

Université de Montréal

**Unintended Consequences of Strategies Implemented in
Canadian Healthcare Organizations to Reduce Wait
Times for Elective Hip and Knee Surgeries**

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Résumé

Introduction: En réponse aux exigences du gouvernement fédéral en ce qui concerne les temps d'attente pour les chirurgies électives d'hanche et du genou, les Organismes Canadiens de santé ont adopté des stratégies de gestion pour les listes d'attente. Cependant, il n'existe pas actuellement aucune information disponible concernant les effets imprévus, positive ou négative, de ces stratégies.

Méthodologie: Un modèle qui a été construit est tombé en panne la gestion de la chirurgie d'hanche et du genou en différentes étapes, afin d'identifier les effets imprévus possibles pour chaque étape; le modèle a été validé auprès d'un panel d'experts. Cette étude a choisi quatre études de cas en fonction de leur durabilité: un cas qui a été durable, un cas qui a été modérément durable, et deux cas peu probable d'être durable. Dans cette étude qualitative, nous avons mené 31 entretiens semi-structurés entre Novembre 2010 et Juin 2011 avec les gestionnaires, les infirmières, les thérapeutes et les chirurgiens impliqués dans la gestion des stratégies du temps d'attente pour les chirurgies électives d'hanche et du genou. Les quatre cas ont été sélectionnés à partir de trois provinces / régions. Nous avons analysé les conséquences non intentionnelles aux niveaux systémique et organisationnelle en utilisant les stratégies dans chaque contexte.

Enregistrements des entrevues ont été transcrits mot à mot et soumis à l'analyse du cadre.

Résultats: Les effets négatifs sont la précarité des stratégies en raison du non-récurrente financement, l'anxiété chez les patients qui ne sont pas prêts pour la chirurgie, une redistribution du temps de chirurgie vers l'orthopédie au détriment des autres interventions chirurgicales, tensions entre les chirurgiens et entre les orthopédistes et anesthésistes, et la pression sur le personnel dans le bloc opératoire et postopératoire.

Conclusion: La stratégie d'implémentation aux niveaux national et local devrait prendre en compte les conséquences potentielles, positives et négatives. Il y a des conséquences inattendues à chaque niveau de l'organisation des soins de santé.

Individuellement et collectivement, ces conséquences peuvent positivement et négativement affecter les résultats. Par conséquent, la planification de la santé doit analyser et prendre en compte les conséquences inattendues en termes de bons résultats inattendues, compromis et les conséquences négatives afin d'améliorer les résultats.

Mots-clés: Conséquences inattendues, les bons résultats inattendus, les compromis, les conséquences négatives et les stratégies du temps d'attente.

Abstract

Introduction: In response to federal government requirements regarding wait times for elective hip and knee surgeries, Canadian healthcare organizations have adopted wait list management strategies. However, there is currently no information available regarding the unanticipated effects, positive or negative, of these strategies.

Methodology: A model was constructed that broke down the management of elective hip and knee surgery into different steps, in order to identify the unanticipated potential effects for each step; the model was validated with a panel of experts. This study chose four case studies based on their sustainability: one case that was sustainable, one case that was moderately sustainable, and two cases considered unlikely to be sustainable. In this qualitative study, we conducted 31 semi-structured interviews between November 2010 and June 2011 with managers, nurses, therapists and surgeons involved in wait time management strategies for hip and knee surgeries. The four cases were selected from three provinces/areas. We analyzed potential unintended consequences at the systemic and organizational levels of using these strategies in each setting. Interview recordings were transcribed verbatim and subjected to framework analysis.

Results: Negative effects were the strategies' precariousness due to non-recurrent funding, anxiety in patients not ready for surgery, a redistribution of surgical time toward orthopaedics at the expense of other surgeries, tensions between surgeons and between orthopaedic surgeons and anaesthesiologists, and significant pressure on personnel in the operating suite and in post-operative care.

Conclusions: Strategy implementation at the national and local levels should take into consideration any potential consequences, positive and negative. There are unintended consequences at each level of healthcare organization. Individually and jointly, these consequences can positively and negatively affect outcomes. Therefore, health planning should analyze and take into account unintended

consequences in terms of serendipities, trade-offs and negative consequences in order to improve results.

Keywords: Unintended consequences, serendipities, trade-offs, negative consequences, wait time strategies.

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Acronyms and abbreviations

AORN:	Association of perioperative Registered Nurses
APP:	Advanced practice physiotherapists
BJC:	Bone and Joint Canada
BMI:	Body mass index
CAC:	Clinical assessment centre
CEO:	Chief Executive Officer
COA:	Canadian Orthopaedic Association
CPOE:	Computerized provider order entry
DVT:	Deep venous thrombosis
ER:	Emergency room
ENT:	Ears, Nose, Throat
GP:	General practitioner
HCO:	Healthcare organization
HIT:	High information technology
HKR:	Hip and knee replacement
MAWT:	Maximum acceptable waiting time
MRI:	Magnetic resonance imaging
MSK:	Musculoskeletal
N:	Negative
OECD:	Organisation for Economic Co-operation and Development
OPA:	Ontario Physiotherapy Association
OR:	Operating Room
ORNAC:	Operating Room Nurses Association of Canada
P:	Positive
PE:	Pulmonary embolism
PI:	Principal investigator
POP:	Post-operative

RA:	Rheumatoid arthritis
RC:	Research coordinator
RHB:	Rehabilitation
S:	Serendipities
SDM:	Shared decision-making
T-O:	Trade-offs
TJR:	Total joint replacement
UC:	Unintended consequence
US:	United States
WCWL:	Western Canada Waiting List
WL:	Wait list
WT:	Wait time
WTMS:	Wait time management strategies

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part of this dream. It is also
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Todas las cosas tienen su tiempo, todo lo que está debajo del sol tiene su hora...Maktub

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Chapter 1 - Introduction

In recent years, Canada's federal ministers of health have sought to improve management of wait times and to reduce them when they are longer than medically acceptable. As a consequence, the federal government has significantly invested in hospitals and community services, financial resources and health professionals, under a 10-year plan to reduce wait times and to make healthcare more sustainable (Canada, 2004).

While all provinces agree with the federal objectives, the province of Quebec decided to develop its own goals in terms of reducing wait times and improving access to healthcare.

The federal 10-year plan addresses efforts to reduce wait times and to improve access to healthcare in several areas, specifically cancer, heart disease, diagnostic imaging, joint replacement, and sight restoration services. The federal government also created the Western Canada Waiting List (WCWL) to use clinical and research expertise to standardize priorities for select procedures: MRI scanning, children's mental health, cataract surgery, general surgery, and hip and knee replacements.

In response to federal government requirements regarding wait times for elective hip and knee replacement (HKR) surgery, healthcare organizations have adopted wait time management strategies (WTMS), and the provinces have focused on improving those strategies. However, there is currently no available information regarding the potential consequences of implementing these strategies

in Canadian healthcare organizations. The author's aim in this thesis is therefore to elucidate both the positive and negative effects of WTMS, specifically in the area of HKR surgeries. With a better understanding of these effects, policy-makers, managers and professionals may be better able to prevent or minimize the negative or unexpected consequences of WTMS.

This thesis is based on empirical research focused on the unintended consequences of WTMS at the contextual and organizational levels in Canadian healthcare organizations.

1.1 Research question

This project's general research question was: what are the unintended consequences of strategies implemented to shorten wait times for HKR surgeries at the contextual and organizational levels in Canada?

It also looks to understand specific questions: what are the unintended consequences of using wait times strategies for HKR surgeries at the systemic and organizational level?

What are the unintended consequences of the strategies used to reduce wait times for HKR surgeries at the prehospital, hospital and post-hospital levels?

What are the unintended consequences of using wait times strategies for HKR surgeries on sustainable, moderately sustainable and unlikely to be sustainable organizations?

Chapter 2 - Literature Review

2.1 Wait time management strategies: a literature review

2.1.1 Definition of concepts

This chapter explains the relevant and different concepts of wait time, wait list, and wait time management strategies. In addition, the determinants of both wait times and wait time management strategies are also presented.

Timely access to elective surgery has been a significant challenge in Canada (Noseworthy, 2003) and other OECD countries (Bruni, Laupacis, Levinson, & Martin, 2010; MacCormick.AD, 2003; Siciliani & Hurst, 2003). Long wait times for procedures like HKR surgery have become a major issue in Canada (Conner-Spady, Johnston, Sanmartin, McGurran, & Noseworthy, 2007) and elsewhere (Hadorn & Holmes, 1997). Like Canada, six other OECD countries also have health policies focused specifically on improving wait times (Siciliani & Hurst, 2003).

The literature identifies three different periods of wait times: waiting to see the specialist, waiting to receive hospital-based services, and total wait time. The period waiting for the specialist is measured from the moment the general practitioner (GP) makes the referral to the moment of the specialist consultation itself (Sanmartin, 2003). The period waiting for hospital-based services or surgery is measured from the time the surgeon and the patient decide to go forward with surgery to when the surgical procedure is completed. Finally, total wait time,

possibly the most meaningful measure, includes the first two periods (Masri et al., 2005; Sanmartin, 2003).

There literature describes two related concepts: wait time and wait list. Wait time is defined as the time elapsed from the date when a patient is added to the wait list for a procedure after specialist assessment to the date when he is admitted for the procedure. This definition does not include the elapsed time of the referral process, also known as the ‘outpatient waiting time’; Siciliani’s model describes likely determinants of variations in wait times (Siciliani & Hurst, 2003). Wait list is a “queue of patients who are deemed to need a health service that is in short supply relative to demand” (Hador & The Steering Committee of the Western Canada Waiting List Project, 2000).

A Wait time management strategy (WTMS) is a strategy for reducing the amount of time spent waiting for access to healthcare services. To reduce wait lists, healthcare planners have drawn upon concepts from such areas as mathematics, industrial engineering, and operations research. Their redesign approach involves mapping out the patient’s journey of care (pathway) to uncover the bottlenecks that impede patient flow from one step to another. The main objective of WTMS is to improve capacity to deal with demand; in fact, capacity should be slightly greater than demand to allow the system enough flexibility to handle fluctuations in demand. WTMS include a variety of alternatives for shortening wait times: reducing complexity in the booking process, creating efficient methods of scheduling patients, reducing excess steps in the care

pathway, increasing the use of human resources, and improving appropriateness (Kreindler, 2008).

Many governments and organizations have developed policies and strategies to improve wait times. Consequently, WTMS have been studied from different perspectives in many countries around the world (Bruni et al., 2010). Glynn identified the key elements of WTMS as being structure, knowledge, capacity, accountability, communication, and evaluation (Glynn, 2002).

2.1.2 Types of measures of wait time

In New Zealand, successive governments have sought to apply clinical and social criteria for reducing wait times. In fact, they have established health policies to implement WTMS by moving from wait lists to a booking system “where patients would know (within reasonable limits) when they would receive their operation through a clear and transparent process” (Hadorn & Holmes, 1997). They developed a scale to standardize priorities for patients waiting for HKR surgery (Hadorn & Holmes, 1997). In Canada, the federal government mandated the establishment of a benchmark to improve wait time in five areas including HKR surgery. The federal government benchmark used the concept of Maximum Acceptable Waiting Time (MAWT) developed in New Zealand to classify patients according to different levels of urgency. The clinical criteria used to determine urgency consider specific elements such as pain, functional activity, mobility and deformity. On that scale, patients with a score of 0–30 are classified as urgent 1 and should receive treatment within 20 weeks; those with a score of 31–75 are

classified as urgent 2 and should receive treatment within 12 weeks; and those with a score of 76–100 are classified as urgent 3 and should receive treatment within 4 weeks (Masri, et al., 2005). See Table 1.

Table 1 MAWT developed in New Zealand

	Priority Score	MAWT
Urgent 1	0–30	20 weeks
Urgent 2	31–75	12 weeks
Urgent 3	76–100	4 weeks

Source: Masri et al., 2005

In 1994 a federal mandate created the Western Canada Waiting List (WCWL) Project to improve fairness and access to the health system (Arnett, 2003) and to develop a valid and reliable measure for patients on wait lists (Noseworthy, 2003). The WCWL Project made changes to the previous MAWT developed in New Zealand, adapting it to Canadians’ needs as follows: urgency I, the least urgent cases, should be treated within three to six months; urgency II, the less urgent cases, should be treated within one to three months; and urgency III, the most urgent, should receive treatment within less than one month (Western Canada Waiting List Project, 2005). See Table 2.

Table 2 Priorities MAWT Canada (Western Canada Waiting List Project, 2005)

Priorities	MAWT
Urgency III : Most urgent cases	< 1 month
Urgency II : Less urgent cases	1–3 months
Urgency I : Least urgent cases	3–6 months

Source: Rumble & Kreder, 2005

Finally, Appleby (2003) established three categories of WTMS based on their level of success in achieving these wait time goals: 1) successful, 2) variable performance and 3) unsuccessful.

Table 3 WTMS categories based on level of success

Categories	
Successful	Low proportions of patients waiting over six months
Variable performance	Some success in reducing the proportion of people waiting over six months but not sustained
Unsuccessful	High proportions of patients waiting over six months.

Source: Appleby, 2005

2.1.3 Do planning strategies consider potential unintended consequences?

For any strategy, the planning process will draw from different disciplines in areas related to program management and implementation.

For example, project management uses strategic, tactical and operational planning to achieve a project's objectives (Goulet, Albert, & Touré, 1996). It also follows specific steps using a variety of governance, management, and administrative activities (Beaudouin, 1984). In project management, control and evaluation activities are used as instruments for adjusting the process or intervention to improve outcomes. However, project management does not include analysis of a project's potential effects. In healthcare, planning management deals with forces such as healthcare providers, patients' interest groups, and a variety of other organizations and agencies involved in the healthcare system (Green, 1992). "Priority setting of health interventions is one of the most challenging and difficult issues faced by health policy decision makers around the world" (Youngkong, Kaporiri, & Baltussen, 2009, p. 930). The healthcare planning management process includes implementation, control and evaluation activities (Goulet et al., 1996). Control and evaluation activities are used to analyze the effects of a program or project. The control process compares an intervention's outcomes with its objectives and with established standards, both of which are used to make changes to improve outcomes (Bergeron, 1986). Evaluation has been studied from different perspectives. However, there is not a single agreed-upon definition, since there are different models of evaluation (Patton, 1982). Moreover, the concept has evolved based on historical and philosophical changes (Guba & Lincoln, 1989).

Evaluation refers to a making a value judgment of an intervention. Evaluations can be categorized according to the area of activity being considered:

standards, strategy, logic, production, effects, economic, implementation (Brousselle, Champagne, Contandriopoulos, & Hartz, 2009). Evaluation of effects is probably the type of evaluation most closely linked to the analysis of potential consequences of any intervention. It considers both desirable and undesirable anticipated effects (Brousselle et al., 2009)

Finally, project management risk analysis forecasts potential risks and recommends initiatives to mitigate their consequences. It has been used in healthcare “to reduce patients’ risks in hospitals and to reduce injuries to patients” (Duran, 1980). Furthermore, “project risk management is about being ready for the unwanted event, especially when the most obvious happens. It predicts neither what will happen nor when” (Wideman, 1992). According to Wideman, the final goal of project management risk analysis is to forecast the various sources of risk that could severely affect the project and to reduce their potential consequences. The four stages of risk management are: identification, assessment and quantification, response development, and documentation and control. Potential risks to a project are ranked in terms of high or low impact and high or low probability. In addition to developing specific strategies to avoid those potential risks, managers and decision-makers will put in place the necessary feedback and evaluation mechanisms (Wideman, 1992).

While valuable information can be drawn from literature on planning processes about the potential side effects of using strategies, there is no strong

evidence or specific information to indicate that there has been any deep analysis of the potential effects of WTMS on healthcare organizations.

2.2 Unintended consequences - a literature review

2.2.1 History of unintended consequences

Unintended consequences (UCs) have been the subject of numerous studies in various fields including sociology, economics, politics, and technology. This topic has been studied by philosophers and thinkers from Popper and Sartre to Marx and Hegel. However, it originated in the social sciences, where Robert Merton developed the concept of UCs in the area of social action. In his paper “The unanticipated consequences of purposive social action” (Merton, 1936), he pointed out that purposive action does not imply rationality of human action and that, in fact, rationality and irrationality are not directly related to the success or failure of any action. Merton discussed two significant elements to be considered with respect to UCs. One was the problem of “causal imputation”, in which consequences could be attributed to specific factors related to a given event. The other was the purpose of an action, which relates to the action’s rationality or irrationality. He suggested that consequences should be analyzed in four different groups: consequences to the actor, consequences to other persons mediated through the social structure, consequences to the culture, and consequences to the civilization (Merton, 1936). He pointed out that UCs are not necessarily undesirable consequences. In fact, the unexpected could be either positive or

negative. Merton also described five potential factors that could be related to UCs: *ignorance*, in which a lack of knowledge usually causes negative consequences; *error*, in which mistakes could cause unexpected consequences; *immediate interest*, in which an actor, in an effort to avoid negative immediate consequences, does not consider further effects of the same action; *basic values*, in which the actor does not consider any consequences because his values do not allow him to think about them; and finally *prediction*, in which social prediction and planning could cause unexpected consequences at the social and human levels (Merton, 1936).

Sociologist Richard Vernon summarized multiple concepts and their originating philosophers, all of whom have contributed to the concept of UCs (Vernon, 1979). He cites Sartre, who stated that “the consequences of our actions always end up by escaping us” (Sartre, 1985). He points out that Popper, who did “as much as anyone in the last few decades to familiarise us with the notion, places unintended consequences in the front line of defence of ‘methodological individualism’” (Vernon, 1979, p. 57). Vernon asserts that Hegel was more connected to the retrospective concept of UCs, whereas Marx and Engels were more focused on the prospective vision of UCs. According to Vernon, Hayek, Ferguson, Smith and Hume all agree with the link between UCs and the social sciences. Moreover, he states that Hayek sees UCs “as the foundation of an order more free and efficient than any other” (Hayek, 1979, p. 58). Finally, according to Vernon, Hayek is connected with the concept of the veil of ignorance, which

determines principles of social justice. In the end, Vernon summarized four different possible origins of UCs: The cumulative outcome of similar actions performed simultaneously or consequently by a number of actors, the simultaneous or consecutive performance of dissimilar actions by individuals or groups, contextual change, and the difference between intended and unanticipated consequences (Vernon, 1979). Sociologist Raymond Boudon contributed the concept of perverse effects and social events to the understanding of UCs. He cites several examples of this concept, for example, the perverse effects of democratization in schools and its relation with social inequality. According to Forquin, in his analysis of Boudon's work, the social consequences of acts are related to unintentional or unpredictable purposes from a combination of individual and intentional acts (Forquin, 1979). Sociologist Portes explains that purposive social action is related to the unexpected, an idea which refers to Merton's theory of unintended consequences. In fact, he describes social predictable steps based on the logic of purposive social action (Portes, 2000). Finally, the law of unintended consequences, which originated in the field of economics, states that "actions of people always have effects that are unanticipated or unintended" (Norton, 2008).

2.2.2 Definition of unintended consequences and related concepts

Since there are different perspectives on UCs, this section presents various definitions of the concept; however, this thesis has been developed based on the

definition that seems most appropriate, which is that of Baert (1991), as presented below.

Rogers defines consequences as “changes that occur to an individual or to a social system as a result of an innovation” (Rogers, 2003). According to Rogers, consequences can be described or classified, but not predicted or forecasted. He highlights three main elements to consider regarding the consequences of innovations. The first is the assumption that the consequences of innovations are always desirable and positive; because of this, consequences have been understudied. Second, research methods are not very appropriate for investigating the consequences of innovation. Finally, consequences are difficult to measure (Rogers, 2003).

There are as many perspectives on UCs as there are definitions. However, we must distinguish between the concepts of unintended and unanticipated, which are not synonymous (Ash, Sittig, Poon, et al., 2007). The concept ‘unintended’ implies a lack of purposeful action or causation, while ‘unanticipated’ means an inability to forecast what eventually occurred. Either kind of consequence can be adverse or beneficial (Ash, Sittig, Poon, et al., 2007). “Intended consequences are the objectives of the action, the targets toward which it is oriented, and the motives that stimulate it. Unanticipated consequences, on the other hand, are outcomes of the action that the actor does not expect in advance and therefore does not intend” (McKinley & Scherer, 2000, p. 3).

Sociologist Patrick Baert proposes a definition, affirming that “unintended consequence refers to a particular effect of purposive action which is different from what was wanted at the moment of carrying out the act, and the want of which was a reason for carrying it out” (Baert, 1991, p. 201). Baert highlights four points that emerge from this definition of UC. The first is the importance of intentionality, in that effects can be produced by intention or not. Second, one action is associated with many consequences, most of which are effects of other consequences. Third, any action’s consequences can be determined retrospectively. And fourth, the actor has only one intention in the act (Baert, 1991). For the purposes of this project, we will work with Baert’s definition, as it seems clear and relevant.

2.2.3 Classification of unintended consequences

On the basis of the above, in this section we review different types or classifications of UCs. As mentioned, Merton differentiated between consequences related to the actor, to other persons mediated through the social structure, to the culture and to the civilization (Merton, 1936). Baert considers dimensions and modes of UC. Dimension A considers what the effect refers to, both individually and socially. Dimension B refers to the potential desirability of some effects. Dimension C refers to the intentionality of the event. Dimension D refers to awareness of the effect or the lack of forecasting of potential effects. Finally, dimension E takes into account potential effects that occur either at the same time as the initial event or in a completely different period of time (Baert, 1991).

With reference to quality improvement, UCs could be classified according to direct and indirect effects on resource utilization, provider behaviours, and patients. Resource utilization is related to the unexpected consequences of resource use at different levels in health programs. For example, clinical practice guidelines could prevent over-use of resources (O'Brien, Jacobs, & Pierce, 2000), but they could also cause unexpected increases in disparities in care, while not necessarily reducing costs (Phelan, Link, & Diez-Roux, 2004). Provider behaviour refers to four subtypes of UCs: 1) lack of valid process measures, which could cause providers to have different perceptions of a measure or program (Casalino, 1999); 2) limitations on innovation because of the implementation of clinical practice guidelines (Linton & Peachet, 1990); 3) decrease in quality and quantity of time in patients' consultations with physicians, since doctors have only a 'fixed' amount of time to accomplish certain tasks (Mechanic, McAlpine, & Rosenthal, 2001; St Peter, Reed, Kemper, & Blumenhal, 1999); and 4) pay-for-performance, which could influence providers' selection of cases in a way that would adversely affect performance improvement and quality (McDonald & Roland, 2009). Finally, patients are not aware that their individual preferences in clinical care may be directly associated with quality improvement (Bardach & Cabana, 2009; C., Davidowitz, Heineken, & Covinsky, 2004) .

According to Rogers, there are three different attributes of consequences: desirable versus undesirable; direct versus indirect, and anticipated versus unanticipated (Rogers, 2003). Some consequences are the product of individual

desires and are, in general, positive or desirable, whereas undesirable consequences are effects individuals do not really want and, as a result, are usually negative effects. Direct consequences are effects caused by a specific event, whereas indirect consequences are effects caused by a number of different acts or a chain of events. Finally, anticipated consequences are those we are able to predict, whereas unanticipated consequences are not expected (Ash, 2007; Bloomrosen et al., 2011; Rogers, 2003).

Figure 1 depicts potential relationships across and among types of consequences. This figure draws upon earlier work, particularly that of Rogers, Ash and Campbell (Ash, 2007; Campbell, Sittig, Ash, Guappone, & Dykstra, 2006; Rogers, 2003). If a consequence is anticipated and desirable, it will be the intended or positive consequence or the goal of any act. If a consequence is anticipated but undesirable, it will be considered a trade-off. If a consequence is unanticipated and desirable, it will be recognized as serendipity. Finally, if a consequence is unanticipated and undesirable it will be the classic negative consequence. Based on this figure, there are three different types of unintended consequences and one intended consequence (Ash, 2004, 2007; Ash, Sittig, Campbell, Guappone, & Dykstra, 2007; Bloomrosen et al., 2011)

Figure 1 Classification of unintended consequences

	ANTICIPATED ↓ ↓ Direct Indirect	UNANTICIPATED ↓ ↓ Direct Indirect
DESIRABLE	GOALS INTENDED	SERENDIPITY
UNDESIRABLE	TRADE-OFF	CLASSIC NEGATIVE UNINTENDED CONSEQUENCES

Source: Bloomrosen et al., 2011.

For the purposes of this project, these relationships across and among types of consequences will serve as our framework for analyzing strategies implemented in healthcare institutions.

2.2.4 The UCs of strategies implemented in health services: an empirical review of the literature

Many papers have been published on unintended consequences of interventions implemented in health services. The majority of articles we found examine the potential effects of measuring quality of care, of using technology (on health services and providers), and of health policies and health reforms.

Policymakers and clinicians have expressed concerns that efforts to improve quality of care in some areas have, as a consequence, decreased it in other areas. Quality of care measurements are taken not only to improve care, but also to look for possible UCs, analyze different methods of avoiding them, and reduce their adverse effects (Casalino, 1999). Quality of care measurements have been used as indicators of improved care. Currently, policy-makers are worried about potential negative consequences of these measurements. For example, using performance measurements in primary care could cause inappropriate clinical care due to providers' lack of attention to patients' needs (Powell et al., 2011). Effective public reporting of healthcare quality represents openness and accountability, but could also lead to a reduction of overall healthcare quality (Werner & Asch, 2005). Since the United Kingdom's primary care pay-for-performance scheme was implemented, identifying UCs of quality indicators has become a major goal in the planning process, in order to either remove or adjust problems indicators (Lester, Hannon, & Campbell, 2011). Regarding the consequences on health services and providers of using technology, Ash has been studying the effects on healthcare facilities of the implementation of technology in specific tasks. He describes the valuable lessons learned from technology pioneers, but at the same time, points out the UCs of implementing the Computerized Provider Order Entry (CPOE) that could be avoidable in the future. There are also unpredictable and unexpected consequences related to CPOE that need to be identified, described and categorized (Campbell et al., 2006). Identifying some

unintended consequences may help “HIT [Healthcare Information Technology] designers and healthcare professionals learn to deploy HIT more effectively” (Harrison, Koppel, & Bar-Lev, 2007, p. 547). Sveiby et al. describe a lack of attention to the unintended consequences of innovation in health matters (Sveiby, Gripenberg, Segercrantz, Eriksson, & Aminoff, 2009). The last decade has provided an opportunity to better understand the unanticipated health impacts of social and economic policies in order to decrease discrimination and to improve conditions in disadvantaged populations (Berkman, 2011). The importance of minimizing UCs when implementing new health policies and programs is well known. A better understanding of the dynamic forces influencing the healthcare system could decrease the potential risks of UCs resulting from policy-makers, although those consequences seem to be an “inherent part of the political and policy process” (Young & Institute of Medicine, 2001, p. 9). Economic incentives such as pay-for-performance have been associated with some UCs that could have been predicted. As a consequence, health policies should include measures to avoid economic incentives that increase adverse selection (McDonald & Roland, 2009). Another point is that charging user fees for healthcare is linked to inequity because it strengthens the barriers experienced by disadvantaged population with financial limitations (Hofmann, 2009; Karve, Ou, Lytle, & Peterson, 2008; Lagarde & Palmer, 2011). There is evidence that removing user fees increases the use not only of curative healthcare services, but also of preventive services, which have positive impacts in the long run (Lagarde & Palmer, 2011).

