgery.

> *We got funding through the LHIN for the intake and assessment centre model after doing a lot of the legwork. So I mean we were lucky, right? They funded these cases at either $8,000 for a primary and $9,000 for a revision. (I.2.3.)*

To receive this funding for hip and knee surgeries, the hospital needed to ensure no other area of care (such as spinal surgery) would be compromised. The program was given a different amount each year after review and negotiation with the LHIN. The financial incentives for doing more surgeries had motivated the team to do more and provided an opportunity to outdo their previous performance in terms of surgical output. However, the team got used to doing a certain amount of surgeries, only to sometimes have the funding cut back because the Ministry thought they were doing too many.

> *Last year we got burned because we went on a go-forward basis that they were going to give us the same number, but the Ministry decided "No, we really want to spread it around" […] to more of the smaller centres. And so they told us in December, "It's too much, you're doing a hundred more cases than you should."(I.2.2.)*

The process for planning annual funded surgical volumes between the Ministry, the LHIN and the hospitals has improved significantly over the past few years. Each hospital is asked annually what volumes they are able to perform. There has been some redistribution of volumes at the beginning of each fiscal year, based on current wait times in the province. Areas that were not meeting their wait times were allocated higher volumes, and hospitals that were meeting their wait time targets received slightly lower volumes. There is also a mid-year review of whether hospitals are achieving their volumes and whether funding can be reallocated. However, while the methodology and the associated transparency of allocating volumes have improved, it has remained difficult for hospitals to adjust to new volumes on a year-to-year basis, especially if there are mid-year changes. In that regard, there was clearly some tension between the hospital and the LHIN. In fact, a lot of planning and effort went into booking and then cancelling those surgeries, causing some interviewees to consider that the LHIN was out of touch with the realities that hospitals face. They stressed the importance of having clear objectives before the start of the fiscal year to better plan their work. The team was concerned about whether the LHIN would withdraw funding, which would cause wait times to rise again.

> *Cancelling and then rebooking, and […] the hours that must have gone into the scheduling, you know? For staff... It's just unbelievable, […] people don't think about it, but it was a big job. So, on a go-forward basis, I think it's important that the thing is clear, or as clear as it*

can be, at the start of the fiscal year so that it gets planned out, and then if there need to be adjustments, the sooner we know the better. (I.2.2.).

As a pilot for the HKRP, the satellite hospital also received funding from the LHIN for the Intake and Assessment Centre model, as well as for the development of the referral tracking system. In fact, the Innovation Funding provided by the LHIN helped bring on the appropriate members of staff to expand and develop the assessment model; the costs associated with this model are almost entirely for salaries of APPs and clerical support staff. The LHIN also accessed one-time supplemental funding from the Ministry for the development of the Central Intake and Assessment Centre model.

Once we got the LHIN on board, then we got the innovation funding through the project funding to bring on appropriate members of staff to actually expand it to everybody and develop the assessment centre model. So the assessment centre model actually was […] helped a lot by the LHIN with that, and then a Courtyard group that we worked with (I.2.4.)

9.2.3 Contextual Culture

According to one interviewee, it was difficult to get all the GPs from the community to use the standardized referral form created by the team, which is a problem because the population pool of surgical patients resides largely outside the city. The form is available on the LHIN's website and available to whoever wishes to use it, but it seems very few GPs have been doing so.

We created a standardized referral form that we wanted to get referring doctors to use, but because this city is a little bit unique as well – a very high percentage of our patients come from outside – so it's not like you're working with a family health team in your local community, and it's been very hard getting them to adopt a standardized referral form. But it's on the LHIN website if people want it. We give it out to people if they ask for it. (I.2.3.)

Certain members of the team have tried to make the public aware of their ongoing efforts to ensure quality care to patients. For example, the physiotherapists published a few articles in scientific journals about the role of APPs and its evolution over time. However, the director of operations felt that the team had not published their successes nearly enough, mainly due to lack of time. This was unfortunate since, as one surgeon pointed out, general acceptance and expansion of the model of care to other organizations seem to be key elements in ensuring its sustainability.

Sustainability, I think, depends on sort of a general acceptance…you know, we get buzz from all across the country and other countries. So […] the success of the model and people adopting that –not exactly as it is, but using it as the framework for their own model…should help to make the model…a successful model, sustainable. (I.2.4.)

9.2.4 Contextual Tools

The HKRP was the pilot for development of the provincial WTIS. Initially, the WTIS was only able to provide data on wait time 2 (from decision to treat to date of procedure). The HKRP developed a web-based electronic referral tracking system that supports the collection, processing and analysis of data to manage referrals to the HKRP and to report to the WTIS. It also allows tracking and monitoring of wait time 1 (from referral to first surgical consultation). This wait time 1 is now being reported to the WTIS. The system was developed by this satellite hospital in collaboration with the Access to Care E-Health Office and the regional LHIN. This hospital being the lead for the LHIN, their referral tracking system is being used there as well as in the six other regional hospitals. This is another example of the team's innovation-based culture.

> *We actually implemented our own referral tracking system, so I was involved with the development of that electronic tool, because the one that was provided by the province only tracked wait 2. That was my involvement. (I.2.8.)*

> *We were a pilot for the province, because wait 1 had not been collected at all, so that's why we worked with the WTIS for definitions and how we were going to collect the data. (I.2.8.).*

The project manager has been responsible for tracking wait time 1 as well as reporting wait time 2 to the province. All the information is entered in the Pisces OR booking system. The health data resources decision and support department of the main hospital is responsible for extracting the data and feeding it to the provincial office. Although this work is essentially done at the organizational level, we present this element in the contextual tools factors due to the involvement of the LHIN in this process.

> *The wait 1 will measure from the point we've received the referral to the point that the patients had their surgical consult with the surgeon. Wait 2 […] we enter all the information into our OR system – it's now integrated, so Pisces is what we enter into – and then that system is managed by our wait time information office within the main site. So they're the ones who manage the extraction of the data and such and the feed to the provincial office. So my involvement there is more ensuring that all of our cases have been submitted, ensuring there's no issues and managing the person who inputs all of that data. (I.2.8.)*

9.2.5 Organizational Governance

Many members of the program have exercised strong organizational leadership. In fact, it was evident that the pilot team has been dedicated to their work since the program's debut. Moreover, a lot of credit was given to one physiotherapist and one surgeon for elaborating or at least kick-starting, the APP model of care, even before the WTMS had begun.

The operations director for the musculo-skeletal program helped them when it came time to pilot the APP model and was later part of the LHIN's JHDMP, whose goal was to recommend a model of care and the implementation strategy to carry out the wait time reduction initiative.

> *To [give] credit where credit is due, at one of our managers of physiotherapy, she's been responsible for a lot of what we've done in the hip and knee program development and one of our surgeons. (I.2.3.)*

> *We started here in parallel at about the same time… I mean, clearly we wanted to be part of the wait time strategy because there was funding available and it's hardcore business. Our wait times were in the two-year range at the time. Before the strategy really got started we were looking at how we could manage things better (I.2.3.).*

> *I worked with our care team, so we had really strong leadership from a physician representative. We had our own operations director as well as our Vice President involved. (I.2.8.).*

In addition, the operations director explained that once the team was able to demonstrate that the model of care that had been implemented was useful and moving forward, she was able to gain support from people she reports to—the executive vice president of medicine and chief nursing officer. Overall, the governance has been pretty stable since the implementation of the strategy.

> *We started small and just expanded the model once we […] had a certain comfort level. I mean, organizationally, once we could demonstrate that things seem to be moving in the right direction, we had support from the people that I report to […]. (I.2.3.)*

> *[…] our presidents are very much involved. Our senior leadership is definitely involved with the LHIN and the LHIN represents all the hospitals with the Ministry, right? (I.2.8.)*

On another note, the program had strong leadership support from the CEO and all members of the senior team, although these individuals had less overall involvement in planning and implementation of the strategy because of the scope of their roles.

Five years ago, the medical director position was created after a restructuring of the division of orthopaedics and clarification of the relationship between the division and the satellite site, where hip and knee surgeries are actually done. This allowed the head of arthroplasty to also become the medical director. This seemed to be the logical way to proceed, according to interviewees.

> *A new position [was] created here, because there was some re-structuring of the division of orthopaedics and of the relationship of the division to this campus. And so they re-structured the management on the medical side of things, so how the responsibilities were changed. I've been head of the arthroplasty program for about ten years, but the medical director for five years. (I.2.4.)*

> *We got a new chief at the main site. The hospital wanted to merge those two positions together so that the chief was also the head of the musculo-skeletal program and encompassed more of the surgeons, and in doing so, we needed them to have someone who was based on site here that managed the satellite centre. (I.2.4.)*

Many interviewees mentioned the abundance of committees created for the strategy and that continue to support the ongoing work to maintain it. Among these are the outpatient care committee, the nursing council, the new model of care leadership team, as well as the patient service innovation team, which all have different functions, with the main common one being to communicate on issues or progress in regard to the team's work.

> *We have an outpatient care committee that I'm a part of and there's some upper management, and our medical director and a few other people from disciplines are there. (I.2.1).*

> *We have a team called the New Model of Care Team, for instance, that runs our new model care program […] So the four of us are the executives for what we call the new model of care leadership team […] I work with the other health disciplines, as well, to coordinate the care so it all follows the same protocol, etc. (I.2.4.)*

It was clear that team-level accountability was important for the healthcare professionals. Many interviewees said that they took their jobs and responsibilities very seriously. In fact, they realized that their jobs impacted those of others and that certain expectations came with each person's role and function.

> *I think the nurses are just really hard working, and I think because we do take that role on and the expectation was there, and I guess we feel that part of the responsibility was on us because we did kind of develop that role. (I.2.1.)*

Although most interviewees thought the contact between them and the GPs was difficult, one participant mentioned how the model of care implemented at the hospital encouraged better communication with GPs. In fact, one family practice

resident spent six weeks with the team to learn more about musculo-skeletal problems.

> *It's been great because we're actually even fostering better inter-professional education with family physician residents […] We just recently had a family practice resident who spent six weeks with us because they deal a lot with arthritis issues, so they were learning from us – it was one of the rheumatology residents [who] spent time with us – because there's a lot of interaction possible because of the way we've aligned our clinics. (I.2.6.)*

9.2.6 Organizational Resources

Since the implementation of the APP role, these professionals are now doing a lot of interventions surgeons had to do in the past. They now see all patients that come to the assessment centre, as well as seeing the post-operative patients along with the surgeons in the clinics. The APPs play a large part in post-operative review for hip and knee replacement issues. To moderate expectations, patients are advised that they may not be seen by the surgeon for their follow-up appointment. Certain patients are unhappy about this, but overall patients do not mind. In general, the group of surgeons has shown much appreciation for the APP role, given that they want to provide access to care to their patients but simply cannot do it by themselves. This may explain why there are now five full-time APPs on board. One interviewee raised the concern, however, that even though the model has been highly successful, the APP positions continue to be funded on a year-by-year basis.

> *The APPs and the occupational therapist, they actually have taken over seeing the post-op patients along with the surgeons in the clinics, so that was a new role that has been developed. After they developed the assessment centre role, they expanded on that role and they now have a large part to play in the post-op review for hip and knee replacement issues and other areas. (I.2.1.)*

> *We're not trying to teach them all about fracture care. We're not trying to teach them about tumours or all these other things. It's fairly well-defined... fairly clear boundaries, and so it's doable. (I.2.2.)*

> *Well, the bottom line really is you can only see so many patients in a day, and so the ones you can't see don't have access to care, right? So […] if you can't see them and they need care, why can't somebody else see them, right? (I.2.4.)*

In addition to the APP role, the team has implemented other new roles, such as the nurse in the OR, the registered nurse first assistants who function effectively as an assistant to the surgeon throughout a patient's surgical experience, and nurse practitioners who help on the pain team.

The Ministry named the hospital a Centre of Excellence for Hip and Knee care. At the time of our visit, their surgical capacity had reached about 2,100 per year. Of those 1,990 were primary surgeries and the rest, revisions. The presence of APPs allowed surgeons to focus entirely on surgery. Another favourable factor was that the entire building is largely dedicated to hip and knee care, so there were no capacity constraints or bed blockers. In fact, it often happened that there were empty beds. Many interviewees mentioned this as a luxury. Another interviewee mentioned that, because the hospital is single-focused, staff can customize the care given to patients, with the result that there are very low levels of nosocomial infections. Furthermore, there is no intensive care unit, emergency room or burn unit. On the other hand, they only take patients who are in need of simple hip or knee surgery and who have few co-morbidities. Thus, patients with complex needs are diverted to other hospitals in the area.

There are four ORs in the hospital, run by ten orthopaedic surgeons. A small amount of surgery time is allocated to six surgeons from the main site who specialize in non-arthoplasty surgeries. In fact, most trauma or spine surgeries are done at the main site, where there are many more ORs. Because of this, orthopaedic surgeries at the satellite center are never bumped for other types of surgeries (cardiac, neurospinal, etc).

> *Most orthopaedic surgeons around the country don't have the luxury of just doing hip and knee replacement. Most of them are covering emergency departments or have much broader community practice where they do a little bit of everything. So it is a little different here. (I.2.3.)*

> *We've seen that we've had a lot of success with the wait time management and also with decreasing our length of stay significantly […] I think it's because[…] our staff are entirely focused. This is the patient population that we deal with each and every day, so we know this population well, and it's very different than another facility that might be having … to deal with all orthopaedic procedures, right? So I think there are advantages to it as well. (I.2.8.)*

The team has always aimed to perform approximately 48-50 surgeries per week, which allows them to close the hospital for the holidays, a period of two weeks. Achieving this has required a lot of effort and planning. The administrative assistants responsible for entering data in the Pisces OR booking system and for data collection received the required training, and played a significant role in requesting OR time and surgical dates for patients. The project manager, who essentially

implemented the IT system at the satellite hospital, added that it was important for the team and everyone involved in data entry to be focused on what the data is revealing.

> *The Pisces OR booking system is run by the operating rooms […] The folks who enter the data into the system is the doctor's secretaries. They schedule, they put requests in for an OR, the database office, the group… The person who enters the data – the wait time data – she will enter that information, and then they have an OR booking clerk who then takes […] all that information and puts it onto the scheduling grid to schedule the OR. (I.2.8.)*

Here again, funding by the LHIN for incremental cases was a favourable factor in reducing orthopaedic surgeons' backlog and wait times. However, when the hospital received the funding, one surgeon noted that the patients who had been waiting the longest time were sometimes deceased. Also, GPs had reduced the number of referrals they were sending him because his output had considerably slowed down before the strategy. Once the strategy was implemented, he was able to clear his backlog of 12 months and bring it down to about six weeks in little time. To achieve this, his OR time nearly doubled, as it did for most other surgeons.

> *I would have had one and a half to two days, and then we went two and a half to three days. (I.2.2.)*

Because surgeons are paid on a fee-for-service basis, their main incentive for doing more surgeries was the increased income. As one surgeon pointed out, since they were putting more surgery lists back into the system, these were shared among all arthroplasty surgeons, allowing them all to do more surgery. This produced a collaborative culture between surgeons.

Although the proper funding for incremental surgeries was critical in reducing wait times and sustaining the effort, many interviewees mentioned the importance of having sufficient human resources and equipment to do the necessary work. For example, more nurses were put into the OR to support the higher volume of surgeries. The amount of time the team dedicated to this effort was not really accounted for, however.

> *[…] we had to put in incremental resources in some areas […] operating room time, you needed nurses, so all of those direct costs went into place. We invested a little bit in IT to support some of the early work we were doing, but for the intake and assessment centre model the primary cost […] is the salaries of the APPs and clerical support. […] we've not included much in the way of overhead, so… many of us put in a lot of time! That's really not accounted for in the funding of that model. (I.2.3.)*

> *I think, for sustainability, one of the biggest concerns is always resources, right? Like hitting that is always... it hangs over your head. That is a potential challenge. (I.2.6.)*

To maintain their status as a high surgical volume centre, the team continued to hire new talent. They had recently hired an orthopaedic surgeon with a background in education, physiotherapy, and sports medicine. They also get a few medical residents and students yearly, although in limited numbers.

However, a challenge for the team was to plan for the recruitment of new surgeons to replace retirees. At the time of our visit, there were a few surgeons 65 years of age or older working there. However, as one interviewee pointed out, because there is no obligation for surgeons in that age range to disclose when they plan on leaving, it was impossible to plan for this impending shortage of manpower.

> *The challenge right now is we have a couple of surgeons who are over sixty-five. Still productive, still good surgeons but because of the rules in the University they're not obliged to say when they're going to stop, which is a little frustrating for those trying to plan for manpower, as you'd like to know whether you need one person in a year, or two years, or five years, not just have somebody hanging around waiting. (I.2.2.)*

One aspect that is unique to this site is that they have their own rehabilitation unit. The Ministry has determined that patients should be able to go home on day four post-surgery. Patients who are slower to recuperate and cannot go home after four days are transferred to the "fit unit", as some interviewees called the rehabilitation unit. A multidisciplinary team meets daily to discuss each patient on the post-operative floor to assess whether they will be fit to be discharged at day four. Each team member has input into the decision.

> *Every morning on each unit here we have what we call a multidisciplinary huddle. So we have a room with a board with all the patients' names and doctors and procedures and stuff, and we go through each patient. We talk about their discharge […], whether they can make it on day 4, or if they need longer, or if they need to go to our fit floor – which is our rehab floor – so that they can get up to seven days more if […] they're old, or their surgery was complicated. (I.2.5.).*

Patients who have undergone hip or knee surgery come back approximately six weeks after surgery for post-operative physiotherapy classes. This is usually when they are seen for their follow-up appointment. Patients are separated into groups and taught exercises by the outpatient physiotherapists. This allows the team to ensure continuity of care for patients.

> *Their first post-op appointment is at week 6, they come back to clinic. A fair amount of them come here for […] post-op classes for hips and knees. (I.2.5.)*

> *It's run by the physiotherapists in the outpatient department, where they come in as groups and they do exercises and get stronger. So a fair amount of them come here […]usually it's after their six weeks […] and they come for physiotherapy. (I.2.5.)*

With respect to information resources, many interviewees referred to the electronic information system, which helps monitor wait times and facilitates decision-making. A leadership team meets monthly to review the data and track the team's progress. Occasionally, the satellite hospital's leadership will host a one-hour forum to inform the staff on their progress and to share any updates. There was also a significant use of email communication among employees. Lastly, a program newsletter was developed to promote the transfer of information.

> *In terms of sustainability, it's that you're constantly monitoring to see how it's functioning. I think the referral tracking system – you know how we have the electronic system – I think that's really important, because you get regular data. […] we have to track our data to see what's happening, and we still have regular team meetings – not to the same frequency – but, for instance, even our leadership team, we still try and meet at least once a month to network and see where things are at. (I.2.6.)*

9.2.7 Organizational Culture

Many interviewees said their workload had increased after the implementation of the strategy. Some surgeons mentioned how big a change it was to have their OR time nearly doubled. However, they continued to work hard and persevere because they associated it with positive outcomes. They were also consulted when it came time to develop the new model of care, which made them feel involved in the strategy. The staff's sense of involvement, collaboration, and appreciation, as well as the feelings of trust among colleagues were evident.

A contributing factor might be that all the healthcare professionals working in this satellite hospital had been there a long time (i.e., more than 10 years), such that there has been long-standing stability and cohesiveness among them.

> *I think they all get along fairly well and we work well together. We have to, because if an issue comes up with a patient then you have to be able to go to that person and talk to them and say, "Well, what do you think about this? Do you think we should maybe send them in this direction instead of the direction we've decided upon?" So we have a discussion and then we… then we go down. So I can't say that there would be any real tension per se. (I.2.1.)*

> *There are a lot of old timers, as we call each other. We all started when we were ten, you know? We have a great team here and that, I really believe, has been another […] critical*

> *success factor, because it's a very cohesive team. There's input from everybody, everyone takes part in [the] initiative…so you really do get the best of […] everyone. So I think that the team works very wel. [When] we have a solid team like that, you're at an excellent starting point right? (I.2.8.)*

The merger between the main hospital and this satellite orthopaedic centre that occurred ten years ago created tensions between surgeons and anaesthesiologists. The anaesthesiologists who were used to working in the main hospital were sometimes asked to come to this site, and would often complain about having to come or about the equipment available. To overcome this reluctance, anaesthesia processes were changed to facilitate the anaesthesiologists' work, such as by doing more regional anaesthesia than general anaesthesia. Surgeons agreed, on the condition it would not impact turnover time. This required trust and, in turn, became an integral part of the model of care.

