

Implementing an Integrated Performance Management System:

The Early Experience of The Ottawa Hospital

by

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In the Telfer School of Management

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Abstract

This study is a mixed methods investigation, based on a case study of The Ottawa Hospital's recent and ongoing implementation of an integrated performance management system (IPMS). It is the first empirical investigation to identify the reasons why Canadian healthcare leaders choose to implement an IPMS in a hospital setting, the core components of hospital-based IPMSs, the challenges that senior leaders face when implementing such systems, and how these challenges might be mitigated to increase the likelihood of a successful implementation. Key findings include the need for senior leaders to carefully consider organizational culture prior to fully implementing an IPMS, engaging physicians early in the journey, and coordinating the implementation so that knowledge, skill, and expertise, as it relates to the IPMS, are distributed across the organization in tightly knit waves. Recommendations for future research include the development of frameworks for the design, implementation, and use of IPMSs.

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Abbreviations

ABF:	Activity-based funding
Board:	TOH Board of Governors
CEO:	Chief executive officer
DRG:	Diagnosis-related group
FMM:	Frontline and middle manager survey group
HPWP:	High-performance work practices
HRM:	Human resources management
HSFR:	Health system funding reform
IPM:	Integrated performance management
IPMS:	Integrated performance management system
LHIN:	Local health integration network
MCS:	Management control system
MDDH:	Medical division and department head survey group
MOH<C:	Ontario Ministry of Health and Long-Term Care
OPM:	Organizational performance management

PMS:	Performance management system
QBP:	Quality based procedures
RHA:	Regional health authority
SD:	Standard deviation
SMT:	Senior management team survey group
TOH:	The Ottawa Hospital

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Dedication

I lovingly dedicate this thesis to my beautiful wife, Maddalena, and our wonderful son, Zachary, the most amazing 10-year-old boy in the world. I am forever grateful for their love, patience, and the support they showed me every step of the way. I love you both beyond measure.

I also dedicate this thesis to my father, Jean-Guy, and mother, Doris, who so patiently fostered my love of learning and instilled in me the belief that anything is possible with hard work and perseverance. I am fortunate to have had such remarkable parents.

Disclosure

The author has been employed by TOH since 2001. During this time, he held several management positions including manager and, most recently, acting director for a six-month period from August 2012 to January 2013. TOH currently employs the author as a Transformation Specialist in its Transformation Program, which falls under the authority and direction of Dale Potter, Senior Vice-President, Strategy and Transformation. TOH's executive sponsor for the project is Mike Tierney, Vice-President, Critical Care, Emergency and Clinical Programs. The author reported directly to Mr. Tierney from August 2012 to January 2013 while serving as the Acting Director for TOH's Regional Paramedic Program for Eastern Ontario.

The author had no role in designing TOH's integrated performance management system. Furthermore, his involvement with system implementation is limited to the role of any other frontline or middle manager: promoting and holding direct reports accountable for its use.

1. Introduction

1.1. Statement of the Problem

Canada's hospitals, like those in the U.S. and other Western nations, are about to face a 'perfect storm': an aging populace (Government of Canada, 2002) with an increasing incidence of chronic disease (World Health Organization, 2005) in an era of economic uncertainty and fiscal restraint. In Ontario, "health care costs make up 42 per cent of the Ontario government's total program spending and in the near future that could rise to 50 per cent if health care costs grow faster than other areas of government spending" (Government of Ontario, 2010). Nationally, "total health spending accounted for 11.4% of GDP in Canada in 2009, compared with an average of 9.6% across OECD countries. [Only] the United States (17.4%), the Netherlands (12.0%), France (11.8%) and Germany (11.6%) had a higher share" (OECD, 2011). Canadian hospitals, already plagued by high occupancy rates (CAEP, 2005; OECD, 2011) and long wait times (OECD, 2011; Wait Time Alliance, 2010, 2011), must become excellent to remain viable and sustainable in the context of a universal healthcare system. Being excellent means providing timely, appropriate, safe, effective, and efficient care to every patient, at every encounter, without exception.

How do organizations achieve and sustain performance excellence? An IPMS is thought to be essential, particularly for large, complex organizations (de Waal, 2002; Verweire & van den Berghe, 2004), such as hospitals.