Many publications on the consequences of health reforms have appeared in United States. Some authors have raised concerns about the potential effects of the new health legislation. As the Obama administration takes aim at reducing costs and investments in technology improvements within the healthcare system, some authors see a risk of UCs such as slowed medical progress in new technologies and decreased quality of care (Thrall, 2011). They argue that policy-makers and legislators need to involve health professionals more in the process to avoid potential UCs of legislation on the healthcare system (Thrall, 2011). It is important to note that health reforms are linked with fiscal constraints, and that looking for efficiencies may reduce access and create inequities in care (Lynam et al., 2003). Serious concerns have been voiced about the reimbursement of care and its possible consequences in terms of accessibility and quality of care (Klondas, 2010). Moreover, healthcare decisions based only on budget considerations may increase the number of uninsured people and affect public programs such as the treatment of end-stage renal disease (Nissenson, 1996). Other authors have a more positive view of health reform in the U.S. For example, Hammer, Phillips and Schmidt have suggested that health reform will change some aspects in the right direction, improving access to high quality care, although providers will face some necessary changes in their organizations (Hammer, Phillips, & Schmidt, 2010).

While New Zealand has successfully implemented health reform, it has struggled with UCs such as funding problems, an increase in the power of medical organizations, and new challenges to providing primary care (Gauld, 2008).

The UCs of strategies implemented in the healthcare system have been attracting increasing attention from researchers, clinicians and policy-makers. Papers have focused on both understanding classic negative UCs and implementing strategies to avoid them.

2.2.5 Consequences of wait times for hip and knee replacement in Canada

Some authors acknowledge that waiting for procedures that will improve any unhealthy condition could cause consequences such as extended suffering and pain, increased patient dissatisfaction and strained patient–doctor relationships (Bruni et al., 2010). Others posit that managing wait time is practically impossible and would also have consequences. Canada’s wait list strategy is based on clinical and non-clinical factors that can differ from one institution to another and from one province to another. As a consequence, “this situation inevitably leads to concerns regarding fairness and the risks faced by patients who may not be receiving timely and necessary care based on an assessment of relative urgency and the likelihood of benefit” (Noseworthy, 2003, p. 24). The literature also points out that waiting for surgery causes consequences such as poorer outcomes related to the fact that patients are getting older and living longer with their disease.

There is research indicating that there is no negative impact on clinical outcomes if the wait time is between three and six months. However, waiting more than six months can have significantly negative consequences for patient

outcomes, in addition to causing prolonged suffering and discomfort (Nilsson, 2002).

Another consequence of waiting for surgery is the loss of productivity in individuals unable to work; their contribution to the labour market is significantly lowered during the wait. Finally, delaying any procedure will increase both costs to the healthcare system (Masri et al., 2005) and side effects on the network of exchanges between participants in the health sector (Fry & Polonsky, 2004).

While authors and researchers are focused essentially on how to improve wait times and manage long wait lists, there are currently not enough articles detailing the potential UCs of implementing WTMS.

2.3 Levels of healthcare organizations

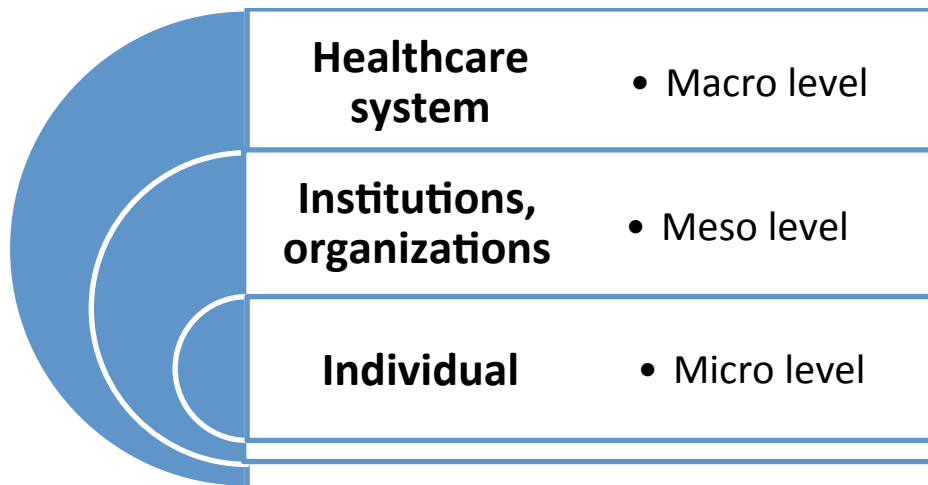
With regarding to the structure of healthcare organizations, there are a number of models from different perspectives. For example, Contandriopoulos' model of the structure of any healthcare system includes physical structure (economic, human, technique and physical resources), symbolic structure (values and ideologies) and organizational structure (federal and provincial legislation and rules) (Contandriopoulos, 2008).

According to Mintzberg, the elements of structure are the operating core (employees who produce the basic product and services), the strategic apex (managers of the organization and staff), the middle line (managers between the strategic apex and the operating core), the technostructure (technicians and analysts) and the support staff (legal counsel, public relations) (Mintzberg, 1990).

Légaré describes three levels of shared decision-making (SDM) within the Canadian healthcare system based on levels of patient involvement: the healthcare system (macro level), institutions (meso level), and the clinical/medical encounter (micro-level) (Légaré, 2007). The macro level refers to the participation of people at different levels of government (federal, provincial, and territorial). The meso level considers different characteristics of health institutions and hospitals, and the micro level analyzes physicians' and patients' responsibility and involvement in the health of individuals.

For the purposes of this thesis, Légaré's perspective seems more understandable in terms of its applicability to the analysis of potential UCs of WTMS at three distinct levels: systemic, organizational and individual.

Figure 2 Levels of healthcare organizations

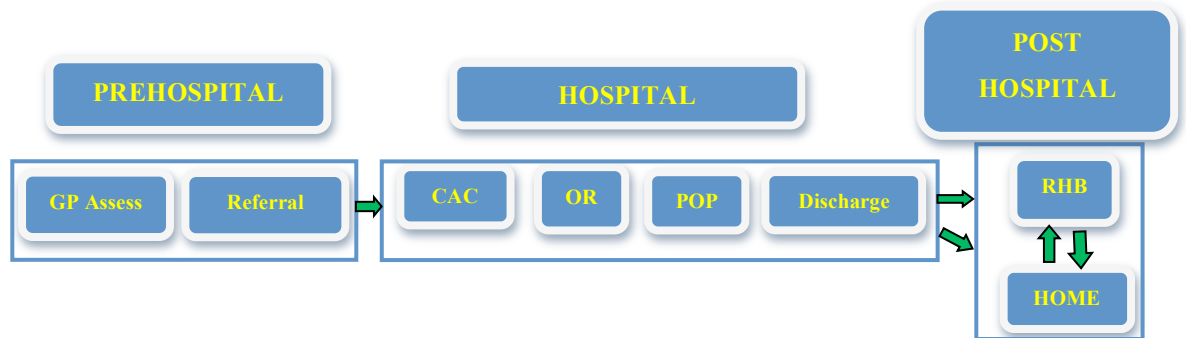


HKR pathway at the organizational level

This framework considers three levels of the HKR pathway along which consequences of WTMS may occur: prehospital, hospital, and post-hospital levels (see Figure 4 below).

The prehospital level includes activities occurring in the process of GPs' referral of patients for surgery assessment. The hospital level includes tasks and procedures that encompass the clinical assessment centre (CAC), the operating room (OR), post-operative care (POP) and discharge. The post-hospital level includes activities to improve patients' rehabilitation (RHB) after surgery, either at the rehabilitation centre or at home.

Figure 3 HKR pathway



2.4 Framework of UCs of WTMS in healthcare organizations

The framework used here to analyze potential UCs of WTMS in HKR in Canadian healthcare organizations is based on a review of the literature on

WTMS, UCs and levels of healthcare organizations. In considering potential UCs linked to WTMS, there are three different levels where consequences may be found in healthcare organizations: systemic (macro), organizational (meso), and individual (micro).

At the macro/systemic level of the Canadian health system, significant potential consequences of using health policies of WTMS can be found at the federal, provincial and local levels. Moreover, it would be valuable to analyze some potential consequences of allocating resources to improve wait times in HKR rather than investing those resources in other wait lists such as for cancer, spine, pediatric surgery, neurosurgery, and general surgery.

At the organizational (meso) level, there are a variety of potential UCs related to the HKR pathway followed in healthcare facilities. Each of the levels described above (federal, provincial, local) may cause UCs in the referral, assessment centre, operating room, in-patient, delivery and rehabilitation processes.

Finally, at the individual (micro) level, there are the potential UCs of different actors who participate in the organization of HKR, including managers, health professionals, patients and their families. Managers are professionals who have the responsibility for implementing and developing federal and provincial policies within healthcare institutions. They play a key mediating role between organizations and health professionals looking to achieve goals at all levels of healthcare facilities.

Health professionals are deeply involved in implementing any health policy, since they are responsible for efficiently conducting procedures to improve patients' health. Not only do they treat patients and their families, but they also receive personal and professional satisfaction in terms of economic incentives, quality of life, and employment stability. Examples of health professionals include nurses, surgeons, general practitioners (GPs), anaesthesiologists and advanced practice physiotherapists (APPs).

Finally, patients and families are essential components of the healthcare system; they are directly affected by any health policy and WTMS, and they will suffer the consequences of any delay in treatment or enjoy the benefits of timely attention.

Analyzing the UCs of implementing WTMS in HKR, based on Rogers' concepts, which were further developed by Bloomrosen (see Figure 1), will help to advance our understanding of desirable and undesirable, anticipated and unanticipated, and direct and indirect consequences in terms of trade-offs, negative consequences and serendipities.

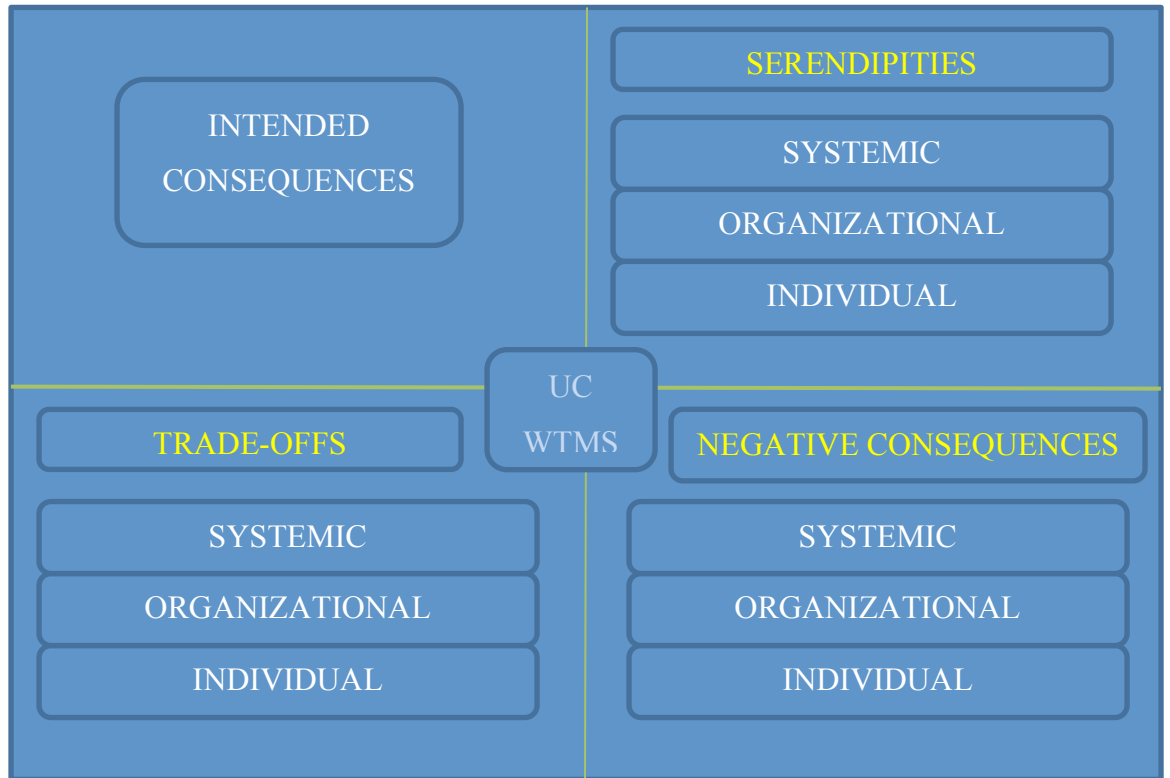
This framework (Figure 4) will provide valuable information to shed light on the potential consequences of implementing strategies at different levels of healthcare institutions. Furthermore, understanding UCs has attracted considerable research interest and should be an important step for any healthcare organization to consider in any planning process, in order to prevent negative effects of

implementing WTMS and avoid unexpected situations that could affect patients, budgets, health policies and the healthcare system.

Figure 4 Framework of unintended consequences



Figure 5 Integrated model of unintended consequences on healthcare organizations



Chapter 3 - Methodology

This chapter describes the methodology used in this project. It is presented in eight parts: 1) research team; 2) research strategy; 3) research design; 4) identification of the case study; 5) data collection and materials; 6) data analysis; 7) quality of the research design; and 8) ethical considerations.

3.1 Research team

The overall research project has been funded by the Canadian Institutes of Health Research (CIHR). The team is led by Dr. Tom Noseworthy from the University of Calgary and Dr. Marie-Pascale Pomey from the University of Montreal. 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, I was invited by Dr. Marie-Pascale Pomey to participate in the project. I participated actively in the team by recruiting the various case study sites, going on-site to conduct interviews with participants, collecting and analyzing the data and, finally, writing the final report. I attended various team meetings and maintained a high level of communication and collaboration with all members of the research team.

3.2 Research strategy

This study is positioned within a constructivist paradigm, since it is focused on analyses of local and contextual features around WTMS and attempts

to interpret concepts and conversations from participants in the study (Lincoln & Guba, 2000).

Qualitative studies have been used for many years, especially in social sciences, and are becoming increasingly important in healthcare research, contributing to the analysis of issues throughout the hospital and health systems (Pope & Mays, 2006). The qualitative approach to research “involves an interpretative, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them” (Denzin & Lincoln, 2000, p. 3). Thus, qualitative analysis seemed to be the ideal approach to achieve the goals of this project.

Case studies are commonly used to develop qualitative studies with different approaches that are either analytical, involving specific and detailed study, or holistic, taking into account the importance and interdependence of the various parts (Stake, 2000). The case study approach has been used in different fields because it is a useful strategy to understand complex social phenomena that occur in real scenarios such as individual life cycles, and organizational and managerial processes (Yin, 2003). Furthermore, case studies have been used in healthcare in a variety of situations: investigation of health professionals by different healthcare organizations, evaluations by researchers, and re-engineering of hospitals by authorities. In case studies, two main approaches are used to develop research questions: studying policies based on theoretical frameworks

from previous research, and using empirical evaluative studies to determine the appropriateness of an intervention or its outcomes (Pope & Mays, 2006). Moreover, there are three further conditions for conducting any case study as empirical evidence: 1) the research question should be addressed in terms of what the problem is; 2) the investigator should have no control over the problem, to avoid manipulation and bias; and 3) the study should be focused on contemporary facts (Yin, 2003). As such, an exploratory case study seemed more appropriate for this project than other strategies, since in this project we are more interested in understanding the potential UCs of implementing WTMS in healthcare organizations based on a theoretical framework and empiric evaluation. In addition, a case study provides more valuable information to achieve the objectives and the address the research question of this thesis, because it meets three basic criteria: First, *the research question should be on a relevant topic*; WTMS is a headline topic in Canada. Second, *the researcher should have no control in the study*; there was no control by the researcher in this study, as we collected different perspectives that were then converged using triangulation. Third, the study should *respect the rules for any research study with regard to the logic of design, data collection techniques and specific approach to data analysis* (Yin, 2003); these rules were followed in this study.

3.3 Research design

Based on Yin components' of any research design (2003), this research project is multiple case retrospective and descriptive study of four Canadian

healthcare organizations in which WTMS were implemented. There are three units of analysis: serendipities trade-offs and negative consequences at the contextual and organizational levels. The purpose of the study is to understand the potential UCs of using WTMS for HKR surgeries. Analysis of data based on the units of analysis will advance our understanding of potential UCs of WTMS, which in turn will be helpful in establishing theoretical concepts to improve planning processes to avoid UCs in the long term. Finally, the data will be compared against the UC framework and will be classified as serendipities, trade-offs and negative consequences (Yin, 2003).

3.4 Identification of the cases

3.4.1 Sampling

We selected four cases in three Canadian provinces that would be classified as sustainable, moderately sustainable and unlikely to be sustainable based on the Federal benchmark. Bone and Joint Canada (BJC) and the Canadian Orthopaedic Association (COA) helped us to identify these cases. We were interested to analyze UC of using WTMS for HKR in each one of the potential scenarios of cases in terms of sustainability mentioned above and to understand differences between cases and potential factors that cause impact on their sustainability.

3.4.2 Classification of WTMS

To select our case studies, we needed a classification system. Appleby’s system (2005) proposed three categories to describe levels of success in WTMS: 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 (Appleby, 2005). Based on this system, we developed our own classification, presented in Table 4.

Table 4 WTMS categories according to the WCWL project team

	Wait Time	Duration	Period
Sustainable	< 26 weeks	6 – 12 months	18 months
Moderately Sustainable	26 weeks	6 – 12 months	18 months
Unlikely Sustainable	> 26 weeks	6 – 12 months	18 months

Source: WCWL

This classification defined cases in terms of sustainable, moderately sustainable and unlikely sustainable based on wait time for HKR surgery for at least 6 to 12 months within a period of 18 months.

Sustainable is defined if patients wait less than 26 weeks for HKR surgery.

Moderately sustainable is defined if wait times for HKR surgery is 26 weeks.

Unlikely sustainable is defined if wait times for HKR surgeries is more than 26 weeks.

3.4.3 Recruitment of healthcare organizations

The research team and BJC identified hospitals in different provinces that would fit the types of WTMS we were looking for. We then analyzed the data on wait times for HKR surgeries in those hospitals to determine whether they had initiatives that were sustainable, moderately sustainable or unlikely to be sustainable. Then we collected more detailed information on the initiatives from websites and articles. We contacted people from those healthcare organizations (HCOs) via email to inform them we were interested in studying their potential UCs of using 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 with whom we should collaborate to apply for approval from hospital's ethics board. This person served as the on-site project coordinator (PC) and was considered the principal investigator (PI) in that HCO site for ethics board purposes. Our research coordinator (RC) managed the ethics approval process, and once the approval was obtained, the RC asked the site PI to contact other potential key informants for the study. We then emailed each potential participant, describing the purposes of the study and asking them whether the classification we had assigned to their HCO was accurate or not. We then conducted on-site visits for a period of two days at each site.

We selected four cases as follows: (for more details, see also page 45)

Case 1, a university hospital in northwest Ontario, is a reference centre for orthopaedic surgery. Its strategy started in 2007. We first classified it as moderately sustainable, but subsequently reclassified it as unlikely to be sustainable based on new data obtained from the institution.

Case 2 is a university hospital in Ontario with no emergency room or intensive care unit. It does not do complex surgeries, and its strategy, classified as sustainable, started in 2007.

Case 3, a university hospital in an eastern province, serves as a referral centre for the Maritime provinces. Its strategy, classified as unlikely to be sustainable, started in 2008.

Case 4 is an orthopaedic surgery centre in Manitoba. Its strategy, classified as moderately sustainable, started in 2006.

3.5 Data collection and materials

The primary data source consisted of semi-structured, in-person interviews with key informants. Interviews dealt with questions on potential UCs all along the patient's pathway, from the referral process to the rehabilitation process after surgery. Secondary data sources included pertinent information on the UCs of using WTMS in HKR in Canadian HCOs.

3.5.1 Semi-structured interviews

This study used open-ended questions to define the area to be explored. With this approach, the interviewer is able to provide explanations as needed during the interview (Pope & Mays, 2006). Interviews with all participants were conducted using a semi-structured interview guide, such that they were conversations rather than structured inquiries (Yin, 2003). (See Appendix 1.)

We conducted 31 semi-structured interviews, of 15 to 60 minutes' duration, with key informants selected beforehand and others identified on-site. Two interviews were conducted by telephone due to participants' schedules. The people interviewed were managers (3), assessment nurses at the CAC (3), CEOs (4), orthopaedic surgeons (4), physiotherapists (3), administrators (4), medical chiefs (4), nurse administrators (2), nurses in postoperative units (2) and an executive director at the provincial health system level (1). One researcher asked questions while the others took notes. After all interviews had been conducted at one case site, the researchers prepared a summary of the interviews. Interviews were audio recorded with the respondents' authorization, and the recordings were subsequently transcribed verbatim. The transcripts were verified by the interviewer. Transcripts also were checked against the notes taken by the other researchers during the interviews.

The questionnaire asked different broad questions regarding patients' pathways from GP assessment to the rehabilitation process, looking for pertinent and useful information linked to UCs at the systemic and the organizational levels.

3.5.2 Time frame

The in-person interviews were conducted between June and November 2011. The four researchers who visited the case study sites were Marie-Pascale Pomey, a master's level student from the Faculty of Medicine who was specifically interested in factors that affect sustainability, a research coordinator (RC), and myself.

3.6 Data analysis

This study used qualitative data analysis based on four steps: preparation and description of information, data reduction, selection of modes of analysis, and cross-sectional analysis (Contandriopoulos, 2005). Documents and interviews were the principal source of information.

In coding, we used data reduction, which took into account inclusiveness, adaptivity and a variety of abstraction levels (Contandriopoulos, 2005). Our framework oriented the themes to improve coding. In fact, the coding process followed a sequence of events. First, verbatim transcriptions were classified based on the UC questionnaire. Second, the results of the first step were classified according to whether the information was related to the systemic or organizational levels. Third, the verbatim quotes included in second step were classified, based on the framework, as serendipities, trade-offs and negative consequences. Quotes were classified strictly in the order in which they appeared in the interviews, and participants' anonymity and confidentiality were maintained. The quotes were

reviewed several times to ensure our understanding of the information and to obtain the most relevant data possible. Each study site and participant was assigned a specific code to facilitate consistency of referencing.

Even though three strategies have been described as modes of analysis—relying on theoretical propositions, thinking about rival explanations, and developing case descriptions (Yin, 2003)—this thesis follows theoretical propositions made by Merton, Rogers and Bloomrosen for better understanding unintended consequences. Finally, cross-sectional analysis was used to analyze data since, it is the most appropriate technique for multiple case studies.

3.7 Levels of analysis

Based on the specific framework used in this study, potential UCs were analyzed in terms of serendipities, trade-offs, and negative consequences at the systemic and organizational levels. Serendipities were defined as desirable and unanticipated consequences, trade-offs as undesirable and anticipated consequences, and negative consequences as unanticipated and undesirable consequences (Ash, 2007; Bloomrosen et al., 2011; Rogers, 2003).

Each case was analyzed at both the systemic and organizational levels, with both levels including sublevels of serendipities, trade-offs and negative consequences.

3.8 Quality of research design

Four dimensions should be used to determine the quality of any empirical research: construct validity, internal validity, external validity and reliability (Yin, 2003). It is important to point out that we applied these dimensions throughout the development of the project, not just at the beginning of the research, because we consider research design to be a continuous process.

3.8.1 Construct validity

Construct validity refers to developing the correct measures for the concepts being studied. Yin (2003) recommends two useful tactics: using multiple sources of evidence, and having the draft case study reviewed by key informants during the preparation of the case study report (Yin, 2003).

3.8.2.1 Multiple sources of evidence

Of the six potential sources of evidence identified by Yin (2003), in this project we used documentation and interviews. Pertinent documentation on WTMS helped to corroborate information and to verify not only correct spelling of names and the organization, but also to confirm valuable data. Semi-structured interviews were conducted as fluid conversations guided by a questionnaire; every effort was made to avoid interviewer influence on responses.

In this project we used triangulation, defined as “a process of using multiple perceptions to clarify meaning, verifying the repeatability of an observation or interpretation. It clarifies meaning by identifying different ways the

phenomenon is being seen” (Stake, 2000). The use of different sources (data triangulation) and information among researchers of the study (investigator triangulation) increased the validity of the project. Moreover, the information obtained from key informants was triangulated with internal documents from the four HCOs to validate the findings. Each on-site project coordinator reviewed the interpretation of the data to ensure accuracy.

The review of the draft case study: a validating procedure.

A draft report of results was prepared for each case and was shared with key informants of that case, who then reviewed it to validate the information and improve the quality of the study.

3.8.2 Internal validity

Internal validity considers that the conclusions of the study are linked to the changes caused by the implementation of the specific initiative and are not explained by other factors or forces (Contandriopoulos, 2005). We validated the information and the analysis done of each case to improve internal validity. This thesis also used triangulation to ensure and to enhance internal validity.