Similarly, the implementation of the APP model required a lot of trust among healthcare professionals. This was done very gradually, in order for the APPs to get used to their new roles but also for the surgeons and other team members to get used to this new way of functioning. There seemed to be ongoing support for everyone to get comfortable with their roles. Soon enough, most of the team saw the benefits of having APPs doing things that would free up surgeons' time. The medical director said it was essentially a matter of redefining the professionals' boundaries.

> *The question was: why not give them a chance? It's not like they're taking your patient down the hall into a dark room and not telling you what's going on. […] we have a large clinic room. The therapists, while they're in the program, they come with us and work with us, and then the model would be that that would be their spot, that's where they see their patients, and we would be in the other space. And so if the patient had questions, the physiotherapist had questions, if there was any issue to do with the x-ray […] we were readily available. (I.2.2.)*

The culture of this organization seemed to reflect its small physical structure. Everything and everyone was always accessible. Certain interviewees mentioned how easy it was to talk to people, to ask questions directly of one another. One interviewee often described the main hospital site as being very bureaucratic and frustrating when it came to getting satisfactory answers, in contrast with the orthopaedic satellite centre. He even said that, in the main site, surgeons' opinions didn't seem to matter. At the satellite centre, the ten orthopaedic surgeons seemed to

run the place. One interviewee even compared it to a little "hip and knee factory". Many interviewees said they had a good working relationship with the physicians and that trust and a sense of teamwork were important components of that relationship.

> *The interesting thing about a small unit like this is, it can be flexible, innovative, and can move very quickly, okay? At the same time, being a small organization, it doesn't always have the largest pool of ideas, so... At the other end, it is a monstrous organization; it is hugely bureaucratic and very frustrating to get any satisfactory answers. I've got a problem, I can […] walk down from my office one floor down this corridor, I can talk to the project manager, have an answer generally in eight to ten minutes. I can talk to the administrative assistant, usually have an answer in two to five minutes, or if the boss is available, she'll say "Okay, I understand the problem, give me some time", and I usually have an email by the time I'm back at my office. (I.2.2.)*

Also clearly evident was the very strong leadership from the medical director. He essentially convinced his physiotherapist and program director colleagues to pilot the APP model before funding from the Ministry had even begun. This particular surgeon was used to dealing with his surgeon colleagues and had led a lot of change through other programs he had implemented internally. This, in turn, created a strong involvement of orthopaedic surgeons in the program. After the surgeons were on board with the initiative, satisfaction surveys were done to see how they perceived the introduction of the APP role. The surgeons saw that having APPs on board gave them more time and did not reduce their income in any way. Furthermore, it was interesting to hear one interviewee say this was a bottom-up decision that came from people on the ground level who knew what they were doing and were able to exercise their leadership and inspire confidence in other members of the team. He considered that this was a much more sustainable way of doing things.

> *I mean, most of my colleagues here would tell you that that's been a huge benefit to them and their practice; it has not in any way diminished their own personal status in any way. But the ability to rely on the team to provide the care has taken a huge burden off them as being the primary care dealer, right? (1.2.4.)*

> *Well, I think it's pretty clear that you need to have a surgeon champion in order for this process to work; it just doesn't work otherwise. Regardless of where the team might see the surgeon as part of the team, the patient still sees the surgeon as the primary… as the quarterback, right? And so […] if you don't have a surgeon champion to get the other surgeons on board, then the system can't work. (I.2.4.)*

Clear communication among team members also played a role in better planning the OR schedules. For example, one surgeon told us he advised his

colleagues when he was planning vacations so that the team could better redistribute his OR time among the other surgeons, thus making the OR more efficient.

Generally, it seemed that the team moved forward according to the principle of small steps. Once they saw improvements in a small initiative, they gained more confidence and trust in their actions, expanded their model, and so on. The medical director would start using the model in his practice for a few months, and if it worked, this influenced other surgeons to start doing it as well.

The team also encouraged anyone with an idea to try it on a short-term basis and evaluate whether it worked or not. In fact, they gave people the chance both to make their own mistakes, and also to explore their potential.

> *So we started small and just expanded the model once we […] had a certain comfort level. I mean, organizationally, once we could demonstrate that things seem to be moving in the right direction, we had support from the people that I report to. (I.2.3.)*

> *If you change, then you have to pick some sort of low-hanging fruit that's easy to start with and you make it work, and then you get people's confidence that you can make something work on a bigger scale. (I.2.4.)*

> *It's like you've done your homework up front, you have a plan, you [do] exactly what you say, small steps, and [...] we definitely used plenty of study methodology. So we would do small cycles of change, and what did work, we built on bigger, but if it didn't, you hadn't invested so much that you couldn't change and do something different and tweak it differently. (I.2.6.)*

One distinctive characteristic of this site was their intention to remain the best, and to be creative and innovative. They seemed very aware of their status among other HCOs, and they worked at maintaining their level of care to keep this status. Through the implementation of their own initiative and the fact that it was used as a pilot for the six regional hospitals, they exercised enormous leadership in the community. Not only was the team innovative and credible, but they enabled other HCOs in the region to benefit from their innovation and commitment. They exemplified a quality improvement culture, at the heart of which was a reduction in surgical wait times.

> *This is our core business, so it's important to us to stay sort of in the forefront and to be leading practice. We wanted to be in the forefront; we've got a really creative team that wants to make things happen. We pushed forward, we didn't let ourselves get bogged down in two years of... analysis paralysis is what they call it. (I.2.3.)*

9.2.8 Organizational Tools

As previously mentioned, the model based on the APP was developed even before the WTMS originated, due to the team's strong leadership. It is a team-based model that consists of a centralized intake using an electronic referral tracking system, timely assessment by a health professional, accent on patient choice and empowerment, selective referral for specialist care based on evidence-based data, follow-up care post discharge, and community partnerships to encourage patients' healthy living. Although most of the development and pilot work was done at this satellite hospital, the Health and Disease Management Program involved the LHIN's six regional hospitals. The project steering committee at this satellite hospital included the program operations director, the medical director, the manager for program development, and the first APP.

A patient focus group was initially organized to get information about their perceptions on wait times and about the need for more education about their health problems. Working groups were developed to focus on design and implementation of the APP role, design of the central intake and assessment centre model, administrative support functions, as well as information technology to facilitate the program. The steering committee visited a hospital in Scotland to learn from their model, which used nurse practitioners and extended-scope physiotherapists.

The team then used the Plan-Do-Study-Act (PDSA) cycles of change methodology, as well as the Participatory Evidence-based Patient-focused Process (PEPPA) theoretical framework, to establish the critical pathway for the development of the APP role. They also made sure to involve all levels of care in this decision to prevent any obstacles from arising during the implementation phase.

> *We would meet weekly [and] would do a lot of the operational program development and evolving the whole concept, and doing all of the tools and all of the process changes that would support implementing a model of care. We used a framework for doing that, so we used a nine-step PEPPA framework. We did a lot. (I.2.6.)*

> *The steps are such that you're sort of identifying the target population [and where] the barriers and system pressures are, what the model will look like, and […] early sort of implementation stages, and then you're implementing and you're evaluating it [...] There are nine core steps that you go through. So we were anticipating where the pressure points might be so that we could be confident to deal with those, so they weren't barriers. (I.2.6.)*

As previously mentioned, a pivotal aspect of the model of care was the implementation of APPs. They are specially-trained physiotherapists with an extended scope of practice through the use of medical directives. They all hold a research masters' degree and have expert level orthopaedic knowledge and expertise. Medical directives were implemented to allow APPs to order diagnostic tests under specified conditions. Clinical decision-making algorithms were also developed to facilitate consultation with the surgeon in cases of clinical variances. Surgeons developed a three-month practice development program for the APPs modeled after a provincial university's training program for surgical residents. Even after the training, they would meet with the medical director on a regular basis in order to go over core learning issues. The team also received help from the College of Physiotherapists as well as two Ontario universities for advice on appropriate training.

> *We developed an intensive three-month training program. And in the beginning, they're more observing, and they spend a lot of time in the OR and the clinics, and they're also doing a lot of self-directed learning. We have binders of articles and […] we've set up a whole training piece. We keep a bank of interesting x-rays, so that when new people start we have all these core sort of tools that we can call on when we're working on their training, when they're in the training stage, because it does take time. (I.2.6.)*

The central intake clinic now serves as a single point of contact across the six regional hospitals for patients and referring physicians to access care for hip or knee arthritis. A standardized request for consultation form has been developed to support this process. However, as mentioned, very few local GPs use it for their patients. Referrals are triaged by the APPs to determine urgency and whether a patient should be seen at the assessment centre.

> *The LHIN was very determined to have a single central intake, but then we created the assessment centre […] Now the first point of contact for patients is not with surgeons anymore. (I.2.3.)*

The assessment centre provides patients with timely access to a full assessment of their hip or knee problem, along with education and advice about their health problem. The assessments are done by the APPs, who then either recommend the patients for surgery or suggest a more conservative approach. If patients are surgical candidates, the nurses at the pre-operative clinic assess them. If the team at the assessment centre judges that patients have risky comorbidities, they refer the

patients to their specialists to be optimized for surgery. Patients are usually seen at the assessment centre two weeks before their surgical consultation.

> *We have some documents that we use – our interdisciplinary assessment form – so we complete that, so that's a complete system of overview, […] heart, lungs, everything... So we find out if they have any specialists who they need to follow up with, what kind of things they would need to do to be optimized for surgery […]. (I.2.1.)*

Many interviewees pointed out that, no matter how well the model works, it is impossible to control patient behaviour. When they are called for their surgical consultation, patients might consider it too soon for whatever reason: they have to work, go on vacation, play golf, etc. In fact, the booking clerk is responsible for moving patients on and off the list according to when they are "available" for surgery. If this is not well managed, it impacts the wait times of the hospital.

> *If the data doesn't allow you to enter that in a way that reflects the patient's behaviour, then the system is blamed for inefficiency when it's in fact the patients that are the source of the problem; and that's a constant problem for us in this whole model of care. (I.2.4.)*

> *"When are you not available?" is the major question. And then all of a sudden you'll get a phone call a couple of days later saying "Oh, well, yeah, I forgot about the wedding I have to go to, so I can't do my surgery in that timeframe", or "Yes, oh, I forgot about the trip we had booked." So these are all things that you have to try and drag out of the patient so that you can record it in wait times accurately. (I.2.7.)*

An electronic referral tracking system was developed in collaboration with the Access to Care E-Health Office to track every referral and its status throughout the program. The team also received help from external consultants, which they thought had been very beneficial. Considering this hospital was named a Centre of Excellence for hip and knee surgeries, the LHIN decided to adapt and expand the centre's IT system to the six regional hospitals. The system supports centralized data collection, processing, analysis and reporting to manage referrals across the six hospitals. Wait time 1 is also captured. This has helped moderate patients' expectations, because they can find out how long they must wait before seeing a surgeon.

> *Well, we created an electronic referral tracking system as part of this program, so there was a fairly large investment, and that was the LHIN that led that, in fact. Now, we had done a lot of the work, we […] had a working model in place here, so… it needed to be adapted and expanded across the six, so there was an investment there, and I don't even know what that investment was. (I.2.3.)*

The project manager mentioned that her team had their own indicators, which they monitored, in addition to the data being sent to the provincial level. Examples of these indicators were: number of patients going through the assessment centre, their outcomes, and patients seen by the next available surgeon versus any specific surgeon. The electronic system made it easy for the team to monitor wait times, which helped in decision-making processes.

> *There's multiple indicators. So, we look at patients who are coming to the next available surgeon versus any surgeon, we're looking at patients going through the assessment centre, what are their outcomes, and then we measure those outcomes against the outcomes from the surgical consults. We look at patients who prefer to stay with a specific surgeon, so that's […] still very supportive of patient choice; we're not forcing any of our patients to take the next available surgeon. (I.2.8.)*

In terms of pre-operative process, the patient orientation program was designed to assess patients' overall health prior to surgery. The interdisciplinary assessment form is a tool to collect bio-psycho-social information on patients. Pre-operative education program classes were developed to provide patients with the information they need before and after their surgery. The hospital partnered with Shoppers Home Health Care to provide those classes.

> *We strongly encourage them to come in for the pre-op education classes. I can't tell you exactly what percentage, it's still relatively small – but, again, very positive feedback. (I.2.3.)*

Another tool they developed was the *Guide for Patients Having Hip or Knee Replacement*. It contains a DVD that explains what patients should expect before and after surgery. With regard to the surgical and post-operative processes, two programs were created—the regional anaesthesia program and the acute pain program—which include anaesthesiologists, nurses and respiratory therapists, whose goal is to improve the post-operative experience of patients. Care pathways were also developed to guide and standardize the care of patients after surgery. Patients could either do inpatient rehabilitation, outpatient rehabilitation or go home with home care services provided to them according to their evolution.

As previously mentioned, patients are seen in the post-operative review clinic by an APP, usually six weeks after their surgery. If patients encounter complications at home, they can also call either pre-operative nurses or the APP who evaluated them before the surgery. Of interest, the team of APPs published an article about

patient satisfaction after evaluating 123 patients seen in the post-operative clinic. In general, patients were highly satisfied with the care provided by APPs.

> *The patients have a very detailed booklet, which gives them a whole bunch of phone numbers. So, after hours, they can call the hospital coordinator. We have the pre-op nurses who looked after them before they had surgery, they have their phone numbers. We have a set of people called advanced practice physiotherapists they also can call. So if patients run into trouble there's a lot of people that they can call for any information. (I.2.5.)*

When asked about the model's sustainability, one interviewee emphasized how important it was to keep monitoring how it was running and to tweak it when necessary, i.e., it was important for the team to meet on a regular basis to improve efficiencies and to look at the available data from the IT systems to reassess how things were going. Additionally, that interviewee highlighted the importance of not only sustaining their efforts for hip and knee surgery, but also expanding the model of care into other areas that were under similar pressures.

> *You're constantly sort of evaluating and seeing and responding to any changes that are happening in the system […] and looking for ways to continue to expand. We're also looking at, as the role matures, spreading that model into other areas that have pressure points. (I.2.6)*

Table 3
Organizational factors that impact WTMS success and sustainability

Organizational Governance	**Organizational Resources**
- Strong leadership from managers ++ - Inter-organizational partnerships ++ - Dedicated decision-making and management structure - Accountability of staff - Stable governance ++ - Abundance of committees created and maintained over time +++	- Seed money - Individual and team incentives - Dedicated staffing +++ - Adequate capacity +++ - Entire organization dedicated to hip and knee surgeries - Surgeries only done for simple hip or knee arthroplasties - Own rehabilitation unit - Internal wait time reporting sheets and assessment of data every month by staff and management
Organizational Culture	**Organizational Tools**
- Innovation ++ - Teamwork ++ - Trust ++ - Physician involvement and leadership +++ - Evaluation ++	- Information technology - Reporting to the LHIN ++ - Clinical pathway: APP model - Staff/patient oriented interfaces - Education resources ++

- ‘Small steps’ culture	- Training and support ++

Table 4
Contextual factors that impact WTMS success and sustainability

Contextual Governance	**Contextual Resources**
- Benchmarks - Accountability agreements - High-level coordinating–reporting structure - Stakeholder engagement: LHIN +++ - Partnerships +++	- Financial incentives for surgeons to do more surgeries - Funding levels reviewed annually - Tension with LHIN about year-by-year funding
Contextual Culture	**Contextual Tools**
- Public awareness ++ - Difficulty in getting all the general physicians (GP) from the community to use the standardized referral form	- Central registry - Standards and guidelines +++ - Collection and standardizing of data very good +++ - Public website for wait time data

In the end, there are certain elements that characterize the case. The initiative was lead by one orthopaedic surgeon, one physiotherapist as well as the operations director for the musculo-skeletal program. They took the time to plan out the initiative with different methodologies and visit hospitals that had already implemented such strategies. They quickly gained the trust and collaboration from their colleagues to pursue the strategy in the hospital. The culture has been stable for the outset of the initiative. Moreover, the team has been able to receive support from the CEO and new governance structures were specifically put in place to support the change. They have also been able to get an important level of collaboration from the LHIN. With time, the process of planning annual funding for surgical volumes has improved due to this level of collaboration. Many local partnerships have been developed in time to support the initiative as well.

The model of care has improved the quality of care provided to patients undergoing hip or knee surgery in the hospital but the team has also shared their model with many health organizations locally and nationally. They have also developed and piloted the WTIS. Many local hospitals within the LHIN also use the system now.

The center has the opportunity of being dedicated to hip and knee surgeries. The patients they operate on have a minimal amount of co-morbidities since the

center is not equipped with an emergency room or an intensive care unit. The more complex cases are sent to neighbouring hospitals. Additionally, they also have the opportunity of having their own rehabilitation unit for patients that need it after their surgery. There are no capacity issues, whether it be for OR scheduling or post-operative beds. The work done by APPs has been able to give more time to surgeons to perform more surgeries, therefore increasing their capacity. Lastly, the center has been considered the Center of Excellence for hip and knee care in the province.

CHAPTER 10 -CASE 3

10.1 Description of the case

10.1.1 Type of health care organization

This case is a tertiary-care teaching hospital in Maritime Canada. The hospital provides medical and surgical care, offering the full range of orthopaedic services, and is also the regional trauma centre for all of the province as well as surrounding regions. Moreover, they do a large number of spine and cardiac surgeries. There are 1,100 beds in the hospital.

10.1.2 Classification of the case

We classified this hospital's WTMS as unsustainable. Validation of the data provided to us by the access manager of the surgical services of the hospital confirmed that the site was, in fact, an unsustainable case, because it had not been able to maintain wait times for hip and knee surgeries below the 26 week benchmark from February 2010 to September 2010. Data has only been collected since February 2010 at this site. Wait times for hip surgeries ranged from 357 days to 602 days during that time period whereas wait times for knee surgeries ranged from 433 days to 616 days within that same period of time.

10.1.3 The Provincial Wait Time Management Strategy

In 2008, as part of a broad-based strategy, the Department of Health approved a contract between one regional hospital and an ambulatory clinic at another regional hospital that enabled more than 500 additional orthopaedic surgeries to be performed over the following year. Under this arrangement, the hospital's surgeons were able to use the clinic's OR facilities to do publicly insured, minor orthopaedic surgical procedures. The project also provided more space at the main hospital site for surgeons to tackle more difficult orthopaedic cases. The Department of Health allocated almost 1 million dollars to the project.

In February 2010, a province-wide patient access registry was launched (Nova Scotia Health, 2010). The registry constitutes a provincial database that includes all patients waiting for surgery. It allows hospitals to be better informed about surgical wait times and the factors that contribute to longer than appropriate wait times.

10.1.4 The Hospital's Wait Time Management Strategy

In response to the provincial strategy, a steering committee was created in January 2008 consisting of members of the regional hospital and the Department of Health. Consequently, many groups were formed to identify problem areas that needed development and improve the functioning of the hospital. Subsequently, the provincial Orthopaedic Assessment Clinic (OAC) opened at the hospital in October 2008 (Morrison, 2010). The purpose of that project was to develop and implement a patient-centred model to improve access for patients waiting to see an orthopaedic surgeon. A central intake process was created that made it possible to schedule appointments with "next available" surgeon within two to three weeks of the referral being received, in contrast to the previous wait of 12-18 months. The OAC focused initially on patients requiring arthroplasty/revisions only. However, it acts as a central intake for referrals for all patients requiring orthopaedic assessment or consultation. Patients are put into three different categories: 1) patients fit and ready for surgery with predictably good outcomes with low variability; 2) candidates for surgery but unfit due to co-morbidities; 3) patients who do not require surgery but do need treatment depending on diagnosis. According to Bayers (2009), all new referrals for non-urgent orthopaedic assessment and consultation in the region were now to be sent to the OAC rather than to individual orthopaedic surgeons at the hospital. GPs could request a patient evaluation either online or by fax. A new standardized referral form was developed that gave GPs the option to specify whether the patient was to be referred to a particular surgeon or could be seen by the next available surgeon. Moreover, all GPs who referred patients to the OAC would now receive a clinical summary outlining the assessment findings and any follow-up surgery. At the OAC, assessments, consultations and ongoing care are provided in innovative ways.