An IPMS is “the evolving formal and informal mechanisms, processes, systems, and networks used by organizations for conveying the key objectives and goals elicited by management, for assisting the strategic process and ongoing management through analysis, planning, measurement, control, rewarding, and broadly managing performance, and for supporting and facilitating organizational learning and change” (Ferreira & Otley, 2009). These systems are meant to align an organization and its performance at the strategic, operational, and individual levels (Brudan, 2010). Integrated performance management systems are becoming commonplace in the private sector. In their most recent survey of management tools and trends, Bain and Company found that 78% of private-sector companies were using mission and vision statements, 83% were using benchmarking, and 63% were using the Balanced Scorecard (2011). All of these are components of an IPMS. Though IPMSs remain relatively rare in the public sector (Radnor & McGuire, 2004), interest in such systems is growing (Silva & Ferreira, 2010). Given increasing public sector interest in IPMSs, it is imperative that healthcare leaders and managers of other public sector organizations recognize and understand the challenges specific to their design and implementation. Otherwise, the learning curve remains unnecessarily steep and the risk of failure unnecessarily high.

1.2. Purpose of the Study

Despite their perceived importance, there is very little research on the topic of IPMSs or their implementation. This study aims to be the first to explore the process

and challenges related to implementing such systems in a hospital setting by focusing on TOH's recent and ongoing implementation of their IPMS. A mixed methods design, involving interviews and survey research, is used to answer four key questions:

Q1: What factors motivate Canadian healthcare leaders to implement an IPMS in a hospital setting?

Q2: What are the critical components of an IPMS in a hospital setting?

Q3: What challenges do Canadian healthcare leaders face when implementing an IPMS in a hospital setting?

Q4: How can Canadian healthcare leaders overcome or altogether avoid the challenges of implementing an IPMS in a hospital setting?

The interviews will provide insight into the motivations and opinions of TOH's senior leaders; the surveys provide data on how the IPMS is perceived and used.

1.3. Canada's Healthcare System

Canada's universal healthcare system, commonly referred to as Medicare, is often described as "Canada's most cherished social program" (Browne, 2000). In fact, the concept of universal healthcare is so deeply engrained in the country's social fabric that it has become part of the Canadian identity, even though national Medicare has only existed since the middle of the twentieth century (Canadian Museum of

Civilization, 2010; MacKinnon, 2013). Recent polls continue to demonstrate that, despite its flaws, Canadians continue to “overwhelmingly support universal healthcare” (Nanos, 2009). Underscoring the central importance of universal healthcare to Canadians, Tommy Douglas, a former Premier of Saskatchewan and considered by many to be the father of Medicare, was voted the greatest Canadian in a nationwide online poll conducted by the Canadian Broadcast Corporation (O’Sullivan, 2004).

1.3.1. Levels of Care

Canada’s healthcare system offers three distinct levels of care: primary, secondary, and tertiary.

Primary care is meant to address everyday healthcare needs of Canadians. This includes the prevention, diagnosis, treatment, and management of common medical conditions. The primary care (family) physician is the mainstay of primary care, however practitioners such as nurses, pharmacists, mental health professionals, and other providers also offer primary care services (Alberta Physician Link, 2013).

Secondary care is meant to deal with more complicated, specialized healthcare needs that exceed the scope of practice and expertise of primary care providers. Secondary care involves the diagnosis, treatment, and management of complex medical conditions by physicians such as cardiologists, nephrologists, and dermatologists, who specialize in treating specific conditions. Secondary care is

accessed by referral from a primary care provider, usually a physician (Alberta Physician Link, 2013).

Tertiary care is highly specialized care that is delivered by physician specialists in a medical facility such as an academic health center or other hospital with advanced diagnostic and treatment capability. Examples of tertiary care services include intensive care, neurosurgery, thoracic surgery, etc. Tertiary care is accessed by referral from a primary care provider or secondary care providers (Alberta Physician Link, 2013).

A more recent concept is that of quaternary care, which, by definition, is an extension of tertiary care and constitutes the most specialized level of care available. Quaternary care is delivered by a small number of providers working in select academic health science centers. It is concerned with the diagnosis and treatment of rare and/or highly complex cases, and often involves uncommon diagnostic procedures and experimental treatments (Alberta Physician Link, 2013).

1.3.2. Healthcare System Governance

Canada's healthcare system is administered via a multi-stakeholder governance framework. The key stakeholders within this framework are the federal government, provincial and territorial governments, and regional health authorities / health integration networks.