3.8.3 External validity

External validity analyzes whether or not a study’s results are generalizable to other contexts (Yin, 2003). In fact, the study should demonstrate that results are not dependent on a specific context or specific situation. External validity is defined based on three principles: similarity, robustness, and explanation

(Contandriopoulos, 2005). Similarity means the capacity to generalize results to a different empirical setting. Robustness is defined as the potential of generalization of the study in diversified contexts. Therefore, it is important to analyse more cases studies. For this, it is important not to focus only the relations between the results and detailed or specific conditions linked to the case, but rather to stay focused as much as possible on the broader level. Explanation increases external validity if it helps to explain actors' activities and factors in the case that could be found in different scenarios (Contandriopoulos, 2005). This qualitative analysis in the Canadian context covers three different provinces that increase the potential for generalizing results from the case study to the rest of the country in terms of principles of similarity, robustness and explanation. In addition, transcripts of the interviews were provided to the participants for their feedback and verification, and direct quotes from those interviews with key informants are used to support and reinforce this project's credibility and verifiability. Theories or frameworks also support the external validity of results in case studies (Yin, 2003).

3.8.4 Reliability

This concept considers that if a different researcher or investigator follows the same procedures to repeat the research described in a study, that second investigator should arrive at the same conclusions. In other words, any errors and biases in the study must be minimized (Yin, 2003).

Creating a case study database and maintaining a chain of evidence are helpful to avoid problems in reliability. This thesis used a strict database organized

into five different files: general quotes, quotes linked to the questionnaire, and quotes related to serendipities, trade-offs, and negative consequences for each case study. Furthermore, case study notes were written after visiting each case and form part of the database, helping to decrease bias and increase reliability.

Establishing a chain of evidence allows external observers to evaluate the study from its beginning to its conclusions. The case study protocol was designed to maintain a chain of evidence. Co-researchers from the WCWL project reviewed and validated each step of the study. Moreover, the UC framework designed for this study was validated by a panel of external health management experts and the study was also evaluated in academic meetings, where external observers evaluated it.

3.8.5 Reflexivity

Reflexivity refers to the “sensitivity to the ways in which the researcher and research process have shaped the collected data” (Pope & Mays, 2006). The author of this thesis, a surgeon, acknowledges that his previous experiences and knowledge of different circumstances, both positive and negative, in operating rooms could influence the analysis of the cases result. However, triangulation, case study notes for each case, and external validation have been used to help preserve the neutrality of the results (Devers, 1999).

3.8.6 Multiple perspectives

Based on the approach suggested by Pope and Mays (2006), and adopting a broad concept of UC, this study takes into account multiple perspectives on the potential UCs of using WTMS. Indeed, this thesis project analyzed the problem from a variety of points of view in order to enhance our understanding of UC and to increase the project's validity. As such, we sought the views of managers, nurses, surgeons, physiotherapists and CEOs involved in the strategy.

3.8.7 Relevance

This thesis increases our understanding of WTMS through the analysis of UCs, which is a new perspective on WTMS. In doing so, it will add valuable information on the subject and hopefully stimulate interest in pursuing further research on the potential UCs of implementing strategies in healthcare organizations (Pope & Mays, 2006)

3.9 Ethical considerations

In social sciences, codes of ethics consider four elements: informed consent, deception, privacy and confidentiality, and accuracy (Christians, 2000). However, in healthcare qualitative research, anonymity, confidentiality and informed consent have major significance (Goodwin, 2006) and are therefore the ethical considerations we applied in this thesis. Anonymity: “Codes of ethics insist on safeguards to protect people’s identities and those of the research locations” (Christians, 2000, p. 139). In qualitative research in healthcare, protecting the

identity of participants is complicated, because there are so many elements and comments where quotations could suggest the participant's identity (Goodwin, 2006). Therefore, this study used numeric references for both the cases studied and the participants, to maintain anonymity. Confidentiality: In qualitative research, while people's identities will be kept private to ensure anonymity, this does not mean that what people say in a qualitative study will be kept secret (Pope & Mays, 2006). This thesis uses this definition of confidentiality, in order not only to ensure anonymity, but also to use valuable information from respondents. Participants were assured that the information they provided would remain confidential, and that their anonymity would be guaranteed during the process of collection, analysis and publication of the data. Informed consent: This refers to respecting individual autonomy and the right of participants in any study to be informed "about the nature and consequences of experiments in which they are involved". In fact, subjects should participate voluntarily and receive open and complete information (Denzin & Lincoln, 2000). This thesis project followed strict protocols and rules to ensure participants received full information about the study, its nature, and its potential consequences. We also sought participants' informed consent to record the interviews.

3.9.1 Ethical certificate

This thesis, called project 4b, works together with project 4a, which is looking for factors that impact the sustainability of WTMS for total joint replacement surgeries in Canadian provinces. These two projects are part of the

WCWL project looking at WTMS. Project 4a received a certificate of approval on October 14, 2010, from the University of Montreal research ethics committee. Since project 4b is linked with project 4a, it received a certificate of renewal on November 8, 2011, from the University of Montreal research ethics committee (certificate no. CERFM#421(1)). Ethical approval was also obtained from each hospital that agreed to participate in the study. After ethical committee approval from both the University of Montreal and the ethical committees of each case, participants in the study read and signed the consent form prepared jointly by the University of Montreal research team and their hospital's ethics committee. Transcripts of interviews 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 2012, will be securely conserved for a minimum of five years to a maximum of ten years from that time.

Chapter 4 - Results

The results regarding potential unintended consequences are presented based on the framework in Figure 4. Thus, for each case we analyze the serendipities, trade-offs and negative consequences associated with using WTMS in HKR surgeries in Canada at the systemic and organizational levels. This approach allows the reader to follow a sequence of facts (Yin, 2003). As mentioned previously, serendipities are desirable and unanticipated consequences, trade-offs are anticipated and undesirable consequences, and negative consequences are undesirable and unanticipated. At the systemic level, we considered consequences at the federal or provincial level linked to health policies on wait times. At the organizational level, we included consequences along the WTMS pathway from the referral process (prehospital) through surgery (hospital) and rehabilitation (post-hospital).

Description of cases

Case 1 is a reference centre for orthopaedic surgery and its strategy started in 2007. We originally classified it as moderately sustainable, however, we subsequently reclassified it as ***unlikely to be sustainable*** based on new data obtained from the institution. The strategy used was based on accountability agreement. They included APPs (Advanced Practice Physiotherapists) as part of the program. However, they have been losing their participation in the development of the program.

Case 2 is a university hospital with no emergency room or intensive care unit. It does not do complex surgeries, and its strategy, classified as ***sustainable***, started in 2007. Type of strategy was based on accountability agreements. They also included APPs (Advanced Practice Physiotherapists) as an essential part of the program. Number of cases: 2100

Case 3 is a university hospital that serves as a reference centre. Its strategy, classified as ***unlikely to be sustainable***, started in 2008. Their strategy was based on patient access registry and they received funding extra linked to activities. Number of cases: 990

Case 4 is an orthopaedic surgery centre and its strategy, classified as ***moderately sustainable***, started in 2006. They used funding extra according to activities. This institution decided to create a new classification of WT based on efficiency. Category A: Patient is ready for surgery. Category B: Surgery is delay for medical reasons. Category C: Surgery is delay for personal reasons. Therefore, they were more focused in category A in order to achieve Federal benchmark. Number of cases: 3,000 in 3 hospitals.

4.1 Case 1

This university hospital in northern Ontario is a reference centre for orthopaedic surgery. Its strategy started in 2007. According to our study, its strategy was classified as a moderately sustainable.

4.1.1 Unintended consequences at the systemic level

Serendipities

According to our framework, there were no serendipities at the systemic level in this organization.

Trade-offs

According to respondents, the lack of provincial funding to sustain the program in the long term was a clear negative but anticipated fact. Policy-makers did not make any plan to guarantee budget for the organizations involved in this program. As a result, there was not enough money available for staff, data collection and analysis, and equipment: *“There was no funding that was available for our staff to do the data entry (...).”* (I.6 Q35). *“Certainly for running consecutive rooms or two rooms you need to have additional nurses and so forth put into those rooms (...).”* (I.4 Q15).

Negative consequences

Policy-makers did not have access to accurate data on WT, since surgeons managed their own lists. They were the ones who decided whether to do more procedures in a specific period of time or not to do surgeries. Therefore, wait times were increased in some periods of the year due to lack of control over wait lists:

“You can actually see some increases in wait times in some periods where physicians have chosen to do more colonoscopies. So they’re picking and choosing, right? They have a lot of patients waiting for a colonoscopy and getting close to a threshold date, so they choose to do more colonoscopies that month and then they don’t do any.” (I.9 Q123)

Another repercussion of wait times being managed by surgeons is that provincial wait time policies are then based on inaccurate information, which affects not only provincial goals, but also organizational objectives regarding wait times and other programs. The manager of decision support stated: *“We’re trying to plan services with incomplete knowledge of what our demand is; knowing what our capacity is, what we can do, and what we have funding for as well.”* (I.9 Q56). In addition, the manager’s perception is that people are measuring the wrong elements, which negatively affects the planning process:

“I see so many problems with the way they measure wait times. 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 Q149)

There is a lack of regional standards on nosocomial infections, which has a negative impact: *“We don’t have a regional standard by which every room is operating, nor do we have any way to accurately measure this, so it’s difficult for me to prove that we’ve got a problem.”* (I.6 Q79).

After human, economic, and organizational resources were taken away from some programs to improve WTMS in HKR, increases were seen in wait times for other procedures. In fact, wait times increased in areas such as arthroscopy, spine, foot, ENT and general surgery: *“I would love to see neurosurgery on a wait times strategy. I don’t think for craniums we have a big backlog, but their backs (...).”* (I.7 Q170). *“I really think that tonsils and ears should be a huge wait time strategy because these kids really need to be done and with only having three ENT surgeons they’ve got (...).”* (I.7 Q175). *“We’re funded*

a little bit for pediatrics, but that's a black hole of work. But things like other orthopaedics too; arthroscopy has probably gone up." (I.1 Q157). Apparently the problem was lack of money for all specialties and for measuring wait times. A manager commented on this:

"Nobody measures it, nobody keeps us accountable to it, and there's been no money to really deal with it, except if we do really well on our total joint numbers and we're able to re-allocate some of those resources to those things." (I.1 Q157)

The manager also expressed concerns about the lack of evaluation of the program at the provincial level to analyze the efficiency of the WTMS: *"They haven't changed the priorities provincially in five years so; they've just kept working on the same priorities."* (I.1 Q156).

After the province adopted the approach of applying economic incentives to increase volumes rather than decreasing wait times for patients, funding depended on results: *"We want to be at that 700 procedures level a year, at least right now. We won't even grow beyond that. The only way they're going to give us money is if they see what they think are results."* (I.1 Q142).

4.1.2 Unintended consequences at the organizational level

Serendipities



Prehospital

The referral process for HKR surgeries has been used as a role model to improve other programs' processes. One interesting illustration of improvement based on using WTMS in HKR as a role model was seen in colonoscopy. The manager of decision support commented:

"I know the referrals for patients for colonoscopy have now, since my program, also gone to a central intake model, so in this hospital we're definitely looking at using the central intake model for more than just hip and knee and we're now looking at it for general surgery as well." (I.9 Q86)

In addition, one surgeon mentioned the importance of improving the accuracy of data on other wait times:

"[What] they need to do is invest in understanding what their commitment is to spine and how many people are waiting for spinal surgery, and what their commitment is to joint replacement and how many people are waiting for that, and try to use this in a way that's going to be effective." (I.6 Q50)

Hospital

Before this program, the OR was considered a particularly stressful environment characterized by lack of trust and cooperation between surgeons and staff. In fact, surgeons and nurses didn't have the same goals and sense of the job and as a consequence, stress was part of their relationship. In addition, we had not enough number of nurses working at the OR. Therefore, this elements cause unintended consequences at different levels on the OR for example on patient's

safety. However, by the time of our study, this organization had been emphasizing the importance of team work in the OR and its impact on patient safety. Moreover, this institution has been working on the importance of team work regarding patients' best interest. The concept of team work has been implemented not only in orthopaedics surgery, but also in other specialities. For example, the organization was working on improving the shared understanding of team goals around nosocomial infections. Increasingly, the health professionals agreed that nosocomial infections depended not only on the surgeon's work, but also on that of the team:

“So it was a long time for me to get people to understand that it is not a surgeon's infection rate, it's a hospital infection rate, it's a process infection rate, a system one. And the hospital's actually done remarkably well at evolving over such a short period of time from two very dysfunctional facilities to where we are.” (I.6 Q40)

Even through the economic crisis, the WTMS program helped create more job opportunities for health professionals in the region. The chief of surgery stated: *“Certainly for running consecutive rooms or two rooms you need to have additional nurses.”* (I.4 Q15), and the manager added: *“So we hired more nurses.”* (I.1 Q137).

One of the most interesting findings was that the model to improve wait times in HKR had been used as a role model not only in the referral process but also in processes of planning the hospital pathway of patients in other fields like cardiac surgery, paediatric surgery and general surgery. In fact, surgeons saw

reductions in their colonoscopy wait list: *“Our colonoscopy waits have come down quite a bit.”* (I-9 Q123). A nurse in the assessment centre explained clearly the importance of the WTMS program as a model in other programs to improve the pathway:

“I think it has been a catalyst, I think they’ve gone into other clinical pathways now for cardiac patients and things. We don’t deal with that; but for the other surgeries we don’t have a pathway yet. I guess we probably could develop it later on.” (I.5 Q43)

Leadership from surgeons was extremely important in persuading more specialists to get involved in this type of program. This institution had an orthopaedic surgeon who led the group to improve WT: *“We had a really good orthopaedic surgeon on board with us as well, so he was very persuasive I guess.”* (I.5 Q16).

OR time is sometimes misunderstood as belonging to the surgeons. However, in this case, that understanding was gradually moving toward another view, in which OR time was viewed as a community resource. A general surgeon emphasized the importance of this change of mentality toward seeing OR time as community time: *“Operative time is no longer a surgeon’s time; it’s a community time that the hospital doles out to surgeons for the production that the surgeon can use it for.”* (I.6 Q63). He added: *“This community cannot give you more OR time to get half measure from it. They’re not interested in you being prosperous, they’re interested in the community being prosperous.”* (I.6 Q66).

One nurse administrator described how the organization was working on projects to improve nosocomial infections:

“One of the residents is interested in doing an infection control thing on joints, so he’s making up a whole new form for the doctors to participate in, which is going to help us a lot, so that they’re all doing the same thing.” (I.7 Q204)

Serendipities

There were no serendipities at the post-hospital level.

Trade-offs

There were no trade-offs at the prehospital level.

Hospital

As HKR volumes increased in the OR, relations among surgeons, anaesthesiologists and nurses were negatively affected. In addition, enormous resistance emerged due to an overwhelming amount of extra work. This resistance was associated with different views. Some people attributed it to the shortage of anaesthesiologists and their reputations as individualists who worked according to their own rules, whereas others linked it to the different levels of remuneration received.

One surgeon stated, in relation to the anaesthesiologists: *“They say, ‘I don’t want to work that late, I don’t want to do that other case’, and so then we’re struggling to try to find a way to get in that number of cases.” (I.6 Q16).* There

was also resistance from anaesthesiologists because there were not enough specialists, and they took advantage of that to do their job in their own way:

“The anaesthetists are a different breed; they have been a point [of contention] for a long time in every operating room in Canada, not enough anaesthetists, right? 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 Q1)

Anaesthesiologists expressed some concerns and pointed to the stress of running double rooms because they had to work more. The manager shared some comments from anaesthesiologists related to double rooms:

“Anaesthesia, when they were short, they faced a lot of pressure, and a lot of them didn’t like the double-room days, that caused problems. It caused problems on the units, the double-room days, because you’ve got eight joints coming. They don’t want to work extra, so, you know, that’s stressful on your staff.” (I.1 Q165)

On the other hand, nurses and surgeons sometimes experienced tensions related to economic issues. In fact, nurses were dissatisfied, due to lack of remuneration and work overload. One surgeon explained that nurses might have negative perceptions of the program because surgeons were getting more money with this program and nurses had to deal with work overload with no added financial compensation:

“And so it’s been a very hard road to navigate, because the more you work, the more you earn, and when you want to make things more efficient it’s difficult for many people who are earning a small fraction of what

you're earning to look and to say, 'Well, it's not got anything to do with money'." (I.6 Q42)

Therefore, nurses seemed to be still in the mindset of working for the surgeons rather than for the community:

"They are still focused on 'they're working for the surgeon', and they need very much to be educated that the surgeon is just a simple catalyst in this equation, that they're not to look at that, they're to look at them working for this person [the patient]." (I.6 Q67)

Moreover, some staff have the idea that the surgeon is making more money with this program. In fact, one surgeon expressed his perception of this issue:

"(...) everyone around looks and says, 'Well, the surgeon is making more money because he's doing more work' and yes, that's true, but the focus shouldn't be on that, it should be 'We have a community waiting list'." (I.6 Q16)

Furthermore, the stress among surgeons was related not only to economic issues, but also to egos associated with 'orthopaedic preferences and rules'. A nurse manager shared her experience of this tension among surgeons: *"I think a lot of surgeons – and I'm sure it's this way across the board – think that ortho rules, ortho is always the loudest, orthos always get what they want; and I'm sure it's that way across the country."* (I.7 Q154)

Overwhelming staff with work does not necessarily produce efficiency. One surgeon considered that efficiency would be better achieved by improving productivity in daily OR work:

“I think (...) eight joint days are probably not a smart way of managing it. It would be much more effective to increase the productivity of a normal OR day by 25%, and probably wouldn’t even have to add that much more time in it.” (I.6 Q71)

As mentioned, the wait lists were managed by surgeons themselves. This caused problems not only at the systemic level, but also at the organizational level, where hospital managers were planning organizational strategies with inaccurate data. The manager of this organization expressed his frustration: *“We can manage volumes, but we can’t necessarily manage physician lists. Physicians are independent practitioners (...) they’re not employees of the hospital.” (I.1 Q149).*

This institution was a referral hospital for orthopaedic surgeries and other specialties for northern Ontario. As such, it received a significant number of patients. However, there were not enough beds available to accommodate HKR patients as well as other surgical patients. In fact, there was no plan for improving bed distribution, and floor nurses had to deal with difficult bed situations on daily basis. One nurse who worked on the surgical floor commented:

“In terms of the amount of beds that are available, it varies from day to day, and you kind of have to go day-to-day, you know. Sometimes you’re in great luck, and you just kind of have to assess what you can do on a day-to-day basis.” (I.2 Q15)

As a result, this organization was struggling to improve efficiency in the OR due to lack of hospital beds. A nurse who managed beds on the floor stated: *“I’d have to say that over the years (...) it’s pretty much remained the same (...) it hasn’t changed a lot.” (I-2 Q44).* One surgeon pointed out that sometimes they did

surgeries and patients would have to wait in the recovery room for a long time before they got a bed:

“So I would go in and do one joint in one room, and go with the same anaesthetist but a different scrub team to the next room, do another joint, and bounce back and forth; and that worked out reasonably well. 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 (...).” (I.6 Q10)

This organization’s culture had a negative impact on its ability to achieve its goals in terms of efficiency and team work. People did not feel enough confidence in each other and did not cooperate to improve efficiency because of their different personal views on the program. *“Why don’t you co-operate with each other and pass over cases?” (I.6 Q63)*. From the surgeons’ perspective, working as a team would increase efficiency and they could finish work early:

“We’d need a focused team who gets to go home when they’re finished their work (...) You know, work until you’re done. If we get it done at 2:00, go home; if we get it done at 4:00, well, you’re staying half an hour; if it’s done at 3:30, well, you did your job.” (I.6 Q71)

This lack of confidence was viewed as a huge barrier from the manager’s point of view: *“If they don’t trust you, you’re sunk; especially surgeons. So over the last couple of years we’ve really worked to try to improve the trust.” (I.1 Q139)*.

Negative consequences



Prehospital

GPs are responsible for instigating the referral process for patients who, according to their clinical criteria, need HKR. After WTMS started, GPs changed their way of functioning. One unanticipated and negative consequence of WTMS that emerged was that GPs lacked knowledge about the new referral process. However, there was no mention of any orientation program before the program's implementation. It was therefore necessary to set up orientation programs on the key points of the program, resulting in increased expenditures on such programs aimed at GPs, who needed to be reminded on a regular basis of the new referral procedures for patients who might need HKR. The APP commented on the different alternatives used by the program to educate GPs:

“You have to keep reminding them. They will flip back to their old ways of referring directly to the orthopaedic surgeon, because they forget. And so I’ve marketed them through various venues. I’ve gone to their various offices and hosted a breakfast meeting, a lunch meeting (...) I’ve gone to their summer school in the fall and given a presentation, I’ve done (...) grand rounds, a monthly presentation to the family physicians with Dr. X and Dr. Y, and we’ve been in the media quite a bit.” (I.8 Q59)

This situation was linked to GPs' resistance to this new program. Some respondents also saw their resistance as being related to the physiotherapy

assessments. One surgeon pointed out that GPs did not at all appreciate that their patients should be assessed by a physiotherapist:

“But 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 a self-awareness on the part of the family physician that’s not common. So I think that my perception was that we may make more enemies than friends by saying, ‘Look, we can do a better job than you, let me teach you how to do this’.” (I.6 Q31)

In addition, the GPs were under a lot pressure from patients, who wanted to get on the fastest list, whether with their preferred surgeon or with the first available surgeon. Patients did not really know the referral process; they just wanted an appointment with a surgeon:

“You get people going through that (...). They might go on this list, but they also might then go to a different doctor, get a referral (...). They might go to their GP and get referred to X, but ‘Oh, that’s going to be 200 days, well (...) I’ll go to a walk-in clinic and get a referral to Dr. Y as well and see which one gets me in faster.’ We saw a lot of that with bariatric surgery, and I have the feeling some of that happens with joints.” (I.1 Q153)

On this matter, the manager stated:

“The GPs have no idea whose wait time is the longest, and they don’t care for the most part (...). As a consequence, Dr. X receives definitely a disproportionate amount of the referrals in town, so that affects his wait times, too. They just refer on to whoever they’re comfortable with.” (I.1 Q151)

GPs thus made double referrals because of their lack of knowledge about the program and their resistance to change, with the result that, in the end, wait times increased due to double referrals.

Hospital

The province's lack of clarity as to whether the focus should be on higher volumes or reduced wait times caused negative and unanticipated consequences for the organization. One manager explained that this institution had two managers with different interests that, in the end, impacted negatively on the structure of the organization: *"One of the managers is really tied to wait times. Me, on the other hand, if we're getting our volume done, I can go back to the Ministry and say, well, give us more volumes."* (I.1 Q75). On the other hand, the manager of decision support felt that the goal was to reduce wait times: *"The initial agreements that they were asking us to sign suggested that we had to hit the wait time targets in order to get the funding."* (I.9 Q100). Furthermore, the institution's final goal was not taken into account by government, since policy-makers just wanted to achieve political goals such as reducing waiting times:

"The government's kind of funny in the way that they look at wait times, because 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."
(I.1 Q146)

Communication is always a challenge in any organization, even though it is known to improve outcomes. An interesting anticipated and undesirable

consequence was the lack of communication between OR nurses and floor nurses, both before and after surgery. One floor nurse commented:

“Well, there really isn’t any communication between the operating room and [the floor]. The communication is the OR to recovery room, and then recovery room (...). We get our reports from recovery room.” (I.2 Q53)

A nurse who worked on the floor receiving patients from the OR also stated that there was no communication with regard to bed availability:

“We receive the patients, and that’s it! We receive the patients, we don’t have any input as to how many joints come in; those are all booked through the doctors’ offices with the OR, there’s no consultation with our unit at all.” (I.2 Q14)

Independent practices have been shown to be associated with more medical complications. Nevertheless, some surgeons preferred not to be part of the team, for personal reasons not disclosed in the interviews. A surgeon from the team expressed his concerns on this particular issue:

“Well, we had one surgeon that opted to separate from the group, which is very unfortunate, because I think it’s been very clearly shown in many studies that being an independent practitioner as a surgeon leads to higher complication rates, leads to a whole slew of issues that are best avoided (...).” (I.6 Q57)

Even though patients were clinically assessed in order to detect comorbidity, some preventable medical complications did arise. One nurse spoke about medical complications that occurred even after pre-surgical assessment:

“You get the odd patient who may have a myocardial infarct after their surgery. They get tachycardia or they’ve got some sort of underlying medical condition that either they haven’t identified before they’ve come in, so it shows up, of course, after they have their anaesthetic. PEs, DVTs sometimes.” (I.2 Q36)

Another cause for concern was that the hospital had directed the extra funding for the OR to other needs and not necessarily to HKR surgeries. The chief of surgery said: *“One thing that the orthopaedic surgeons probably resent is that the additional funding hasn’t flowed directly into the OR, it’s flowed up to... the total pot in the hospital.” (I.4 Q15).*

Surgeons preferred to keep their own wait lists, so that they could push for more individual OR time rather referring patients to other colleagues. The result was longer wait times. Moreover, there were no incentives to refer patients to other potentially available surgeons. The manager spoke about the lack of incentives to refer patients from surgeon to surgeon: *“Right now the incentive is for surgeons to grow their wait list, but there’s no incentive for them to refer patients to other physicians, so...it’s a disincentive, right? So then patients wait.” (I.1 Q149).*

Some concern was voiced that using cheaper sets in surgery could be linked with increases in nosocomial infections. However, there was not enough evidence to support that idea. One surgeon deeply involved in this program commented on the link between cheaper sets and nosocomial infections: *“They decided to go to a cheaper rate for the sets, and you hold them up to the ceiling*

and you'd see a pinhole, and you'd say 'Well, that set's not clean', but then you'd think, 'How accurate a measure is that?'" (I.6 Q80). He also said analyses were being done to find out whether there was an increase in nosocomial infections: "We're currently investigating whether or not we've seen a real increase in infection rates. My perception is that that's had a negative impact on our surgical site infections." (I.6 Q79).