Patients have access to a team of healthcare professionals including case managers, nurses, surgeons, physiotherapists, occupational therapists and dieticians. Patients meet with a case manager/orthopaedic surgeon team who do a complete evaluation and then develop a care plan with the patient. That care plan addresses the need and readiness for surgery as well as health determinants such as diet, physical health and activity, and social supports. A case manager provides ongoing support to patients working through their care plans. After surgery, the patient is followed by a case manager in collaboration with that patient's GP, and the healthcare team uses standardized care plans during the patient's inpatient stay at the hospital, i.e., a standard care plan or a fast-track care plan.

10.2 Factors that influence the WTMS's success and sustainability

10.2.1 Contextual Governance

Stakeholder engagement proved to be the strongest factor in this strategy. Because the province had significant problems with surgical wait times, particularly with regard to hip and knee arthroplasty, the directive to reduce wait times came from the national level, the Health Ministry. In fact, the province was the outlier for the country when it came to wait times in the early 2000s. At this point, BJC had been given the mandate to develop a national benchmark. Therefore, the team followed the directive from BJC to look at their wait times and to develop pathways for their hip and knee arthroplasty. Also, the fact that BJC relied on evidence-based practices to develop its guidelines gave some healthcare professionals the ammunition they needed to convince their more resistant colleagues to embrace changes in practice to promote evidence-based patient-centred care.

> *We addressed some of the issues regarding the wait lists both for pre-operative evaluation and post-operative care by getting involved with Bone and Joint Canada, and they came to us and asked us if we would be interested in getting involved in a new model of care. (I.3.1.)*

> *Most of the pathway is not around physician practice, it's around good patient care. So we have much more – I'm going to say ammunition – now, especially with Bone and Joint Canada. (I.3.4.)*

> *It's the government that supported moving in that direction. (I.3.4.)*

Two members of the team were provincial representatives to the BJC steering committee. Additionally, they were helping the three other districts in the province that offered orthopaedic hip and knee surgery to get their model of orthopaedic assessment clinics up and running.

> *Both myself and one of my managers – who manages the orthopaedic assessment clinic – were the representatives on the steering committee for Bone and Joint Canada, so we actually assisted the other three districts that offer orthopaedic surgery for hip and knee in the province get their model of orthopaedic assessment clinics up and running; and then both of us had also been involved with bone and joint and hip fracture care. (I.3.4.)*

Also of interest, the Red Cross, a community organization that helps patients in need, had often provided help to patients who had undergone surgery and needed mobility equipment to return home from the hospital but could not afford equipment such as walkers. They therefore formed a partnership with the hospital to lend such equipment to patients in need.

> *A lot of our patients don't have a lot of money, and the other thing is equipment. A lot of our patients should use walkers […] before surgery or whatever. A lot of them can't afford to buy or rent this. A Red Cross service will loan it out for three months at a time. Most of our patients are waiting six months, nine months a year for surgery; and even after surgery sometimes they need some specialized equipment and there are some challenges…. We're getting more help […] there's sort of services that we can contact, and we're trying to make more use of community services, sort of finding out what's out there that we can use for these patients. (I.3.3.)*

Lastly, at the time of our visit, the program had recently been audited by the Auditor General for accreditation.

> *We were just audited by the auditor general, but from an accreditation standpoint […] as much as possible we try to have equipment that has the proper read-outs. They've got very good recall if a biological indicator is positive. They've got a very good recall to get those instruments back and make sure that physicians and patients are notified, and so on […] I think those processes help ... (I.3.4.)*

10.2.2 Contextual Resources

The single most important contextual resource factor found in this case was government funding for the initiative. This funding was meant to finance specific items according to the Department of Health. With this funding, the hospital was able to renovate space for the assessment clinic as well as pay for the staff working there: the two case managers, the physiotherapist, the part-time occupational therapist, a full-time project manager, and clerical staff who received all the referrals, processed them, put them on wait lists and did all the background work. They also received

funds to purchase a machine to facilitate patient registration. Also, the government funded a person to develop a website for patient information about surgery and what to expect after the surgery.

In addition, they were funded by the government for more OR time. This was done through the above-mentioned agreement with the ambulatory clinic of a nearby regional hospital, which allowed the team to do arthroscopies there instead of at the hospital, which helped increase the OR time at the hospital by two days per week. They were therefore able to increase the amount of joint surgeries they were doing. Lastly, the government also gave them incremental funding for surgeries when they exceeded their target.

> *We were given OR time where we could do smaller cases outside of the hospital, and that allowed us to increase the number of joints that we did. (I.3.5.)*

> *It was done in an ambulatory setting across the city so that, arthroscopy and feeds and things like that, we could take them out of here and take them over there, which would free up time here. With those two extra OR days that we obtained a week, we were able to increase the number of joints. So, yeah, we had an increased amount of OR time, plus from the Department of Health – Federal Department of Health – initiative of allowing payment for more total joint replacements if you exceed a certain target, that helped us to do more joints as well. (I.3.1.)*

10.2.3 Contextual Culture

Public awareness was regarded as a potential negative factor by some interviewees, who seemed to think it would play a role in increasing the demands on orthopaedic care at the hospital. They reasoned that if GPs and patients saw that a certain hospital had reduced its wait times, those GPs would start referring more patients to that hospital, making it difficult to maintain low wait times for hip and knee surgery. However, one interviewee seemed to think this was not so much the case in Nova Scotia.

> *Some of the unexpected things could be, will we just end up with more referrals? Because […] now people are going to start reporting their wait time by province, by district, or by land – whatever the term is for the different provinces – so if we were somewhere like Toronto […], you could end up getting more referrals because your waits are lower, right? You're meeting, meeting, and then all of a sudden, if it's out on the public website, and all the family docs… and the hospitals are so close that, "I'm not referring to this, I'm referring to here!" So it starts becoming referring to a hospital versus referring to a surgeon… right? It's the hospital benchmark of where they are. So you could get a dump with a lot of referrals pretty quick, and here are your good results of meeting the benchmark of today, and if you get a huge amount coming in, then if you were going to report a quarter later, you're probably not going to be needing your benchmark anymore. (I.3.4.)*

According to certain interviewees, the relationship between the hospital level and GPs was initially difficult but had improved since the beginning of the initiative. A referral form was developed to make it easier for GPs to refer their patients to a specific surgeon or to the next available surgeon. It seems certain GPs were a bit confused initially and thought that sending their patients to see the next available surgeon meant that they would get their surgery faster. However, that only applies to the initial assessment. To correct this understanding, information sessions were held for GPs to inform them on how to properly refer their patients to the central clinic. If the surgeon had a lengthy wait list for surgery, a letter was sent to inform the patient's GP of the situation. Close to 70 % of GPs in the community now check off "next available surgeon" for their patients. According to interviewees, this has greatly contributed to reducing wait times. Through this process, communication with GPs has also improved. In fact, they receive a letter from the hospital indicating that the clinic has received the referral, as well as the time and date of the patient's appointment.

> *I'm going to say it was close to 70 % of family doctors were putting 'next available surgeon' down. So… but again, a lot of education with them, and really we're probably hitting more of the family physicians in metro with that than across the province. (I.3.4.)*

> *When they fill out the referral system now they'll have the list of the doctors that do the arthroplasty, or next available surgeon. So the next available surgeon, sometimes some of the doctors were getting that a little bit confused. They were thinking that it would be the next available surgeon that could get the patient's surgery done quicker, but that is only related to the initial assessment. So you can actually have one doctor who… the wait time to see him could be… say two months, but his wait list for surgery could be twenty-four months. Then you could have another surgeon whose wait time was approximately the same amount of time, but the surgery wait time could be six to twelve months. So that wait list with the next available surgeon, sorry… is just related to the visit, not the surgery date. (I.3.5.)*

One interviewee thought the problems with wait times were largely due to their public healthcare system. According to him, governments were constantly reducing hospital budgets, requiring healthcare professionals to do more with less. When salaries could not be cut, services suffered. He believed qualified graduates were unable to obtain jobs because hospitals lacked funds. He favoured the UK's public–private system in which the public can contract out to the private sector, but felt no Canadian politician would have the courage to promote such a system here. In his view, Canada has a *de facto* two-tiered system, in that politicians or others who

are "connected" can be prioritized over regular patients. He felt that, if Canada had a public–private system, every healthcare professional would have a job, which is not the case presently.

> *This is a universal thing in Canada right now, the governments are shrinking the hospital budget and you're expected to do more with less. But when 75% of your budget is salaries, you can't cut that, so you cut the service. So that's an issue and so… why should Canadian people go to India or some place like Germany to get a total joint replacement and pay with insurance, when you could have that service in Canada with Canadian trained surgeons and nurses, in a private facility? And there's a lot of emotion around that because people say… you know… in Canada if we all can't have it, none of us can have it. Well, that's not the way it is. The way it is now, people are waiting, and they're going to continue to wait, and it's going to get worse (I.3.1.)*

> *Fifty percent of the orthopaedic graduates cannot find a job in Canada. There are all kinds of nurses that are looking for work […] There are no jobs, because there's no money to pay them. And so then I think that if a two-tiered system started up, there would be jobs… quality healthcare jobs for people to look after patients. And I think that's an inevitable thing that's going to happen in this country. Every other country in the Western world has a public-private system except Canada […] and we can afford the system. (I.3.1.)*

10.2.4 Contextual Tools

The province established the standard for patients in need of hip and knee surgery to undergo surgery within 182 days or less, much like other provinces in Canada. The hospital has therefore been trying to achieve this target, like other HCOs in the country. Some interviewees pointed out that, although this is a national benchmark that has to be achieved at the organizational level, the province has a particularly overwhelming population with arthritis. This may partly explain why they cannot achieve consistently low wait times for hip and knee surgery. This led one interviewee to say that the government needs to intervene to increase capacity so that the hospital could offer more care to the population.

> *So I'm always trying to meet the target… We've met the target but there's more coming in through the door, and […] in our determinants of health, we have a very high arthritis population… So it's not a surprise that as we become older there's going to be more people waiting. So at some point… if the expectation is to get down to that 180 days or 182 days – whatever people dispute that it is – then, at some point, there's got to be some capacity. (I.3.4.)*

One surgeon noted that there are no clear guidelines for orthopaedic surgeons to objectively choose surgical candidates. Patient assessments are still done on a case-by-case basis according to each orthopaedic surgeon's opinion. Also, each surgeon decides when patients are to be seen for follow-up assessments. This means

the team has not been able to agree on how to standardize these elements of patient care.

On another note, the provincial government has created a public website that gives patients, families and GPs access to wait times for hip and knee surgeries at the different hospitals in the region. While this would theoretically allow GPs to redirect patients to hospitals with the shortest wait time, as previously mentioned, this is not always done in practice.

One interviewee also pointed out that, although there is a provincial central access registry since February 2010, as mentioned earlier, the data is inaccurate and therefore unreliable.

10.2.5 Organizational Governance

Strong management and leadership seemed to be exercised by only a few members of the team. For example, the surgical services manager was on the committee that oversaw the implementation in 2008. He started out working as a physiotherapist, giving input for the pathway and advising on physiotherapists' role in the clinic. Later, he was given the position to manage the process when the previous manager left in 2010.

> *I took over this [process] in July of 2010; so just over a year now. I was on the committees that were working towards it, I worked as a physiotherapist, I gave the physiotherapy input for the pathway and what their involvement should be in the clinic, from that perspective. So I was a committee member at the time, and then when M. left […] I was given the position to manage the process. (I.3.2.)*

This same manager was trying to involve nurses more in decision-making and in sitting on different committees. In fact, nurses had showed no interest in taking on any responsibility outside of their normal work. Therefore, he focused on developing incentives to make them more interested and involved in committees, for instance, by inviting them to take part in committees during their regular work hours rather than taking extra time after work to attend committee meetings. This interviewee believed these nurses needed to be educated about the benefits of buying into pathways and processes that would ultimately make their work more efficient. He also mentioned the importance of finding a few nurses who believed in the pathways and the benefits that come from being more involved, who could positively influence their colleagues.

> *There have to be incentives. So the incentives could be either paid time – incorporating that – so instead of coming in and working on the unit today, come in and do committee work for me, go and do one of your re-certifications for part of the day and then come and do some committee work for part of the day; so it has to be scheduled into their regular time. It's usually not above their normal time… Educating them on the benefits is a big part of it; if we can find some people that see the benefit of having a pathway or reducing the wait time so that the patients come in healthier, then that information will then spread. But it's more… it's a lot of education with the nurses to get them to buy into processes. (I.3.2.)*

Considering the province is rather small, it appeared some surgeons had been using their friendship with members of the Ministry to exert power over the hospital to get what they wanted. For example, if the organization tried implementing something and one surgeon was against it, he would phone up the government and the initiative would come to an end. A new leader at the management level had recently been able to reverse this type of behaviour to make things more equitable for everyone working in the organization, saying: "there's got to be guidelines here, we can't afford to provide care that way anymore." (I.3.4.)

> *We're a pretty small province and our government is so close, there can be people that work here that are friends of people in the government. So we'd have people going through the back door. As an organization, if we try to implement something and they didn't agree, they'd get the phone call. So that's our old tradition. So we're really trying to flip that. (I.3.4.)*

Some interviewees mentioned the lack of involvement by upper management, i.e., the CEO or VP, in promoting innovation in the hospital. In fact, IT systems were slow to be implemented in the hospital because upper management was not very active in giving directives, even though the IT department had been steadily working on an electronic chart for the past ten years. There just had not been enough pressure from management to get that done, leaving the hospital with paper charts until now.

> *The administrative culture is slowly changing. It's a very slow turning wheel; it's very difficult to get change. For example, from an IT perspective we still have paper charts, and they've been working on an electronic medical record here for more than ten years, and we still don't have one. So from the upper administration – VPs, CEO, that sort of thing – to give the direction to have a medical record – an electronic medical record – there's not enough pressure to get that done, so it's not happening at the rate that it should be. We have a retrospective electronic chart; it's paper that's been scanned, and then you can go on and look at it – old charts that way – but it's not a true electronic medical record. (I.3.2.)*

10.2.6 Organizational Resources

The hospital received money from the government to fund the initiative, as in most provinces. In turn, they were able to collaborate with a neighbouring hospital and to do arthroscopies in their ambulatory unit. This freed up two more OR days a

week at the hospital for the team. Overall, at the time of our visit, 1,300 total joint surgeries were done in this hospital on a yearly basis and another 200 simple arthroscopy cases were done in the neighbouring hospital's ambulatory unit. Altogether, the hospital has five ORs running five days per week, for all surgeries. There are eight orthopaedic surgeons in the hospital; a ninth orthopaedic surgeon gets a bit of OR time in the hospital but has his private office, where he charges his patients for the assessments. However, the eight regular orthopaedic surgeons have to compete with surgeons from other areas of care (neurospinal, cardiology and trauma) for OR time, and the arthoplasty cases can often get bumped if a more urgent cardiac case comes along, for example. This is a daily struggle for orthopaedic surgeons, according to one interviewee.

On another note, many interviewees spoke about inefficiencies in the OR that they were trying to address to improve throughput by reducing wait time 2. This meant that getting patients to the OR once they had seen their surgeon was still the most difficult part of the process. One interviewee pointed out that the team has faced issues with anaesthesiologist and occasional nursing shortages, as well as budget constraints, all of which made it difficult to maintain optimal OR productivity over time. One interviewee saw budget constraints as the main problem preventing the team from doing more surgeries despite the growing need in the population. In partial response to this OR inefficiency, a pilot project was implemented by one surgeon, who was attempting to increase his surgeries from three to four per day to see if this would be a sustainable solution.

Another structural problem seemed to be the large number of patients at the hospital waiting for long-term care placement. Although there were three orthopaedic units, at the time of our visit roughly one-third of the beds were occupied in this way. This reduced capacity on the post-operative wards greatly limited the turnover of surgical patients. One explanation offered for this congestion was the fact that a long-term care facility in the community was undergoing extensive renovations.

> *We've looked at increasing by one joint per day. So in a ten-hour surgical day, they might only be doing three joints right now, but the surgeons, the younger ones feel they could do four.[…] But the nursing staff feels that... "Well, we only did three in ten, why are we doing four in ten now?" It's an efficiency thing, so you might have to work not a little faster, just more efficiently. And so changing practice is difficult. So we are doing a pilot right now to*

> *change from three joints to four over the next couple of months to see if we can do that sustainably in the turnover time. (I.3.2.)*

> *I think the single biggest thing would be to create efficiencies in the operating room to allow for increased throughput in a day. There are a huge number of impediments to the running of the operating room that prevent the number of joint replacements that could be done. (I.3.1.)*

Many interviewees mentioned that no incentives were offered to healthcare professionals to encourage them to take part in the WTMS. In fact, one said people mainly got on board because of peer pressure. The workload had increased since the implementation of the strategy at the hospital, so there was a growing need to hire more clerical staff to process the referrals. Because the surgeons' secretaries were overworked, and because referrals were now centralized, the team took away the secretaries' clerical tasks: processing referrals, managing wait lists and booking patients. Although they were able to get extra clerical staff, the funding was temporary, coming from outside of the program's funding. Therefore, the team was looking for ways to increase funding. Luckily, the main clerical staff member used to be a nursing assistant, and therefore had the clinical knowledge to properly triage the referrals according to the patients' needs.

> *Right now we do have some extra clerical [staff] down there but the funding is coming from somewhere else. We're borrowing it from somewhere where the resources aren't quite required, but it's not permanent funding for our strategy; we do need to look at increasing the funding for it. Where we've taken the clerical and admin work away from the surgeon's secretaries – processing the referrals, wait listing, and then booking – a lot of that's been taken away, and now it's centralized. It's more than one person's job for the volume that we do here, so we do need to increase the funding for that. (I.3.2.)*

With regard to information resources, the manager of the inpatient unit and the assessment centre is also responsible for tallying the internal data on the number of visits and the type of referrals they get, whether referrals are for the next available surgeon or whether patients are directly referred to a particular surgeon, and overall wait time 1. He shares this information with his director and with the group of surgeons on a quarterly basis. He also collects internal data on hospitalized patients' LOS as well as on what pathway they used during that hospitalization. To do this, he works closely with the decision support staff.

> *I work closely with Decision and Support to get those reports, whether they're from our PHS system, which is a booking and registration system, where the referrals actually get entered into. We pull from that, but we also pull from our discharge abstract database, which is sort of retrospective data […]. After they're discharged we pull that to see length of stay based on the type of patient that they were, and we can map pretty much [every] patient that's come*

through our hospital. So we can look at… if they were referred for next available, how long did they wait, what path did they take through the hospital, how long were they in hospital for, and when did they discharge… as compared to someone who selected a particular surgeon for their hip or knee arthroplasty. So we can compare all that with in-house [data] and we will report some of that to the Department of Health. (I.3.2.)

We're now able to collect how many patients are in each clinic, how many cancellations, how many return visits versus new assessments, how many hours, minutes they spend within the clinic doing that. So we can get an average time per patient per surgeon, because some surgeons take longer to do an assessment and some shorter… we can track all of that. So I do a quarterly report that goes to all our arthroplasty surgeons, and then I do a large report for the Department of Health. (I.3.2.)

As part of the strategy, the hospital received funding to re-organize space the assessment clinic in the hospital. The assessment clinic is where all the pre-assessment evaluations are done. (We will return to this aspect in the organizational tools section.) In the clinic, there were two nurses working as case managers, as well as one physiotherapist and one occupational therapist. The occupational therapist not only provided educational classes for patients but also did home visits for post-operative patients. There was a full-time project manager as well as a full-time clerical staff to receive the referrals, process them, wait list them, etc. One interviewee mentioned that the clinic space was too small and that the team wished they could obtain more space to expand it.

We received funding for the space of our clinic downstairs. We received funding for our two case managers – which are full-time nurses – our full time physiotherapist, we have a 0.5 or half time occupational therapist, a full time project manager – myself – and we have a full time clerical to receive the referrals, process them, wait list them, do all the background work. (I.3.2.)