The federal government is responsible for establishing, administering, and enforcing the guiding principles set forth in the Canada Health Act, and for providing financial support to the provinces and territories through transfer payments, which are dedicated to the provision of healthcare under the Medicare program (Government of Canada, 2012).

Provincial and territorial governments are responsible and accountable for the delivery of healthcare within their respective jurisdictions through the administration of their individual health insurance plans, which must conform to the principles established by the Canada Health Act (Government of Canada, 2012). This includes the funding and delivery of primary, secondary, and tertiary health services, which account for the majority of healthcare expenditures by the provinces and territories (Government of Canada, 2009, 2012).

Regional health authorities (RHAs) are legal corporations, established by a province or territory, with a mandate to integrate and deliver health services within a designated geographical area (Elson, 2006). Local health integration networks (LHINs), introduced in Ontario in 2007 with the Local Health Integration System Act, 2006 (Ontario Local Health Integration Networks, 2013), are similar to RHAs with one vital distinction: whereas RHAs have direct control over the provision of health services within their designated jurisdictions, LHINs do not (Elson, 2006). The 'regionalization' of healthcare in Canada dates back to the 1990s after nearly unanimous recommendations by provincial commissions and task forces throughout

the 1980s (Lewis & Kouri, 2004). In creating RHAs and LHINs, provinces and territories aimed to establish a governance structure that permitted them to focus on healthcare strategy and policy while the RHA's and LHIN's attention was focused on the implementation of these strategies and policies. The hope was that regionalization would produce efficiencies through the alignment of resources and the integration of hospital, community care, long-term care, and other health services (Lewis & Kouri, 2004).

Coordinating healthcare across 13 “interlocking provincial and territorial healthcare plans” (Government of Canada, 2012) so that all Canadians have access to timely, safe and effective care is a significant challenge, particularly in a tripartite governance framework. However, the rising financial burden of Medicare, media scrutiny, and public expectations about healthcare system performance have ushered in an era of greater accountability when it comes to stewardship of the system. One notable outcome is the increasing use of performance agreements between governments, RHAS / LHINs, and delivery agents. In short, strains on and expectations of the healthcare system have placed performance management on the healthcare system agenda.

1.3.3. Hospital Governance

Hospitals are large, complex organizations, particularly where academic health science centers are concerned. They are the backbone of the Canadian healthcare

system, accounting for 29.1% (\$52 billion) of all healthcare expenditures (Canadian Institute for Health Information, 2011).

Most hospitals have a two-tier governance structure, comprised of a board of governors and a management team. These groups work collaboratively to ensure that the hospital meets the healthcare needs of the communities it serves.

Over the past decade, hospital boards and managers have become increasingly focused on quality, patient safety, and the patient experience. This is at once a natural evolution of governance maturity as well as a specific response to the expectations of RHAs and LHINs regarding access and quality of care, as is generally defined in performance agreements.

Often absent from this leadership mix are physicians, which is peculiar and even alarming given their clinical autonomy and discretionary control over much of a hospital's resources. As noted by Shortt, hospitals have long been referred to as the "doctor's workshop" (1999, p. 67). However, as he points out, this metaphor is misleading because, unlike an artisan with his or her own workshop, "a hospital doctor pays no rent, hires no staff, buys no raw materials, owns no tools or equipment, and is guaranteed full payment by the state for whatever services are rendered, regardless of outcome" (1999, p. 67). This arrangement, where private contractors act as the gatekeepers and custodians of an organization's resources, is perhaps unique in western management. And the potential impact is profound. It has been estimated that physicians' clinical decisions account for 60%-80% of all

hospital expenditures (Rachlis & Kushner, 1994, p. 174; Shortell, Morrissey, & Conrad, 1985).

In an effort to address the physician gap in many hospital governance models, a new model has emerged: dyadic leadership. In a hospital context, a dyad leadership model is one where an administrative leader, usually a director or vice-president, and a clinician leader, usually a physician, share authority for operational decision-making and accountability for performance and other outcomes (Baldwin, Dimunation, & Alexander, 2011; Lundall & Bales, 2013). The co-management model promises to enhance communication, increase physician engagement, build trust, and drive clinical and operational excellence (Baldwin et al., 2011; Lundall & Bales, 2013) by aligning physicians' interests with the hospital's interests. While this leadership model is relatively new, early anecdotal reports are promising (Baldwin et al., 2011; Lundall & Bales, 2013).