One significant undesirable and unanticipated consequence was the fact that patient's preferences increased wait times. They preferred going to the surgeon with the best reputation in the region, or to have their surgery done in a specific period of the year. The manager gave an example of patients' preference based on the surgeon's reputation:

"Dr. Y, for example, the second-highest volume guy here – actually no, he's the highest volume guy here for joints – is an excellent surgeon, but Dr. X has a better reputation, for whatever reason, in the community. So his wait time is usually around 160–170 days, whereas Dr. X's real wait time is usually (...) closer to 230 days. So they say 'Well, for another two months (...) I'll just wait for Dr. X, it's not a big deal.' But to the Ministry (...) it's hard for us to capture that." (I.1 Q75)

One surgeon shared his experience on how patients' preferences increased wait times due to their preferences to have surgery done in a particular season of the year: *"Most of our community would say, 'I don't want it done in the summer time because I don't want to be away from this, I'd rather have it done in the winter.'" (I.6 Q50). He felt, on the contrary, that the system should manage surgeries based on the program, not on patients' preferences:*

“I’m going to mark you off the waiting list now because you’ve refused your op time and you go to the back of that list, and when it’s so sore you can’t speak, and then you’ll have it done at whenever a time is available.”
(I.6 Q51)

Furthermore, there were concerns about measuring patients’ satisfaction by taking into account only patients’ choices because experience had shown in this particular organization that it was not the most objective measure. One surgeon considered that patient satisfaction was not the best measure of the program:

“I don’t think that that’s a reasonable measure for us to be targeting patient satisfaction, based on the fact that they got their operation at the time of year that they wanted? I mean (...) this patient-centred care is great, but it needs to be evaluated based on real things, not patient satisfaction.” (I.6 Q52)

While flexibility around when patients have their surgery is important, it can have negative impacts on wait times that must be taken into consideration. He agreed that the program should have some flexibility, but not based on patients’ needs: *“Should the patient be able to be in pain and get their operation in a timely way? – Yes. Should they have some flexibility in their times? – Yes. But in this hospital, from November until March we have a series of nursing home closures!”* (I.6 Q52).

Since this organization was seeking to improve HKR, the OR time distributions had introduced some inconveniences linked to inefficiency. First, the hospital needed to look after its own agenda and productivity, which caused some cancellations and delays in other waiting lists. The manager commented: *“I only*

have so much neurosurgery time I can give out. We need to have three neurosurgeons to have a proper neurosurgery program. I really can't just take away one guy's time and give it to the other guy, right?" (I.1 Q149). Second, they were facing an impending decrease in the number of anaesthesiologists because of retirements. Third, the hospital lacked the physical and organizational structure required to support increased demand for surgeries in HKR and other specialties. A surgeon said: *"Not equally distributed, that's distributed based on productivity, and that is given based on the hospital's agenda, not on the surgeon's agenda."* (I.6 Q49). Finally, one surgeon complained that OR time was being distributed on a limited basis:

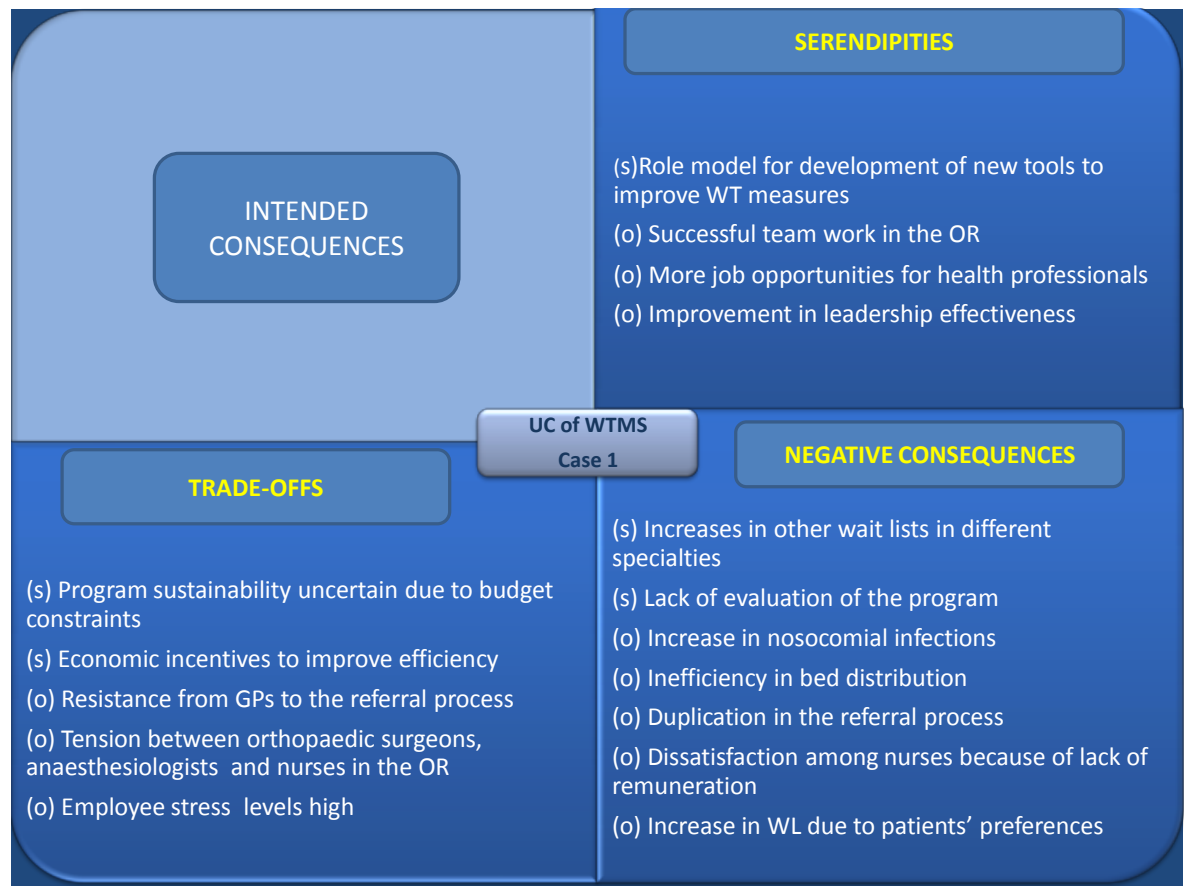
"The hospital is behind in joints. They don't give it to the upper extremity surgeon, they give it to joint replacement surgeon. If the hospital's had two complaints from spine patients waiting for their operation, they call up and say 'OK, get these two people done', and they give you more time for it (...). Micro managing OR time like that is a very inefficient way of doing things." (I.6 Q50)

Post-hospital

There was no follow-up on nosocomial infections and rehabilitation processes. This meant there was less knowledge of the real impact of the program in the long term and on patients' morbidity and mortality linked to HKR. A nurse in charge of discharging patients noted that there was no specific plan to follow up patients after surgery:

“I think if there’s sort of an infection post-op, I think the patient either goes to St. Joe’s or is discharged and then will come back, and they don’t necessarily come back to [this floor], they may go to any of the other surgical floors, so if there is an incidence of some infections, I don’t know about that.” (I.2 Q37)

Figure 6 Summary of unintended consequences, Case 1



4.2 Case 2

Case 2 is a university hospital in Ontario with no emergency room or intensive care unit. It does not do complex surgeries, and its strategy is classified as sustainable. The program started in 2007.

4.2.1 Unintended consequences at the systemic level

Serendipities



Even though advanced practice physiotherapists (APPs) have certain practice limitations, they became an essential part of the program in this particular institution. As a result, the Ontario Physiotherapists Association (OPA) was changing its regulations in order to provide them with better support and involvement in the WTMS program. An APP involved in this program commented:

“In the College of Physiotherapists of Ontario there are some significant legislative changes that have happened in terms of communicating and diagnosis, and right now I'm pulled in to some of the work they're doing, where they're looking at the whole diagnostic piece and communication (...) in terms of the Ministry. So there are a lot of legislative changes that have happened (...).” (I.2.7 Q50)

Since the WTMS program implemented educational programs for patients from different parts of the province, new job opportunities in local communities emerged, helping patients from distant locations to have access to these programs. The manager observed:

“Because our patients come from all over, it would be an extra trip to Toronto to come just for that class, so we’ve been working with a few Shoppers Home Health stores, and they will deliver the class now in their local communities.” (I.2.3 Q63)

Trade-offs



The uncertainty around being able to sustain the program in the long term was an anticipated negative consequence for this institution. They were not sure of getting recurrent annual funding from the province, as stated by the program’s medical director: *“Right now, we continue to get annual funding, but we’re not sure obviously about what’s going to happen on a go-forward basis.” (I.2.4 Q62).* In fact, the institution expected more funding because the program had been successful. The medical director, who was a surgeon as well, shared his experience on this issue: *“You do something for five or six years and it’s really successful, you’d like to see someone say ‘That’s great, here’s the funding for it because it was just really good’.” (I.2.4 Q81).*

Another situation linked to the uncertainty of sustaining the program in the long term was the amount of bureaucracy between the Ministry and the hospitals. A surgeon involved in the program spoke lamented: *“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 Q135).* Unfortunately, there was no opinion from the Local Health Integration Network (LHIN) on this point.

Negative consequences



One surgeon felt the Health Ministry should give them at least the same number of cases per year, instead of reducing them because the program had been successful:

“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 Q128)

The medical director also pointed out that the province’s WTMS policy was based on inaccurate data that did not take into consideration some patients’ behaviours that affected wait times:

“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 Q71)

There were increases in wait times for other specialties because government policy was mainly focused on WTMS in HKR surgeries. As such, there was limited funding from government to pay for more OR time for all specialties. The medical director considered that they were under significant pressure from the province to do HKR:

“The pushback from the surgeons happens when the hospital says, ‘No, we’re not giving more OR time, but the government is giving us extra

money to do the hips and knees, so you have to cancel those other patients to do this’.” (I.2.4 Q87)

4.2.2 Unintended consequences at the organizational level

Serendipities



This organization did not have any desirable and unanticipated consequences at the prehospital level.

Hospital

Historically, the relations among some of the health professionals (surgeons, anaesthesiologists, nurses and physiotherapists) had not been very good. However, the program improved relations significantly and raised the level of confidence between surgeons and APPs. The APP involved in the WTMS program shared her experiences regarding the improvement in relations among health professionals:

“We did some early research looking at level of agreement, just to build the confidence. So we really hadn't had that, it was like a brand new role; but we had all of the tools to show why it would be a good fit, and to gain their confidence. There's a clear line of communication, everybody knows their roles.” (I.2.7 Q44)

One unanticipated and desirable consequence was the creation of educational material for patients to improve their understanding of the pathway and the surgery: *“We have written booklets for patients; we created a DVD that's hip-knee.”* (I.2.3 Q68).

There was greater efficiency in the OR thanks to a dedicated and cohesive team of specialized staff. That team work helped improve anaesthesia performance as well. One surgeon considered that, to maintain that success, it was important to have a permanent team working toward the same goals: *“But you can’t maintain that kind of throughput unless there’s space dedicated, and equipment dedicated, and personnel dedicated to the anaesthesia part.”* (I.2.2 Q73).

APPs became an essential part of the program to improve communication with patients, who really like the APPs. The medical director, who also worked as a surgeon, spoke about the considerable role of APPs in this program:

“Patients are happy to see the APPs, that they’re getting equivalent or better care for themselves. The comments that we got were, ‘The APP was able to spend some time with me’, or ‘I was able to ask some questions’.”
(I.2.4 Q77)

They were involved not only in the assessment centre, working actively with patients before surgery and in post-operative follow-up, but also in the assessment of x-rays for patients. One APP in this organization described their role:

“(…) the advanced practice physios involved in the assessment centre – they’re also involved in post-operative reviews, (…) we have telephone support (...). So, in other words, if somebody goes home, say, from surgery and they have a fall, (…) it’s difficult to get to the surgeon. They have a line [where] they can call us, we can get the aid faster, if there are issues or flags that they need to be dealt with quickly, we get them in like that.”
(I.2.7 Q52)

An example of APPs' involvement in patient assessments was provided by the surgeon medical director:

"I had a patient recently who fell at home, who came in, and the APP saw them, assessed them, ordered an x-ray. The radiologist misread the x-ray, the therapist sent me an email – I was away. She said, 'You know, I don't know what to do here, Dr.[X], because I'm sure this patient's got a fractured femur, and I'm sure they've got a crack in their femur, but the radiologist says the x-ray is normal (...) no change from previous'. The APPs are really good, I mean they really pay a lot of attention to detail, you know? Sometimes a little too much, I think (...) personally, you know?" (I.2.4 Q78)

This was an excellent opportunity for APPs to be deeply involved with the program. The APP shared her experience with the referral process:

"We triage all the referrals, because sometimes family physicians will send something that's more urgent and it won't be flagged as urgent. It's been great for physios because – it's not for all physios – but it's (...) been sort of an opportunity for growth in that profession as well," (I.2.7 Q52)

The APPs had produced some scientific publications based on their experience with assessment centre using the APP model, which is an innovative branch of HKR treatment in Canada: *"The assessment centre and the feedback was really positive. The advanced practice physios have published a couple of articles on how this role evolved."* (I.2.3 Q63).

APPs became important for patients in terms of better communication, as observed by the medical director:

"The APP clinic lists are shorter than ours, so they have fifteen minutes rather than five minutes. Ours were sort of built around five minute appointments and theirs are built around fifteen minute appointments so (...) after awhile when people come back repeatedly they go, 'Well, this is great! There's someone to spend some time with me, it's wonderful'."
(I.2.4 Q77)

This program had hired more nurses, giving them the opportunity to work and some economic stability: *"Yes, we hired a part-time nurse, but it may eventually become a full-time nurse, which is important. It is important because the pre-op nurses also do cover the outpatient area."* (I.2.1 Q30).

Since the organization's culture had not been based on team work up to then, this program enhanced nurses' confidence. Nurses now felt they were part of the team as surgeons trusted their opinions, which represented a significant value for this organization. This confidence and trust improved team work between nurses and surgeons, making a positive impact on the program. The nurse coordinator of the assessment centre commented:

"We'll say 'recommend a pre-screen based on these findings' and then the surgeon will order that, and they'll get assessed by the anaesthesiologist and the medical doctor before they book in for surgery to make sure they're okay." (I.2.1 Q54)

Anaesthesiologists improved OR time by using regional anaesthesia without affecting patient safety, which had a positive impact on OR efficiency. The manager shared his experiences with this situation:

“They started the regional anaesthesia program here small. They showed that they could do it without having an impact on surgical time, and they could show also patient satisfaction and less complications, which help us get the patients up and going more quickly.” (I.2.3 Q115)

This model has served as a role model not only for other programs, but also for different institutions in the same city and in other provinces in Canada: *“A lot of them [are] using a model based on our model here.” (I.2.4 Q83)*. In fact, the organizational culture has been improving and the feeling of the team is better. For example, a surgeon commented that since the program started they now had annual gatherings, such as at Christmas time, to celebrate together: *“There’s the commitment to the idea, and there’s a bit of a family feeling here.” (I.2.2 Q190)*. *“Every Christmas time there’s a big party for the whole hospital. Everybody from the cleaner to the CEO is there.” (I.2.2 Q191)*.

Trade-offs



There were no anticipated and undesirable consequences at the prehospital level in this organization.

Hospital

As mentioned, there was some uncertainty about whether the program would be sustainable in the long term due to a certain level of bureaucracy between the Ministry and the hospitals. This uncertainty was an anticipated and undesirable consequence not only at the systemic level, but also at the

organizational level. As such, this bureaucracy impacted the sustainability of the program in hospitals.

The program increased nurses' workload in the assessment centre for HKR surgeries. This was an undesirable but anticipated consequence, because people were expecting increases in volumes for TJR. However, it stressed nurses' workloads and added more physical demands, such as lifting patients and carrying heavy equipment needed for orthopaedic surgeries. The pre-op coordinator nurse shared her experience:

“It is an added workload, and some days your demands on your time are just so great that sometimes we have to decline seeing some of the assessment centre patients because we just can't cope with the volume and the number of issues that we're dealing with. So there are times that you just can't do that.” (I.2.1 Q53)

In addition, they had to keep working not only with HKR patients, but also with short stay patients undergoing shoulder surgery or knee ligament repair. As a result, they reported emotional stress and physical exhaustion due to increase demands for lifting patients. One nurse spoke about her experiences with high volumes and heavy equipment:

“And from an OR nurse's perspective 200 joint cases are heavier on the nursing staff – lots of pans and instruments and stuff (...). Same thing on the units; on the units there was a mixture of patients – short stay patients – so if you had a shoulder surgery or a knee ligament repair, you were only here for one to two days and you weren't very sick. So there was a mixture of patients, but now all the patients mostly had a total joint, so (...) definitely increased the work in both areas.” (I.2.5 Q25)

This situation was also evident from the surgeon's perspective, who observed that nurses had to work so hard on this program:

“Well, (...) there can be 18, 20, 22 joints per day, it's that little more stressful, it's physically more demanding; and the nurses are not getting any younger and some would say 'Yeah, that's a hard day's work', okay? So (...) there may be some stresses like that.” (I.2.2 Q175)

Even though the funding to sustain the program over the long term was uncertain, it also depended on getting the work done. If the organization worked hard to achieve the goals, the province would provide funding. Yet, to get that work done, the organization needed funding in the first place. This led to a vicious cycle, and ultimately to a potential stalemate, between the funding and the work of the organization. According to one surgeon, to get more funding, hospitals needed the collaboration of OR staff and enough equipment to do the job efficiently:

“I guess the other thing was that additional money became available, but it was only available to those who could get the work done. So, again, it was collaboration – because you have to have enough OR staff, you have to have enough surgeons, you have to have enough equipment.” (I.2.2 Q125)

The program met resistance at different levels of the organization. For example, some surgeons resisted hiring APPs instead of bringing on more surgeons to decrease wait times. From the APPs' standpoint, there were different levels of barriers:

“Yes, and there's barriers on different levels – there's system-level barriers, there's organizational barriers, there's human barriers (...) you

know, human resource kind of factors, all the different levels, it's important.” (I.2.7 Q21)

From the manager’s point of view, some surgeons were resistant:

“Some of the surgeons said that the wait time strategy and the infusion of funds and the fact that they were able to recruit more orthopaedic surgeons meant that the wait times were down, so it was a waste of money to pay the salaries for advanced practice [physios].” (I.2.3 Q60)

The program increased OR time for HKR surgeries, but decreased it for other types of surgeries. Consequently, there was a feeling of unfairness in the system. As the manager described it: *“We’ve got some surgeons that have more access to OR time than other surgeons. So it creates a lot of tension amongst the group of surgeons.” (I.2.3 Q112)*. Some people had to wait for surgery for less time than others, who waited much longer. A surgeon recounted his experiences of this situation: *“I think there’s still a few hard feelings here and there. Why should they have to wait nine months to a year? Whereas, somebody turns up in my clinic with a sore knee, I can organize their care in two or three months.” (I.2.2 Q164)*.

It was not only nurses who were overworked, but also secretaries, who had to solve so many problems before patients went to surgery. Nevertheless, one secretary proclaimed: *“We overcame it, and it seems to be working smoothly.” (I.2.6 Q10)*.

Negative consequences



Prehospital

There was an increase in wait times in the referral process due to GPs' not providing information to the central area, a behaviour that was linked to resistance to the program. This was an undesirable, unanticipated consequence. One surgeon spoke about GPs' not following the referral process:

“But I’m not sure the family doctors understand that what we’re trying to do is get all of the referral information into a central area. There’s a check box, a minimal amount of information is required for you to go through that, and if you provide that information, we’ll do our best to get your patients assessed either quickly, or by whom you request in a timely fashion; but it won’t be quickly and (...) it’s one or two, not all three. So I think that’s one thing that could be improved because they just don’t seem to get it.” (I.2.2 Q166)

The GPs resisted the program and had concerns because they used to refer patients to the surgeon, and now patients were being assessed by APPs. The manager said: *“So we did expect some grief from family physicians because they were referring their patients to a surgeon and they were being seen by an APP.”* (I.2.3 Q118). The medical director reported GPs' comments on this particular topic: *“So initially we had and we still get occasionally – primarily from the family physicians (...): ‘I didn’t refer the patient to you to be seen by a therapist.’”* (I.2.4 Q77).

Hospital

Since this institution had no ICU, the program accepted only patients without co-morbidity. One surgeon commented on their selection process: *“One: the staff are focused, the patients are selected, most of the people we operate are*

kind of functioning okay.” (I.2.2 Q181). In addition, patients were rigorously assessed before undergoing surgery: “Everybody comes to the pre-admission visit; they’re seen by a nurse, anaesthetist, and here internal medicine, because we don’t have an ICU facility, so we need to screen people more carefully.” (I.2.3 Q68). Thus, sicker patients have limited access to this program. The medical director spoke about patients’ pathways:

“So now what happens is they get seen in the assessment centre, they do the anaesthesia questionnaire, so we know what their medical background is. If they have any medical issues, the nurse from the pre-assessment clinic comes and does a preliminary assessment. They get the information from their family doctor – or the cardiologist or whatever – and if it says basically they’ve got a grade three ventricle or a grade four ventricle, or whatever, we say, ‘Sorry, you can’t be seen here, we need to send you somewhere else.’” (I.2.4 Q73)

According to the medical director, patients did not use the assessment centre, even though it was available to them: *“[In] the assessment centre (...) patients could be assessed within two weeks of referral; it was surprising to us how few patients actually (...) once they had access to care, didn’t take it!” (I.2.4 Q64).*

Since the program took a great deal of the managers’ time, those involved with the program did not have time to share their experiences in scientific publications. The medical director stated:

“One of my challenges here is that, because we’re all really busy, we don’t publish enough about our success. We’ve done some things in healthcare

management and so on, but not (...) We don't have anything in the Canadian Journal of Surgery or Journal of Arthroplasty or any of those kind of things, right? I mean, I don't have the time." (I.2.4 Q81)

Patient's choices increased wait times and cancellations, such as when they preferred to have the surgery done at a specific time of the year, or by a specific surgeon. A pre-op nurse commented that although some patients might be willing to move to the next available surgeon, they generally preferred to wait for a surgeon with best reputation:

"Now some people will say 'Yes, I want that!', and we have a little form they fill out saying that, yes, they are willing to change to the next available surgeon. And sometimes they do, sometimes they don't, because they want to wait for that person." (I.2.1 Q59)

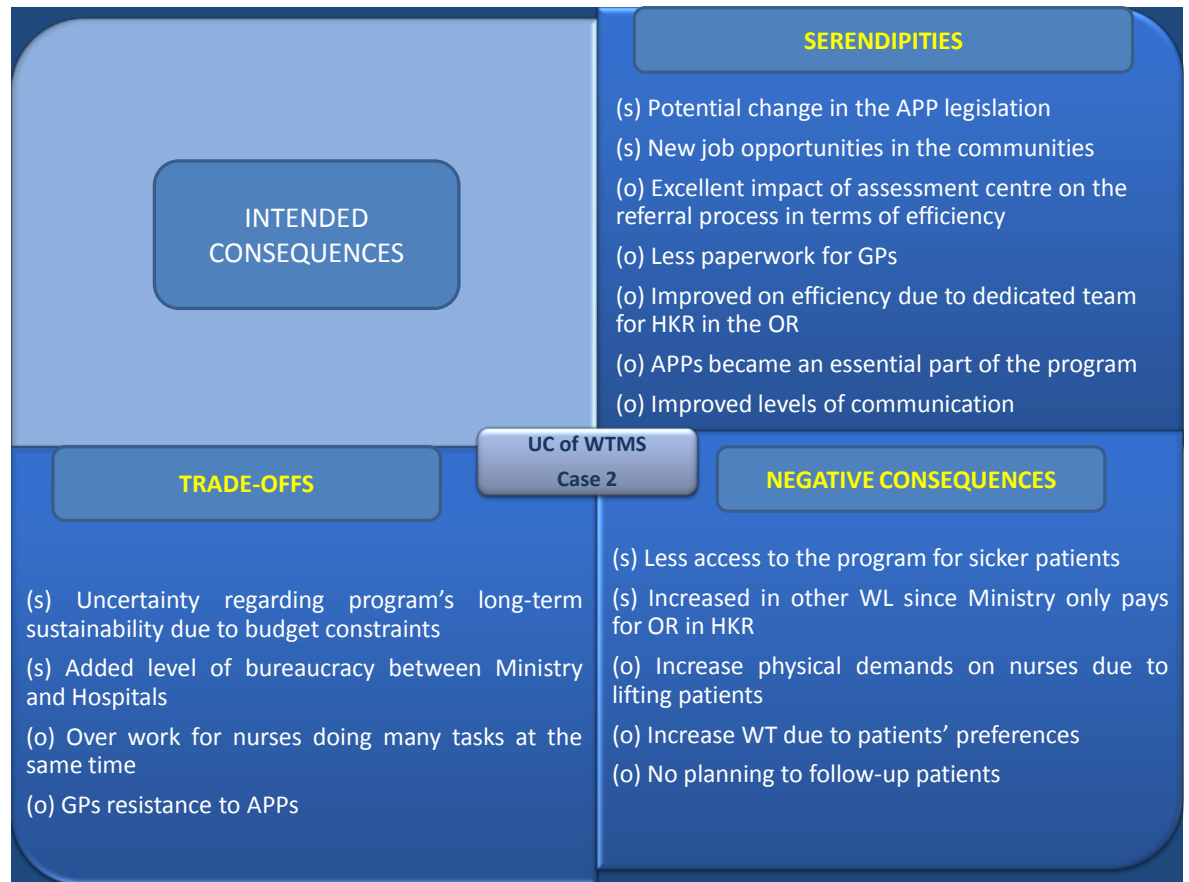
Therefore, the program created the undesirable and unanticipated consequence of increased wait times due to patients' choices. The medical director explained this unintended consequence:

"The adverse effect is, 'You're not being efficient, you're not doing what you told us you were going to do,' and the answer is, 'No, we can't control patient behaviour; we cannot simply offer them the care'. (...) on the surgery side, if I say 'I've got a cancellation, do you want come in next week?' – 'Oh no, like I got a holiday booked with my family and my niece is getting married in September, and then am I going to be ready if we're going to Florida at Christmas. Maybe I should wait until next spring'." (I.2.4 Q66)

Post-hospital

The program had no plan to follow up patients. We considered this to be an undesirable and unanticipated consequence, because it is important to follow up patients after any strategy to know its impact on the community. Moreover, following up on patients helps in assessing the program and taking measures to improve it. However, the program informed patients to call to outpatient clinic if anything happened. The pre-op nurse coordinator commented on the fact that there was no specific plan to follow up patients: *“Now the nurses are not in outpatients anymore, so we only get called to outpatients if they need us to help with the procedure, basically.”* (I.2.1 Q33).

Figure 7 Summary of unintended consequences, Case 2



4.3 Case 3

Case 3, a university hospital in an eastern province, is a reference centre for the province. Its strategy, classified as unlikely to be sustainable, started in 2008.

4.3.1 Unintended consequences at the systemic level

Serendipities



Even though the program was unsustainable, it introduced some improvements. The province lacked confidence in it at the beginning, but the program had some serendipitous consequences because the improvements it produced were unexpected. As the project manager stated: *“In the beginning they gave us the minimum, and I think the success of the program in terms of reducing the wait time and over time reducing the wait list for surgery (...) then they see value in that.”* (I.3.6 Q70).