Our space, it's pretty tiny down there, it's pretty crowded… like we're getting busier and there's more clinics coming in there, so our space is starting to get too small for us. (I.3.2.)

10.2.7 Organizational Culture

The implementation of the strategy was very difficult for the group of surgeons, which was a reflection of the organizational culture. Physician buy-in was especially difficult at the beginning of the initiative. Most of them did not like the idea of a central referral system because they wanted to maintain a long list of patients. Although most eventually saw the benefits of this method, one still has not bought in and practices in a private clinic outside the hospital. In fact, at the time of our visit, a lack of trust toward the clerical staff in charge of the referral process was apparent. Some surgeons preferred to look at the referrals coming in each morning

instead of allowing the clerical staff to triage them and determine the urgency of the patient's visit to the assessment clinic.

It seems peer pressure was applied by people who believed in the initiative to convince the others who did not. In fact, there was one surgeon in particular who motivated his colleagues to buy-in to the initiative. He was often the one who would try to do innovative things to improve the team's work, such as the four-surgeries-a-day pilot under way at the time of our visit.

> *The major challenge was surgeon buy-in because they all owned their own case loads, they had their own business per se, and they felt that giving up the referral to somebody else to bring in centrally and then farm it out, was taking away from their case-loads. But we've been doing this for three years, and they all still have very long wait lists, and they have lots of patients to see. And so in our opinion it hasn't had a negative impact… it's become more transparent, and they always have business, they always have patients referring, they always have OR times, they're always busy. But the first stalling block was the surgeon buy-in that they didn't want to give up the referral coming to them individually, that it would go to a central place. (I.3.2.)*

> *Some of them take pride in how long their wait list is, like it's a status symbol for them, or it makes them feel good. But why should Dr X care if he's got an eight-month wait list or a two-year wait list? He can only do so many surgeries. But yes, there have been resisters within the group themselves. (I.3.4.)*

It appeared that the main tactic for improving the organizational culture was to wait for resistant surgeons to take their retirement and then to teach new surgeons the "right way to do things". In that respect, many interviewees mentioned the generational gap and that two camps co-existed among the group of orthopaedic surgeons. There were younger surgeons, who did not care as much about pre-checking the referrals because they knew they would get a hefty caseload of patients nonetheless, and then there were the older surgeons. In that sense, the team is hoping for the new surgeons to make the push in the right direction in order to develop better and more efficient ways of working. Despite this resistance from the older surgeons, interviewees mentioned that they had become more supportive of the pre-assessment clinic, and appreciative of how it works and the care their patients have been getting.

> *You need a retirement to change culture here, it's that entrenched. We have some people that have been doing surgery here for a very long time –twenty-five plus years – and they like it the way it was and it's very difficult to change. Our new surgeons – we have about three or four new surgeons – who are very bought into technology, transparency, employing people to their maximum potential. And what I mean by that is employing a physiotherapist to do some assessments because they're capable of doing that, using the nurses to do that kind of thing, and have the surgeon do surgery-related things, i.e., in the OR, and deeming people appropriate for surgery, but not doing things they don't require to be done. So we have two different camps right now. It's a culture thing, it's a generational gap as well, and we have a*

> *huge push right now to try to change things, but we do meet resistance from… the old boy's club – if you want to call it. (I.3.2.)*

> *The young surgeons know they're going to be here for the next twenty or thirty years, so they want to make the processes now; so there's a lot of push from these three surgeons to change things, which is good. (I.3.2.)*

> *I think most of that resistance was the project part, that they had to get all the surgeons on board to actually participate in this clinic; so most of the resistance actually was before I started. So since we started… now they love it over here. (I.3.5.)*

Another element of the organizational culture was, as one interviewee put it, that some people working in this hospital "work to live" and don't live to work (nurses, physiotherapists, occupational therapists, administrative assistants). This meant they showed up to work each day and did what was asked of them but no more. They did not take initiative or join committees to make proactive changes in existing work processes. Young nurses wanted to do their jobs and leave with as little responsibility as possible, while older nurses have been around the block and don't feel they need to contribute as much anymore.

> *People here work to live. A lot of the in-patient nursing staff don't feel ownership, so they come in for their work and they leave. They don't join the committees to create change, professional practice committees, pathway committees… it's very difficult to get nursing input outside of the work hours. We have some senior nurses that have been here twenty years, and they will provide input, but they're getting closer and closer to retirement so their input… they just don't want to do that anymore, they've been around the block before, so they don't feel they need to contribute as much. So it's very difficult. (I.3.2.)*

Although they seem to enjoy where they work, the nurses also showed a lot of resistance to the suggestion made by the lead surgeon to increase the OR schedule by one joint surgery per day. They felt this would increase their workload without added incentives. In reply, the surgeon trying to push for the change said the incentive would be to go home on time. However, they would be paid overtime if ever they stayed 45 minutes beyond their shift. Unfortunately, the nurses seemed to have little interest in getting paid overtime because they felt they had been working sufficiently.

> *There is resistance from the nursing staff, but the incentive that the surgeons are saying is that we need as an organization to say, when you're done those four joints, you can go home, you have done your work here, because the likelihood of starting a fifth joint is not going to happen. So as long as the room is clean and ready for tomorrow, you can leave; so if we get those joints done in eight hours – go home, because we don't need you anymore. Now, if you […] stay forty-five minutes over – because it takes forty-five more minutes, ten hours and forty-five minutes – then yes, the nurse is going to get paid overtime. But they're not really in it for the overtime anymore, overtime doesn't work for nurses anymore, they're not in it for that… they work enough. (I.3.2.)*

10.2.8 Organizational Tools

As part of the strategy, a hip and knee pathway was developed to ensure continuity in care. The pathway begins with the referral form the community GP fills out to refer a patient to the hospital. This is sent to the hospital's central referral office at the OAC. Once the referral is received, the date of that referral is entered into the system to start wait time 1. The patient is waitlisted until a clinic time for the preferred surgeon is available. Depending on how long this time is, the clerical staff will send a letter to the GP saying that the preferred surgeon's wait time is x number of days and that choosing the next available surgeon will allow the patient to be seen, for instance, in 30 days. Once the patient's assessment is booked and the appointment has occurred, that is entered into the database and that ends wait time 1.

As one interviewee pointed out, the central referral process allows the team to better control the referrals, whereas before the strategy, the referrals were sent to individual surgeons' offices and were handled by their secretaries. Patients would sometimes find themselves on all eight of the surgeons' wait lists.

Patients are seen at the assessment centre when their appointment date comes up. They meet with one of the two nurse case managers who do their health assessment. First, the patients fill out a two-page questionnaire. Then, during the health assessment, the nurse reviews all of their medical history, their medication, and verifies that all their information is up-to-date. However, one interviewee added that some patients slip through the cracks when the surgeon is the only one to see them in his private office or at the assessment clinic, as this still occasionally happens.

Once the case manager's evaluation is complete, the surgeon sees the patient, does the surgical assessment, and decides whether the patient is fit or not for surgery. One surgeon we interviewed felt that it was important for patients to see the surgeon before the surgery, in order to look the surgeon in the eye and say: 'I trust you to operate on me; I'm going to let you operate on me.' Therefore, this surgeon preferred the case manager model in which the surgeons see all the patients, as opposed to one where an APP would deem the patient fit or not for surgery. During this evaluation, the surgeon reviews the most current x-ray, MRI and CT to determine the likelihood

of success for the patient's surgery. Once a patient is deemed fit for surgery, the surgery is booked and the patient waits. This is entered into the database, and that starts wait time 2. Once the patient enters the OR, that ends wait time 2, and that is also entered into the pathway's healthcare system database: Pathways Healthcare Scheduling (PHS). The morning of the surgery, the patient is seen at the pre-admission clinic by an anaesthesiologist to receive the proper anaesthesia.

A few weeks before the surgery, patients are educated regarding what to expect at the time of the surgery, the expected LOS depending on whether they are fast-tracked or standard-tracked and what they will need at home after surgery. These educational classes are offered twice a week by the case managers. The case managers' role is to optimize patients for surgery, but they do not see them during their hospital stay because the orthopaedic units provide their care.

Patients who are not deemed fit for surgery right away will return to the case manager to discuss such issues as smoking cessation, weight loss, necessary follow-ups, etc. Patients in need of pre-surgery physiotherapy are evaluated by the clinic's physiotherapist. If they need to be seen by an occupational therapist because their set-up at home is insufficient, the occupational therapist will evaluate their situation at home. Once all these evaluations are completed, patients are re-evaluated by the surgeon to see if they are ready for surgery.

> *I'm one of the two case managers, which means I deal with patients coming in to be looked at in regards to having a […] total hip or total knee replacement surgery. We also follow up on post-op patients. And also patients who come in who are deemed non-surgical, we try to manage their care for them as well. (I.3.3.)*

> *Some of them would have weak thigh muscles from the osteoarthritis, so they really don't need surgery, their symptoms are more related to their weak muscles… so then we would refer them to a physiotherapist, or sometimes I'll get in the room and you can tell by their x-rays that they may be a candidate for a brace. So we even try to help the non-surgical candidates. (I.3.5.)*

As previously mentioned, the team uses an IT system to do the booking and registration of the referrals, PHS. They also use a discharge abstract database containing retrospective data about patients' LOS based on the type of patient they were in order to map every patient who has come through the hospital. They do not, however, have an electronic patient health record.

The manager of the assessment clinic reports the important data to the provincial department of health to justify their funding on a regular basis. In fact, being able to monitor wait time 1 and wait time 2 data has allowed the team to justify why they have long wait times for hip and knee surgeries and that they need more funding, whereas they were not able to do that six or seven years ago. This data is extracted from the hospital's internal database on the number of visits and the types of referrals they get. The quarterly reports that go to the director of the orthopaedics program are also sent to the government and contain information on how many joint surgeries have been performed to date, on wait time 1, wait time 2, volume coming out of the assessment clinic, and so on.

> *My role is to oversee the assessment clinic, the operation and the management of the assessment clinic, and report our wait times to the Department of Health […]. So I collect data both from our database, our internal database, on the number of visits and the type of referrals that we get, whether it's the next available surgeon, or whether they're directly referred to a particular surgeon, and I tally the data and do a quarterly report to my director, which also then goes on to the Department of Health for their reporting structure and funding and all of that. (I.3.2.)*

> *Both she and I provide the quarterly report to the government on where we are with joint surgery, wait time 1, wait time 2, what's our volume coming out of our orthopaedic assessment clinic… (I.3.4.)*

Once patients have been discharged from the hospital, they come back to the assessment clinic for follow-up, usually three months after their surgery and then one year after surgery. According to a few interviewees, surgeons disagree as to what the frequency of follow-ups should be. Presently, surgeons tell their own patients when they expect to see them after their surgery. During these follow-up appointments, care is provided by a physiotherapist followed by the surgeon. Ultimately, the goal is to have the patient cared for solely by a physiotherapist. According to a few interviewees, this follow-up care has taken a lot of the surgeons' time that would be better used for evaluating patients for surgical candidacy assessments.

> *We're working towards a physiotherapy-based follow-up model for certain patients because right now it's difficult with the number of return visits being seen by the surgeon. Their time is being spent on that, when it could be spent on assessments, deeming people surgical or non-surgical. (I.3.2.)*

One interviewee stated that the care pathway offered a more standardized approach to care. Professionals and patients seem to be better aligned in their understanding of the processes and each other's expectations. Indeed, patients have

expectations of the healthcare professionals, but the professionals also have expectations of their patients, and the pathway allows both parties to know each other's expectations, thus facilitating a smoother transition during the patient's hospital stay until discharge.

In fact, satisfaction evaluations were done with patients who had been seen at the assessment centre, which revealed that patients are generally satisfied with the services. One interviewee mentioned that this satisfaction stems from the fact that they are seen within 90 days of their referral and that they get more attention from the case managers, who take the time to do a complete health history, better discharge plan and follow-up.

> *They come up to the floor, to the unit, after surgery. The process has already begun, the plan's already in place, we know where they're discharging to. Through this process we've been able to get [that], whereas before, if they went to an individual surgeon's office, they talked to the surgeon, the surgeon could say, "Yeah, you could stay for as long as you want," or the other surgeon might say, "No, you're here for three days," or "No, we'll send you to […] our sort of care program or rehab." We had eight different stories before, and now we're all getting the same story, and it's easier for the […] in-hospital care because of this process. (I.3.2.)*

> *The patients quite like it because it's more comprehensive… with the nurses now involved, whereas the surgeons didn't have the nurses involved in this process before. So they're getting an improved health history, they're getting a better discharge plan, they're getting the physiotherapy follow-up… whereas before they didn't have that at all. They would have a five-minute visit in the clinic, "Yep, you're good for surgery, sign you up…," and that's it. (I.3.2.)*

Because the model of care had been implemented a few years ago and because most participants think it is working out well, most interviewees felt the wait time strategy was in its sustainability phase. One interviewee observed that the process needed to be tweaked periodically to sustain it, but that the team had been in full-blown activity for the past three few years, since the initiative was first implemented. Furthermore, the team has recently expanded their model of care to other areas of care, such as spinal surgery.

> *I'd say it's at the sustainability phase. I think it has to be tweaked periodically. I think you have to look at what it is you're doing and, can you modify this, or change that…. I think it's a process that is evolving, but […] we're in the full blown activity of this clinic. The implementation took place three years ago, so we're… in full tilt. (I.3.1.)*

> *We've actually taken this model and we're doing it for spine now. We're going to combine the orthopaedic spine and the neurospine for the lumbar spine surgeries and… assess them the same way, do all the referrals the same way… Now they're seeing an orthopaedic*

surgeon or a neurosurgeon for their issue, but they'll have a common pathway when it comes to the unit. (I.3.2.)

Table 5
Organizational factors that impact WTMS success and sustainability

Organizational Governance	**Organizational Resources**
- Moderate managerial leadership from surgical services director + - Lack of involvement from upper management: CEO/VP - Inter-organizational partnerships: ambulatory orthopaedic unit	- Lack of unit or team incentives: peer pressure - Inefficiencies in the OR - Inadequate capacity: assessment clinic space, orthopaedic unit beds - Fluctuating staff shortage: anaesthesiologists, nurses
Organizational Culture	**Organizational Tools**
- Clinical leadership + (one champion surgeon) - Physician buy-in very difficult - Lack of trust between surgeons and staff - Generational gap between younger and older surgeons - Retirement to change culture - 'Work to live and don't live to work' culture - Negative subculture between surgeons and nurses	- Information technology system: PHS (possible to do the booking and registration of the referrals) - Hip and knee pathway with clinical case managers - Wait time reporting to the department of health - Perception of being in the sustainability phase of the strategy - Expansion of model of the care to spinal surgery

Table 6
Contextual factors that impact WTMS success and sustainability

Contextual Governance	**Contextual Resources**
- Accountability at a high level: audited by Auditor General - High level coordinating, reporting, monitoring structures - Stakeholder engagement: Ministry of health, Bone and Joint Canada, Red Cross	- Funding levels provided by the government - Incremental funding for hip and knee surgeries - Increased OR time out of neighbouring hospital - Tension with Dept. of Health about year-by-year funding
Contextual Culture	**Contextual Tools**
- Public awareness perceived as a negative factor - Consultation with front-line actors has improved over time - Canada's healthcare system not efficient	- Absence of standards and guidelines - Public website makes wait time data available - Collection and reporting of data effectively done by director of surgical services - Central registry: data inaccurate

In the end, it is possible to mention a few elements that characterize the case.

First, the strategy was initiated at the request of the Ministry. At the hospital level, few people, including the surgical services manager and one orthopaedic surgeon, exercised strong management and leadership in developing the initiative and sustaining the change. What lacked was the support from the rest of the team of professionals, which took a long time to obtain, and is still a working progress. What is also noticeable is the important generational gap between older surgeons and younger ones. The group mentality seems to be one of 'work to live' instead of 'live to work'. Moreover, there has been no involvement from the CEO for this strategy.

The funding they received by the Ministry helped the team renovate the space for the assessment clinic and bring on the appropriate team members and to do more orthopaedic surgeries. They decided to hire clinical case managers instead of APPs in order for patients to be assessed at the assessment clinic. The use of a clinical pathway has greatly facilitated the continuity of care for health providers. However, the lack of consensus among surgeons regarding the clinical guidelines for choosing surgical candidates makes it impossible to standardize care or to control the volume of patients that are to receive a surgery. This situation has been added to the already lacking capacity in regard to operating room time and available post-operative beds. Even if this is a teaching hospital that offers medical and surgical care to the population, they are also the trauma center for the entire region. The orthopaedic surgeons share OR time with many other specialties and often have to 'fight' for their surgical time. Moreover, they have had to deal with nursing and anaesthesiologist shortages as well as numerous post-operative beds occupied by patients waiting for long-term care placement. However, what has helped them is the arrangement they have with a neighbouring hospital to do an additional 500 arthroscopy procedures there.

CHAPTER 11 -DISCUSSION AND RECOMMENDATIONS FOR PRACTICE AND POLICY-MAKING

This chapter is presented in two parts: discussion and recommendations. In the discussion part, we first examine which organizational and contextual factors may explain the differences between the three case studies. Second, we take a closer look at which factors enhance WTMS' capacity of being sustainable in reducing surgical wait times. Finally, we examine whether the factors essential for the implementation of the WTMS are different from those required for its sustainability. In our recommendations, we focus on three levels: the hospital decision-maker level, managers at the contextual level and the organizational level.

11.1 Discussion

11.1.1 Factors that differentiate the three cases from one another

First, we look at the factors that may explain why the cases are so different from one another.

With regard to Case 2, the team showed an incredible amount of dedication and leadership in developing and managing the WTMS. From the thought process to the implementation, and to its evaluation, decisions were made to assess how it would impact the work processes and the people responsible for it. To do this, they used the PDSA cycles of change as well as the PEPPA methodology to guide their work and to create a framework to get the initiative off the ground. As Perla, Bradbury & Gunther-Murphy (2011) explain, it is important not only to have a clear vision as to what the initiative should consist of, but also to set objectives and to turn high-level strategy into specific goals with real deadlines (Ganz, 2008; Perla et al., 2011). Many authors reiterate the importance of planning out the strategy with such tools as the PDSA cycles of change in order to adapt implementation to reflect the local culture and practice (Gardner et al., 2010; Perla et al., 2011). This highlights the need to make complex interventions simple

and manageable to avoid being overwhelmed by their scale (ExpandNet, 2009; McCannon et al., 2007; Perla et al., 2011).

Thus, one orthopaedic surgeon exercised an incredible amount of leadership by promoting change among his teammates and by showing them the benefits of having an APP model-based care in his own practice. He subsequently motivated his colleagues to become leaders as well. According to Perla et al. (2011), strong leadership is consistently referred to in the literature as a key factor in scale-up and spread. There is extensive literature about the role of these so-called champion change agents who exercise a positive influence and model new behaviour (Greenhalgh et al., 2004; Rogers, 2003). Furthermore, the good collaboration between this surgeon and the APP as well as the director of operations confirms that decision-making/clinical teamwork can create synergy between topic experts, process owners, and ultimately, stakeholders (Deming, 1986).

Another important factor that contributed greatly to the success of the implementation and the overall sustainability of this initiative was the stable culture that persisted, based on trust and innovation. The fact that the team realized this early on was helpful for them. In fact, Gardner et al. (2010) point out that positive cultural characteristics include enablement of cross-functional team-work, support for pooled knowledge, creation of an urgent need to innovate, and sustained focus on the change. All these cultural factors seemed to be present among the team.

One last crucial factor in this case was related to resources. Countless authors mention how important it is to have consistent and adequate financial, infrastructure, human and informational resources to implement and sustain an initiative. Case 2 had had the good fortune of being in a satellite hospital centre entirely dedicated to hip and knee care, including their own rehabilitation unit. Thus, they had the opportunity to develop unprecedented expertise in the domain because their context allowed them to do so. However, the fact that almost everyone in the team had been working there for more than 10 years raises the question of who will take over these positions when members of the present team retire, to sustain the expertise.