In summary, hospitals operate in a dynamic, complex environment where governance is distributed amongst many stakeholders with competing interests. Hospitals have little if any control over the number of patients they must accommodate or the extent to which those patients place demands on their finite resources. Tertiary care centers, such as academic health science centers, are the most affected by this, given their role within the system, which calls upon them to treat the most serious, most complex and, by extension, most expensive cases. With an aging population suffering from an increasing incidence of disease in an era of fiscal restraint and accountability, all of Canada's hospitals are likely to face significant and mounting external pressures over the next decade.

2. Literature Review

Organizational performance management (OPM), sometimes referred to as strategic, corporate, business, or enterprise performance management, is a relatively young discipline that is concerned with the achievement of organizational objectives (Brudan, 2010). It “contains components that closely link it to a multitude of other disciplines and organizational capabilities: strategy management, project management, human resources management, accounting and psychology, to name a few” (Brudan, 2010). Its origins as a distinct academic discipline date back some 50 years to the middle of the twentieth century. Interest in OPM has grown significantly since then, most notably over the last thirty years, as computers have become increasingly capable of storing and analyzing ever more massive amounts of data. Because OPM is an emerging discipline, its body of literature is relatively sparse compared to those of other management sciences. In fact, to this day, the terms ‘performance’ and ‘performance management’ remain poorly defined (B. Andersen, Henricksen, & Aarseth, 2006; Brudan, 2010; Lebas, 1995; Wholey, 1996).

2.1. Integrated Performance Management Systems

Integrated performance management systems are thought to be an important driver of organizational performance. Yet despite their perceived importance, there has been very little to no research addressing their design or implementation (Malmi & Brown, 2008). As a result, IPMSs remain a nebulous construct, with terms such as

performance management system (PMS) and management control system (MCS) used interchangeably to describe them (Ferreira & Otley, 2009; Malmi & Brown, 2008). Occasionally, the word *integrated* is used to qualify a performance management system or management control system. This simply denotes a system whose components have been strategically aligned and ‘harmonized’ to realize greater internal consistency across the system.

Ferreira and Otley define an IPMS as “the evolving formal and informal mechanisms, processes, systems, and networks used by organizations for conveying the key objectives and goals elicited by management, for assisting the strategic process and ongoing management through analysis, planning, measurement, control, rewarding, and broadly managing performance, and for supporting and facilitating organizational learning and change” (Ferreira & Otley, 2009). de Waal offers a more concise definition (de Waal, 2003), repurposing Simons’ description of a management control system (MCS) to define an IPMS as “the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities” (Simons, 1995, p. 5; Simons, Dávila, & Kaplan, 2000, p. 4). Despite the proliferation of IPMSs in practice, there remains a lack of clarity about what constitutes an IPMS (Malmi & Brown, 2008) and whether or not it is tantamount to a management control system (Ferreira & Otley, 2009). This is because existing definitions range from broad conceptualizations to much narrower views (Malmi & Brown, 2008).

Given the lack of a universal definition, for the purpose of this study, an IPMS is defined as a closed-loop system of interdependent strategies, tools, and tactics designed to measure, monitor, align, and improve performance across the three levels of an organization: strategic, operational, and individual. In order to achieve this, an IPMS must provide timely, clear, accurate, and salient information that presents both a retrospective and prospective view, based on harmonized key performance indicators. According to this definition, the core purpose of an IPMS is to facilitate organizational alignment. While the need for organizational alignment is intuitively self-evident, “practice shows that communication and integration between the three levels of organizational performance is limited” (Brudan, 2010). This is surprising since organizational alignment is thought to be essential for creating and sustaining competitive advantage (Edelman, Brush, & Manoloval, 2005; Kaplan, 2005; O'Regan & Ghobadian, 2004; Papke-Shields & Malhotra, 2001; Porter, 1996; Sears, 2009).

2.2. Hospitals and Integrated Performance Management Systems

Hospitals, particularly large academic health science centers, are incredibly complex organizations. Measuring and managing hospital performance often seems like a herculean task given the massive amounts of data that are collected across often disparate legacy information systems. Yet organizational performance is becoming increasingly critical given unrelenting pressures on hospitals to “improve clinical

quality, enhance service, expand access, and reduce costs” (Curtright, Stolp-Smith, & Edell, 2000).