Trade-offs



As the surgeon explained, the program was implemented, but in their own way that was not strictly in line with concept of sustainability as defined by the province: *“It’s more from what it was supposed to be, so it is sustainable as a new definition, but it is not what it was meant to be.”* (I.3.7 Q42). In fact, the program had serious problems of sustainability in the long term due to budget constraints. The chief of orthopaedic surgery considered that budget limitations, although undesirable, were to be expected: *“We don’t have the money. Hospital budgets are*

shrinking, and sooner or later that will impact on delivery of care.” (I.3.1 Q53).

He also added that this had a negative effect on reducing wait times: *“Then all of a sudden you have a problem with your budget. And so there’s always one other crisis within that circle in healthcare that affects the wait list.” (I.3.1 Q10).*

Another point related to the anticipated budget limitations is the competition among specialties for funding: *“We’re always competing against these groups that are doing tough stuff too, and so it comes down to value judgments almost, as to who gets the resource, the limited resource.” (I.3.7 Q18)*

The manager spoke about how this competition involved lobbying: *“The lobbying is happening with the Department of Health now; not just for ortho, but overall the numbers are creeping up.” (I.3.4 Q40).*

Negative consequences



There was a gap in the health system because the program did not take into consideration non-surgical patients and their potential medical treatment. A nurse working in the pre-assessment centre said:

“So it would be nice if there was a clinic in the system that can deal with your non-surgical patients that need more treatment, more time spent with them because if you don’t have RA you’re not a candidate to go to those doctors that will do the steroid injections. So there’s just a gap in the health system.” (I.3.5 Q57).

From one surgeon’s perspective, there was frustration because decision-makers sometimes did not really know what the problem was and did not have the academic skills to find solutions. In fact, the policies developed significantly

increased the bureaucracy. As a result, policies aimed at improving the wait list did not evolve:

"It is so frustrating because you can do a lot of leadership here but the pieces in place to make it happen just really aren't there, and there's a lot of people in positions of authority who don't know what they're talking about – I'm sorry to say it but that's a reality – they don't have the training to do what they're doing and they don't have the information coming to them, and when they do, they don't know what to do with it." (I.3.7 Q22).

The manager also pointed out that bureaucracy played significant role in this province:

"Because we're a pretty small province and our government is so close, there can be people who 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, and then they'd get the phone call; so that's our old tradition." (I.3.4 Q28)

Money was also wasted, either when people with high levels of education were used to collect data, or when information was misused: *"We would have all been collecting the same data, it would have all been paid for, the secretaries would have run it for free basically because they liked it, it would have been really cheap."* (I.3.7 Q25).

There were some concerns regarding the sustainability of the WTMS. For example, one surgeon was worried about having to increase volumes in order to get funding. He also had concerns regarding the concept of sustainability,

wondering how success in WTMS would be defined in relation to patients' well-being:

“How are we going to deal with these politically incorrect issues, how do we deal with the patients' issues, and how do we maintain this so we don't lose the funding, and we don't look like we've blown it or it's not successful? That's why I think a lot of people are putting up the metric for what is successful because T1 is down and patient satisfaction is very good – because they like the experience – so it's hard to argue with that stuff, but is it worth it for the investment and the space we have and all that stuff, is it sustainable?” (I.3.7 Q51)

Resources were taken away from some programs to sustain WTMS for HKR surgeries, increasing others' wait times. The project manager stated: *“The healthcare environment today is the real possibility of financial constraints in terms of taking away resources. Obviously our budgets are not growing; they're actually getting less every year.” (I.3.6 Q63)*. Indeed, there was clearly a huge difference between the number of orthopaedic cases receiving attention and the number of cases in other specialties. The chief of orthopaedic surgery described his experiences:

“Probably feel that the arthroplasty group is getting preferential attention, where foot and ankle has a huge wait list for surgery. Upper extremity has a huge wait list for surgery. If you looked at orthopaedics it was massive. You'd be talking eight or nine hundred patients on a wait list versus maybe thirty patients on a wait list for general surgery. Now the nature of their practice is different – so they just do cancer and crisis management in general surgery.” (I.3.1 Q8)

There was dissatisfaction with the healthcare system. The chief of orthopaedic surgery shared his views of a health system in which a combination both private and public practice would improve wait times:

“Why should Canadian people go to India or someplace 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? If you mandated though that surgeons have to work 85% in the public system, and then you could work 15% in the private system, then I think the public health care would get looked after and people that want to [could] go to another alternate route. And so if you provided a service to that population, then I think they would come out of the queue and those other people in the public would eventually move up the line.”
(I.3.1 Q53)

4.3.2 Unintended consequences at the organizational level

Serendipities 

Hospital

Managers at different levels of the organization are willing to improve wait times, and they are under significant pressure from the media. One surgeon noted:

“(...) the willingness of multiple levels of management to get behind this and commit; the constant pressure [from] the media about the arthroplasty situation.”
(I.3.7 Q50).

The implementation of WTMS for HKR surgery helped to improve other programs in different specialties by serving as a model. The manager spoke about his experience in this organization:

“So this strategy has helped us evaluate other programs; because spine has a huge wait time, and 95% of people that refer for spine surgery, don’t require spine surgery, they require conservative management, and that’s all over the literature. There’s been positive spin-offs from the strategy for other surgeries.” (I.3.2 Q98)

The program developed new educational programs for patients, and the Department of Health was working on more programs to increase the understanding of a variety of healthcare programs. The project manager explained their work on the internet in regard to this issue: *“[In] the education that we develop for the patients we actually work with the Department of Health and another initiative around the website – it’s called My Surgery” (I.3.6 Q79).*

Practice now is focused more on patients than physicians. A nurse in the pre-op assessment centre commented: *"Really, most of the pathway is not around physician practice, it’s around good patient care."* (I.3.4 Q26).

Trade-offs 

There are no trade-offs at the prehospital level in this organization.

Hospital

The hospital is the largest in the province and receives patients from everywhere. As such, high patient volumes are an essential element to consider

with regard to WTMS for HKR surgeries. A surgeon spoke about his experiences with high volumes due to this hospital's being a referral centre for the province:

“We’re the only hospital in town, we’re really the only big hospital in the province, and I spend most of my time seeing patients who don’t come from this city, they come from other east provinces for second opinions if something’s gone wrong. Every time we take one of those patients here we bump someone from our city – the largest city in the Maritimes – who needs a joint replacement, because this is the only place they can go to get their joint replaced.” (I.3.7 Q18)

Surgeons managed their own wait lists; the province had no control over that. A nurse in the assessment centre said: *“That’s probably the biggest (...) I think that’s probably about the only complaint we hear at the clinic, and that’s not really anything we have any control over in our clinic.” (I.3.3 Q29).*

The old ways of doing things were deeply ingrained in nurses and surgeons. This program was based on efficiency and team work, which presented a real challenge from the personal and organizational perspectives. The manager considered that, from the nurses’ perspective, this new efficiency model required more work from them:

“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.” (I.3.2 Q82).

In addition, the organizational culture was characterized by individualism and lack of interest in efficiency. As such, there was resistance to culture change

that had a negative impact on results at the organizational level. The manager spoke about this resistance to changing the organizational culture:

“Very difficult to change. 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 – 25-plus years – and they like it the way it was, and it’s very difficult to change.” (I.3.2 Q45)

In addition, nurses did not want to be involved in the program. They just wanted to work with low levels of responsibility and to get out of the hospital as soon as possible. According to the manager, people in this organization were used to ‘working to live’, so they were not interested in having more responsibilities:

“The culture here (...) that’s a difficult question. People here work to live, a lot of the 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.” (I.3.2 Q51)

According to the manager, there was a clear generational gap that created tension and decreased the program’s efficiency: *“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 [that].” (I.3.2 Q45)*. This tension increased resistance to moving from the old organizational culture to an efficiency-focused culture in terms of using technology, new medical protocols, transparency, and work in the OR: *“That’s how I did my practice, [and] my patients heal well.” (I.3.4 Q26)*.

Nurses were overworked, doing many tasks at the same time in the assessment centre and in the hospital. The project manager commented: *“There’s one person doing central intake for all the referrals. She does booking, she registers the patients, she gets the patients in the room, she weighs them, she gets their height, their BM (...) So, it’s a lot.”* (I.3.6 Q78).

There was significant resistance and tension between established and newer surgeons around new protocols and lengths of stay at the hospital. The project manager explained this resistance:

“Well, some surgeons at first probably didn’t like that. Some surgeons didn’t really necessarily buy into the fast-track protocol. They felt that it was too soon. We didn’t get 100% agreement on all the practices, but they did come a long way, which is significant when we’re talking culture around surgical practices.” (I.3.6 Q46)

Efficiency in OR time distribution was a challenge, since there were not enough anaesthesiologists. One surgeon noted: *“Recently we had an anaesthesia shortage. At our hospital we lost thirteen anaesthetists, and so there were going to be some cuts.”* (I.3.7 Q23). Decreases in the number of anaesthesiologists led to inefficiency in the OR. The chief of orthopaedic surgery commented:

“You know, some anaesthetists left (...) and people will leave. Now you’re short of anaesthesia, so you decrease the amount of OR time. If you get the anaesthesiologist back (...) then you’re maybe short of nurses in the POC or the recovery room.” (I.3.1 Q10)

According to the chief of orthopaedic surgery, there was also a low rate of employment for new surgeons and nurses:

“Well, (...) 50% of the orthopaedic graduates cannot find a job in Canada. There’s all kinds of nurses that are looking for work, you know? There’s no jobs; there’s no jobs because there’s no money to pay them.” (I.3.1 Q54)

There was also tension between managers and surgeons related to OR time, as described by the manager:

“Some of the surgeons might not like me as an administrator because I’m managing that process, and (...) they might not appreciate that. So that’s a negative impact; it creates some negative working relationships.” (I.3.2 Q91)

This tension was also present among surgeons related to OR time distribution. The chief of surgery commented:

“There was very little resistance among the other surgical divisions to allow orthopaedics to have more OR time. I’m sure that there were other divisions in the Department of Surgery that felt that we were getting preferential treatment by getting more OR time.” (I.3.1 Q8)

There were limited beds on the floor and a high demand for surgeries from the emergency room. In fact, the ER had a protocol to occupy beds if patients passed a certain period of the time there, as explained by the manager:

“Well, the emergency room has a mandate to get the patient from emergency room into a bed within a period of time. So if there’s an empty bed in the hospital – it doesn’t matter if it’s ortho, neuro, medicine, cardio – they’re going to that empty bed.” (I.3.2 Q87)

As a result, any bottleneck in the OR caused negative impacts on OR time distribution and sometimes cancellations. The manager stated:

"I wouldn't say a lot of cancellations. There's a lot of juggling around so that in the morning if there's an extra medicine bed, we'll take it and try to get that medicine patient moved so we can have it for the surgery." (I.3.2 Q89)

Also, as the nursing manager explained, residents made rounds late, causing inefficiencies in bed planning:

"Not all residents do rounds at the same time. Every service isn't the same, and surgery does it earlier than medicine – because, technically, most of them are trying to get into the OR, right? So (...) medicine, it's (...) well, very different, so it seems they do rounds at 8:00 or 8:30." (I.3.4 Q46)

Negative consequences

Prehospital



Wait times increased because of a lack of standardization in the referral process. One surgeon observed: *"We don't have a standardized definition of who we're going to operate on, which would be useful, saying that you can't refuse someone just because of BMI, things like that."* (I.3.7 Q47). He also pointed out that referrals were being sent to specific surgeons because of their reputations, which in the end increased wait times:

"You will be waiting longer than the target time just for a referral, and if that's okay with you, fine, but you could go to a shorter surgeon, you could go to the next available at the orthopaedic assessment clinic if you choose (...), if you don't want to wait. That's the problem." (I.3.7 Q31)

This problem arose from a lack of knowledge among GPs that resulted in their resistance and consequent delays in achieving change. The project manager

added that referrals were sometimes incomplete: *“And for those that were incomplete, then we would fax them back to say we will not be able to process it because it’s incomplete.”* (I.3.6 Q20). He also noted that GPs preferred to refer patients to a specific surgeon, because that was the way they used to do it, and, as mentioned, they did not want to change:

“(…) some physicians that had maybe long-standing relationships with some of the surgeons and surgeons’ offices, they would continue to fax to the individual office, which would kind of add another step, because then that referral would have to go over to the assessment clinic.” (I.3.6 Q21).

A further delay in the referral process was due to GPs’ not using technology. The project manager pointed out that GPs could do the referral online. However, it did not work very well:

“We actually worked with our IT team here and we developed an online referral database. So for physicians all across the province, they would be able to send their referrals directly to us online. Anyway (…) didn’t work so well.” (I.3.6 Q16).

In addition, he stated that some GPs did not have computers to send the referral, which affected the efficiency of the process: *“Some of the physicians didn’t even have computers in the office. I was kind of shocked about that (…).”* (I.3.6 Q77). Moreover, a nurse in pre-op assessment noted that this increased their work, as time was wasted in using paper instead of IT: *“(…) these mounds and mounds of paper that we’re having to deal with and we’re having to process all the time.”* (I.3.3 Q31)

Hospital

A significant unanticipated and undesirable consequence was misuse of the assessment centre by surgeons getting new patients for their own benefit instead of considering the community. A surgeon commented on this:

“The clinic is not working the way it is supposed to work. And I don't have much to do with the clinic anymore, because (...) I'll tell you all the politics, but basically the individual I told you about, who was the shortest available, was the individual who kind of took over the project. And I didn't want to work with him, because I knew he had a vested interest. And he probably set it up because he saw it as a vehicle to get patients again.”
(I.3.7 Q38)

Since there was high demand for the program, there were increasing wait lists to see nurses at the assessment centre, to see surgeons, and for surgery. A pre-op nurse pointed out that there were long wait lists for patients not only to see a surgeon, but also to be evaluated by a nurse in the assessment centre and for surgery, as well:

“So it's a little frustrating for patients that have been waiting for a year or two to see the surgeon, and then they have to wait (...) another year or two. So that's kind of the negative thing. It would be nice if those patients that had the long wait to see the surgeon would have a shorter wait to have the surgery.” (I.3.5 Q61)

A surgeon spoke about his frustration with this issue, in which surgeries had to be cancelled due to nurses' not having enough time to teach patients:

“I’ll see fifteen patients in a morning, and I’ll literally book twelve of them for surgery, and by the end of it I have to tell them to go home because the nurses are so far behind teaching the other person or (...) all my rooms are booked for surgery and the rest of the group are sitting there waiting to get into a room, but they can’t because all these people have to be seen by a nurse first to make the model work.” (I.3.7 Q30)

There were increases in wait times due to patients’ preferences, when they wanted their surgery either at a specific time of the year or with a specific surgeon. One surgeon told us about his experience with patients’ choices:

“When I get a referral to me, I say that you will be waiting longer than the target time just for a referral and if that’s okay with you, fine, but you could go to a shorter surgeon, you could go to the next available at the orthopaedic assessment clinic if you choose. If you don’t want to wait. That’s the problem.” (I.3.7 Q31)

While wait times in other specialties increased due to funding being directed especially toward HKR, there were other reasons for this as well, such as inefficiency in the OR and lack of OR time distribution. The manager commented:

“There’s always pressure for the OR time, but the arthroplasty group in our strategy has not negatively impacted those, they haven’t received more time that’s impacting the other surgeries (...). It’s not (...) negatively affecting spine surgery and ankle surgery. They still have their problems and their wait times – it’s more of an OR efficiency [issue] (...). Instead of doing all right knees on one day, they’ll do a right knee, then they’ll do a revision, then they’ll do a left hip, and then they’ll do a something; and it takes them 45 minutes to an hour to change that OR time.” (I.3.2 Q77)

The organizational culture affects the implementation of this new ‘culture of efficiency’. Furthermore, the organization itself has no clear goals, which also affects outcomes. Therefore, the program is not progressing quickly and changes are difficult to implement in this organization. One surgeon noted: *“It is running the way it has for a while now. We’ve changed very little.”* (I.3.7 Q44), and *“There’s been no efficiency improvement.”* (I.3.7 Q51). An example of this organizational culture was provided by the manager. He said nurses, rather than thinking about service to the community, were dissatisfied with the concept of efficiency because it increased patient volumes in a short period of time with no increase in their remuneration:

“Well, it can create a little bit of tension, but again (...) that’s what we’re paid to do, right? We’re paid to care for the patient. So, I mean, if you always bring it back to the patients – and I always bring it back to, ‘What would you want for your mum or dad, or your grandmother, or whatever?’ – it does cause people to pause a little bit. But, you’re right, what is the reward I get as a nurse? Whether it’s (...) to discharge my patient quicker so I want to get another one, or get my discharge off the unit right away so I can get another... there isn’t [any]!” (I.3.4 Q42)

The organizational culture was also characterized by tension between nurses and physiotherapists related to their roles in the program, because both felt they were capable of doing the same job. A surgeon observed: *“There is a lot of turf war still going on between the nurse and the physio (...)”* (I.3.7 Q45), and *“I think there is some of that for sure. Because they both imagine themselves doing the role.”* (I.3.7 Q46).

The manager noted that increases in morbidity/mortality rates in patients are not good indicator of outcomes: “... *they say your morbidity/mortality goes up drastically once you’ve passed that 48 hours of waiting for surgery, so that’s our biggest focus.*” (I.3.4 Q51).

Some surgeons selected healthier patients for surgery, which had a significant impact on access to the health system. A surgeon commented on this: “*We have one member of the group who has a very different threshold on who he’ll operate on, meaning he won’t operate on anybody who smokes, he won’t operate on anybody who has any weight issue.*” (I.3.7 Q32).

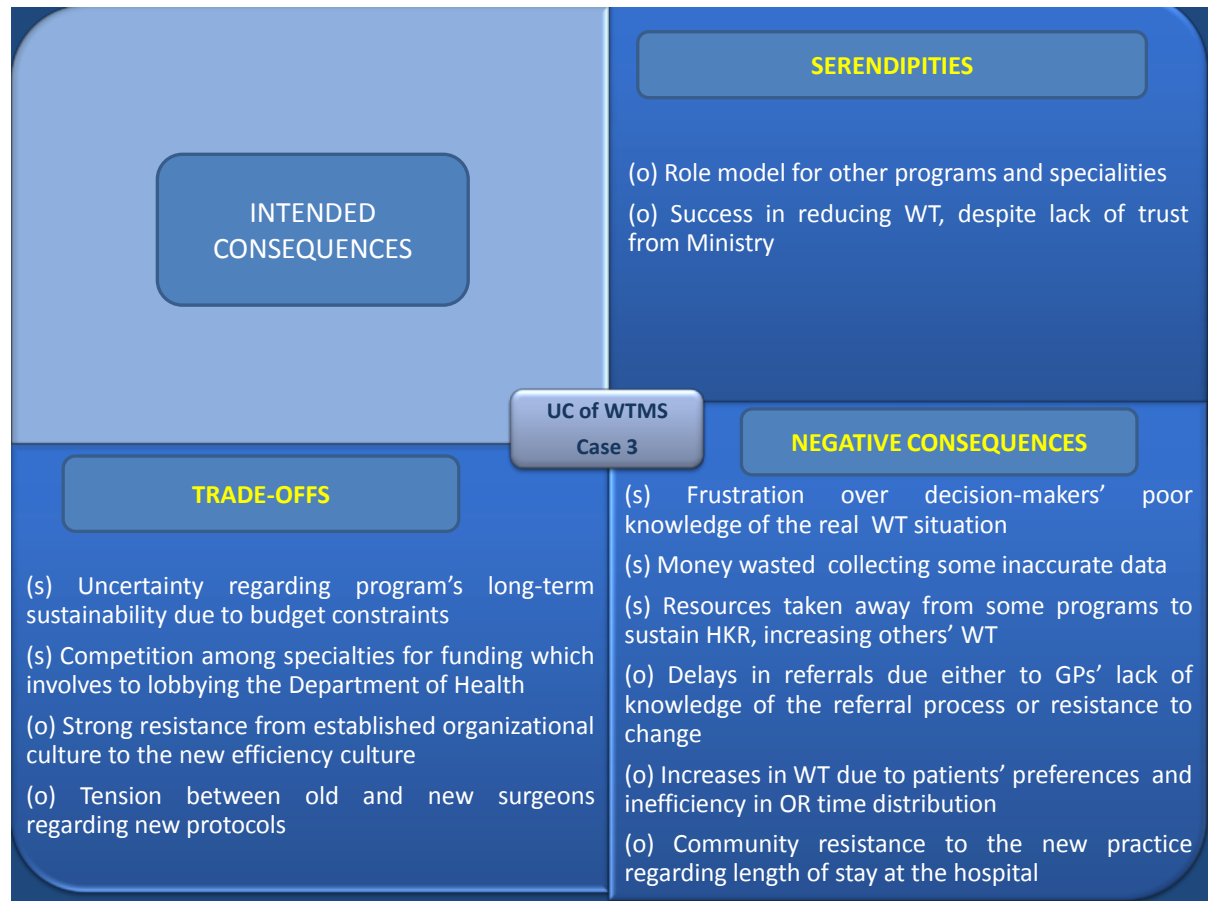
Finally, there was community resistance to the new practice. The manager commented on this particular issue: “*The culture’s changing slowly. We in this city traditionally have had a varied culture of, ‘You come work with us and we’ll give you whatever you want’ and (...) we just can’t be in that business anymore.*” (I.3.4 Q28).

For example, patients expected to spend more days in the hospital after surgery, because in their culture longer stays in the institution meant better treatment and outcome. The chief of orthopaedic surgery said: “*The surprises maybe in the post-operative patient were that the patients were going home at four days. I think that surprised everybody, that they would go home.*” (I.3.1 Q50).

Post-hospital

There was a lack of standardization in following up patients in clinic after surgery. A surgeon noted: *“We haven’t standardized that, you see? So it’s about getting them standardized and this is the problem we’re having because we can’t get consensus.”* (I.3.7 Q60).

Figure 8 Summary of unintended consequences, Case 3



4.4 Case 4

Case 4 is an orthopaedic surgery centre in Manitoba. Its strategy, classified as moderately sustainable, started in 2006.

4.4.1 Unintended consequences at the systemic level

There were no serendipities at this level.

Trade-offs

There was uncertainty regarding the program's sustainability over the long term due to budget constraints. A nurse from the health authority commented:

“The money that was put into orthopaedics through the wait times reduction fund was then put into our regular health planning and estimates process and have been funded through our estimates budget; so they're not part of the ongoing annual budget of the organization. So the funding has been sustained for volumes and things like that, but because there wasn't directed funding for some of the less tangible (...), the people-work side of it.” (I.4.1 Q18)

There were gaps between political and public interests and between political and organizational interests with regard to WTMS. She added:

“There's a huge political driver around wait times/wait times management, and a huge amount of political sensitivity to what money they've put in, what volumes they get out, and what impact those volumes have; and they're not at the level of, 'Have we done the right thing?'” (I.4.1 Q11).

For example, spending money to decrease wait times may have more to do with political expediency than appropriateness, even though the latter could be

more important in terms of efficiency and effectiveness. Unfortunately, the public is more sensitive to volumes than appropriateness. A health authority nurse deeply involved in WTMS gave a clear example of the public perception of funding for WTMS:

“It’s also much more difficult to communicate to the public the value of spending \$100,000 on improving appropriateness versus the value of spending \$100,000 on ‘and now you get a new joint’ for ten people right? Clearly the impact of an appropriateness activity would be much more far-reaching than the ten joints for those ten patients. [We’re] trying to achieve the end, trying to achieve the goal of (...) improving access; not necessarily wait times management all the time, but improving access.” (I.4.1 Q11).

The surgery program director agreed with this discussion of spending public budget on volume or product:

“I would suggest that likely, in the coming years, things are going to be harder and harder and harder. Well, on the other hand, if there is a potential to save possibly millions of dollars, either a) in restricting choice, or b) not spending more than we’re already spending because we’ve chosen volume over product, those are our options.” (I.4.6 Q 56)

There was a lack of accurate data and modern technology in other specialties, not only to know exactly how many people were waiting for procedures, but also to develop programs to improve wait times. The program director of surgery commented:

“We don’t have the data on our other wait times. So again, we don’t have anything right now that’s through [the] central intake process. But (...) the

surgery program is also working on another initiative that goes along with general surgery, and that will be more focused around some of the cancer wait times, which I think is good. I think we have to, and why wouldn't we want to? So, joints of course are important, but to me, it is not the only thing that's important." (I.4.6 Q58)

As a result, health policies were focused on solving problems based on what could be done by the surgeon, rather than considering the true needs of patients or of public health. The surgery program director said: "*Right now, we're very organized around what can the surgeon do, what volume can they do, and what's late, versus how many should be done.*" (I.4.6 Q67).

Negative consequences



Sometimes media influence interest in some areas. A nurse from the health authority considered that the media influenced public and political interests, noting "*the degree of media attention it has raised to specific areas and specific clinicians.*" (I.4.1 Q41).

As a result, the system was seen to be unfair when policies focused on HKR surgeries instead of other procedures. The regional director of surgery spoke about the unhappiness around this significant focus on HKR:

"And there was lots of unhappiness in the system around all of the focus that orthopaedics was getting; I guess no different than cataracts, or cardiac, or DI or... but from the surgeon's world it was a bit of a challenge because particularly arthroplasty was getting a lot of attention, and you know... backs weren't getting as much attention and upper extremity wasn't

getting as much attention, and then the general surgeon wasn't getting as much attention.” (I.4.4 Q11).

In fact, the program created an imbalance in the system and increased wait times in other specialties. In this regard, the surgery program director said: *“So, as a surgery program director, not the orthopaedic program director, my interests are also broader. And I believe that there is a need to balance within our system. There is a finite value.” (I.4.6 Q57).*

However, there was no available data to confirm this perception. A health authority nurse commented: *“I don't think we have good strong evidence to suggest that focus on one area has resulted in growth of wait lists in another area specifically.” (I.4.1 Q27)*

There was a perception that as great deal of funding had been invested in healthcare without any corresponding funding to evaluate efficiency. The manager considered that the money invested in health care could be used more efficiently:

“I think we pay an exorbitant amount of money for some of our medical supplies, and I think that potentially you can create some efficiency there, but I don't think that there is as much efficiency as some people may think.” (I.4.3 Q8).