With regard to Case 1, although the physician buy-in was not as easy in this case as it was in Case 2, it was present to some degree. However, the orthopaedic

surgeons felt they had authority over the entire team of healthcare professionals, which essentially meant that they would not do anything unless there was something in it for them. In that sense, the medical leadership was generally lacking. This caused frequent tensions and the development of subcultures among the team before the director's arrival. We strongly suspected that this behaviour reflected a lack of trust between surgeons and other professionals in the team. As Davies & Mannion (1999) explain, trust arises when a number of conditions hold: when there is a relationship of interdependence and obligation between two parties; when there is uncertainty about the courses of action that may be taken; and when there is a deliberate decision to believe that obligations will be fulfilled.

Due to his non-clinical background, the director of surgical services had a neutralizing effect that helped the team sort out their differences and brought the group closer together, and this in turn created a more cohesive, trusting group. As an accountant, he was often able to use his financial background to demonstrate whether a change was possible from a managerial standpoint, but he also asked nurses and surgeons whether what he wanted to implement was feasible from a clinical standpoint. In that regard, there was a high level of clinical governance between the managers and the surgeons, as well as a sense of collaboration that developed over time. Matrix (2003) points out that managers of large-scale change must link changes to policy and organizational priorities on an ongoing basis (Matrix, 2003). According to ExpandNet (2009), conventional project management is an important resource for local change efforts, though large-scale initiatives in healthcare may require a more diverse and flexible skill set. The fact that this director was an accountant and not a clinician had a positive effect, in our view, on the overall change that occurred in the program.

With regard to Case 3, physician buy-in was difficult at the beginning of the implementation and remained so throughout, contrary to Cases 1 and 2. Consequently, the organizational culture was quite negative. Also, it was exacerbated by the generation gap between older, more cynical surgeons and younger, more innovative surgeons. As was mentioned in our literature review section, physicians' involvement in the strategy impacts its success. As we can see, it can also impact the

sustainability of the strategy. Overall, this negative culture prevented the team from having positive incentives for wanting to be part of the strategy and taking an active role in it. Although the doctors would benefit most from the strategy, namely by increasing the amount of surgeries they do to reduce wait lists, even the other healthcare professionals sometimes refused to take part because that engagement was not rewarded financially for them.

The fact that the orthopaedic surgeons still had not bought into the initiative and seen the true benefits of implementing a WTMS perhaps explains, in part, why there were no clear guidelines and standards as to which patients should be operated on and what their follow-up should be post-operatively. Perhaps fewer patients would really require hip or knee surgery if all surgeons accepted the same type of patients as candidates. However, this was not the case at the time of our visit, because there was no consensus among surgeons. This might partly explain why the team was unable to reduce wait time 2. As mentioned earlier, the establishment of clear guidelines and standards increases the chances of success for a WTMS.

Lastly, there were major problems with OR efficiencies and bed management at this site. While Case 2's ORs and physical space were entirely dedicated to hip and knee surgery, this was not the situation for Case 3. In fact, one surgeon kept trying to promote an increase in the daily number of joint surgeries done. On the other hand, one-third of their surgical beds were occupied by patients waiting for placement in long-term care. To add to these difficulties, orthopaedic surgeons had to constantly fight for OR time in competition with cardiac, spine and trauma surgeons, who had priority in the OR for their cases. Lack of resources, once again, could partly explain why Case 3's strategy was not as successful as the others. In fact, in the literature, capacity constraints, both in the OR and for post-surgery beds (Ham et al., 2003; Tandon et al., 2005) were found to hinder the implementation of WTMS, as mentioned in our literature review section.

11.1.2 Factors that ensure WTMS sustainability

We were able to observe certain factors that emerged as being able to guarantee the sustainability of a WTMS. In fact, the orthopaedic surgeons' leadership

and involvement in the strategy seemed to be a very distinct factor, as mentioned in the first part of the discussion as well as in our literature review (Botten et al., 2004; Cromwell & Mays, 1999; Gauld & Derrett, 2000; Ham et al., 2003; Hanning, 1996; Hanning & Spangberg, 2000; Hefford & Holmes, 1999; Leach et al., 2004; Lundstrom et al., 1996; Maddison et al., 2004; McLeod et al., 2003; Ramchandani et al., 2002). Because orthopaedic surgeons are so independent, the team needs their approval before really being able to start the change process and to sustain it (Cromwell & Mays, 1999). Indeed, orthopaedic surgeons need to buy-in to the initiative and fully engage in it, as has been shown in the literature (Lélé, 1991). Furthermore, there was usually one surgeon champion in each case that tried to instil a feeling of urgency to change among his colleagues and to entice other surgeons to become leaders. This has often been a necessary step for change initiatives to be successful and, ultimately, sustainable (Doppelt, 2003; Pinto & Covin, 1989; Kotter, 2008).

In that regard, a strong team spirit and culture are essential components for the sustainability of the wait time initiative. In our literature review, Doppelt (2003) explained that sustainability visions and strategies become internalized as individuals consider what these changes will mean to them personally. As we were able to see in our case studies, the teams that were more cohesive and proactive saw the benefit of being engaged in the strategy, not only on an individual level but also on a team level.

Another critical factor is being assured of recurring funding for wait time reduction initiatives and having the proper resources at the organizational level. Having a clear idea of what the funding is going to be for the year allows the team to better plan their upcoming workload and the required resources. According to Greenhalgh et al. (2004), it seems that dedicated and consistent funding for the strategy increase the chances for it to be not only adopted but also sustained over time. In fact, this was a problem that each of the three cases had encountered since the implementation of their strategy. It seems these WTMS were implemented at a time coinciding with budget reductions in the healthcare system. Unfortunately, these budget constraints are one of the causes of wait times. Thus, while the system makes

exceptions for certain politically sensitive areas of care that are being specifically funded (hip and knee surgeries), these can also cause perverse effects for other areas of care.

On another note, a positive relationship with the Health Ministry authorities (LHIN, Department of Health) was shown to be an important factor for WTMS sustainability. Apparently, the more cohesive the relationships, the better the outcomes. We believe the process of collaboration between clinicians and managers helps solidify this relationship. If managers of the LHIN or the provincial Department of Health are able to understand the micro-challenges clinicians face on a daily basis, they can be better managers and overall advocates for the hospital's needs. In fact, the case studies showed that having many occasions to communicate with these contextual level organizations helped managers and clinicians at the organizational level to have a better grasp on things. The key is to align the objectives of the contextual level with those of the organizational level in order to have realistic and satisfactory outcomes for both parties. For example, the LHIN needs to be aware that announcing different funding levels from one year to the next can impact the work processes at the hospital level. The LHIN needs to take into account the hospital's needs and capacity for surgery and inform the hospital of the possible budget for the following fiscal year so that the hospital can better plan the upcoming year.

Through this study, we were able to identify a case that had been stable and sustainable in reducing its wait time 2 for hip and knee surgeries. As mentioned in the first part of the discussion, we believe that having an exclusive mandate to do only hip and knee replacement surgery greatly helps hospitals sustain their effort to reduce wait times. We are conscious that this *hospital factory* model seems attractive only in the context of super-specialized surgery. Having a motivated staff that is not distracted by other concerns is beneficial and possible in this context. However, in Case 2, patients were actually selected for simple surgeries and presented little risk of complications. Case 2 essentially cherry-picks its surgical cases in order to operate only on low-risk individuals, and therefore sends other patients with higher surgical risk and co-morbidities to be operated on in nearby hospitals. This is the opposite of

Case 3, whose orthopaedic surgeons, not being in a single-focused centre, have to compete with other surgeons for OR time.

Sustainability is a concept in which it is implied that services are rendered to the population without causing too many unintended consequences on the organizational and contextual levels. Therefore, can we really consider Case 2 as being a sustainable case? Case 2 has been stable in maintaining their wait times for hip and knee surgery below the national benchmark. However, to be sure it is a sustainable case, it would be important to assess the unintended consequences the program has had in other regional HCOs (referral to regional hospitals of more complex cases with multiple co-morbidities, for example).

11.1.3 Factors necessary for WTMS implementation versus those necessary for its sustainability

We thought it would be interesting to examine whether the factors necessary for the implementation of a WTMS were the same as, or different from, those required to sustain an initiative over time. According to Pomey et al. (2009), the factors that improve the implementation of WTMS are: 1) greater alignment across HCOs; 2) increased and strategic communications among stakeholders; 3) strong data at the organizational as well as contextual levels; 4) clinical and administrative champion-partners; 5) clear articulation of the value proposition for WTMS; 6) patient engagement; 7) health system trade-offs and patient options; 8) incentives for clinicians; 9) leadership from the payers (ministries of health); and 10) expectations management.

Although a lot of these factors are favourable to an initiative, they interact with different levels of impact on the sustainability of the WTMS.

While it is beneficial for HCOs to learn from the ones that have put in place successful strategies, this doesn't mean that the HCOs who try to copy the successful one will be as successful with their own strategy. That is the first difference we noted.

Second, we agree communication between the organizational level and the contextual level needs to be positive. However, that communication needs to evolve into something deeper. In fact, there needs to be a good level of collaboration

between these parties in order for the objectives to be aligned for both of them. From the outset of the strategy, communication needs to be positive and the contextual level needs to fully support the hospital at every step of the strategy.

Although the collection and standardization of data makes it easier for both the contextual and organizational levels to keep track of their progress, it doesn't seem to be a critical factor for WTMS sustainability in our case studies. Also, we strongly agree that information technology only helps a change initiative spread in a hospital if the proper culture is in place to support that initiative (Green & Plsek, 2002; Jha et al., 2003).

We agree that a partnership between clinicians and administrators is important. Indeed, it is essential for physicians to be involved in the strategy from the outset, but as we saw in our case studies, it is crucial that one surgeon become the champion to entice his colleagues into a shared leadership. Therefore, while it is essential to have clinical and administrative champions, to sustain the initiative everyone needs to be involved. Thus, people need to feel there is something in it for them. It is essential to observe who seems to be resisting to the change and question them about their preoccupations and worries. This helps include everyone in the initiative and turn those resisters into collaborators (Bareil, 2010).

With regard to patient engagement, it does not seem to have any impact on being able to sustain an initiative. Nor do we believe that telling people about the health system trade-offs and patient options has any impact, either.

Although it is important to establish incentives, it doesn't seem to be a significant factor for surgeons, as they are paid on a fee-for-service basis. However, doing so for nurses, physiotherapists and other support staff can only motivate them more in terms of their involvement in the strategy, although it is not essential for sustainability. What is necessary is that everyone involved believes it will eventually relieve workplace pressures (Bradley et al., 2004).

Lastly, having to "manage expectations" may not be essential in order to sustain the initiative. As previously mentioned, a carefully and strategically planned change initiative should encounter no surprises in terms of the deliverables or the limitations of the WTMS being implemented.

On that note, it is important to ask how to determine whether a WTMS is in its implementation or its sustainability phase. According to Slaghuis, Strating, Bal and Nieber (2011), sustainability can be seen as a dynamic process in which actors in a targeted work practice develop and/or adapt the organizational routines to a new work method (p. 4). We need to evaluate whether a team is able to reach routinization before they can even consider the institutionalization phase. Those two dimensions conceptualize sustainability, according to these authors. In turn, they define a work routine as a monotonous, distinguishable pattern of associated actions, carried out by numerous actors. Therefore, if the factors we have presented facilitate WTMS sustainability, then it is reasonable to assume that these factors need to be constant over time, for the routinization and institutionalization processes to develop in a given workplace. Institutionalization is the gradual adaptation of the organizational context, including structures and processes, to the new work practice (Slaghuis et al., 2011, p. 5). Doppelt (2003) adds that communicating the need, vision, and strategies for achieving sustainability is essential.

By deduction, a team that is incapable of routinizing their work because of a poor culture, lack of resources or a low level of physician buy-in, is necessarily still in its implementation phase and therefore cannot achieve the institutionalization of work processes. This can also explain why the team would be unable to achieve a consistent reduction in wait times for hip and knee surgeries.

11.2 Recommendations

We think it is possible to draw important lessons from this study with respect to practice and decision-making. Therefore, we offer recommendations at three levels: the hospital decision-makers' level, managers at the contextual level, and the organizational level.

11.2.1 Decision-Makers' Level:

- The funding should be recurrent from one year to the next, and the hospital receiving funding should be informed of the amount in advance. A short-term policy with a non-recurrent funding is not a long-term solution. That level of incertitude does not allow the hospital to plan appropriately.

- The increase in surgical volume should ideally lead not only to increased income for surgeons but to an additional amount of money for the team. The team along with the surgeons should then decide how best to utilize that pool of money in order to improve work processes.
- It is essential for decision-makers to have an idea of what the impact could be of increasing the surgical volume in one area of care without doing so for other areas.
- It is important to highlight projects that are successful in order to allow other areas of care to learn from them.
- It is important to realize that wait time data is more important for healthcare managers and surgeons than it is for patients, because these professionals can better strategize their work with this data.

11.2.2 Managers at the Contextual Level:

- It is important for managers at the contextual level to have a good working relationship with the HCOs and to be sensitive to the realities encountered at the organizational level when it comes time to establishing objectives. For example, funding an increase in surgical volume does not necessarily lead to a reduction in wait time for those surgeries.
- It is important to encourage good communication between the organizational and contextual organizations so they can learn from one another. This communication should not be limited only to the reporting of wait time data and performance indicators.
- It is important to be supportive of innovations done at the organizational level and to be proactive about them. An example of this is the implementation of the APP role.

11.2.3 Organizational Level:

- Surgeons should be involved in the strategy and engage others to develop a shared leadership.
- Healthcare managers should be involved in the initiative, regardless of their academic background. For example, the director of surgical services in Case 1

was very proactive and respected by the team of healthcare professionals despite not having a clinical background.

- The financial resources obtained from the increased workload in the OR should be redistributed so that it benefits not only the surgeons but also the rest of the staff.
- Managers at the organizational level should better predict the effects prior to increasing the orthopaedic team's surgical volume and then assess them afterward.
- It would be useful to incorporate the WTMS into an accreditation process in order to have indicators that follow the positive and negative impacts of these strategies.
- Managers at the organizational level should be more vigilant with regard to the unintended consequences of one WTMS on other surgeries, as well as on the demands of other surgeons and healthcare professionals from those other areas of care.

CHAPTER 12 -CASE STUDY LIMITATIONS AND FUTURE RESEARCH

Like any other research study, certain elements need to be present to establish the quality of the case studies. The four most common tests are reliability, construct validity, internal validity and external validity. In the first section of this chapter, we discuss each of them in detail. In the second part, we offer suggestions for future studies.

12.1 Common Limitations

12.1.1 Reliability

In order for the study to be considered reliable, the researcher must be able to confirm that the data collection procedures can be repeated with the same results. This can be achieved by developing a case study protocol, which was done in this case. Additional steps were taken throughout this study to ensure the collection of data was reliable. The following steps were taken to ensure reliability:

Overall

- There is an adequate level of internal consistency, since we used the same version of the interview guide for all study sites of the research study.
- Similar interview questions have been asked in other studies, mainly on the implementation process of a change initiative. Therefore, the questions are robust.
- We tested the questionnaire on two healthcare professionals before using it for our case study participants.

Qualitative Data

- Each interview transcript was reviewed and corrected if necessary in order to increase accuracy.

- All the notes taken during the on-site visits were compared to the transcripts to make sure nothing was left out and to make sure it was all consistent.

12.1.2 Construct Validity

Construct validity establishes a relation between a theoretical concept and a precise measuring device. It is essential to establish operational measures for the concept being focused on in the study. Construct validity can be difficult to achieve in case studies. Yin (2002) suggests using various sources of evidence, establishing a chain of facts and having a draft case study report reviewed by the study's participants.

In our case, multiple sources of evidence were used to link certain findings related to changes occurring within the HCOs internally and externally. Triangulation was done using the theoretical framework and the multiple sources of data such as internal documents and the qualitative data received, which resulted in a chain of evidence. Also, to compensate for any possible bias, once the interviews were completed for the three case studies, the results were shared with the participants in the study in order for them to confirm that all the information collected was correct and that the draft case study report reflected the reality.

12.1.3 Internal Validity

The study's results must be shown to be internally valid. This involves measuring how well one can conclude that the changes occurring to the dependant variable were produced by the independent variable and not by other, external, factors. Internal validity has been proven in these case studies when conclusions are drawn in regard to the changes that occurred after the implementation of the specific initiative in each of the three sites. As with construct validity, using the triangulation technique allowed us to ensure internal validity of a case study because links have been made among the results. Triangulation rarely produced contradictory responses, increasing internal validity.

12.1.4 External Validity

External validity refers to how well the study's results can be generalized to other contexts and settings. Each case study was different, based on the classification we established: sustainable, moderately sustainable and unsustainable. Two of those three cases were located in Ontario. These elements could be perceived as limits to generalizability. As well, the sustainability factors identified were specific to the contexts of the three case studies, which in itself produces limitations. Therefore, these factors are particular to the cases and do not necessarily offer a framework that can be applied in every HCO. Although this limits the external validity, this reflects great internal validity.

12.1.5 Qualitative Data Limitations

There are limitations in the qualitative data we collected. First, it was not always easy to distinguish the actual WTMS from the organizational and contextual factors that impacted it. For example, one aspect of the strategy was the incremental funding received for hip and knee surgeries, which is also a contextual resource. Additionally, it would have been better to start collecting wait time data from the start of the implementation process for each of the three cases instead of choosing a random period, as was done in this study: April 2009-September 2010.

More positively, given that this work is of a qualitative nature and involves participants' perceptions of the WTMS in place in their HCO, we validated the information provided to us by the participants with objective data sources. This allows us to say that the quality of this data is good.

12.2 Suggestions for Future Research

The results reported in these three case studies suggest a promising avenue for future research. Referring to Warren's (2012) study that focused on developing a checklist of factors that facilitate the implementation process of a WTMS, it would be interesting to develop a similar tool for factors that help sustain a WTMS. This would require creating a work group to build the tool and test it. This can also be

useful for helping policy-makers understand the challenges faced by the HCOs when it comes to sustaining their initiative.

It would be interesting to conduct a study that also takes into consideration wait time 1, from referral to consultation with an orthopaedic surgeon, as opposed to only wait time 2, from consultation with the surgeon to surgery, as was done in this study.

It could be useful to send out a questionnaire to all the settings doing HKR surgeries to assess the challenges they have had to overcome to sustain their strategy and to find out whether they have been using the same tools.

CHAPTER 13 -CONCLUSION

This study has helped to reduce the knowledge gap between what factors help in implementing a change initiative and the ones that help to sustain it. Although it is important to promote WTMSs, it is crucial that these initiatives offer more mid- and long-term results without causing unintended consequences on other areas of care within the HCO and in other HCOs in the region. It is also essential to take into account the opinions of the healthcare providers involved in other areas of care. With regard to unintended consequences, it is important to consider these when assessing whether a WTMS is truly successful and sustainable. Although the purpose of this particular study was not to explore the unintended consequences of the WTMS, there is another study within this overall research project that will specifically focus on these effects of WTMSs.

In the context of our study, the most important factors that were seen to support the sustainability of WTMS are:

- exclusive mandate to do only hip and knee replacement surgery;
- motivated staff who were not distracted by other concerns;
- strong team spirit.

Other important factors included having recurrent funding for hip and knee surgeries from one year to the next, strong leadership shared by all orthopaedic surgeons, and positive collaboration between the hospital and the LHIN or Department of Health, which were present in all three cases to varying degrees. This gradient of factors found among the three cases reinforces the robustness of the study's results. In fact, the two least sustainable cases studied had to contend with a medical culture that was less homogeneous and less focused on meeting targets, resources that were dispersed, and unclear inter-organizational policy. Therefore, while the *hospital factory* model might seem attractive in the context of super-specialized surgery, patients are selected for simple surgeries, with little risk of complications, and so this cannot be considered a best practice model for others to emulate.

Altogether, the information collected for these three case studies supports the questions formulated prior to the start of this study. The data collected confirm that there are some WTMS for TJR that have had more success in reducing wait times than others and have been sustainable in doing so over time. This work also highlights specific advice for decision-makers, who need to be aware of the challenges HCOs face in attempting to achieve federal, provincial and territorial objectives with regard to wait time reduction for specialized healthcare services.

References

Alberta Bone and Joint Health Institute. (2005). *Alberta Introduces Better Access to Hip and Knee Replacements.* Alberta: ABJHI.