Historically, performance management in the hospital setting has focused predominantly on financial measures and clinical productivity. However, over the past 15-20 years, there has been a shift toward a more holistic approach to organizational performance management and, while few hospitals could claim to have implemented an advanced IPMS, several may well be on their way (Cheng & Thompson, 2006; Curtright et al., 2000; Kenney, 2010; Sears, 2009).

The majority of the academic literature on organizational performance management in healthcare focuses on the Balanced Scorecard (BSC) or adaptations thereof (Aidermark & Funck, 2009; Baker & Pink, 1995; Barnardo & Jivanni, 2009; Chan, 2009; Conrad & Uslu, 2011; Gurd & Gao, 2008; Zelman, Pink, & Matthias, 2003), which suggests that the BSC is alive and well in the healthcare sector.

While use of the BSC by healthcare organizations has received significant attention from academics, this is not the case when it comes to IPMSs. Only two articles addressing the implementation of IPMSs have been published in peer-reviewed journals. The first is an illustrative case study on the implementation of an IPMS at Cancer Care Ontario as part of the divestment of its patient care services to 11 integrated cancer programs across Ontario (Cheng & Thompson, 2006). The second is an illustrative case on the implementation of an IPMS at the Bon Secours Health System, a \$2.6 billion not-for-profit healthcare system in the United States

with 20,000 caregivers working across 29 facilities in six states (Sears, 2009). Neither case study presents empirical data. A third article focusing on the implementation of a performance measurement system that has the earmarks of an early IPMS also has been published (Curtright et al., 2000). It too is an illustrative case study lacking empirical data. In all three cases, the authors offer 'lessons learned' on the topic of IPMS implementation:

- establish accountability by assigning clear roles and responsibilities related to the IPMS and its implementation (Sears, 2009);
- ensure that senior managers carefully consider how the system will be used and what information it needs to contain (Curtright et al., 2000);
- recognize that the implementation of an IPMS is an ongoing, iterative process that takes time (Curtright et al., 2000);
- senior managers must demonstrate sustained commitment to the IPMS and its implementation (Curtright et al., 2000; Sears, 2009);
- managers and staff involved with the implementation of the IPMS must be given the time they need to effectively implement the system (Curtright et al., 2000; Sears, 2009);
- include performance improvement as part of leadership development (Sears, 2009);
- build project management capabilities within the organization (Sears, 2009);
- involve trained professionals rather than well-intentioned amateurs (Sears, 2009);
- leverage communities of practice / excellence (Sears, 2009);

- invest in the infrastructure required for “cohesive and streamlined data management” (Cheng & Thompson, 2006);
- ensure the data is valid and reliable (Cheng & Thompson, 2006);
- streamline performance reporting (Cheng & Thompson, 2006);
- seek consensus on performance indicators (Cheng & Thompson, 2006);
and,
- provide comparative data (Cheng & Thompson, 2006).

2.3. Components of an IPMS

A number of performance management frameworks have been developed over the past 20 years. Ferreira and Otley offer one of the most comprehensive elaborations on the composition of IPMSs, identifying 10 distinct components (Ferreira & Otley, 2009):

- vision and mission;
- key success factors;
- organization structure;
- strategies and plans;
- key performance measures;
- target setting;
- performance evaluation;
- reward systems;
- information flows, systems, and networks; and,

- performance management system use.

In contrast, Speckbacher, Bischof, and Pfeiffer, in their review of the third generation (type III) Balanced Scorecard (BSC), which they refer to as a strategic management system, emphasize just five key components (Speckbacher, Bischof, & Pfeiffer, 2003):

- strategic planning;
- strategic objectives;
- action plans;
- performance measurement; and,
- reward systems.

In the United States, the Baldrige Criteria for Performance Excellence, developed by the National Institute of Standards and Technology (NIST), recognizes six components that are thought to contribute to organizational performance (National Institute for Standards and Technology, 2013):

- leadership;
- strategic planning;
- customer focus;
- measurement, analysis, and knowledge management;
- human resource focus (empowering employees); and,
- operations focus (process management).

Similarly, the EFQM (formerly the European Foundation for Quality Management) Excellence Model recognizes five enablers of organizational performance (EFQM, 2013a):

- leadership;
- strategy;
- partnerships and resources;
- people; and,
- processes, products and services.