In addition, there was significant variability in the program due to budget fluctuations. The surgery program director offered a clear example of such situations:

“There have also been times when we've said, 'You're only funded for, let's say, 1000 joints (...), why are you tracking to more than 1000?' And

then a month later, because we have a different mandate, we'll say, 'We need you to do 1500, get out there, and get these here.' (I.4.6 Q74).

These variations in funding caused fluctuations in wait times. The manager also referred to this concept of variability: *"There have been fluctuations of wait times going down, so theoretically when they go down it's improved; but they've climbed back up again, so there's pros and cons, it ebbs and flows."* (I.4.3 Q38).

A significant negative, undesirable and unanticipated consequence was that the authorities constantly made changes to the strategies that varied the program's outcome and exhausted the staff. The manager considered that this kind of vacillation would have a negative impact on the success of any strategy:

"I think that changing strategies every one or two years is detrimental. I don't think that we think about what we're doing enough before we do it, and I think when we decide to do it, it takes too long to finally get it up and running and implement it. I think staff are leery because we historically keep changing gears and keep changing directions, and they're getting tired of that." (I.4.3 Q11)

4.4.2 Unintended consequences at the organizational level

Serendipities

Prehospital

The program was being used as a model for other programs to improve the referral process and dialogue with GPs. Two managers commented:

"This is a good model, because it helps to ensure that there is a good distribution of who is receiving the referrals" (I.4.6 Q31). *"I think there is*

more dialogue at least, and there's more attention being paid to the pre-surgical component of care versus just the surgery.” (I.4.1 Q24)

Hospital

The program for HKR patients was being used as a role model in other specialties. For example, general surgery changed its former model to respond to population needs: *“Now the lessons learned out of ortho are certainly being applied across the board to many areas” (I.4.1 Q27). “That was really why we changed the footprint, because did we really need five sites doing after hours on call for general surgery?” (I.4.4 Q25).*

The medical director pointed out that the HKR program was an important model now being applied in other specialties in the organization, such as cardiac surgery and cancer:

“I think we will get cooperation because our climate will make that apparent. Right now, orthopaedics has been a primary focus, I would have to say, within this province. I know that your interests expand beyond orthopaedics (...). So, as a surgery program director, not the orthopaedic program director, my interests are also broader. And I believe that there is a need to balance within our system.” (I.4.6 Q57)

Trade-offs



There were no trade-offs at the prehospital level in this organization.

Hospital

One anticipated and undesirable consequence was some surgeons' resistance to the new culture of efficiency and to working as a team in the OR. The manager observed that the health professionals preferred to work as they used to and did not like changes: *"They're very reluctant to change; they're very stuck in their habits."* (I.4.3 Q18.) One employee at the health authority considered that, in this province, health professionals tended to be individualistic: *"Orthopaedic surgeons don't work collectively as a group, they work as individuals."* (I.4.1 Q 3). The result was tension between managers and some surgeons, and among surgeons. The manager pointed out that health professionals, especially surgeons, preferred to work on their own: *"There's resistance to authority, there's a resistance to change; everybody wants to do their own thing without anybody telling them what to do, and because of that it's a real challenge to really get buy-in."* (I.4.3 Q17)

A clear example of this was the tension between academic and non-academic surgeons with regard to economic resources. As the medical director commented:

"I would suggest there are probably also tensions among that academic group and this academic group, and then the non-academic group. So there is a lot of healthy tension, or unhealthy tension, I would have to say. Everybody feels the grass is always greener on the other side. Everyone feels somebody else has something better, or there is a reason why, if they think they have something better, it is because they're doing something special. So that's most definitely alive and well." (I.4.6 Q48)

He also said this tension was due to academic surgeons apparently having more resources than non-academic surgeons:

“There are tensions, and again, if this is the academic group, then the other surgeons would say they have more resources available to them. But most definitely, I would have to say that there is a rift between the two groups.” (I.4.6 Q39)

Because people had different economic interests, values and goals, it was an undesirable and anticipated fact that achieving institutional goals was a huge challenge. Moreover, there was a perception that surgeons’ primary motivation in the program was self-interest, rather than patients’ best interests. A health ministry nurse commented:

“We’re not using our resources effectively, we’re not doing what’s right for the patients, we’re not doing what’s right for each other (...). That piece I don’t think people have embodied or valued, and to me that’s one of the challenges on why we can’t sustain this, because we don’t have people aligned on the goal, the goal isn’t the same rule for everybody. The idea that surgeons were going to get more cases had a huge impact on whether or not they were willing to participate.” (I.4.1 Q 9)

A manager at this hospital considered that surgeons were more focused on their important economic interests than on the success of the program:

“They make their money off of each case, or consult, or every individual type of work or thing that they do – that is their single most important motivating drive and force. So all physicians at the end of the day are focused on that. I think patient care – unfortunately and not intended – is second to that, and it’s a very close second, but I think it is second. Now,

that's not to say that they would do something intentionally negative in a patient's regard, but I think that money is the single driving force there, and because of that, they look at the world from that perspective. So they do things that make them money, and have impact on that. If it has a negative impact on their, money they're going to push back.” (I.4.3 Q21)

With the expected increase in volumes, the overload for physicians' assistants and nurses was associated with emotional and physical stress. The manager pointed out that, because many patients are obese and orthopaedic equipment is big, *“workload for them has increased exponentially.” (I.4.3 Q27)*. In addition, a clinical nurse manager noted that companies are not making lighter equipment that would make the nurses' job easier:

“The companies that make this equipment, they're not making [it] any lighter. We keep telling them to make it lighter because the OR nursing population is getting older. I mean, there are over 50% of us that are over 50 now.” (I.4.7 Q69)

The regional director of surgery added that OR in orthopaedics is hard work: *“In the OR it's hard work, all those pans of instruments are hard work. Orthopaedics is hard work in general, revision cases sometimes have, like, 16 to 17 pans of instruments; that is hard work for the staff.” (I.4.4 Q49)*. This reality was also noted by a clinical manager who was coordinating an OR in another organization in the same city. Patients are obese and nurses are getting older, such that the physical demands on nurses to lift patients can cause workplace injuries:

“You can go to (...) ORNAC, AORN and they'll all tell you the same – that the population is increasing that the age is increasing of the OR nurse. So,

you know, we're all getting older, we're all used to do this, right? And it's all repetitive work and it takes its toll.” (I.4.7 Q70)

She also gave a clear example of this situation:

“Yeah, I mean, we have three nurses in a room, but you know some of these cases are very (...) there's lots of pans of instruments. Some of these patients are big, they're obese, they've got a lot of problems and it takes time. What might have taken two hours, you know, on a normal sized individual is now three hours on an obese patient, you know. So it takes its toll.” (I.4.7 Q 72)

Patients had strongly contrasted feelings about the program, being either extremely satisfied or frustrated, a reaction that was both anticipated and undesirable at the same time. However, because patients had different points of view, making everyone happy was practically impossible. As the orthopaedic administrative manager pointed out:

“I think some patients are probably extremely satisfied and happy with the process, and others are probably extremely frustrated with the process. So I'm not too sure you could paint the entire group with one brush. I think you will always have pockets of satisfied (...) and then also pockets of deteriorating situations.” (I.4.3 Q 38)

As mentioned, this organization's culture was not very open to changes. People preferred to work as they had been doing, even if new models and strategies based on efficiency were demonstrably better. In this sense, older surgeons just wanted to keep working as they always had. They were not very involved in WTMS because they had different interests and goals. The nurse

clinical manager observed: “(...) *it's an older group, different interests. 'I'm just going to do what I need to do to keep going.'* Interestingly enough, one of the ones here who regularly does four joints in a day is one of the ones thinking about retiring.” (I.4.7 Q50).

Orthopaedic surgeons received funding for HKR surgeries to improve wait times. As a consequence, they got new equipment and staff. Other surgeons' feelings about this were not positive, as the manager confirmed: “*That's how the general surgeons viewed it, that the orthopaedic surgeons got all the new equipment, they got the new OR, they got the new toys, (...) they felt that they were getting preference to slating times.*” (I.4.5 Q16). He also mentioned that the organization spent much more money on orthopaedic needs than on other specialties: “*If the general surgeon wants something, and we can't buy it right away, they say, 'Well, if I was an orthopaedic surgeon, you would buy it.'*” (I.4.5 Q17).

Post-hospital

A surgeon noted that there was no data on follow-up of patients. In fact, there was no particular plan to do it:

“It's a real challenge to do that because patients get discharged and they can go anywhere for follow-up. They can go to an emergency department, they can go to their surgeon, they can go to a family doctor, they can go to a walk-in clinic. We have no reliable way of collecting data from all those points (...) to track it.” (I.4.2 Q67)

Negative consequences



Prehospital

Patients did not understand the referral process very well due to lack of communication and inappropriate use of the referral process by GPs, so they engaged in behaviours that increased wait times, such as seeking referrals from more than one GP. One surgeon considered that this communication problem had a negative impact on the referral process:

“Basically given the validation reference we’ve made, when repeated in many other areas, we see a range of between 20% up to 50 and 60% of inappropriate referrals being made and inappropriate patients sitting on wait lists.” (I.4.1 Q40).

There was also a perception among GPs that they were not getting value from the assessment centre. This added to their resistance to the referral process. A nurse from the health authority concluded that GPs did not like HKR referrals being filtered:

“They felt that was a filter before patients could actually go on to be assessed by a surgeon, and in some cases those family physicians believed that was their job to have done, that they should have completed that work prior to ever making the referral, and therefore that filter wasn’t required; so they were a bit unhappy that that filter was being applied.” (I.4.1 Q21)

GPs referred patients to their preferred surgeon, even though they knew about the central intake to improve wait times. In fact, they actually could refer patients to whomever they wanted: *“If you’re a family physician and you’re*

referring someone, you rely on who do you know, who have you heard about... because it is too difficult to keep on top of all of the specialties and who is out there.” (I.4.6 Q28).

Hospital

When WTMS started in this organization, specialties in this hospital had to be reorganized in order to optimize resources. As a result, some services were moved from this facility to another. This was considered an unanticipated and undesirable consequence because managers did not take into consideration patients in specialties such as urology and odontology. As the regional director of surgery explained: *“So, when we were moving orthopaedics around, you can't move orthopaedics without touching something else, so there were a couple of consequences, and we lost urology, we lost dental.” (I.4.4 Q25).*

There was a bottleneck at the assessment centre due to high volumes. As one surgeon explained:

“Four years ago we really ramped up volumes, did a lot of double days, did a lot of volumes, got our wait list down (...) and, all of a sudden, you get to the point where you're trying to get people off of your wait list into the OR, and the system is set up for a year-long wait.” (I.4.2 Q15)

A major undesirable and unanticipated negative consequence was an increase in wait times due to patients' preferences regarding timing and surgeon. Patients preferred their surgery to be done at specific times of the year, or with a specific surgeon. This resulted in a waste of money and resources. A health authority nurse considered that this was a fact of life, and that patients wanted their

surgery to be done by the surgeon with the best reputation in the region, even if the rest of surgeons were equally qualified:

“Certainly, patient preference and patient direction has been a huge challenge. The patients, obviously, in hearing that so-and-so is ‘the best’ at something, always want to go to ‘the best’, not to the other 20 who are equally qualified and maybe not ‘the best’, but certainly are still credentialed and privileged.” (I.4.1 Q 3)

A surgeon shared the same opinion, saying: *“We moved here, and it seemed like the whole city thought that the only place you could have your hip or knee done was here at [X] Hospital.” (I.4.2 Q15).*

Orthopaedic surgeons did not consider themselves active members of the team and were not particularly interested in the program: *“[The] surgeon isn’t an active member of the team necessarily; they’re just kind of accepting the results of that team.” (I.4.1 Q24).*

A manager shared his ideas about the misconception that a successful strategy would focus only on reducing wait lists. He raised the question of whether a strategy should be considered successful just because it reduced wait time, and whether there might be another way to develop a successful strategy:

“I would like to see an overall reduction of wait times for all patients across the board. I think you also have to have satisfactory patient outcomes and satisfied patients at the end of the day. I think that you have to have your entire process firing on all cylinders. You can’t just have a specialized area of focus doing good work; it needs to be everybody across the board doing good work, because that way it’s by driving down those wait times [that] you’re more sustainable over the long term. If you have

just pockets of people doing good things, I don't think that's sustainable over a long period of time because, again, surgeons, nursing staff and hospital staff are only human, you can only expect so much from them. Either you'll see the increase in burn-out, you'll see the increase in psychological, mental health issues, so I think you've got to look at that across the board.” (I.4.3 Q7)

The manager considered that fluctuations in strategies had both positive and negative impacts on patients' satisfaction depending on the timing of the implementation:

“There have been fluctuations of wait times going down, so theoretically when they go down it's improved; but they've climbed back up again, so there's pros and cons, it ebbs and flows. I think some patients are probably extremely satisfied and happy with the process, and others are probably extremely frustrated with the process.” (I.4.3 Q38)

Even though the APP model has been successfully used in different organizations, this institution did not include any APP because of a different perspective regarding its efficiency. The regional director of surgery explained why the APP model was not selected:

“It wasn't the model that we selected; the model we selected was based on an inter-professional team. So I'm not even sure (...) I don't even think we have an advanced practice physiotherapist that exists in the province; so that's something that their discipline needs to deal with. So we have a physiotherapist, an occupational therapist, a nurse, a social worker, a dietician (...) We have a psychologist, but we don't have an advanced practice physiotherapist.” (I.4.4 Q40)

A general surgeon agreed with the manager, saying that the APP model did not make sense for them. Instead, they preferred to invest in surgeons to do consultations:

“Does it make sense to employ somebody, pay the rent, secretarial support, run a clinic (...) to maybe take that 20% down to 10%? We thought really, it doesn’t. You should just pay the surgeon fifty bucks for their surgeon consultation fee. They’ll see the patient, and away they go.” (I.4.2 Q79)

Finally, there was a negative impact on patients’ safety, in that economic interests led to lesser quality materials being used for surgery. The program director of surgery commented on the risks of not having good quality joint replacement equipment in HKR surgeries:

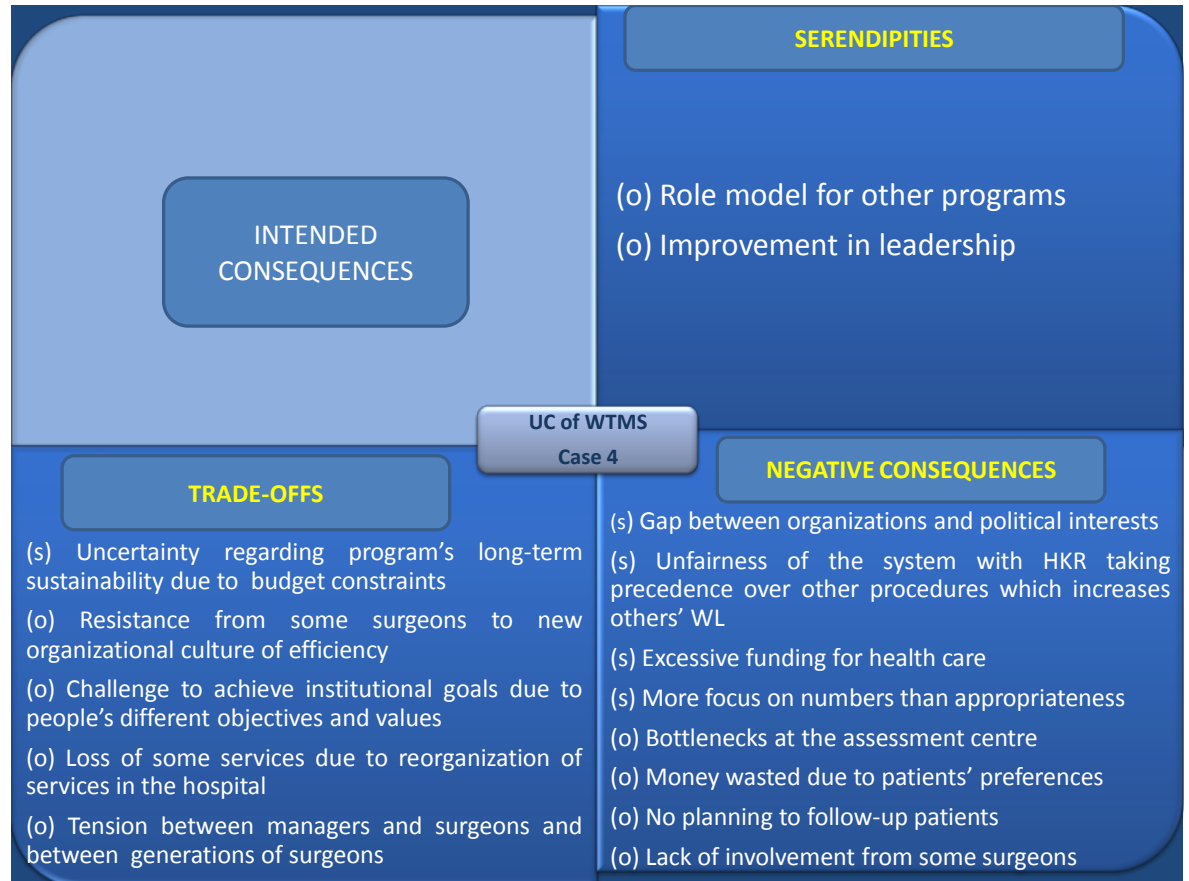
“To me, you see, I think this is always an interesting debate because we also right now don’t have a standard joint replacement system that will only use this, or this, or this. We encourage people, of course, to be mindful of what implant they’re selecting. However, we don’t mandate it.” (I.4.6 Q51)

He also admitted that individual choices regarding equipment could have a negative impact on patients’ safety:

“I think there is a risk for patients, because so much of the rest of the team then have to adapt to each individual surgeon. I think it causes some lack of control. For me, I would say the best argument is, if we’re going to say that we’re funded for a certain volume (...) this is the funding envelope and here are our options. Our options are: we could do this number, or we can reduce our number because we still have to come in into this target. I don’t advocate for the lowest is the best, and I don’t even advocate to say it

should only be one system. I think there can be some variety, but (...) there needs to be some mindfulness to it. What are the selections? And why?"
 (I.4.6 Q54)

Figure 9 Summary of unintended consequences, Case 4



Chapter 5 Analysis of Results: Unintended consequences

The unintended consequences of strategies to improve wait times for HKR surgeries in Canada's healthcare system have not been studied in research projects in depth. A review of the literature revealed that some elements have been explored, such as the consequences of quality of care measurements (Casalino, 1999), the effects of using technology in health services (Campbell et al., 2006), the impacts of social and economic policies on healthcare systems (Berkman, 2011; McDonald & Roland, 2009), and the consequences of health reforms (Thrall, 2011). There has also been significant research interest in the consequences of strategies to improve wait times in HKR surgeries. Studies have described potential increases in patients' pain and decreases in their satisfaction (Bruni et al., 2010; Nilsson, 2002). There have been studies looking at equity issues related to the strategies (Noseworthy, 2003) as well as at increases in costs for the healthcare system (Masri et al., 2005) and the side effects of marketing the strategies (Fry & Polonsky, 2004). However, to date there has not been much evidence on those strategies' unintended consequences as seen through the lens of the framework and approach used in this thesis.

In the framework adopted here (Figure 4), the potential unintended consequences of WTMS are classified as serendipities, trade-offs, and negative consequences. While there are three levels of healthcare organizations, this thesis focused specifically on the systemic and organizational aspects of UCs.

The contribution of this study lies basically in two main areas. First, the review of literature on unintended consequences linked to health issues suggested a new approach and perspective for exploring this matter comprehensively. The second contribution lies in the originality of the approach of classifying the UCs of WTMS in HKR as serendipities, trade-offs and negative consequences at the systemic and organizational levels. Not only do these two elements contribute to a better understanding of WTMS, but they also suggest the value of applying this perspective to other potential strategies or issues in health services.

The results of this project are presented in terms of these three variables: serendipities, trade-offs, and negative consequences. The quality of the study is also enhanced by analyzing the perspectives of people involved in the program at different levels of the organizations.

After reviewing the four cases, we highlighted the UCs they had in common. Each particular case also had specific UCs of using WTMS depending on its cultural, social, economic and political context.

In the process of developing this master's thesis, we encountered three key challenges: First, it was a challenge to differentiate between initial factors linked to WTMS and the consequences of those strategies. In coding and analyzing results, we began by selecting parts of the interviews related to potential consequences. However, some of those consequences proved, in the end, to be factors. As a result, we had to re-read the interviews and consequences many times to be sure factors were not selected. Second, after reviewing the potential

consequences of using WTMS, we started to identify among them serendipities, trade-offs, and negative consequences. It was not clear what the key elements were to distinguish among them. Our framework (Figure 4) allowed us to classify the consequences according to whether they were desirable or not, and anticipated or not. Moreover, a panel of experts helped us to understand the different types of unintended consequences at the systemic and organizational levels. Third, the analysis of unintended consequences presented some problems, in that it was difficult to identify the systemic and organizational consequences of each institution. In fact, we had to discuss these with key informants to be sure our analysis was based on the right elements.

The analysis of results is presented in three parts. First, we analyze the general unintended consequences of the four cases at the systemic and organizational levels, and then the similarities and differences across the four cases in terms of serendipities, trade-offs and negative consequences. Second, we consider the results of each case in terms of sustainability. Finally, we analyze the noteworthy differences and similarities among cases in relation to their sustainability.

5.1 General UCs at the systemic and organizational levels across the cases

Systemic level

We did not identify significant unanticipated and desirable consequences at the systemic level. As for trade-offs, which are expected and undesirable consequences, certain points should be noted. Bureaucracy played a significant role in all provinces and had a negative impact on new programs and strategies aimed at efficiency. The policies established by the provinces were based on a philosophy of doing more volumes without taking into account patients' needs, which had negative impacts on the planning process in different organizations. Moreover, we saw in all the cases that there were gaps between political and public interests and between political and organizational interests with regard to WTMS. However, there was not enough information from this study to clarify and understand these gap. Health policies were focused on solving problems based on inaccurate data or lack of knowledge of the real situation in each province. On the other hand, there were also unanticipated and undesirable consequences at the systemic level. The most significant negative consequence was that economic and human resources were targeted at improving wait times in HKR without taking into account the consequences for wait times in other specialties. As a result, significant numbers of patients were affected in terms of morbidity and mortality, although there is no accurate data to confirm this. There were concerns raised

regarding WTMS sustainability. Is this model sustainable? Should we define a sustainable strategy as being successful without taking into account a number of factors around organizations? The model used to develop the WTMS was based on a policy that considers a strategy to be sustainable and successful if it achieves a federal benchmark.

Table 5 General UCs at the systemic level

<i>Serendipities</i>	<ul style="list-style-type: none"> • None
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Concerns about the sustainability of the program in the long term, mainly due to budget constraints since there was no money for equipment, sets and personnel. Also, not enough funding to improve accuracy of data for better understanding of wait times. • Philosophy underlying provincial policies unclear in terms of doing more volumes vs. working on wait times, requiring organizations to work in two opposing directions.
<i>Negative</i>	<ul style="list-style-type: none"> • Increases in other wait times due to funding being taken away from some programs and redirected toward HKR. • Patient's preferences caused increases in wait times, as patients sometimes preferred to have their surgery done at a specific time of the year or with a specific surgeon. • Health policies were biased because policy-makers were using inaccurate data.

Organizational level

Unanticipated and desirable consequences or happy surprises within organizations were very common. For example, WTMS was used as a role model

in different programs in the same organization, as well as in other hospitals. There were improvements in team work and communication between health professionals, although this required ongoing attention and commitment. Regarding unanticipated and undesirable consequences, it is essential to take into consideration the organizational culture. In fact, it directly influences outcomes. For example, the organization with higher levels of trust and confidence had better results achieving the federal goals than those institutions with serious difficulties around this particular issue. Moreover, resistance to change was seen in those organizations whose culture was characterized by individualism, lack of interest for patients' needs and attachment to the 'status quo' rather than by team work, compromise and concern for patients' interests.

Table 6 **General UCs at the organizational level**

<p><i>Serendipities</i></p>	<ul style="list-style-type: none"> • The referral process for hip and knee replacements was used as a role model in all cases to improve other programs.(Prehospital level) • The program increased the opportunity to hire more nurses to work at different points of the patient pathway, from the assessment centre to the OR and post-op.(Hospital level) • Team work in the OR improved outcomes and efficiency.(Hospital Level)
<p><i>Trade-offs</i></p>	<ul style="list-style-type: none"> • GPs resisted changing their ways with regard to the referral process (Prehospital level) • Tension among surgeons, between nurses and surgeons, and between anaesthesiologists and surgeons (Hospital level) • Stress and resistance to change (Prehospital and Hospital levels) • Bottleneck in OR due to low number of beds and high demand on surgeries from ER and outpatients (Hospital level)
<p><i>Negative</i></p>	<ul style="list-style-type: none"> • Increases in wait times due to double referrals from GPs, insufficient knowledge and resistance to change (Prehospital level) • Increase in wait times due to both inefficiency in the OR and patient’s preferences (Prehospital

	<p>and Hospital levels)</p> <ul style="list-style-type: none"> • No plans for following up patients after surgery (Post-Hospital level)
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5.2 UCs of using WTMS according to sustainability

This section considers the unintended consequences in the four cases based on their sustainability, in terms of serendipities, trade-offs, and negative consequences at the systemic and organizational levels.

5.2.1 UCs of the sustainable case

Table 7 UCs of the sustainable case - systemic level

<i>Serendipities</i>	<ul style="list-style-type: none"> • More jobs in local regions
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Uncertainty regarding sustainability of the program in the long term.
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Increases in wait times in other specialties due to the policy being more focused on HKR

Table 8 UCs of the sustainable case - organizational level

<i>Serendipities</i>	<ul style="list-style-type: none"> • Educational material for patients • Cohesive team in the OR • APPs an essential part of the team • More jobs for nurses • Significant improvements in the culture of the organization
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Nurses overworked • Stress • Resistance and tension among health professionals
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Increase in HKR wait times due to inconsistency in the referral process and patients' preferences • Adverse selection favouring less sick patients • Less time for consultation with surgeons • No follow-up of patients after discharge

5.2.2 UCs of the moderately sustainable case

Table 9 UCs of the moderately sustainable case - systemic level

<i>Serendipities</i>	<ul style="list-style-type: none"> • None
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Uncertainty regarding sustainability of the program in the long term.

	<ul style="list-style-type: none"> • Lack of accurate data
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Increase in other wait times because money is taken away from other programs and reallocated to HKR.