Alberta Bone and Joint Health Institute. (2007). *Alberta Hip and Knee Replacement Pilot Project*. Alberta: ABJHI.

Alliance sur les temps d'attente. (2006). *Wait Time Alliance Interim Report Card*. Retrieved March 9, 2012, from http://www.waittimealliance.ca/media/WTA_report_card_EN_final.pdf

Appleby, J., Boyle, S., Devlin, N., Harley, M., Harrison, A., Locock, L., & Thorlby, R. (2005). *Sustaining Reductions in Waiting Times: Identifying Successful Strategies. Final report to the Department of Health.* London: King's Fund. Retrieved January 5, 2010. http://www.library.nhs.uk/HealthManagement/ViewResource.aspx?resID=70785.

Association of Canadian Academic Healthcare Organizations (2006). *Wait Watchers II: Measuring Progress on Wait Time Strategies across ACAHO Members.* Ottawa: Author; 2006. Retrieved January 5, 2010 from http://www.acaho.org/docs/pdf_2006_wait_watchers_II_final_report.pdf.

Bareil, C. (2010) Décoder les préoccupations et les résistances à l'égard des changements. *Gestion, 34* (4), 32-8.

Barua, B., Rovere, M. & Skinner, B. J. (2010). *Waiting Your Turn: Wait Times for Health Care in Canada*. Report from the Fraser Institute.

Baxter, P. & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13* (4), 544-59.

Bayers, C. (2009). Orthopaedic assessment clinic aims to reduce surgery wait times. *Capital Health*, 1-3.

Beckhard, R. (1969). *Organization Development: Strategies and Models*. Reading, MA: Addison-Wesley.

Bevan, G., & Hood, C. (2006). Have targets improved performance in the English NHS? *BMJ, 332*, 419-22.

Bhatti, T. S., Harradine, K., Davies, B., Heather B. P. & Earnshaw, J. J. (1999). First year of a fast track carotid duplex service. *Journal of the Royal College of Surgeons of Edinburgh, 44* (5), 307-9.

Botten, G., Grepperud, S. & Nerland, S.M. (2004). Trading patients: Lessons from Scandinavia. *Health Policy, 69* (3), 317-27.

Bourne, R. B., Sibbald, W.J., Doig, G., Lee, L., Adolph, S., Robertson, D., Provencher, M. & Southwestern Ontario Study Group. (2001). The Southwestern Ontario Joint Replacement Pilot Project: Electronic point-of-care data collection. Southwestern Ontario Study Group. *Canadian Journal of Surgery, 44* (3), 199-202.

Bradley, E., Webster, T., Baker, D., LaPane, K., Lipson, D., Stone, R., et al. (2004). Translating research into practice: Speeding the adoption of innovative health care programs. *Issue Brief*. Retrieved January 21, 2012, from www.commonwealthfund.org/Publications/Issue-Briefs/2004/Jul/Translating-Research-into-Practice– Speeding-the-Adoption-of-Innovative-Health-Care- Programs.aspx.

British Columbia Ministry of Health Services. (2009). *Access to Surgery in British Columbia: The Cutting Edge*. Retrieved February 18, 2011, from http://www.health.gov.bc.ca/cpa/mediasite/pdf/SAC_Final_Report.pdf.

Brown, B. J., Hanson, M. E., Liverman, D.M., & Merideth, R.W. (1987). Global sustainability: Toward definition. *Environmental Management, 11* (8), 713-9.

Brunenberg, D. E., van Steyn, M. J., Sluimer, J. C., Bekebrede, L. L., Bulstra, S. K. & Joore, M. A. (2005). Joint recovery programme versus usual care: an economic evaluation of a clinical pathway for joint replacement. *Medical Care, 43 (10),* 1018-1026.

Campbell, R. J. (2008). Change management in health Care. *Health Care Management, 27* (1), 23-39.

Canadian Institute for Health Information. (2007). *Analysis in Brief: Wait Times Tables. – A Comparison by Province*. Retrieved on December 10, 2010, from http: //www.cihi.ca/cihiweb/en/downloads/aib_provincial_wait_times_e.pdf.

Canadian Institute for Health Information. (2009). *Waiting for Health Care in Canada: What We Know and What We Don't Know*. Ottawa: CIHI.

Canadian Institute for Health Information. (2009). *Wait time tables – A comparison by province.* Ottawa: CIHI.

Channer, K. S. (2001). Waiting list management in cardiology: The New Zealand Experience. *Clinician in Management 10* (2), 65-71.

Cooke-Davies, T. (2002). The "real" success factors on projects. *International Journal of Project Management 20,* 185-90.

Cromwell, D. & Mays, L. (1998). Waiting list statistics as performance indicators: Observations on their use in hospital management. *Australian Health Review 21* (4), 15-27.

Cromwell, D. P. & Mays, L.(1999). Can a PC-based model assist the management of waiting lists? Observations from a case study. *Journal of Quality in Clinical Practice, 19* (3), 173-178.

Curran, M. A. (2009). Wrapping our brains around sustainability. *Sustainability, 1* (1), 5-13.

Davies, H. T. O. & Mannion, R. (1999). *Clinical governance: Striking a balance between checking and trusting. Centre for Health Economics Discussion Paper 165*, York, UK: University of York Centre for Health Economics.

DeCoster, C., Carriere, K. C., Peterson, S., Walld, R. & MacWilliam, L. (1999). Waiting times for surgical procedures. *Medical Care, 37* (6), JS187-205.

DeCoster, C. (2002). Measuring and managing waiting times: What's to be done? *Healthcare Management Forum 15* (2), 6-10.

Deming, W. E. (1986). *Out of the Crisis*. Cambridge: MA: MIT Press.

De Wit, A. (1988). Measurement of project success. *Project Management, 6* (3), 164-70.

Doppelt, B. (2003). Overcoming the seven sustainability blunders. *The Systems Thinker, 14* (5), 1-7.

ExpandNet. (2009). *Practical guidance for scaling up health service innovations.* Retrieved January 20, 2012, from www.expandnet.net/PDFs/ExpandNet-WHO% 20Nine%20Step%20Guide%20published.pdf.

Federal Advisor on Wait times. (2006). *Final Report of the Federal Advisor on Wait Times*. Ottawa: Health Canada.

Frank, C., Dick, D., Smith, D., Wasylak, T., Gooch, K., & Zernicke R. (2009). The Alberta Bone and Joint Health Institute: Creating sustainable accountability through collaboration, relevant measurement and timely feedback. *Healthcare Papers, 7* (1), 34-9.

Ganz, M. (2008). *Leading change: Leadership, organization, and social movements.* Paper presented at Harvard Business School conference on Leadership: Advancing an Intellectual Discipline. Cambridge, MA: June 10-11, 2008.

Gardner, K. L., Dowden, M., Togni, S., & Bailie, R. (2010). Understanding uptake of continuous quality improvement in Indigenous primary health care: Lessons from a multi-site case study of the Audit and Best Practice for Chronic Disease project. *Implementation Science, 5,* 21. doi: 1748-5908-5-21 [pii] 10.1186/1748-5908-5-21.

Gauld, R. & Derrett, S. (2000). Solving the surgical wait list problem? New Zealand's 'booking system'. *International Journal of Health Planning and Management, 15* (4), 259-72.

Glazier R. H., Badley, E. M., Wright, J. G., Coyte, P. C., Williams, J. I., Harvey, B., Wilkins, A. L., & Hawker, G. A. (2003). Patient and provider factors related to comprehensive arthritis care in a community setting in Ontario, Canada. *Journal of Rheumatology*, *30,* 1846-50.

Government of British Columbia. (2010). *Surgical Wait Times*. Retrieved on January 17, 2011, from http://www.health.gov.bc.ca/swt/

Government of Canada. (2009). *The Wait Times Issue and the Patient Wait Times Guarantee.* PRB 05-82E. Ottawa: Parliament of Canada.

Government of Manitoba. (2006). *Working for Better Health Care Sooner: Report to Manitobans on Health Care Services* (Brochure). Manitoba: Government of Manitoba.

Government of Nova Scotia. (2010). *Nova Scotia Wait Times for Hip and Knee Surgeries*. Retrieved January 29, 2011, from http://www.gov.ns.ca/health/waittimes/progress/bulletin.asp.

Government of Saskatchewan. (2010). *Saskatchewan Surgical Care Network: Wait List Initiatives*. Saskatchewan: Saskatchewan Health.

Government of Saskatchewan. (2010). *Saskatchewan Surgical Initiative. Sooner, Safer, Smarter: A Plan to Transform the Surgical Patient Experience*. Saskatchewan: Saskatchewan Health.

Glynn, P. A. (2006). Sustaining change: The imperative for patient access strategies. *Healthcare Papers, 7* (1), 55-7.

Green, P. L., & Plsek, P. E. (2002). Coaching and leadership for the diffusion of innovation in health care: A different type of multi-organization improvement collaborative. *Joint Commission Journal on Quality Improvement, 28,* 55–71.

Greenhalgh, T., Robert, G., Bate P., Kyriakidou, O., Mcfarlane, F., & Peacock, R. (2004). *How to Spread Good Ideas: A systematic review of the literature on diffusion, dissemination and sustainability of innovations in health service delivery and organisation.* Report for the National Co-ordinating Centre for NHS Service Delivery and Organization. London, UK: NHSSDO Programme.

Ham, C., Kipping, R., & McLeod, H. (2003). Redesigning work processes in health care: Lessons from the National Health Service. *Milbank Quarterly, 81* (3), 415-39.

Hanning, M. (1996). Maximum waiting-time guarantee - An attempt to reduce waiting time lists in Sweden. *Health Policy, 36* (1), 17-35.

Hanning, M. & Lundstrom, M. (1998). Assessment of the maximum waiting time guarantee for cataract surgery. The case of a Swedish policy. *International Journal of Technology Assessment in Health Care, 14* (1), 180-93.

Hanning, M. & Spangberg, U.W. (2000). Maximum waiting time - A threat to clinical freedom? Implementation of a policy to reduce waiting times. *Health Policy 52* (1), 15-32.

Harrison, A., & Appleby, J. (2005). *The War on Waiting for Hospital Treatment: What has Labour Achieved and What Challenges Remain?* London: King's Fund.

Hatchuel, A. (2000). Prospective et gouvernance: Quelle théorie de l'action collective? In E. Heurgon & J. Landrieu (Eds.), *Prospective pour une gouvernance démocratique* (pp. 29-42). La tour d'Aigues, France : Éditions de l'Aube 2000.

Hayfield, F. (1979). Basic factors for a successful project. *Proceedings of the 6th Internet Congress,* Garmisch-Partenkirchen FRG, 7-37.

Health Canada. (2004). *First Minister's Meeting on the Future of Health Care. A 10-year plan to strengthen health care.* Retrieved on December 12, 2012, from http://www.hs-sc-gc.ca/hcs-sss/delivery-prestation/fptcollab/2004-fmm-rpm/index_e_html].

Health Council of Canada. (2007). *Wading Through Wait Times: What Do Meaningful Reductions and Guarantees Mean?* Retrieved on March 9, 2012, from http://publications.gc.ca/site/eng/315099/publication.html.

Hefford, B. & Holmes, A. (1999). Booking systems for elective services: the New Zealand experience. *Australian Health Review, 22* (4), 61-73; discussion 74-7.

Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research, 15* (9), 1277-88.

Huberman, M. A., & Miles, M. B. (1994). *Qualitative Data Analysis*. California: Sage Productions.

Hurst, J., & Siciliani L. (2003). *Tackling Excessive Waiting Times for Elective Surgery: A Comparison of Policies in Twelve OECD Countries*. Paris: OECD.

Jha, A. K., Perlin, J. B., Kizer, K. W., & Dudley, R. A. (2003). Effect of the transformation of the Veterans Affairs Health Care System on the quality of care. *New England Journal of Medicine, 348,* 2218-27. doi: 10.1056/NE-JMsa021899 348/22/2218.

Joshi, N. P., Noseworthy, F. T., & Noseworthy, T. W. (2006). Waiting time care guarantees: Necessity or nemesis? *Healthcare Management Forum*, *19* (2), 35-39.

Karvonen, S., Rämö, J., Leijala, M. & Holmström, J. (2004). Productivity improvement in heart surgery – A case study on care process development. *Production Planning & Control, 15,* 238-46.

Kingston, R., Carey, M., & Masterson, E. (2000). Needs-based waiting lists for hip and knee arthroplasty. *Irish Journal of Medical Science 169* (2), 125-6.

Kotter, J. (2008). *A Sense of Urgency*. Boston: Harvard Business Press.

Kreindler, S. A. (2010). Policy strategies to reduce waits for elective care: A synthesis of international evidence. *British Medical Bulletin*, *95,* 7-32.

Krippendorff, K. (2004). *Content Analysis: An Introduction to Its Methodology*. Thousand Oaks, CA: Sage Productions.

Larmour, A. (2011). Assessment centre cuts wait times. *Northern Ontario Medical Journal, 1*. Retrieved February 20, 2011, from http://www.nomj.ca/Articles/News/Assessment-Centre-cuts-wait-times%20.aspx.

Leach, P., Rutherford, S. A., King, A. T. & Leggate, J. R. S. (2004). Generic waiting lists for routine spinal surgery. *Journal of the Royal Society of Medicine 97* (3), 119-20.

Lélé, S. M. (1991). Sustainable development: A critical review. *World Development, 19* (6), 607-21.

Levy, A. R., Sobolev, B. G., Hayden, R. , Kiely, M., Fitzgerald, J. M., & Schechter, M. T. (2005). Time on wait lists for coronary bypass surgery in British Columbia, Canada, 1991–2000. *BMC Health Services Research, 5* (1)*,* 22.

Lundström, M., Stenevi, U., & Thorburn, W. (1996). Assessment of waiting time and priority setting by means of a national register. *International Journal of Technology Assessment in Health Care, 12* (1), 136-40.

MacLean, G. N. (2006). *Organization Development: Principles, Processes, Performance*. San Francisco, CA: Berrett-Koehler Publishers.

MacLeod, H., Hudson, A., Kramer, S. & Martin, M. (2009). The Times They Are-A Changing: What Worked and What We Learned in Deploying Ontario's Wait Time Information System. *Healthcare Quarterly, 12*, 8-15.

Matrix. (2003). *NHS modernisation, making it mainstream.* Leicester: NHS.

McCannon, C. J., Hackbarth, A. D., & Griffin, F. A. (2007). Miles to go: An introduction to the 5 Million Lives Campaign. *Joint Commission Journal on Quality and Patient Safety, 33* (8)*,* 477–84.

McDonald, P., Short, S., Sanmartin, C., Barer, M., Lewis, S., & Sheps, S. (1998). Waiting lists and waiting times for health care in Canada: More management!! More money?? *Statistics Canada*. Retrieved on January 11, 2010, from http://www. Hc-sc.qc.ca/English/media/releases/waiting_list.html.

Maddison, P., Jones, J., Breslin, A., Barton, C., Fleur, J., Lewis, R., et al. (2004). Improved access and targeting of musculoskeletal services in northwest Wales: targeted early access to musculoskeletal services (TEAMS) programme. *BMJ, 329* (7478), 1325-7.

Masri, B. A., Cochrane, N., Duncan, C., et al. (2005). *Priority Criteria for Hip and Knee Replacement: Addressing Health Service Wait Times. Report II: Inventory of Initiatives: Joint replacement: International Approaches to Meeting the Needs*. Vancouver, BC: H. Krueger & Associates.

Maxwell, J. (2009). *How Successful People Think: Change Your Thinking, Change Your Life*. New York: Hachette Work Group.

McLeod, H., Ham, C., & Kipping, R. (2003). Booking patients for hospital admissions: Evaluation of a pilot programme for day cases. *BMJ, 327* (7424), 1147-50.

Mills, R. P. & Heaton, J. M. (1991). Waiting list initiatives: Crisis management or targeting of resources? *Journal of the Royal Society of Medicine, 84* (7), 405-7.

Ministère de Santé et des Services Sociaux (MSSS) (2005). *Report on the Progress Made Regarding the Bilateral Agreement Entered into During the Federal-Provincial-Territorial Meeting of the First Ministers on Health*. Québec: Santé et services sociaux du Québec. Retrieved March 9, 2012, from http://publications.msss.gouv.qc.ca/acrobat/f/documentation/2005/05-720-01A

Ministry of Health and Long Term Care (2006). *Health Results Team: Second Annual Report 2005-2006; A Focus on Access and Quality Improvement*. Toronto: Ministry of Health and Long Term Care.

Ministry of Health and Long Term Care (2006). *Ontario Government Reducing Health Care Wait Times*. News release. Retrieved January 27, 2011, from http://www.health.gov.on.ca/english/media/news_releases/archives/nr_06/may/nr_051806_2.pdf.

Ministry of Health and Long Term Care (2007). *Ministry of Health and Long Term Care /Local Health Integration Network Annual Service Plan*. Retrieved January 28, 2011, from http://www.gov.ns.ca/health/waittimes/procedure.asp?pid=1011http://www.docstoc.com/docs/3591872/Ministry-of-Health-and-Long-Term-Care-Local-Health-Integration

Ministry of Health and Long Term Care. (2010). *Ontario Wait Times*. Ontario: Ministry of Health and Long Term Care.

Mobb, G. E., Pugh, F. & Peeling, B. (1994). How long is your waiting list? Experience of a urological waiting list initiative. *Journal of the Royal Society of Medicine, 87* (3), 140-2.

Morrison, M. (2010). *Orthopaedic Assessment Clinic (OAC): A Team Approach to Improving Access and Care for Hip and Knee Replacement Patients.* [Brochure]. Halifax, NS: Capital Health.

Mullen, P. M. (1994). Waiting lists in the post-review NHS. *Health Services Management Research, 7* (2), 131-45.

Neuendorf, K. A. (2002). *The Content Analysis Guidebook*. Thousand Oaks, CA: Sage Publications.

Noseworthy, T. W., McGurran, J. J., & Hadorn, D. C. (2003). Waiting for scheduled services in Canada: Development of priority-setting scoring systems. *Journal of Evaluation in Clinical Practice, 9* (1), 23-31.

Noseworthy, T. W., McGurran, J. J., & Hadorn D. C., & Steering Committee of the Western Canada Waiting List Project. (2003). Waiting for scheduled services in Canada: Development of priority-setting scoring systems. *Journal of Evaluative Clinical Practice*, *9* (1), 23–31.

Nova Scotia Health (2010). *Annual Accountability Report for the Fiscal Year 2010-2011*. Halifax: Nova Scotia Department of Health.

Pacifico, M. D., Pearl, R. A., & Grover, R. (2007). The UK Government two-week rule and its impact on melanoma prognosis: An evidence-based study. *Annals of the Royal College of Surgeons of England, 89* (6), 609–15.

Parsons, T. (1977). *Social Systems and the Evolution of Action Theory*. New York: Free Press.

Pearson, K. & Meyer, H. (1991). Waiting times: the search for equitable solutions. Case study: Mater Misericordiae Adult Public Hospital Continuum of Care Model. *Australian Health Review, 19* (4), 93-9.

Perla, R. J., Bradbury E. & Gunther-Murphy, C. (2011). Large-scale improvement initiatives in healthcare: A scan of the literature. *Journal for Healthcare Quality*. doi: 10.1111/j.1945-1474.2011.00164.x

Pinto, J. K. & Covin J. G. (1989). Critical factors in project implementation: A comparison of construction and R&D projects. *Technovation, 9*, 49-62.

Pitt, D., Noseworthy, T., Guilbert, J., & Williams, J. R. (2003). Waiting lists: Management, legalities and ethics. *Canadian Journal of Surgery, 46* (3), 170-5.

Pomey, M.-P, Forest, P. G., Sanmartin, C., DeCoster, C., & Drew, M. (2009). *Determinants of Waiting Time Management for Health Services. A Policy Review and Synthesis*. Montreal: Université de Montréal, Groupe de rescherche interdisciplinaire en santé.

Pomey, M.-P., Forest, P.G., Sanmartin, C., DeCoster, C. & Drew, M. (2010). Wait Time Management Strategies for Scheduled Care: What Makes Them Succeed? *Healthcare Policy, 5* (3), 66–81.