Finally, Van Dooren, Bouckaert, & Halligan offer a framework designed specifically for the public sector, which identifies three main components (2010):

- objectives;
- process; and,
- measurement.

While there are significant differences between these and other IPMS frameworks, as noted in Figure 1, there also are recurring themes. For instance, strategic planning is common to all five of frameworks and all but one include performance measurement and some notion of high performance work practices. Furthermore, though not ubiquitous, leadership, process management, knowledge management, and communication are recurring concepts and their importance to the effective implementation and sustained use of an IPMS makes intuitive sense.

Figure 1: Common IPMS Components

Component	Ferreira & Otley	Speckbacher et al.	Baldrige	EFQM	van Dooren
Leadership			✓	✓	
Strategic planning	✓	✓	✓	✓	✓
Performance measurement	✓	✓	✓		✓
Process management			✓	✓	✓
High performance work practices	✓	✓	✓	✓	
Knowledge management	✓		✓		
Communication	✓	✓			

What follows is a review of the IPMS components that are common to three or more of the cited frameworks:

- mission statement (related to strategic planning);
- strategic planning;
- performance measurement;
- high performance work practices.

Three additional IPMS components that figure prominently in the literature are also included as part of the review as they fit well within the concept of an IPMS:

- benchmarking;
- public reporting; and,
- process management.

2.4. Strategic-Level Devices

At the strategic level, performance management focuses on “the achievement of organizational objectives” (Brudan, 2010). Organizations commonly use mission statements, strategic planning, benchmarking, and performance measurement to manage performance at this level (Bain and Co., 2011).

2.4.1. Mission Statement

In its simplest conceptualization, the mission statement is a written expression of an organization’s grand purpose, its *raison d’être* (Drucker, 1974, 2001). In practice, most mission statements tend to be far more ambitious, incorporating additional components such as a vision statement and core values (Campbell & Yeung, 1991; Ireland & Hitt, 1992; L. S. Williams, 2008). The mission statement’s primary function is to guide managers in setting appropriate strategic objectives (Sidhu, 2003) and focusing their attention toward the allocation and utilization of resources to achieve them (Bart, Bontis, & Taggar, 2001). In communicating the organization’s grand purpose, the mission statement also aims to “serve as a control mechanism to keep the firm on track; help in making a wide range of day-to-day decisions; and inspire and motivate employees” (Bartkus, Glassman, & McAfee, 2000).

The modern concept of a mission statement dates back to the middle of the 20th century (Drucker, 1954, 1974). Its popularity has grown significantly since then and

it remains one of the most popular tools in contemporary management (Rigby, 2001, 2003; Rigby & Bilodeau, 2005, 2007, 2009, 2011, 2013).

Relationship with Organizational Performance

While academics and practitioners continue to assign a great deal of importance to the mission statement (Khalifa, 2011), the relationship between mission statement and organizational performance remains equivocal despite many years of investigation (Bart & Baetz, 1998; Bart et al., 2001; Bart & Hupfer, 2004; Bart & Tabone, 1998; Bartkus, Glassman, & McAfee, 2006; Khalifa, 2011; Pearce II, Freeman, & Robinson Jr, 1987; Rarick & Vitton, 1995; Sidhu, 2003). This has led some researchers to suggest that mission statements may be of little value (Ackoff, 1987; J. C. Collins & Porras, 1991). However, there are a number of reasons why researchers might have failed to establish a relationship between the mission statement and organizational performance thus far. First, there is disagreement about what constitutes a mission statement (Bart & Hupfer, 2004; Khalifa, 2011). Second, there is considerable ambiguity regarding what content should be included in a mission statement and thus the content varies significantly from one mission statement to the next (Sidhu, 2003; L. S. Williams, 2008). Third, the value of a mission statement lies not in its mere existence but in its faithful, deliberate, and sustained implementation and yet there is ample evidence to suggest that mission statement implementation is frequently problematic (Coulson-Thomas, 1992; Fairhurst, Jordan, & Neuwirth, 1997). It is widely acknowledged that some, perhaps

many organizations treat mission statements as nothing more than a formality or public relations (PR) exercise, which results in mission statements that lack authenticity and veridicality (Bartkus & Glassman, 2008; Bartkus et al., 2000; Coulson-Thomas, 1992; Fairhurst et al., 1997; Lipton, 1996; Wright, 2002). Unfortunately, researchers have largely ignored the issue of mission statement authenticity when investigating the mission statement – organizational performance link (Khalifa, 2011).