Table 10 UCs of the moderately sustainable case - organizational level

<i>Serendipities</i>	<ul style="list-style-type: none"> • Program used as a role model
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Lack of knowledge of the referral process by GPs linked to resistance to change • Tension between anaesthesiologists and surgeons and among surgeons • Increase in wait times due to inefficiency in the OR • Nurses overworked • Lack of communication among nurses
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Double referrals made by GPs • Increase in wait times due to patients' preferences • Bottlenecks in the OR due to high demand for surgery and lack of beds • Negative impact in terms of nosocomial infections linked to cheaper instruments for surgery

5.2.3 UCs of the two unlikely to be sustainable cases

Table 11 UCs of the two unlikely to be sustainable cases - systemic level

<i>Serendipities</i>	<ul style="list-style-type: none"> • Program succeeded despite lack of trust
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Uncertainty regarding program's sustainability in the long term • Competition among specialties for funding
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Gap for non-surgical patients • Lack of recognition of the real wait time situations • Bureaucracy • Money wasted collecting inaccurate data • Concerns about the concept of sustainability • Increases in wait times in other specialties due to funding redirected from one program to another. • Dissatisfaction with the health system

Table 12 Unintended consequences of the two unlikely to be sustainable cases - organizational level

<i>Serendipities</i>	<ul style="list-style-type: none"> • Program served as a role model • Educational programs for patients • More focus on patients
<i>Trade-offs</i>	<ul style="list-style-type: none"> • Lack of knowledge of the referral process among the GPs. • Resistance of GPs • High patient volume due to being a provincial reference hospital. • Status quo culture vs. new efficiency culture • Resistance to change by established surgeons and nurses • Generational gap in terms of efficiency that caused tension • Inefficiency in the OR • Tension among surgeons • Limited number of beds • Bottleneck in the OR due to high demand for surgery and lack of beds
<i>Negative consequences</i>	<ul style="list-style-type: none"> • Increase in wait times due to lack of standardization of referral process • Misuse of the assessment centre • Wait lists for patients to see nurses • Increase in wait times due to patients' preferences and inefficiencies in the OR • Decreases in numbers of

	<p>anaesthesiologists, surgeons, nurses</p> <ul style="list-style-type: none"> • Lack of money to support this program • Increase in morbidity and mortality linked to individualistic surgical practices • Lack of interest in improving efficiency • Significant problems with the culture of the organization • Tension between nurses and APPs • Adverse selection favouring less sick patients by some surgeons • Resistance in the community to the new culture of efficiency • Lack of follow-up after discharge
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5.3 Differences in UCs according to organizations' sustainability classifications

Looking at the cases based on their sustainability, there were no significant differences seen at the systemic level. However, there were some similarities. For example, there were serendipities such as the increase in job opportunities for health professionals in each province. There were trade-offs, such as the uncertainty of the program's sustainability in the long term due to budget constraints. There were also negative consequences, such as increases in wait times due to patients' preferences. In other words, the key points to classify an

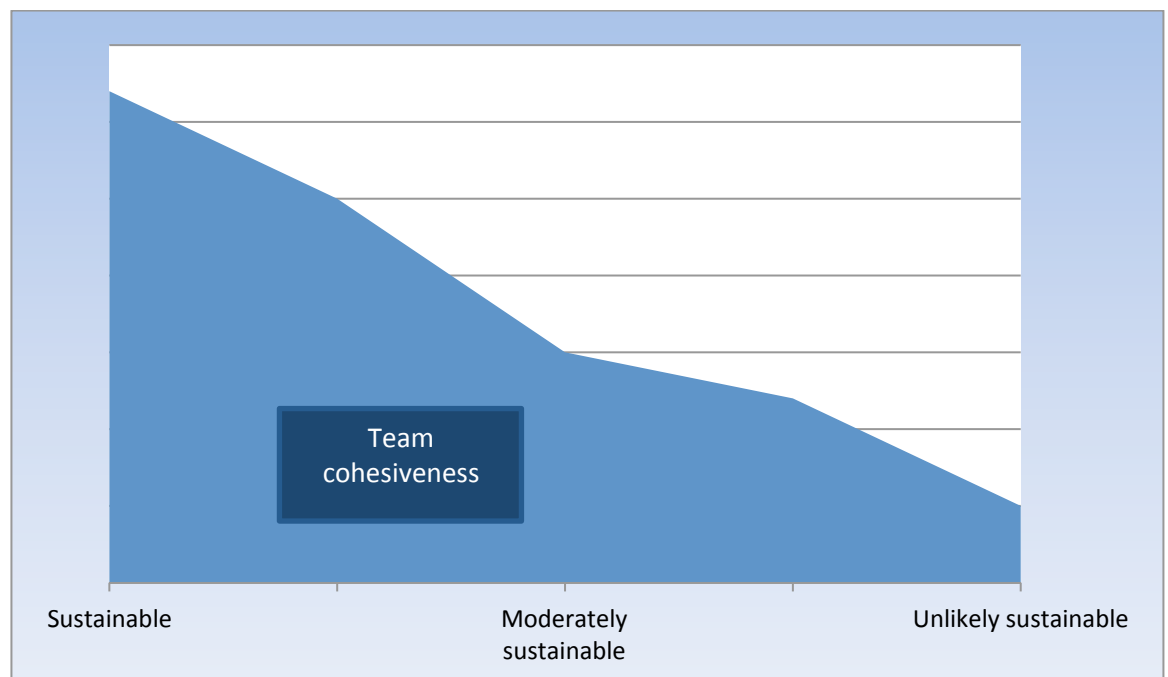
organization as a sustainable, moderately sustainable, or unlikely to be sustainable seemed not to be linked to systemic elements, although they were essential points in all four cases.

On the other hand, there were noticeable differences in the cases at the organizational level. Organizational culture, which encompasses team work, good communication, respect for members of the team, and confidence and trust between different health professionals, had a positive impact on the outcomes of the program. The institutions with programs classified as unlikely to be sustainable had many problems in their organizational cultures, which were characterized by resistance to moving toward the new culture of efficiency. In addition, they preferred the status quo and resisted new approaches and ways of doing things. This was especially true for nurses and surgeons who were near retirement. As a result, these organizations were struggling with tension and stress that negatively affected outcomes.

The institution classified as moderately sustainable had positive aspects that helped it to achieve goals. However, it still had some problems with organizational culture in terms of trust, confidence, communication, individualistic behaviour and resistance to moving toward a culture based on efficiency. In fact, the differences in UCs appear to fall into what we will call here a 'gradient'. For example, if we look at serendipities in terms of a gradient, we see that the sustainable case was linked to a cohesive team, an organizational culture based on efficiency, and a high level of participation and involvement with the program.

The cases classified as unlikely to be sustainable were characterized by a lack of those same elements. Meanwhile, the moderately sustainable case had more of those elements than the unlikely to be sustainable cases, but fewer than did the sustainable case. We have attempted to depict this gradient of key serendipities linked to organizations' sustainability graphically in a way that could potentially be applied to other desirable and unanticipated consequences (see Figure 10).

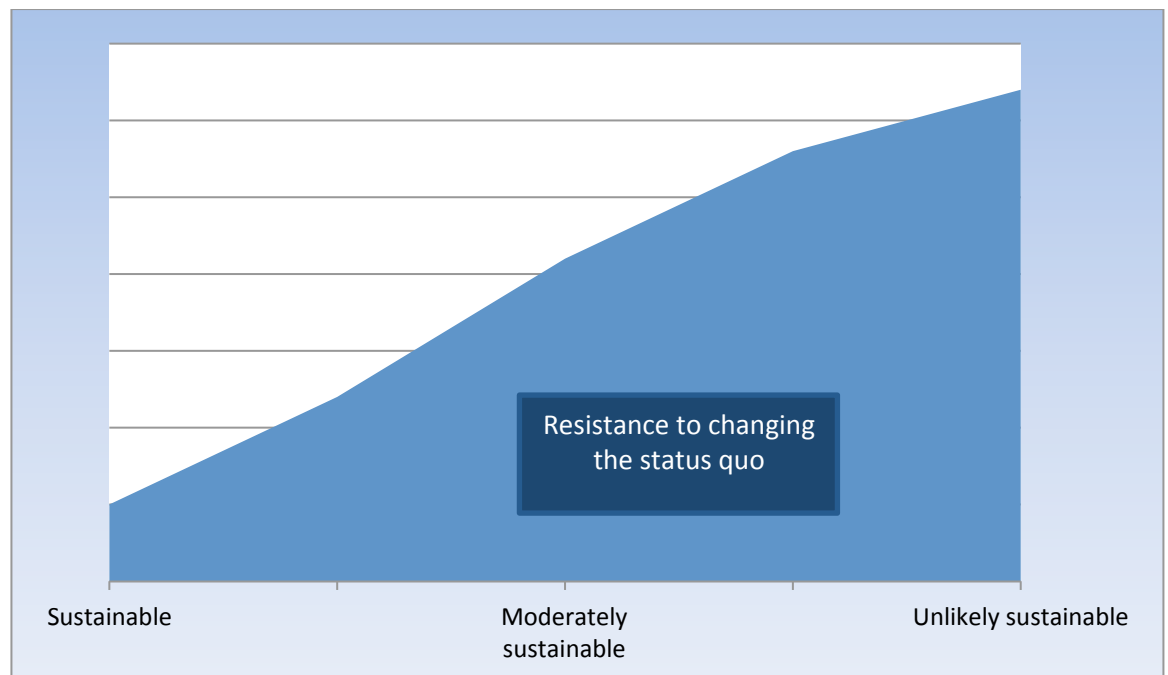
Figure 10 Differences in serendipities across cases based on sustainability: team cohesiveness



The cases that were unlikely to be sustainable had less cohesive teams, and the moderately sustainable case had a more cohesive team, but not to the same extent as the sustainable case.

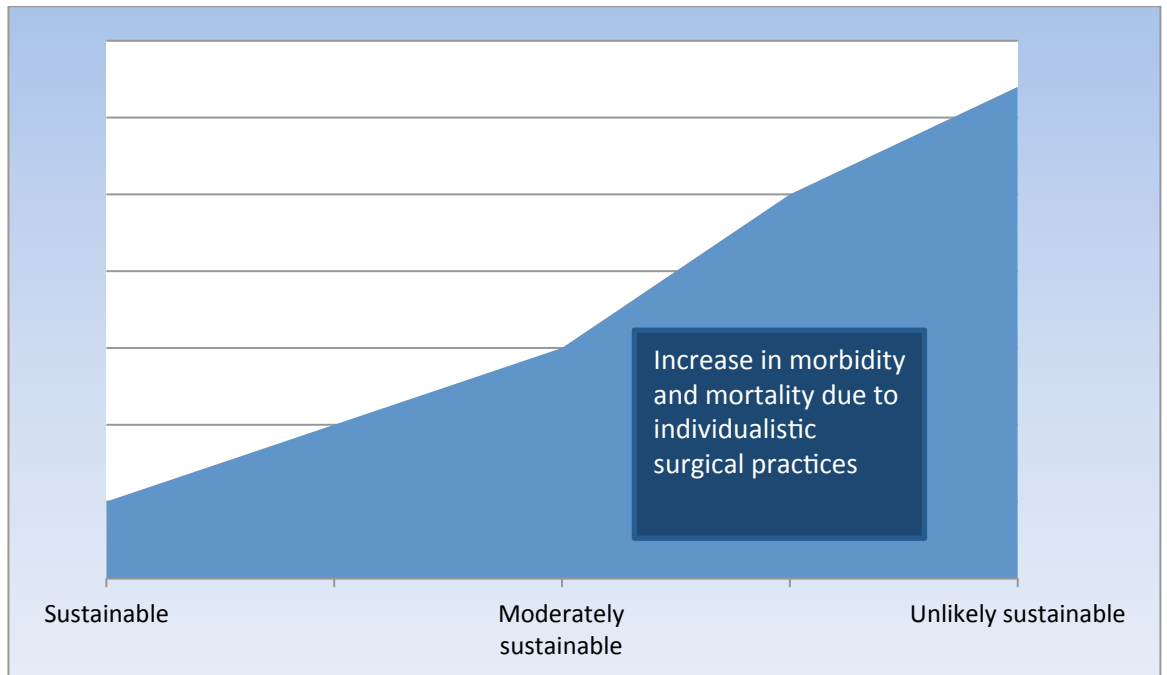
Looking at trade-offs, the cases that were unlikely to be sustainable had to contend with significant resistance to changing the status quo, tension between established orthopaedic surgeons and new surgeons, and inefficiency in the OR. The sustainable case did not have those unintended consequences (see Figure 11).

Figure 11 Differences in trade-offs across cases based on sustainability: resistance to changing the status quo



Finally, negative consequences, such as increases in morbidity and mortality due to individualistic surgical practices and lack of involvement of nurses and surgeons in the program, were frequently mentioned in the two unlikely to be sustainable cases. These consequences were also described by the moderately sustainable case, to a lesser extent. In contrast, the sustainable case did not appear to be dealing with the same negative consequences (see Figure 12).

Figure 12 Differences in negative consequences across cases based on sustainability: increases in morbidity and mortality due to individualistic surgical practices



**Table 13 Differences in UCs across cases based on sustainability:
organizational level**

	Sustainable	Unlikely to be sustainable
Serendipities	<ul style="list-style-type: none"> • Cohesive team work • APPs essential part of the program • Organizational culture based on efficiency • High participation and involvement in this program by nurses and surgeons 	<ul style="list-style-type: none"> • No cohesive team • No APP • No interest in culture of efficiency
Trade-offs	<ul style="list-style-type: none"> • No tension between old and new culture of efficiency • No resistance to change • No inefficiency in the OR 	<ul style="list-style-type: none"> • Old culture vs. new efficiency culture • Significant resistance to changing the status quo • Significant inefficiency in the OR
Negative consequences	<ul style="list-style-type: none"> • No influences of individual practices • No lack of involvement from nurses and surgeons 	<ul style="list-style-type: none"> • Increases in morbidity and mortality due to individualistic surgical practices • Lack of involvement of nurses and surgeons in the program.

5.4 Similarities in UCs across cases based on sustainability - systemic level

Even though there were differences in outcomes among the cases, it is also interesting that, based on the results of this project, there were a significant number of similarities among them at the systemic and organizational levels. (Table 12)

For example, in all the cases the program provided new job opportunities in those provinces, whether the cases were successful or not. One fact was clear in all the cases; uncertainty regarding the program's sustainability in the long term due to budget constraints was a constant. In addition, the most important negative consequence at the systemic level was that the WTMS policy improved HKR wait times but increased wait times in other specialties.

Table 14 **Similarities in UCs across cases based on sustainability - systemic level**

	Similarities
Serendipities	<ul style="list-style-type: none"> • New job opportunities
Trade-offs	<ul style="list-style-type: none"> • Uncertainty regarding the program's sustainability in the long term due to budget constraints
Negative consequences	<ul style="list-style-type: none"> • Increase in other wait times due to policies being focused on HKR

5.5 Similarities in UCs across cases based on sustainability - organizational level

Regarding the UCs across cases based on their sustainability at the organizational level, there were important serendipities, trade-offs, and negative consequences that were very similar among cases.

For example, in all cases the program that was implemented served as a model for other programs in the same institution and other hospitals. The uncertainty of the program's sustainability due to budget constraints in the organizations, overwork among nurses, stress, and tension among health professionals were some of the most common anticipated and undesirable consequences across the cases. Finally, the unanticipated and undesirable consequence of increases in wait times due to patients' preferences was also common to all cases (see Table 13).

Table 15 Similarities in UCs across cases based on sustainability - organizational level

	Similarities
Serendipities	<ul style="list-style-type: none"> • Program serving as role model
Trade-offs	<ul style="list-style-type: none"> • Uncertainty regarding the program’s sustainability in the long term due to budget constraints. • Overwork for nurses • Stress • Tension among health professionals
Negative consequences	<ul style="list-style-type: none"> • Increases in wait times due to patients’ preferences. • Bottlenecks in the OR (moderately and unlikely to be sustainable cases)

Chapter 6- Discussion and analysis

WTMS has been used as strategy to decrease wait times for HKR. However, there are significant elements to analyse based on the concept of UCs in terms of serendipities, trade-offs and negative consequences.

1. The first interesting element is that this study found UCs of implementing strategies to reduce wait times for total joint replacement surgery in accordance with federal benchmark. There are UCs at the systemic and organizational level (prehospital-hospital and post-hospital level) that were described above.
2. Even though there are differences at the organizational level between cases, they have rather more similarities at the systemic level in terms of UCs. For example, there were serendipities such as the increase in job opportunities for health professionals. Regarding trade-offs, there is uncertainty of the program's sustainability in the long term because of budget constraints. There are common negative consequences no matter if the case was classified as sustainable or not such as increase on wait times due to patient's preferences, increases on wait times due to funding has been taking away from some programs and redirected toward HKR, inefficiency health policies based on inaccurate data. The results show that UCs at the systemic level are very similar between all cases, no matter what type of strategy was implementing to improve WT.

On the other hand, there are more differences between cases at the organizational level in terms of UCs. There are general and specific UCs related to each case based on institutional goals, organizational environment and impact of the provincial and

local policies on institutions. For example, the sustainable case has positive and unexpected consequences such as cohesive team in the OR and significant improvements in the culture of the organization. However, sustainability and success of the program is also questionable due to potential adverse selection favouring less sick patients.

The organizational UCs of WTMS on HKR are more related to the culture of the organization and it plays significant role in the success of the strategy implemented to improve wait times. In the moderate sustainable case and more in the unlikely sustainable cases, resistance to change to the new culture of efficiency are significant elements that cause negative impact on the sustainability of WTMS based on federal benchmark.

There are similarities between cases at the organizational level: Serendipities such as the referral process has been used as a role model in other programs, Trade-offs such as tension and stress among health professionals due to WTMS program, resistance to change. Negative consequences such as increases of wait times due to double referral from GPs, increases on wait times related to inefficiency in the OR.

3. The UCs is also related to the type of strategies implemented in order to accomplish the Federal mandate. They are elements that are more related to the UCs no matter the case is sustainable or not. Those factors should be analyzed based on the determinants of the success of WTMS at the contextual and organizational levels taking into consideration specific factors: Governance-Culture-Ressources-Tools. This analysis is not including in this study, but it will essential part of the comprehensiveness of the UCs.

4. Even though not all cases were successful, they improved their understanding of the key elements to succeed on any program such as team work, cohesiveness, willingness to adapt to new strategies and adaptability of the team to achieve new goals in the best benefit of patients.
5. Health policies should be addressed to improve health services for the population based on the long term sustainability policies rather than short term programs based on politics and public opinion.
6. This study has only one sustainable case based on the federal benchmark. However, it is not clear if the results are related to improvement on resources management and efficiency than adverse selection. It will be interesting to analyze different factors that could cause impact on the outcome and their potential unintended consequences.

6.1 Implications of the study

First, since there have been, to our knowledge, no other studies of WTMS based on the analysis of UCs, this master's thesis makes a contribution by demonstrating the unintended consequences of using WTMS to improve wait times for HKR surgeries. Until now, only a limited number of studies have focused on this topic, and this project will help pave the way for future studies. Second, the review of the literature on UCs was extensive and allowed us to better understand the concept of UCs, and their classification and history in relation to health services.

Even though this thesis project was conducted in three of Canada's ten provinces, we believe the results could be generalized, recognizing that there are social, political and economic contexts in each case that demonstrate the particularities of their province. Finally, this thesis contributes ideas for new potential research topics, such as: unintended consequences at the level of individuals in healthcare organizations, success factors for sustainability and the potential unintended consequences of the WTMS program, and finally, analysis of the UCs of health policies.

6.1.1 Future directions

The following are potential areas of further research into the understanding of unintended consequences of using WTMS to improve wait times.

Unintended consequences at the individual level of healthcare organizations

Since this thesis was mainly focused on the systemic and organizational levels, we could not analyze some consequences at the individual level. However, we found enough elements to support conducting further studies of this particular issue, and it will be especially important to study the impact on GPs' behaviour of implementing WTMS.

Success factors of sustainability and its potential unintended consequences

Further research could analyze the success factors of sustainability and the potential unintended consequences of the WTMS program in order to explore the

relationship between those success factors and the program's unintended consequences.

Analysis of the unintended consequences of health policies

Based on our review of the literature on unintended consequences, it would be valuable to study the potential unintended consequences of using other, different types of strategies or policies, either in the Canadian healthcare system or in other healthcare systems. We believe the analysis of unintended consequences should be one of the steps to consider in any planning process, not only at the micro level, but also at the macro level.

6.2 Limitations of the study

6.2.1 External validity

We followed the recommendations advising caution in generalizing the results of qualitative studies to other contexts (Yin, 2003) and we respected the principles of similarity, robustness, and explanation (Contandriopoulos, 2005). In this thesis project, we applied qualitative analysis in the Canadian context in three different provinces to enhance similarity, robustness and explanation, in order to be better able to generalize events from the case study to the rest of the country. However, it is evident that there are differences among the provinces that could decrease the external validity of this project's results. Moreover, variations in the social, political and economic contexts in each of the ten provinces in Canada could have different impacts on the potential unintended consequences of using

WTMS to improve wait times for HKR surgeries. The framework used in this project not only supported the results and improved their external validity, but also reaffirmed the importance of doing more case studies in the future (Yin, 2003). The results were validated by key informants in each case study.

6.2.2 Reliability

To minimize errors and biases in the study (Yin, 2003), we created a strict and organized database and wrote case study notes after visiting each case, to decrease bias and increase reliability. In addition, the case study protocol was designed to maintain a chain of evidence. Finally, the UC framework designed for this study was validated by a panel of external health manager experts, and the study was also evaluated in academic meetings, where it was reviewed by external observers.

Chapter 7 - Conclusion

The implementation of strategies to improve wait times at the national and local levels never took into consideration any potential unintended consequences. In fact, policies were developed without any plan to include analysis of UCs. For example, policy-makers did not consider the budget required to sustain the program in the long term, nor the costs of the administrative team, data collection, and orientation for GPs before the program was implemented.

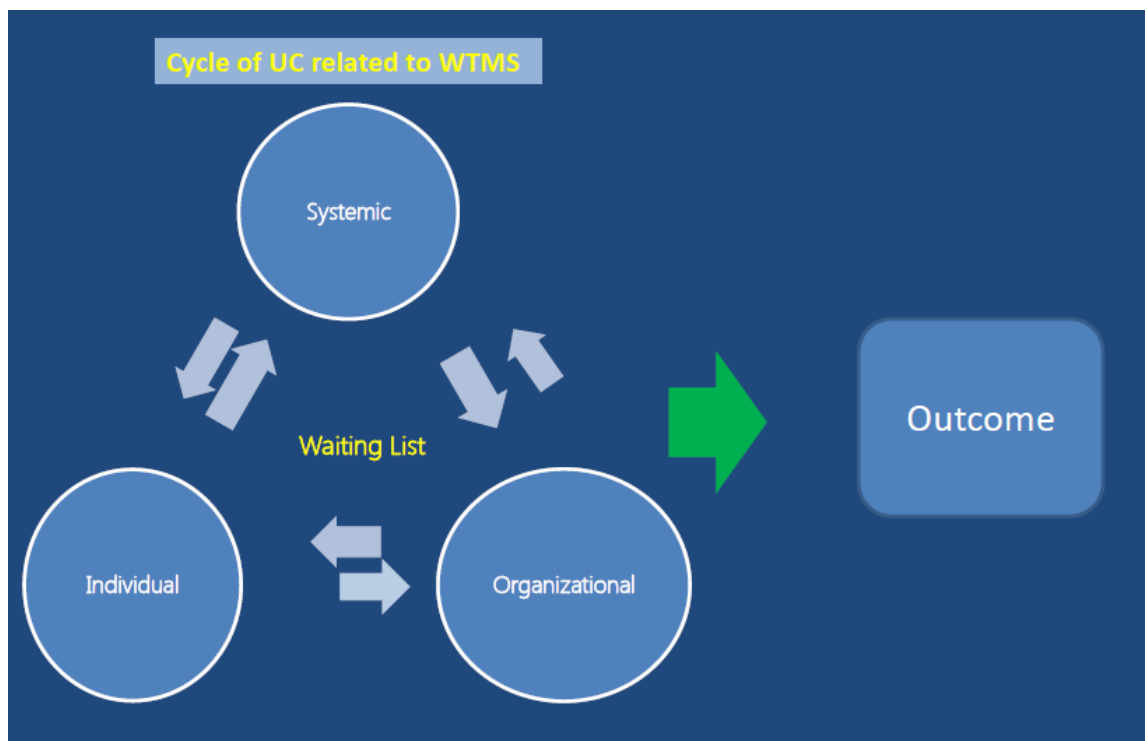
The definition of program sustainability should be reassessed in order to improve outcomes. Even though in this project we found one organization that could be defined as sustainable and successful, the fact that they were using adverse selection, which improved their results, should be a concern. In addition, the definition of sustainability was based on increasing volumes to reduce the numbers of patients waiting for surgery, but this approach was forcing institutions to adopt some particular ways of doing things that should be evaluated, as well.

More volumes do not necessarily translate into efficiency and sustainability just because they achieve the federal goals. Moreover, a sustainable strategy should take into consideration the complexity of cases, and the economic, social and human factors that affect any strategy in any organization. Furthermore, the focus should not be only on improving wait times, but also on avoiding some UCs and limiting them.

In this thesis, we propose a ‘cycle of unintended consequences’. We consider that the strategies implemented have unintended consequences in terms of

serendipities, trade-offs, and negative consequences. In fact, there are unintended consequences at every level of the healthcare organization, and they interact cyclically with each other, causing either positive or negative impacts on outcomes. Moreover, consequences at the systemic level cause direct and indirect consequences at the organizational and individual levels, as well. These relationships among different levels of the organization impact the outcomes either positively or negatively (see Figure 13).