Prime Minister of Canada. (2007). Canada's New Government Announces Wait Times Guarantees. News release, April 4, 2007. Retrieved on December 10, 2011, from http://pm.qc.ca/eng/media.asp?id=1611.

Ramchandani, M., Mirza, S., Sharma, A. & Kirkby, G. (2002). Pooled cataract waiting lists: Views of hospital consultants, general practitioners and patients. *Journal of the Royal Society of Medicine, 95* (12), 598-600.

Robarts, S., Kennedy, D., MacLeod A.M., Findlay H. & Gollish J. (2008). A framework for the development and implementation of an advanced practice role for physiotherapists that improves access and quality of care for patients. *Healthcare Quaterly, 11* (2), 67-75.

Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). New York: Free Press.

Rosenau, M. (2001). Successful project management. *International Journal of Project Management, 19* (3),189-93.

Rothwell, W. L. & Sullivan, R., eds. (2005). *Practicing Organization Development: A Guide for Consultants* (2nd edition). San Francisco: John Wiley & Sons.

Rozich, J. D. & Resar, R. K. (2002). Using a unit assessment tool to optimize patient flow and staffing in a community hospital. *Joint Commission Journal on Quality Improvement, 28* (1), 31-41.

Saladis, F. P. & Kerzner, H.(2009) Defining Project Success. In F. P. Saladis and H. Kerzner, *Bringing the PMBOK® Guide to Life: A Companion for the Practicing Project Manager* (pp. 65-76). Hoboken, NJ: John Wiley & Sons.

Sanmartin, C. (2003). Toward standard definitions for waiting times. *Healthcare Management Forum.* Retrieved on December 9, 2010, from www.cchse.org/Forum Onlin.htm).

Sanmartin, C., Short, S. E. D., Barer, M.,I., Sheps, S., Lewis, S., & McDonald, P. (2000). Waiting for medical services in Canada: Lots of heat, but little light. *Canadian Medical Association Journal, 162* (9), 1302-10.

Senge, P., Kleiner, A., Roberts, C., Ross, R., Roth, G., & Smith, B. (1999). *The Dance of Change: The Challenges of Sustaining Momentum in Learning Organizations*. New York: Doubleday.

Shortell, S. M., Levin, D. Z., O'Brien, J. L., & Hughes, E. F. (1995). Assessing the Evidence on CQI: Is the glass half empty or half full? *Hospital & Health Services Administration, 40* (1), 4-24.

Slaghuis, S. S., Strating, M. H., Bal, R. A. & Nieboer, A. P. (2011). A framework and a measurement instrument for sustainability of work practices in long-term care. *BMC Health Services Research, 11,* 314. doi:10.1186/1472-6963-11-314

Solomon, R. (2006). *Ontario's Wait Time Strategy – Improving System Efficiency*. Paper presented at the Taming of the Queue III conference, March 30, 2006. Ottawa, Canada.

Tandon, S., Machin, D., Jones, T. M., Lancaster, J. & Roland, N. J. (2005). How we do it: Head and neck cancer waiting times. *Clinical Otolaryngology 30* (30), 279-82.

Taylor, K., Dangerfield, B. & Le Grand, J. (2005). Simulation analysis of the consequences of shifting the balance of health care: A system dynamics approach. *Journal of Health Sciences & Research Policy, 10* (4), 196-202.

Thompson, J. M. (2010). Understanding and managing organizational change: Implications for public health management. *Journal of Public Health Management Practice, 16* (2), 167-73.

Trypuc, J., Hudson, A., & Macleod, H. (2006). Ontario's Wait Time Srategy: Part 1, *Healthcare Quarterly, 9* (2), 44-51.

Trypuc, J., MacLeod, H. & Hudson, A. (2006). Developing a culture to sustain Ontario's Wait Time Strategy. *Healthcare Papers 7* (1), 8-24.

Ulhøi, J.P., & Ulhøi B.P. (2009). Beyond climate focus and disciplinary myopia: The roles and responsibilities of hospitals and healthcare professionals. *International Journal of Environmental Research and Public Health, 6,* 1204-14.

United Nations. (1987*). Report of the World Commission on Environment and Development*. Retrieved on March 9, 2012, from http://www.un-documents.net/wced-ocf.htm

Van Bueren, E.V., & De Jong, J. (2007). Establishing sustainability: Policy successes and failures. *Building Research & Information, 35* (5), 543-556.

Walley, P., Silvester, K., & Steyn, R. (2006). Knowledge and behaviour for a sustainable improvement culture. *Healthcare Papers, 7* (1), 26-33.

Warren, E. (2012). An evidence-based approach to improving orthopaedic patient flow and wait times. *Extra Intervention Progress Report*. Unpublished doctoral dissertation. Canadian College of Health Leaders, St-John's, Newfoundland.

Willcox, S., Seddon, M., Dunn, S., Edwards, R. T., Pearse, J., & Tu, J.V. (2007). Measuring and reducing wait times: A cross-national comparison of strategies. *Health Affairs, 26* (4), 1078-87.

Wolinsky, F.D. & Marder, W.D. (1983). Waiting to see the Doctor: the impact of

Organizational Structure on Medical Practice. *Medical Care, 21*, 531-542.

Worthington, D. (1991). Hospital waiting list management models. *Journal of the Operational Research Society, 9*, 148-51.

Yin, R. (2002). *Case Study Research: Design and Methods* (3rd ed.). Beverly Hills, CA: Sage Publishing.

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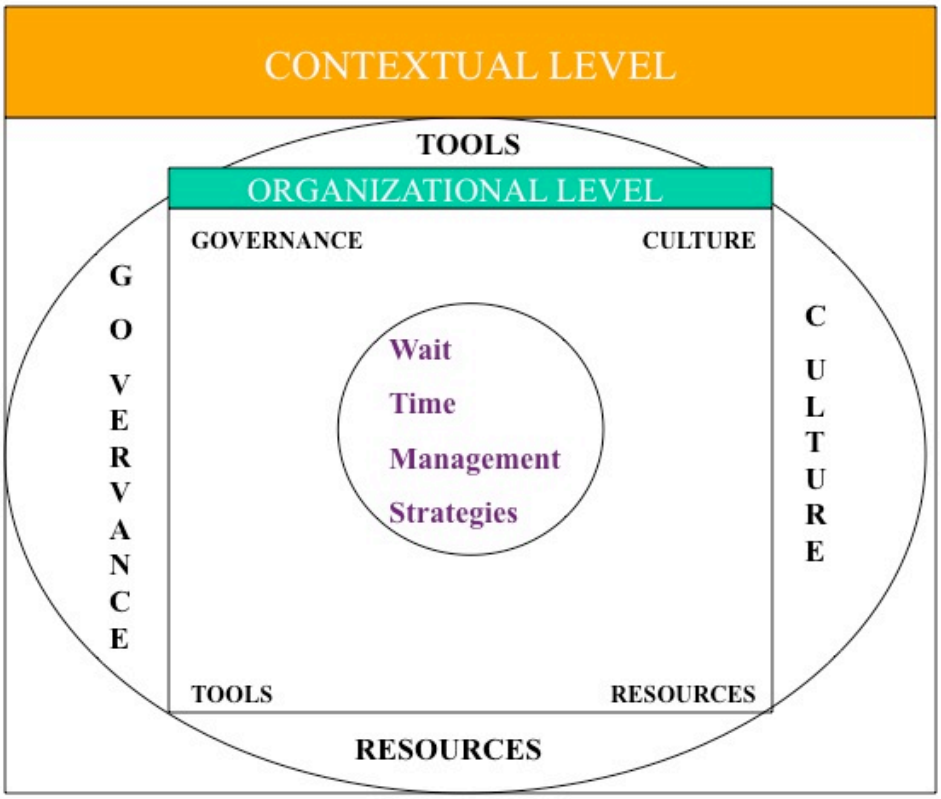
Appendix 1: Theoretical Framework



Appendix 2: Semi-directed interview guide: Interviews with people involved in wait time management for HKR in Regional Health Authorities and Hospitals or Clinics

Background

Objectives of the study

- To validate the results of the wait time management strategy (WTMS)
- To understand the factors that enhance or inhibit the implementation and the sustainability of WTMS for total joint replacement surgeries in Canadian provinces in order to reduce waiting times to the times targeted by provincial/regional and federal authorities (6 months or less)
- To identify factors that could apply to other organizations
- To identify the impact of WTM strategies for total joint replacement surgery on other programs in healthcare organizations
- To look at the side effects of WTM strategies at the organizational level or other levels (e.g., primary care) within the healthcare system

Who will be interviewed in each site:

- The medical director
- The director of operations
- The orthopaedic OR chief officer Other orthopaedic surgeons and high-volume surgeons
- Health professionals involved in triage or initial assessment
- Health professionals involved in post-operative care for HKR patients
- The person responsible for surgical bookings

Information and documents to be sent before the meeting

- Wait times between the decision to treat and surgery over the last 18 months or longer
- Report on the WTMS if available

- The organizational diagram
- Etc.

Interview guide

Background

1. When did you start working in healthcare?
2. What is your educational/professional background?
3. What organization and sector do you work in?
4. What are your title and your functions?
5. What is your role in WTM strategies for total joint replacement surgeries?

WTM Strategy

1. Can you describe the strategy that was implemented in your organization to reduce wait times for HKR?
    a. How did the strategy originate? Did it start out as a provincial, a regional or a local initiative?
    b. In what context was the strategy implemented?
    c. At the time that the strategy was implemented, what were the major causes of the problem? Examples: inadequate resources, a lack of coordination, a lack of governance at the provincial/regional/local level, a lack of leadership, the wrong management tools
    d. What were the motivations for fixing the problem?
    e. Has the WTM strategy changed from its beginnings to now?

(for the interviewer: description of the WTMS and classification of the means used to reduce wait times)

2. Can you validate the impact of the strategy on the waiting time between the decision to treat and surgery?

(For the interviewer: statistics that we have collected and statistics that we have asked of the WTM coordinator)

3. What would you consider a successful WTM strategy? Would you characterize this initiative as a sustainable strategy, a moderately sustainable strategy, or a strategy that should be improved? Why?

(For the interviewer: our own definition to discuss with the interviewee)

4. How do you personally define a sustainable WTM strategy?

(For the interviewer: our own definition to discuss with the interviewee)

Implementation phase

1. When did the strategy's implementation process begin?
2. What time frame do you feel corresponds to the implementation phase? Are we still in that phase?
3. What factors enhanced or inhibited the implementation phase?
    a. What governance factors?
        i. Were the Board and the CEO involved in designing and implementing the WTM strategy?
        ii. Who was responsible for the implementation of the strategy?
        iii. Were/are you involved at the project's implementation phase? If so, how?
        iv. What type of governance measures were put in place for implementing the strategy? (special committees, etc.)
    b. What cultural factors?
        i. How would you categorize the culture of this organization? (hierarchical / rational / group / developmental)
        ii. Were physicians involved from the beginning?
        iii. What were physicians' roles and responsibilities regarding the initiative?

c. What resource factors?
    i. Were specific resources dedicated to the project: human, financial, infrastructure, information resources?
    ii. In the implementation phase, did you have access to reliable information to help manage wait times?
    iii. Has the hospital conducted its own studies to measure the impact of WTM strategies on waiting times? Are reports available?
d. What tool factors?
    i. Were specific tools or procedures used?
    ii. Did you use operational research, prioritization tools, an organizational care process, the patient pathway?

Sustainability phase

1. Were new conditions necessary to sustain this strategy?
2. Did you receive resources earmarked for sustaining the initiative, either from outside or inside the organization?
3. Did you have to change the governance of the WTM strategy in order to sustain the strategy?
4. Did factors that affected the implementation process, change in the sustainability phase?
5. Did you face challenges in maintaining the WTM strategy's impact on waiting times?
    a. If so, what did those challenges lead to?
        i. E.g.: a difficulty to maintain motivation around the strategy
    b. What challenges were identified?
        i. Inadequate resources, a lack of coordination, a lack of governance at the local/regional/provincial level…

Conclusion

1. Reflecting on the helpful and unhelpful factors discussed here, which factors do you think were the most crucial to implementing and sustaining the WTM strategy in your organization?
2. What do you think others could learn from your experience?

Appendix 3: Provincial wait time management strategies

Quebec

The Quebec Ministry of Health did not agree to a common benchmark of hip fracture repair within 48 hours of admission. Quebec decided to apply its own wait time management plan, in accordance with the goals, standards and criteria established by the relevant Quebec authorities. In September 2004, the premiers of Quebec and the other Canadian provinces signed a bilateral agreement entitled "*Asymmetrical Federalism That Respects Quebec's Jurisdiction*". This *asymmetrical agreement* allows for the existence of specific agreements and arrangements adapted to Quebec's specificity. The *Public Administration Act* adopted in 2000 suggested a new results-oriented management method. Results are measured using indicators, which are crucial for this type of management, not only for the actual measurement of the results and performance assessment, but for making decisions, developing and reviewing the strategic plan and action plans, allocating resources, improving services and service provision methods and developing the organization as well (MSSS, 2005).

This new management framework requires the Ministry to produce a multi-annual strategic plan, an annual expense management plan and an annual management report.

The Ministère de la santé et des services sociaux (MSSS) signed management and accountability agreements during the summer of 2005 with its regional health agencies.

Quebec has its own data collection tool, which is an exception from other provinces, for whom the Canadian Institute for Health Information (CIHI) accumulates data. The information system for access to specific specialized services, called SIMASS, makes it possible to track wait lists everywhere in Quebec and conformity with targets in each hospital. Therefore, data on wait times, number of patients who undergo surgery, and number of patients waiting for different interventions (hip

arthroplasty, knee arthroplasty, cataract surgery, and other outpatient and inpatient surgeries) are available for each region and hospital.

The Health Commissioner is responsible for reporting to the Government of Quebec on Quebec's health system and does so in collaboration with CIHI.

Funding made available by the Government of Canada was used by the Government of Quebec to implement its own plan for renewing Quebec's health system (MSSS, 2005).

However, Quebec agreed to do all hip and knee surgeries within six months for patients whose data have been entered into SIMASS since June 1, 2007 (MSSS, 2005). If the wait time benchmark cannot be guaranteed, one of the following alternatives must be offered to the patient:

- Being operated on by another surgeon at their hospital;
- Being operated on by another surgeon at another hospital in their region;
- Being operated on by another surgeon at another hospital outside their region.
- Being operated on in a specialized medical centre (SMC, CMSA).

In Quebec, a patient is seen by his GP, who refers the patient to an orthopaedic surgeon. The surgeon decides whether the patient is a surgical candidate, and if so, the patient is placed on the wait list, at day 0. The patient receives a letter confirming placement on the wait list and the phone number of the access coordinator. The patient receives a phone call within 30 days with a surgical date scheduled within six months. If the benchmark cannot be respected, the patient is offered other alternatives, as described above.

British Columbia

In 2006, the British Columbia government (2010) provided funding to build a specialist centre to increase existing surgical capacity for hip and knee joint replacement (HKR) by 1,600 cases per year. In fact, the British Columbia Ministry of Health (BCMOH) announced a 60.5 million dollar WTMS. An investment of 21.8 million dollars was made in each of the 2006/07 and 2007/08 financial years to finance the development and implementation of a provincial specialty resource surgical program. The ultimate goal was to achieve a wait time target of 26 weeks.

British Columbia strives to create a more accountable approach to health care delivery through the elaboration of services plans, annual reports, publications, the BC progress Board, as well as Health Authorities Performance Agreements (BCMOH, 2009).

Alberta

In 2001, The Premier's Advisory Council on Health presented a report entitled *A Framework for Reform* to the Government of Alberta, which made recommendations for many areas of health system reform. The Council advised that there be a 90-day access guarantee. As a result, the Ministry of Health consulted many clinical and medical experts to determine the wait time goals and ways to achieve these objectives.

As an example of the work done, the Alberta Orthopaedic Society (AOS) did an initial comprehensive analysis and redesign of the continuum of care for hip and knee replacement surgeries in order to lessen long wait times for patients waiting for a consultation with a surgeon or for the actual surgery in 2003/2004 (ABJHI, 2007). It was presented to Alberta's Ministry of Health and Wellness, who then provided funding to pilot the new continuum of care for 1,200 patients. Therefore, many administrative structures are accountable for reporting, achieving outcomes as well as financial management.

Saskatchewan

According to the Government of Saskatchewan website (2010), a promise was made to address the wait times issue as a priority in its Throne Speech on October 21st, 2009. The Saskatchewan Surgical Initiative (SSI) started following its announcement in Saskatchewan's 2010-2011 budget, which included a 10.5 million dollar investment for the SSI. For example, a new provincial clinical pathway for hip and knee patients has been developed to improve access, flow and patient satisfaction and foster good quality service and care for more patients. The pathway underpins the patient's process from meeting with the GP to post-operative rehabilitation. It includes a GP referral form, intake through a multi-disciplinary clinic, pre- and post-surgery educational processes, new ward flow and dedicated operating room times and beds. An HKR referral scoring tool was created to be filled out by the GP and sent to one of the four assessment clinics.

Saskatchewan's target time frames for non-emergency surgeries are:

- Priority Level 1 (urgency score 80-100): 95 % within three weeks
- Priority Level 2 (urgency score 65-79): 90 % within six weeks
- Priority Level 3 (urgency score 50-64): 90 % within three months
- Priority Level 4 (urgency score 1-49): 90 % within 12 months

As the report states, the aim of the provincial funding was to do:

- 3,000 additional surgeries
- 2,500 more CT scans
- Renovations to enhance OR and post-operative bed capacity
- Implementation of an electronic Surgical Information System in two regions
- Numerous system improvement initiatives

Ontario

As a result of the national Wait Time Strategy declared by Canada's first ministers in the fall of 2004, the Ontario Ministry of Health and Long-Term Care invested 410 million dollars on May 18, 2006, for additional procedures such as: 43,850 cataract surgeries, 18,210 hip and knee replacements, 16,650 cardiac procedures, 11,260 cancer surgeries and 182,700 MRI scans (Ministry of Health and Long-Term Care,

2006). Consequently, there has been a clear increase in the rate of WTS targeted procedures.

Most of the 14 Local Health Integration Networks (LHINs), which had been established by the Ontario Government as community-based organizations, decided to implement initiatives to reduce hip and knee replacement surgery wait times. Their role is to work with the Ontario Government, local health service providers, community agencies, residents and others to ensure a well-coordinated system of health services. They established accountability agreements with HCOs that specified expectations regarding outputs (e.g. access requirements, websites, provincial access targets) and short-term outcomes (clear roles and responsibilities, performance measured against expectations, and organization accountability) (Solomon, 2006).
As an example of HKR WTMS put in place, one particular LHIN developed the LHIN Joint Health and Disease Management Program (JHDMP) Steering Committee to implement a comprehensive program for active management of patients needing hip and knee replacement surgery across the entire continuum of care.

New Brunswick

When New Brunswick started its surgical access management initiative, it embraced all surgeries and moved forward to improve access. As of March 10, 2009, the province had reached 80 % of all hip replacements being done within 26 weeks, but only 60 % of knee replacements were being done within that time frame; across the province, these percentages varied from site to site. Since it became possible to report wait times using the provincial surgical access registry, there has been significant progress.

PEI/Territories/Newfoundland

In our research, we found no concrete WTMS in Prince Edward Island or the Territories. In Newfoundland, a new strategy is being implemented, but it began less than one year ago. For this reason, we excluded it from our study.

Manitoba

In October 2005, Manitoba launched a new Wait Time Reduction Strategy to improve access to five priority areas agreed to by Canada's First Ministers:

1. Diagnostic tests such as MRI and CT scans
2. Cancer treatment
3. Cardiac care
4. Hip and knee replacement
5. Sight restoration (primarily cataract surgeries)

The Government of Manitoba's plan focused on the priorities of Manitobans, with considerable funding committed to programs such as hip and knee replacements and diagnostic tests. The 155 million dollar plan was developed in close consultation with physicians and regional health authorities, reflecting the needs of Manitobans.

There are five main components to the strategy:

- more surgeries – 57.1 million dollars;
- more diagnostic testing –25.5 million dollars;
- more health professionals – 12.4 million dollars;
- prevention and health promotion – 17.2 million dollars; and
- system innovation and better wait-list management – 10.5 million dollars.