Until these issues are resolved, it is unlikely that the empirical research will provide valuable insights into the true nature of the relationship between the mission statement and organizational performance (Khalifa, 2011).

Use of Mission Statements by Hospitals

Hospitals, like most organizations, have embraced the mission statement (Bart & Hupfer, 2004; Bart & Tabone, 1998), with one study finding that 84% of hospitals had one (Gibson, Newton, & Cochran, 1990).

Investigations of hospital mission statements have revealed that most are strikingly similar, even between not-for-profit and for-profit organizations (Bolon, 2005). Though they may vary significantly in length and format, their content can be grouped into the five broad domains (J. Williams, Smythe, Hadjistavropoulos, Malloy, & Martin, 2005):

- hospital identity;

- hospital services;
- hospital values, principles, and beliefs;
- the importance of employees; and,
- the responsible use of resources.

These findings are similar to previous research in this area (Bart & Hupfer, 2004).

Hospital mission statements are perceived by managers and staff as a relational and informational tool rather than a promotional tool, and therefore considered to be “credible and factual” (Desmidt & Heene, 2007). However, there are gaps in perception as managers tend to have “a more outspoken and positive attitude toward the mission statement” (Desmidt & Heene, 2007). This may be the result of insufficient or ineffective communication, since upwards of 30% of employees may be unfamiliar with their hospital’s mission statement (Desmidt & Heene, 2007). This gives credence to Kotter’s assertion that mission statements are under-communicated by a factor of 10 (1995).

2.4.2. Strategic Planning

Strategic planning is the process of determining an organization’s major goals and objectives (strategy formulation) and deciding how the organization will allocate its resources to achieve those aims (Anthony & Govindarajan, 2007; Pearce II et al., 1987). It is a deliberative and disciplined approach (Bryson, 2011) that involves “explicit systematic procedures used to gain the involvement and commitment of

those principal stakeholders affected by the plan” (Pearce II et al., 1987). Under ideal circumstances, the process begins with a review of the organization’s mission statement, since the ultimate intent of strategic planning is to execute strategies that allow the organization to accomplish its mission. Ideally, strategic planning produces what Hamel and Prahalad refer to as reciprocal responsibility (Hamel & Prahalad, 1989), a situation where both managers and employees share a sense of commitment and obligation toward achieving organizational goals and objectives (Hamilton, Eskin, & Michaels, 1998).

Formalized strategic planning first emerged in the 1960s (Mintzberg, 1994b) and despite its widespread adoption throughout the late 1960s and most of the 1970s, its popularity waned by the end of the 1970s after it failed to produce the breakthrough results touted by its proponents (Glaister & Falshaw, 1999). During the 1990s, strategic planning “regained some of the reputation and influence that it had previously lost” (Glaister & Falshaw, 1999) and since 2000, strategic planning has been ranked as one of the most popular management tools (Rigby, 2001, 2003; Rigby & Bilodeau, 2005, 2007, 2009, 2011, 2013).

Strategic planning, as it was originally conceived, was a highly rational, and deliberate exercise supported by formalized planning systems that were “expected to produce the best strategies as well as step-by-step instructions for carrying out those strategies so that the doers, the managers of businesses, could not get them

wrong” (Mintzberg, 1994a). This approach, which some still practice to this day, is known as planned strategy or deliberate strategy.

Critics of planned strategy argue that it is an overly bureaucratic and mechanistic undertaking (Bresser & Bishop, 1983) that is “conducive to rigidity” (Titus Jr, Covin, & Slevin, 2011). They contend it prolongs the time it takes to make important strategic and operational decisions and may cause ‘slow movers’ to miss out on important entrepreneurial opportunities (Covin, Green, & Slevin, 2006). Furthermore, in the setting of a rigid strategic planning framework, where the personal cost of failure to managers can be high, they claim that planned strategy is likely to produce conservative goals, objectives and strategies that are “extrapolated from the past or copied from others” (Mintzberg, 1994b).