Figure 13 Cycle of unintended consequences linked to WTMS

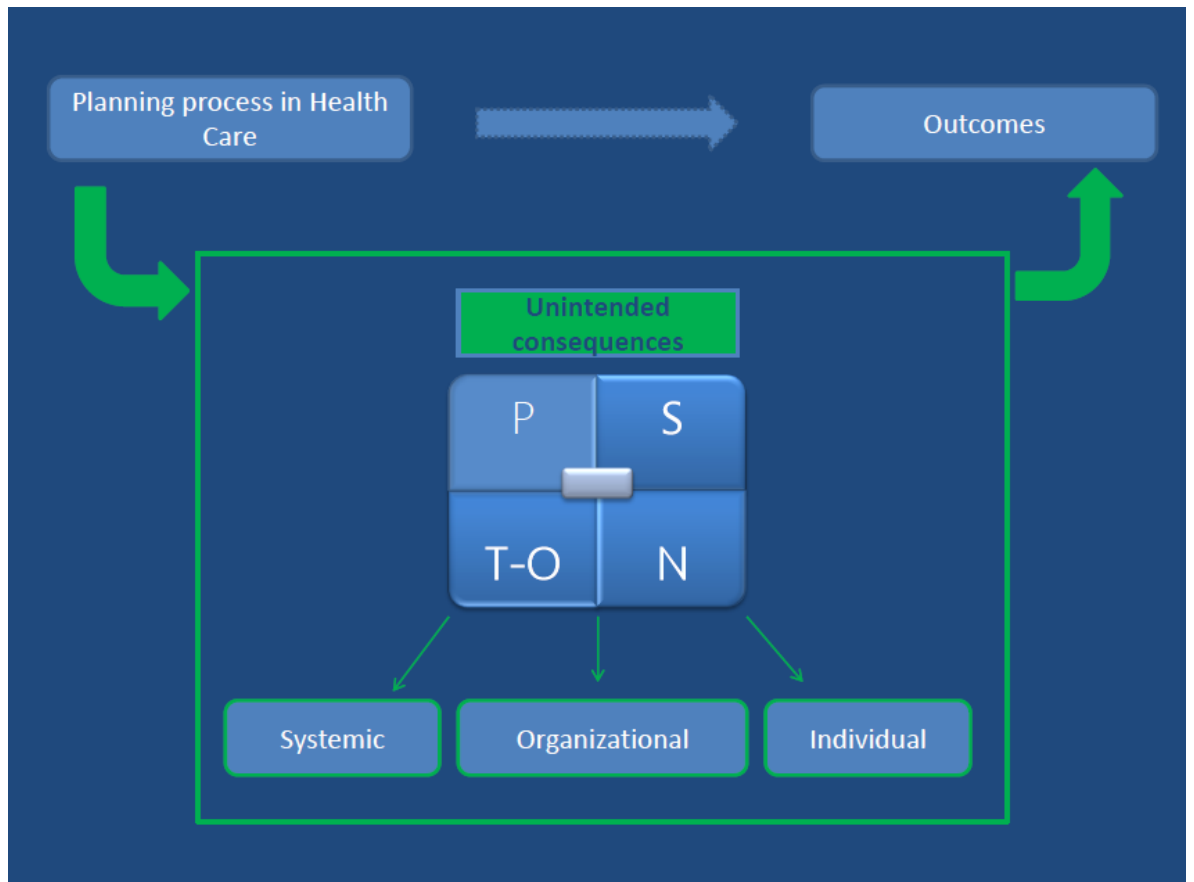


Finally, health planning should take into consideration not only different steps to develop successful strategies in health care. Decision-makers should

analyze potential unintended consequences in terms of serendipities, trade-offs, and negative consequences in order to improve positive results, avoid negative ones, and decrease the impacts of undesirable and inevitable consequences (see Figure 14).

In this thesis, we propose this scheme as a useful tool in the healthcare planning process to achieve good outcomes while taking into consideration potential unintended consequences at the systemic, organizational and individual levels.

Figure 14 Planning process in healthcare organizations taking into account the analysis of potential UCs



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Appendix 1 Letter of information and consent form for participants



LETTER OF INFORMATION AND CONSENT FORM FOR PATICIPANTS

RESEARCH PROJECT on the Evaluation of the factors that enhance or inhibit the implementation and the sustainability of Wait Time Management Strategies for Total Joint Replacement surgeries in Canadian provinces in order to reduce waiting times according to the objectives fixed by the national/provincial and federal governments.

Principal investigator: Marie Pascale POMEY, Associate Professor

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Co-investigators: Claudia Sanmartin,

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Tom Noseworthy, Senior Professor
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Students: Claudia AMAR, Healthcare Management masters' candidate,
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Healthcare Management department, Faculty of Medicine
Institut de recherche en santé publique de l'Université de Montréal



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Juan Carlos SABOGAL OLARTE, Healthcare Management masters' candidate, research option.

Healthcare Management department, Faculty of medicine
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Research coordinator: Anne-Julie Houle, Public Health PhD candidate
Institut de recherche en santé publique de l'Université de Montréal

Objective: To understand the pivotal factors that enhance or inhibit the sustainability of wait time management strategies (WTMS) for total joint replacement (TJR) surgeries in Canadian provinces.

Methods: The research adopts multiple case studies designed to analyze the factors that inhibit or encourage the sustainability of WTMS for TJR surgeries. In order to do this, we will conduct a series of qualitative case studies with three embedded units of analysis (the contextual, managerial and operational levels). Data will be collected through documents, interviews and group discussions. In regards to the semi-guided interviews, these will be done with the participation of key informants. For physician respondents, a shorter version of the questionnaire will be used. The consent form will be related to this interview.

Participation: You are invited to participate in the study, which involves agreeing to one interview. A researcher or a research assistant will contact you or your assistant by phone to schedule an appointment (in person or over the phone). A series of questions have been prepared, but you will have enough latitude to address what you feel is important. The aim of the interview is to investigate your experience with the factors that were present when a WTMS for total joint replacement surgeries was implemented as well as the factors that contributed to the sustainability of this strategy and their impact on waiting times. With your consent, this interview will be tape-recorded.

Transcript review: You will have the option to receive a transcript of the interview in a timely manner to determine its accuracy and make corrections.

Selection of case studies: This study concerns 6 Canadian Healthcare Organizations who have implemented WTMS for Total Joint Replacement surgeries. Within these 6 case studies, two will have successfully maintained the 6 month benchmark criteria for waiting time established at the national/provincial and federal levels for at least 6 months or one year during the past 18 months, two will have been moderately successful in maintaining these criteria within a year and the two remaining case studies will have been unsuccessful in achieving these benchmark criteria.



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Selection of participants: For each organization, the pre-selection will first be done by people known to the field of waiting time management in healthcare organizations. Subsequently, people working in regional health and social service authorities will also be asked to do an interview in order to identify the contextual factors that inhibited or enhanced these strategies.

Risks and discomfort: Notwithstanding the time you will be asked to spend for the interview, participating in this study involves no risk or discomfort.

Compensation: There is no financial compensation for your participation. Mailing expenses, if incurred, for any document submissions requested by the researchers, will be reimbursed.

Benefits from participation in this study: Your participation, on one hand, will enable our research team to develop a better understanding of the key factors that contribute or inhibit the sustainability of waiting time management strategies for total joint replacement surgeries, and should favour the development of a tool for organizations that wish to implement or sustain these strategies over time making sure minimal conditions are required to do so. The study should also identify future research needs.

Withdrawal from the study: You may withdraw from the study at any time, with no obligation to justify your decision. Doing so will not affect your participation nor your credibility in your work. If you withdraw, the interview recording and transcript will be destroyed.

Confidentiality: The transcripts will be kept in a computer with a private access code, in a locked office. The tape recording of your conversation will be destroyed before year 2015, as will our database.

Funding: This study has received funding from the Canadian Institutes of Health Research and the Alberta Bone and Joint Health Institute.

Executive copies: The attached consent form for the interview is to be executed in two copies, one of which will be sent by mail or hand delivered to the participant and the other to be kept by the researchers.

Complaints: If you wish to formulate a complaint, it can be addressed to the Ombudsman of the University of Montreal, who can be reached by telephone at _____ or by email _____ (The ombudsman accepts collect calls).



Further information: For all information concerning your rights as a participant in this research, you can contact members of the Ethics Committee of the Faculty of Medicine at the University of Montreal, Mrs Diane Audet by phone at _____ or by email at _____ or Mr Guillaume Paré by phone at _____ or by email at _____

If you are interested in participating in this study, please send us by fax an executed copy of the consent form to the attention of Marie-Pascale Pomey at _____ or contact us by telephone at (_____) _____ or by email at marie-pascale.pomey@umontreal.ca



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CONSENT FORM FOR AN INTERVIEW

Conducted for the research project entitled

Evaluation of the factors that enhance or inhibit the implementation and the sustainability of Wait Time Management Strategies for Total Joint Replacement surgeries in Canadian provinces in order to reduce waiting times according to the objectives fixed by the provincial/national and federal governments.

Principal investigator: Marie Pascale POMEY, Associate Professor

Department of health administration,
University of Montreal Public Health Institute (IRSPUM)
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Students: **Claudia AMAR**, Healthcare Management masters' candidate, research option.
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Healthcare Management department, Faculty of medicine
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Research coordinator: Anne-Julie Houle, Public Health PhD candidate
Institut de recherche en santé publique de l'Université de Montréal

I, (name of the participant in block letters) _____
hereby declare that I accept to participate in the study being conducted by the principal
investigator, Marie-Pascale Pomey from the University of Montreal, and by the co-
investigators, Claudia Sanmartin, Carolyn DeCoster and Tom Noseworthy.

I have read the enclosed documents and I certify that it has been explained to me
verbally. I had the chance to ask all the necessary questions to which I received a
satisfactory answer. I certify that I was allowed sufficient time to reflect and to take my
decision about my participation in this study.

The goal of this project is to identify and to understand the factors that contributed to the
implementation and the sustainability of Wait Time Management Strategies for Total
Joint Replacement surgeries in Canadian provinces. Furthermore, this study aims to study
the contextual, managerial and operational factors that enhanced or inhibited the success
of these strategies.

My participation will mainly consist of doing an interview lasting about one hour during
which I will answer questions I have read prior to the interview. I expect the content of
this interview to only be used for the realization and publication of this research report
and this, with respect to the confidentiality agreement.

I am free to withdraw from this study at any time, before or after the interview. I can also
refuse to participate in the study entirely or to answer certain questions during the
interview.

I am assured by the people interviewing me that the information I provide with them will
remain confidential. The anonymity is guaranteed during the collection, analysis and
publication of the data.



The transcripts will be kept in a computer with a private access code, in a locked office at the University of Montreal. The conservation of the database will be for a minimum of 5 years and for a maximum of 10 years.

I can communicate with the Ombudsman of the University of Montreal in order to obtain information on your rights as a participant in this research or to formulate a complaint or comment by phone at (514) 343-2100.

For any further information, I can communicate with Marie-Pascale Pomev at
or the research coordinator, Anne-Julie Houle at

This consent form has been given to me in two copies, one of which I will keep for myself.

Signature

Date

I hereby accept to participate in this study.

Name of the participant

Signature of the participant

Date

I certify a) having explained the present terms of this consent form to the participant; b) having clearly informed the participant that he is free to withdraw from this study at any moment and that I would give him/her a signed copy of this present form that being the case.

Name of researcher

Signature of researcher

Date



Administrative information:

- The original of this form will be conserved at the Université de Montréal and a signed copy will be given to the participant
- The research project and the present consent form have been approved by the CERFM October 14th, 2010 :
- Reference number : CERFM: 2010-11#421
- Date of this present form:

Appendix 2 Non-interventional study consent form for participants (Capital Health)



Capital Health

CH Research Ethics Board
Non-Interventional Study Consent Form
Page 1 of 7

Non-Interventional Study Consent Form

STUDY TITLE: Analysis of the factors that enhance or inhibit the sustainability of Wait Time Management Strategies for Total Joint Replacement (TJR) surgeries in Canadian provinces in order to reduce waiting times for these services and to respect the provincial and federal benchmarks that have been established.

PRINCIPAL INVESTIGATOR Marie-Pascale Pomey, associate professor,
Institut de recherche en santé publique de l'Université de Montréal
(IRSPUM),
1420 boulevard du Mont-Royal,
Outremont, Québec, H2V 4P3

ASSOCIATE INVESTIGATORS: Please see the Research Team Contact Page for a full list of the investigators for this study.

STUDY SPONSOR: CIHR

PART A.

Non-Interventional Studies – General Information

1. Introduction

You have been invited to take part in a research study. Taking part in this study is voluntary. It is up to you to decide whether to be in the study or not. Before you decide, you need to understand what the study is for, what risks you might take and what benefits you might receive. This consent form explains the study.

Please read this carefully. Take as much time as you like. If you like, take it home to think about for a while. Mark anything you don't understand, or want explained better. After you have read it, please ask questions about anything that is not clear.

The researchers will:

- Discuss the study with you
- Answer your questions

CDHA-RS/2012-015

REB Version: 2011/07/12



Capital Health

CH Research Ethics Board
Non-Interventional Study Consent Form
Page 2 of 7

- Keep confidential any information which could identify you personally
- Be available during the study to deal with problems and answer questions

We do not know if taking part in this study will help you.

PART B.

EXPLAINING THE STUDY

2. Why Is This Study Being Done?

The objective of this study is to understand the pivotal factors that enhance or inhibit the sustainability of wait time management strategies (WTMS) for total joint replacement (TJR) surgeries in Canadian provinces.

3. Why Am I Being Asked To Join This Study?

You are invited to participate in the study because you have some knowledge related to the implementation and sustainability processes of the waiting time management strategy for total joint replacement surgery. The aim of the interview is to investigate your experience with the factors that were present when a WTMS for TJR surgeries was implemented, as well as the factors that contributed to the sustainability of this strategy and their impact on waiting times. With your consent, this interview will be audio-recorded.

4. How Long Will I Be In The Study?

Your participation in this study consists in one interview with a member of the research team. The interview will last approximately 45 to 60 minutes.

5. How Many People Will Take Part In This Study?

At Queen Elizabeth II Health Science Centre, Halifax, we plan on doing 4 to 5 interviews. However, this study will also be conducted in 6 Canadian Healthcare Organizations (ON, NS, AL, SA, BC). In total, we plan to interview 20 to 30 people.



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6. How Is The Study Being Done?

The research adopts multiple case studies designed to analyze the factors that inhibit or encourage the sustainability of WTMS for TJR surgeries. In order to do this, we will conduct a series of qualitative case studies with three embedded units of analysis (the contextual, managerial and operational levels). Data will be collected through documents, interviews and group discussions. In regards to the semi-guided interviews, these will be done with the participation of key informants and should take about 45 to 60 minutes.

7. What Will Happen If I Take Part In This Study?

If you agree to participate, a member of the research team will meet with you in Halifax. Interviews will be done over a period of one to two days and will be conducted with one or three members of the research team. If it is not possible to arrange an in-person interview, a telephone interview will be arranged.

During the course of the research process, you might wish to withdraw from the study. To do so:

1. at the beginning of the interview. You simply have to tell the interviewer that you do not wish to participate in the study anymore;
2. during the course of the interview, you may also refuse to answer any question;
3. or after the interview is completed. If so, you would have to contact a member of the research team and tell them that you have changed your mind about participating in the study and the interview transcript will be removed from the database and destroyed.

8. Are There Risks To The Study?

There are no physical, psychological or financial risks in participating in this study. Social risks are low. The risk is that there might be a privacy breach and you could be identified or recognized. If so, this might affect your job. However the risks are low and measures have been taken to prevent this situation and minimize the social risks. These measures are:

1. the name of the hospital will not be used in internal documents and publications. A pseudonym will be used instead.
2. Your name and the names of the co-workers that you will mention during the interview will not appear in the transcript. During the transcription process, the interviews will be depersonalized; this means that, during the transcription process, your name will be replaced by a pseudonym and the name of the co-workers, that you will mention during the interview, will be replaced by their title. Therefore, no names will appear in the transcript of your interview.



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3. The file that link's your name to your pseudonym will be kept in Halifax, while the content of the interviews (audio-recording and transcript) will be kept in Montreal, Qc, making it very difficult to match you and the content of your interview.
4. The electronic file of the transcript of your interview will be encrypted and passwords will be necessary to access them. As for the paper version of your transcript, it will be kept in a locked cabinet in a locked office.

Although no one can absolutely guarantee confidentiality, using pseudonyms and depersonalizing interviews during the transcription process makes the chance much smaller that someone other than the research staff or other authorized groups or persons (discussed later in the consent form) will ever be able to link your name to the content of your interview.

9. What Happens at the End of the Study?

If you wish to receive a copy of the publications that will come out of the research project don't hesitate to tell the interviewer, the research team will be more than happy to provide you a copy.

10. What Are My Responsibilities?

As a study participant you will be expected to give a one time interview (in-person or by phone) of 45 to 60 minutes.

11. Can I Be Taken Out Of The Study Without My Consent?

Yes. You may be taken out of the study at any time, if:

- There is new information that shows that being in this study is not in your best interests.
- CIHR, the Capital Health Research Ethics Board or the Principal Investigator decides to stop the study.
- You do not follow the directions of the Principal Investigator.

You will be told about the reasons why you might need to be taken out of the study

12. What About New Information?



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It is possible (but unlikely) that new information may become available while you are in the study that might affect your health, welfare, or willingness to stay in the study. If this happens, you will be informed in a timely manner and will be asked whether you wish to continue taking part in the study or not

13. Will It Cost Me Anything?

There is no cost for you in participating in this study. You will only be asked to give us 45 to 60 minutes of your time.

Research Related Injury: If you become ill or injured as a direct result of participating in this study, necessary medical treatment will be available at no additional cost to you. Your signature on this form only indicates that you have understood to your satisfaction the information regarding your participation in the study and agree to participate as a subject. In no way does this waive your legal rights nor release the Principal Investigator, the research staff, the study sponsor or involved institutions from their legal and professional responsibilities

14. What About My Right To Privacy?

Protecting your privacy is an important part of this study. When you sign this consent form you give us permission:

- to collect information from you
- and share information with the people conducting the study

Information collected:

The research team will collect and use only the information they need to complete the study. This information will only be used for the purposes of this study. This information will include the answers you have given to the interviewer during the interview.

Your name and contact information will be kept secure by the site investigator in Halifax. It will not be shared with others without your permission. Your name will not appear in any report or article published as a result of this study. Information collected for this study will be kept as long as required by law, therefore it will be destroyed 7 years after the end of the research project, that is no earlier than 2020.

Concerning the information provided during the interview, various measures will be set to protect its confidentiality. We will insure your privacy through different confidentiality measures:

1. Your name will not be used in the transcript of the interview and the publications. A number will be given to your interview and used instead.



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2. During the transcription process, when the researcher will hear your name from the audio-recording he/she will use the number that has been given to your interview.
3. You are welcomed to read the transcript of your interview. If you wish to do so inform the interviewer.

Therefore data analysis, internal documents and publications will be free of names.

You may also be contacted personally by Research Auditors for quality assurance purposes.

15. WHAT IF I WANT TO QUIT THE STUDY?

If you chose to participate and later change your mind, you can say no and stop the research at any time. If you wish to withdraw your consent please inform the Principal Investigator. All data collected will be removed from the database and destroyed. A decision to stop being in the study will not affect any work performance evaluations you may have.

16. Declaration Of Financial Interest

The CIHR is paying the Principal Investigator's institution to conduct this study. The amount of this payment is sufficient to cover the costs of conducting the study. The Principal Investigator has no financial interests in conducting this research study.

For further information about the study call **Dr Marie-Pascale Pomey**. Dr. Pomey is in charge of this study at this institution (she is the "Principal Investigator"). Dr. Pomey work telephone number is . If you can't reach the Principal Investigator, please refer to the attached Research Team Contact Page for a full list of the people you can contact for further information about the study.

18. What Are My Rights?

After you have signed this consent form you will be given a copy.

In the next part you will be asked if you agree (consent) to join this study. If the answer is "yes", you will need to sign the form.



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PART C.

21. Consent Form Signature Page

I have reviewed all of the information in this consent form related to the study called:

Analysis of the factors that enhance or inhibit the sustainability of Wait Time Management Strategies for Total Joint Replacement (TJR) surgeries in Canadian provinces in order to reduce waiting times for these services and to respect the provincial and federal benchmarks that have been established

I have been given the opportunity to discuss this study. All of my questions have been answered to my satisfaction.

This signature on this consent form means that I agree to take part in this study. I understand that I am free to withdraw at any time.

_____	_____	____ / ____ / ____
Signature of Participant	Name (Printed)	Year Month Day*

_____	_____	____ / ____ / ____
Witness to Participant's Signature	Name (Printed)	Year Month Day*

_____	_____	____ / ____ / ____
Signature of Investigator	Name (Printed)	Year Month Day*

_____	_____	____ / ____ / ____
Signature of Person Conducting Consent Discussion	Name (Printed)	Year Month Day*

I Will Be Given A Signed Copy Of This Consent Form

Thank you for your time and patience!

Appendix 3 Semi-directed interview guide

Semi-directed interview guide Interviews with people involved in WT management for HKR in Regional Health Authorities, Hospitals or Clinics

Background

Objectives of the study

- To validate the results of the wait time management (WTM) strategy
- To understand the factors that enhance or inhibit the implementation and the sustainability of WTM strategies 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 chief executive officer (CEO)
- 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
- the person responsible for surgical bookings
- clerks - i.e. individuals that actually

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 organisational diagram
- Etc.

Interview guide**Background**

1. When did you start working in health care?
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?

Organization situation

- What is the organization's financial situation?
- recruitment

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 WTM strategy 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 successful strategy, a moderately successful 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...

Unintended consequences related to the implementation of a WTM in a HCO (positive and negative)

I tried to determine the different dimensions that can be touched by the introduction of a WTM.

The relationship with primary care

- Did the WTM strategy affect the relationship between primary and secondary care specialists? If so, was the impact positive or negative?
- Did this cause tension between the primary care providers due to the fact they had to re-evaluate how they referred patients?
- Did that force them to focus on the wait time issue when they had many others to worry about?
- Was there a lot of resistance to change?

At the clinic level

- Has the way that surgeons, nurses and physiotherapists work together changed?

At the OR level

- Did the WTM strategy distort priorities in the OR? In the emergency room?
- Did problems of security emerge during the implementation of the WTM strategy?
- Did the relationship between orthopaedic surgeons and other surgeons change?
- Did the strategy improve the relationship between surgeons and anesthesiologists?
- Did the strategy improve the relationship between surgeons and anesthesiologists?
- Did the strategy improve the relationship between the different professionals involved?
- Did the strategy create a need to review the organization of the OR in order to maximize surgeons' OR time?
- Has this stressed the health care providers and other members of personnel in the way they work? If so, how did they manifest their resistance to change?

In the emergency room

- Have scheduled OR times affected emergency surgeries?

On preparation for surgery

- Did the strategy impact the way staff prepares patients for surgery? If so, how?
- Has this increased the level of anxiety for patients who have less time to prepare for surgery?

On patients' security

- Since the WTM strategy was implemented, have more or less medical errors occurred?
- Since the WTM strategy was implemented, have more or less nosocomial infections?

Appointment-making within the Organization

- Has the strategy increased the work of personnel in charge of scheduling appointments?

On hospitalization services

- Are beds on surgical wards reserved for orthopedic surgeries? If so, has reserving these beds sometimes caused excess capacity?
- Has the strategy obliged hospitalization services to be restructured in order that the hospital can keep receiving patients? Has this had a positive or a negative effect on bed management?

On the post op rehabilitation

- Has this had an impact on work relations between surgeons, nurses and other colleagues (e.g. physiotherapists) in regard to work organization?

- On the entire organization

- Were budgets modified, taking funds from certain programs to finance the WTM strategy? If so, which programs were affected? What were the consequences?
- Have the functions of all professionals who care for patients along the continuum of care been clearly defined?
- Has the WTM strategy for HKR encouraged other programs to look at what was done for THK surgeries, in order to reorganize their own program? If so, could you give an example?

On stakeholders

- Has the strategy changed the relationship between the ministry and other partners? (e.g., rehabilitation centers, orthopedic assessment clinics)

On patients

- Has this changed the patient's experience overall? If so, positively or negatively?

Can you think of other dimensions or effects, either positive or negative, that have not yet been discussed here?

Prior to implementing the strategy, did actors consider that implementing this WTM strategy could cause unintended consequences?

- If so, how?
- If not, why not?

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 were the WTM strategy's principal unintended consequences, both positive and negative?
3. What do you think others could learn from your experience?

Appendix 4 Ethical certificate (Université de Montréal)



N° de certificat
CERFM#421 (1)

Comité d'éthique de la recherche en santé (CERES)

CERTIFICAT D'ÉTHIQUE - 1er renouvellement -

Le Comité d'éthique de la recherche en santé (CERES), selon les procédures en vigueur et en vertu du formulaire de suivi qui lui a été fourni conclut qu'il respecte les règles d'éthique énoncées dans la Politique sur la recherche avec des êtres humains de l'Université de Montréal

Projet	
Titre du projet	Évaluer les facteurs favorisant ou limitant le maintien dans le temps de stratégies de gestion des listes d'attente pour les chirurgies de remplacement total de la hanche et du genou dans les provinces canadiennes. Ajout du projet de M. Olarte. Ce projet étudiant s'inscrit dans le projet déjà approuvé.
Étudiants requérants	Claudia Amar, Candidate à la M.Sc. en administration de la santé, Faculté de médecine - Département d'administration de la santé. Juan Carlos Sabogale Olarte, Candidat à la M.Sc. en administration de la santé, Faculté de médecine - Département d'administration de la santé.
Sous la direction de	Marie-Pascale Pomey, professeure agrégée, Faculté de médecine - Département d'administration de la santé, Université de Montréal
Financement	
Organisme	IRSC
Programme	Emerging Team Grant
Titre de l'octroi si différent	Total Joint Replacement: Strategic management for timely treatment
Numéro d'octroi	40267
Chercheur principal	Thomas William Noseworthy (University of Calgary)
No de compte	ND

MODALITÉS D'APPLICATION

Tout changement anticipé au protocole de recherche doit être communiqué au CERES qui en évaluera l'impact au chapitre de l'éthique. Toute interruption prématurée du projet ou tout incident grave doit être immédiatement signalé au CERES.

Selon les règles universitaires en vigueur, un suivi annuel est minimalement exigé pour maintenir la validité de la présente approbation éthique, et ce, jusqu'à la fin du projet. Le questionnaire de suivi est disponible sur la page web du CERES.

Guillaume Paré, conseiller en éthique de la recherche.
Coordonnateur
Comité d'éthique de la recherche en santé (CERES)
Université de Montréal

8 novembre 2011
Date de délivrance du renouvellement*
14 octobre 2010
Date du certificat initial
* Le présent renouvellement est en continuité avec le précédent certificat

1er décembre 2012
Date du prochain suivi
1er avril 2013
Date de fin prévue

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