With regard to better wait-list management, the government is working with healthcare partners to develop the Manitoba Patient Access Network (MPAN) to improve patient access to care and co-ordinate wait lists on a regional and provincial basis. As an example of an HKR initiative, the Government of Manitoba has invested $600,000 to expand its "pre-habilitation" program, which opened in the fall of 2007 (Government of Manitoba, 2006).

Nova Scotia

In 2008, as part of a broad-based strategy, Nova Scotia's Department of Health approved a contract between one regional hospital and an ambulatory clinic at another regional hospital that enabled more than 500 additional orthopaedic surgeries to be performed over the following year. Under this arrangement, the hospital's surgeons were able to use the clinic's OR facilities to do publicly insured, minor orthopaedic surgical procedures. The project also provided more space at the main hospital site for surgeons to tackle more difficult orthopaedic cases. The Department of Health allocated almost 1 million dollars to the project.

The Patient Access Registry (PAR) was launched across the province in February 2010. The Registry is a provincial database of all patients waiting for surgery. It allows hospitals to be better informed about surgical wait times and the factors that contribute to longer than appropriate wait times.

Appendix 4: Case 1 Wait Times for Hip and Knee Replacements and Surgical Volumes, April 2009-September 2010

	Fiscal Month	Mean Wait	90th Percentile Wait		Fiscal Month	Mean Wait	90th Percentile Wait
Hip	Dec 09	109	233	Knee	Dec 09	150	281
	Jan 10	142	249		Jan 10	175	316
	Feb 10	124	180		Feb 10	146	232
	Mar 10	108	193		Mar 10	152	356
	Apr 10	135	236		Apr 10	139	282
	May 10	88	179		May 10	129	254
	Jun 10	88	173		Jun 10	112	243
	Jul 10	88	172		Jul 10	93	189
	Aug 10	103	252		Aug 10	93	170
	Sep 10	120	225		Sep 10	103	192
	Oct 10	99	200		Oct 10	113	177
	Nov 10	94	175		Nov 10	94	191
	Dec 10	94	203		Dec 10	95	173
	Jan 11	77	121		Jan 11	99	184
	Feb 11	116	256		Feb 11	140	252
	Mar 11	103	172		Mar 11	107	167
	Apr 11	69	146		Apr 11	133	239
	May 11	53	105		May 11	99	200

	Fiscal Month	Mean Wait	90th Percentile Wait		Fiscal Month	Mean Wait	90th Percentile Wait
Hip	Apr 09	110	285	Knee	Apr 09	121	277
	May 09	60	113		May 09	117	262
	Jun 09	83	117		Jun 09	127	212
	Jul 09	81	140		Jul 09	130	246
	Aug 09	111	167		Aug 09	151	275
	Sep 09	131	226		Sep 09	128	287
	Oct 09	126	207		Oct 09	137	254
	Nov 09	127	244		Nov 09	129	210
	Dec 09	109	233		Dec 09	150	281

Month & Year	Hip and Knee Replacement Volume
April 2009	49
May 2009	46
June 2009	59
July 2009	47
August 2009	46
September 2009	39
October 2009	63
November 2009	47
December 2009	67
January 2010	62
February 2010	47
March 2010	72
April 2010	69
May 2010	55
June 2010	61
July 2010	52
August 2010	57
September 2010	58
October 2010	69
November 2010	53
December 2010	41
January 2011	44
February 2011	65
March 2011	76
April 2011	53

Appendix 5: Case 2 Wait Times for Hip and Knee Surgeries and Surgical Volumes, April 2009-September 2010

Service Detail	Month/Year	Completed Case Volume	90th Percentile Wait
Hip	Apr-09	58	161
	May-09	54	135
	Jun-09	75	166
	Jul-09	69	152
	Aug-09	47	90
	Sep-09	75	158
	Oct-09	72	108
	Nov-09	76	144
	Dec-09	54	111
	Jan-10	80	103
	Feb-10	74	83
	Mar-10	91	97
	Apr-10	65	92
	May-10	53	95
	Jun-10	72	95
	Jul-10	80	120
	Aug-10	49	103
	Sep-10	76	94
Knee	Apr-09	98	150
	May-09	87	235
	Jun-09	123	220
	Jul-09	129	163
	Aug-09	72	134
	Sep-09	113	130
	Oct-09	116	130
	Nov-09	105	153
	Dec-09	63	126
	Jan-10	108	132
	Feb-10	92	129
	Mar-10	118	176
	Apr-10	99	195
	May-10	109	111
	Jun-10	117	228
	Jul-10	110	181
	Aug-10	67	95
	Sep-10	88	119

Appendix 6: Case 3 Wait Times for Hip and Knee Replacements and Surgical Volumes, February 2010-September 2010

	Hip Replacement		
	Volume	Median	90th Percentile
February 2010	55	126	379
March 2010	44	139	508
April 2010	62	163	449
May 2010	66	155	370
June 2010	48	126	491
July 2010	54	130	602
August 2010	51	98	357
September 2010	66	110	471
	Knee replacement		
	Volume	Median	90th Percentile
February 2010	64	197	598
March 2010	74	218	445
April 2010	68	216	444
May 2010	78	219	616
June 2010	74	222	559
July 2010	58	223	540
August 2010	54	139	433
September 2010	76	175	498

Appendix 7: Cross-analysis of the three case studies

This section demonstrates the similarities and differences among the three case studies. From this, we can see which factors may explain why one WTMS is more likely to succeed than another, and ultimately to be sustainable in keeping its wait times within the federal benchmark. Tables 7 to 14 are divided into the eight dominant themes, which represent the organizational and contextual factors of the WTMS implemented in each of the three cases. The factors in bold in the tables are the ones that make each case truly unique.

Table 7
Cross-analysis of the three case studies: organizational governance

CASE 1	CASE 2	CASE 3
- Strong organizational leadership ++	- **Very Strong organizational leadership from medical director, physiotherapists and director of operations who kick-started the APP model of care +++**	- Moderate organizational leadership from director of surgical services +
	- Dedicated decision-making and management structure	
- Director of surgical services not clinical, background in accounting	- Director of operations has a background in administration and business	- Director of surgical services has a clinical background
- Nothing new in terms of governance created due to initiative	- **Many new committees emerged including: outpatient care committee, the new model of care leadership team, as well as the patient service innovation team**	- Nothing new in terms of governance created due to initiative
- Lack of involvement from the CEO	- Involvement from the CEO, executive VP and chief nursing officer and support of the model	- Lack of involvement from the CEO
- Effective partnership with the regional rehabilitation centre	- Many local partnerships emerged with the YMCA, shoppers' home health, college of physiotherapists	**- Effective partnership with neighbouring regional hospital**
	- Very stable governance overall even before the strategy	
	- The positions of medical director and head of orthopaedics were merged into one position 5 years ago	
	- Accountability of clinicians: they take their jobs seriously and know their job can impact others	

Table 8
Cross-analysis of the three case studies: contextual governance

CASE 1	CASE 2	CASE 3
- The provincial healthcare ministry has guaranteed that hip and knee surgeries would be done within 182 days	- The provincial healthcare ministry has guaranteed that hip and knee surgeries would be done within 182 days	- The provincial healthcare ministry has guaranteed that hip and knee surgeries would be done within 182 days
- Benchmark of LOS established at 4 days	- Benchmark of LOS established at 4 days	- Benchmark of LOS established at 4 days for standard track and 3 days for fast track patients
- LHIN monitors the implementation of the strategy in the healthcare establishment **++**	**- LHIN very involved in monitoring the implementation of the strategy in the hospital but staff perception of this involvement varies +++**	- Department of health involved in implementation of strategy **+**
- Accountability agreements signed between the hospital and the LHIN	- Accountability agreements signed between the hospital and the LHIN	- Accountability agreements between the hospital and the Department of Health
- Hip and knee working group at the LHIN level created to discuss the WTMS	- Hip and knee working group at the LHIN level created to discuss the WTMS	- Steering committee for implementation of the WTMS created
- LHIN didn't encourage the implementation of APP role	**- LHIN did encourage APP model**	**- No APP model in place**
- Stakeholder engagement **+:** Ontario Medical Association opposed to LHIN's suggestion to publish surgeons' individual wait times	- Stakeholder engagement **+++**: College of Physiotherapists/ Arthritis Society/ Shoppers Home Health	- Stakeholder engagement **++:** Ministry of health, Bone and Joint Canada, Red Cross
	- Team involved in the implementation and expansion of the model in other hospitals (APP model, electronic referral tracking system)	
- The Ministry of Health conducted an evaluation of the WTMS with an independent evaluator	- Hip and knee expert panel conducted a review of the program	- Program audit by Auditor General
	- Booking clerks think benchmark is added pressure	

Table 9
Cross-analysis of the three case studies: organizational culture

CASE 1	CASE 2	CASE 3
- Physician leadership **++**	**- Physician leadership +++**	- Physician leadership **+**
- Negative subculture between surgeons and anaesthesiologists	- Negative subculture between surgeons and anaesthesiologists	
- Negative subculture between surgeons and nurses		- Negative subculture between surgeons and nurses
- Workload increased since implementation of strategy	- Workload increased since implementation of strategy	- Workload increased since implementation of strategy
- Perception of being a small organization because the team is now tight-knit	- Perception of being a small organization because the team is now tight-knit	**- Generational gap between surgeons**
- Important clinical governance between the surgeons and the director of surgical services		**- Retirement to change culture**
- Evolution from culture based on hierarchy and fear to innovation and trust	**- Culture stable from onset built on trust and innovation**	**- Lack of trust between surgeons and staff**
- Top-down decision	**- Bottom-up decision: collegial decision process**	- Top-down decision
- A lot of work had to be done to ensure buy-in from the physicians	**- Buy-in from physicians good from outset**	- Physician buy-in very difficult
- Neutralizing effect of manager of surgical services that helped the culture		**- Work to live and don't live to work culture**
	- All the healthcare professionals working in this hospital have been here for a long time (i.e. more than 10 years)	
	- Theory of small steps (ex: implementation of APP role)	
	- Everything and everyone is accessible, easy to talk to people	
	- Clear communication among team members has also played a role in better planning	
	- Clear communication with patients of team's intention of implementing the APP model	
	- The team has a willingness to remain the best, to be creative and innovative	

Table 10
Cross-analysis of the three case studies: contextual culture

CASE 1	CASE 2	CASE 3
- A lot of work done to consult GPs about the RJAC. Moderate relationship	- Work has been done to communicate with GPs. Improvement in relationship	**- Work done to communicate with GPs and improve the referrals. Strong relationship**
- Some GPs use the standardized referral form	- Few GPs use the standardized referral form	**- Many GPs use the standardized referral form**
- Public awareness taken into consideration +	- Public awareness taken into consideration ++	**- Public awareness perceived negatively by the organization**
	- APPs have published articles about patients' satisfaction	
	- Articles published about the model of care and its implementation	
	- Network with many hospitals regionally, nationally and even internationally	
	- Tool kit developed for knowledge transfer	
	- Recipient of 3M quality of care awards	

Table 11
Cross-analysis of the three case studies: organizational resources

CASE 1	CASE 2	CASE 3
- Increase of human resources with implementation, especially nurses and anaesthesiologists	- Increase of human resources with implementation, especially nurses and anaesthesiologists	**- Intermittent shortages of anaesthesiologists and nurses**
- Dependence on funding levels	- Dependence on funding levels	- Dependence on funding levels
- Internal wait time reporting sheets and assessment of data every month by staff and management	- Internal wait time reporting sheets and assessment of data every month by staff and management	- Internal wait time reporting sheets and assessment of data on a quarterly basis by managers and surgeons
- Inefficiencies in the OR **+**	**- No inefficiencies in the OR**	**- Inefficiencies in the OR ++**
- Importance of having the right amount of human resources and equipment to do this amount of work	- Importance of having the right amount of human resources and equipment to do this amount of work	- Importance of having the right amount of human resources and equipment to do this amount of work
	- A lot of 65 + year old surgeons	
	- Centre of Excellence for Hip and Knee care in Ontario	
	- Difficulty in planning hire of new surgeons	
- Upcoming retirement of anaesthesiologists		
- Many surgical residents +++	- Very few surgical residents **+**	- Surgical residents **++**
	- Entire centre dedicated to hip and knees	
- 12 OR rooms	- 4 OR rooms	- 5 OR rooms
- Dedicated space for RJAC	- Dedicated space for the assessment clinic ++	- Dedicated space for the assessment clinic
- 1 APP	- 5 APPs	- 0 APPs
- Surgical blitz in winter (double OR model)	- Surgical time increased (no double OR model)	
- Bed management difficult **+**	**- No bed blockers or bed management problems**	- Difficulty with bed management **++**
	- Hospital center closes during winter for 2 weeks	

	- New roles: the nurse in the OR and the registered nurse first assistants	
- 700 surgeries	- 2,100 surgeries	- 1,500 surgeries at hospital and neighbouring hospital total
		- Ambulatory OR at neighbouring hospital
- 7 orthopaedic surgeons	- 10 orthopaedic surgeons at the satellite center	- 9 orthopaedic surgeons
- Need increase in resources in order to increase their capacity by 25-30%	**- No ICU, emergency room or burn unit**	
	- Own rehabilitation unit	
	- A lot of effort is put into selecting patients who are in relatively good health without too many co-morbidities	
	- All the time dedicated to the strategy not accounted for	
	- Pre-op and post-op classes provided to patients by physiotherapists	- Pre-op classes provided to patients by case managers
	- Multiple informational resources: leadership team meets monthly to review the data and to track their progress, a one-hour forum is hosted by the hospital's leadership, use of email communication among employees, program newsletter has been developed	

Table 12
Cross-analysis of the three case studies: contextual resources

CASE 1	CASE 2	CASE 3
- External funding for the incremental hip and knee surgeries	- External funding for the incremental hip and knee surgeries	- External funding for the incremental hip and knee surgeries
- Funding reassessed yearly	- Funding reassessed yearly	- Funding reassessed yearly
- Tension with LHIN about not getting the same funding yearly; Incertitude about being able to pursue initiative each year	- Tension with LHIN about not getting the same funding yearly Incertitude about being able to pursue initiative each year	- Tension with Department of Health about not getting the same funding yearly
- Healthforce Ontario funds to kick-start initiative		
- Part of the funding for the RJAC provided by the government	- Part of the funding for the assessment centre provided by the government	- Funding for the space of the assessment clinic as well as the staff who works in it
- Academic teaching hospital	**- Not teaching hospital center**	- Academic teaching hospital
- Incremental funding used for double OR rooms		- Dedicated OR space at a neighbouring hospital
- **Funding level according to who is in power**		
	- Part of the funding was for the electronic referral tracking system	
- Fear of losing funding if they do too well	- More surgeries give surgeons more money = incentive for surgeons but not for the other professionals	- No incentives for the team
		- Government provided a resource to develop a website for patient information about surgery. No data as to how often it is consulted

Table 13
Cross-analysis of the three case studies: organizational tools

CASE 1	CASE 2	CASE 3
- Wait time system used by the decision support manager as well as the IT systems department was initially a province based wait time system software	- Wait time system used by the decision support manager as well as the IT systems department was initially a province-based wait time system software	- Information technology system: PHS (possible to do the booking and registration of the referrals)
- They decided to transform the existing tools into their own using a very common program: Excel		
- Lack of involvement from the group of surgeons who resisted the requirement that they enter their data into the system		
- The data quality was poor and unable to produce accurate results		
- The Wait Time Strategy's outcomes are also included in the organization's balance scorecard	- The Wait Time Strategy's outcomes are also included in the organization's balance scorecard	
- The team has their own indicators which they monitor, in addition to the data being sent to the provincial level	- The project manager mentioned that her team has their own indicators which they monitor, in addition to the data being sent to the provincial level	- The team has their own indicators which they monitor, in addition to the data sent to the provincial level
- Being able to understand the data from the wait time trends has helped managers better plan strategically and made professionals more accountable **++**	- Being able to understand the data from the wait time trends has helped managers better plan strategically and made professionals more accountable **+++**	- Being able to understand the data from the wait time trends has been able to help managers better plan strategically and make professionals more accountable **+**

- A standardized request for consultation form has been developed to support GPs	- A standardized request for consultation form has been developed to support GPs	- A standardized request for consultation form has been developed to support GPs
- Guide for Patients Having Hip or Knee Replacement	- Guide for Patients Having Hip or Knee Replacements	- Website for patients awaiting surgery
- Introduction of a total knee and hip clinical pathway in July 2007. The pathway consists of three different paths: the slow track, the regular and the fast track	- Care pathways were developed to guide and standardize the care of patients after their surgery (discharge checklist, post-op day 0-4, pre-admission clinic)	- Hip and Knee care pathway. The pathway consists of two different paths: the standard track and the fast track
- The RJAC was created, and provides patients with timely access to a full assessment of their hip or knee problem (1 APP)	- The assessment centre has been created, and provides patients with timely access to a full assessment of their hip or knee problem (**APP role developed in 2006 before the assessment centre was created**)	- The assessment centre has been created, and provides patients with timely access to a full assessment of their hip or knee problem (case managers)
	- A patient focus group was conducted in order to gain information about their perception on wait times and the need for more education about their health problem	
	- Use of Plan-Do-Study-Act cycles of change (PDSA) methodology	
	The Participatory Evidence-Based Patient Focused Process (PEPPA) theoretical framework was used in order to establish the critical pathway for the development of the APP role	

	- The team developed an electronic referral tracking system in collaboration with the Ministry	
	- Surgeons developed a three-month practice development program for APPs modeled after a provincial university's training program for surgical residents	
	- The team received help from the College of Physiotherapists as well as two provincial Universities to get advice regarding the appropriate training	
- Training on how to enter data in the IT system was offered to physicians	- Administrative assistants who also acted as booking clerks received training on data entry and collection, as well as on how to proceed for OR bookings	
	- The Interdisciplinary Assessment Form is an assessment tool used to collect bio-psycho-social information on the patient	
	- The Regional Anaesthesia Program and Acute Pain Program were created and include anaesthesiologists and nurses, and respiratory therapists whose goal is to improve post-op experience of patients	
	- Visitor's guide with resources was created to inform visitors about the centralized intake and referral management, the assessment centre model, the design of new conservative treatment programs and patient education materials that support the model and standardized patient follow-up care	
- Wait times 1 and 2 collected by decision support manager and IT team and sent to the LHIN (difficulty in collecting accurate data)	- Wait times 1 and 2 collected by project manager's team and the rest collected by the IT department to be sent to LHIN	- Wait times 1 and 2 collected by project manager's team and the rest collected at the IT department to be sent to Department of Health
- Perception of being in the	- Perception of being in the	**- Perception of being in the**

implementation phase	sustainability phase	**sustainability phase**
- Expansion of the model into other areas of care within the hospital	- Expansion of the model into other areas of care within the hospital: spinal surgery	- Expansion of the model for the spine program within the hospital
- No internal performance-recording tool yet		

Table 14
Cross-analysis of the three case studies: contextual tools

CASE 1	CASE 2	CASE 3
- Public website	- Public website	- Public website
- Collection and reporting of data difficult (with physicians mainly)	**- No difficulty in collecting the data for the LHIN because physicians don't do it.**	**- Collection and reporting of data effectively done by director of surgical services**
- Iport tool weak, initially used only for simple data collection		
- Disagreement on pertinence of using the 90th percentile for hip and knee wait times. **Involvement of the LHIN to improve data collection**		
- No single data system in the region	- Central Registry	- Central Registry but data inaccurate
- Standards and guidelines **++**	- Standards and guidelines **+++**	**- No standards and guidelines as to which patients should be operated on, or for follow-up care**
	- The Hip and Knee Replacement Program (HKRP) was the pilot for the development of the provincial Wait Time Information System (WTIS)	
	- Collaboration seemed to be an important factor when it came time to develop this IT system	
	-MOHLTC Access to Care group provided data analysis to link wait time 1 data with wait time 2 data	
	- The LHIN's Joint Health and Disease Management Program Steering Committee receives the data on wait times for hip and knee surgeries as well as on indicators from the hospital on a monthly basis	
- Patient satisfaction surveys in order to demonstrate how useful the RJAC was to them	- Patient satisfaction surveys in order to demonstrate how useful the post-operative clinic was to them	- Patient satisfaction surveys were done with patients who had been seen at the OAC