In response to these concerns, a less rigid form of strategic planning emerged, an approach known as emergent strategy. Emergent strategy recognizes that even the best and brightest strategists cannot anticipate all potentialities (Mintzberg, 1987), particularly where discontinuities are concerned (Mintzberg, 1994b), such as technological innovation and regulatory or market conditions changes. Thus, emergent strategies enable an organization to remain flexible, avoiding commitment until such a time as a particular course of action becomes clear (Covin et al., 2006). This is particularly attractive when a strategic path is “not easily knowable yet significant losses and opportunity costs may be incurred if the wrong strategic path is chosen” (Covin et al., 2006).

In practice, there is no such thing as a purely planned strategy or a purely emergent one (Mintzberg, 1987). Rather, all strategic planning lies somewhere between these two extremes. A successful strategy is one that incorporates an appropriate mix of each, finding the 'sweet spot' along the methodological spectrum that allows the organization to learn while adopting a reasonable measure of control (Mintzberg, 1987).

Strategic Planning and Organizational Performance

The prescriptive literature implies that there is a positive correlation between strategic planning and organizational performance, the relationship is causal, and the causal variable is strategic management (Glaister & Falshaw, 1999). This is a logical assumption given that goal-setting theory suggests that major objectives, such as those derived from strategic planning, should energize managers and focus their attention toward achieving the defined objectives (Locke & Latham, 2002). The opinion likely is reinforced by the generally accepted view that organizations are complex entities that operate in dynamic, competitive environments where success is predicated on the organization's ability to coordinate its resources more effectively than its competitors.

Despite its perceived importance, the empirical literature is far more equivocal in its support for the existence of any relationship between strategic planning and organizational performance, let alone a causal one (Greenley, 1994; Miller & Cardinal, 1994; Pearce II et al., 1987). Nevertheless, despite methodological

concerns and limitations, the preponderance of the evidence, including recent investigations, hints at such a relationship (T. J. Andersen, 2004; Brinckmann, Grichnik, & Kapsa, 2010; Glaister, Dincer, Tatoglu, Demirbag, & Zaim, 2008; Grant, 2003; Rudd, Greenley, Beatson, & Lings, 2008; Terziovski, 2010; Titus Jr et al., 2011).

Use of Strategic Planning by Hospitals

Strategic planning and other strategic management concepts have been used by hospitals and other healthcare organizations for more than three decades (Ginter, Duncan, & Swayne, 2013). It is widely believed that strategic planning contributes significantly to hospital performance (Begun & Kaissi, 2005; Lemak & Goodrick, 2003). As evidence of its perceived value, one study noted that almost 90% of hospitals had a formal strategic plan (Kaissi & Begun, 2008). However, while strategic planning is perceived as a value-added activity by hospital leaders, like with other organizations, there is little empirical evidence to support this view (Kaissi & Begun, 2008). It should be noted at this point that most of the scholarly literature on strategic planning in the hospital sector deals with illustrative case studies involving one (Lemak & Goodrick, 2003; Sollenberger, 2006) or a small number of healthcare facilities (Begun & Kaissi, 2005; Dubbs & Mailman, 2002; Wells, Lee, McClure, Baronner, & Davis, 2004).

As previously indicated, formal strategic planning is resource intensive. In the absence of evidence proving its utility, robust strategic planning may seem

unnecessarily burdensome, particularly for smaller hospitals with resource constraints, be they financial or otherwise. In such a setting, where unexpected developments such as the departure of a key member of the organization may have a profound impact on its operations (Wells et al., 2004), this can make the investment in strategic planning seem like “an unfeasible luxury” (Wells et al., 2004).

Given the resources that hospitals devote to strategic planning, it is imperative that they realize all potential benefits from the exercise. As reported by Zuckerman, a survey by the Society for Healthcare Strategy and Market Development in 2005 revealed that strategic management in healthcare has failed to advance past the first stage of development, which involves only “the most basic processes and activities characteristic of the first decade or two of healthcare strategic planning” (Zuckerman, 2006). In response, Zuckerman offers 10 best practices designed to “place any organization in the top tier of healthcare organizations practicing strategic planning” (2006):

- establish a unique, far-reaching vision;
- attack critical issues;
- develop focused, clear strategies;
- differentiate from the competition;
- aim to achieve real benefits;
- organize preplanning (prepare for strategic planning);
- structure effective participation;
- think strategically;

- manage implementation; and,
- manage strategically.

The state of hospital compliance with the 'best practices' is unclear.

2.4.3. Performance Measurement

Performance measurement is the process of measuring and monitoring organizational performance via a performance measurement system comprised of individual performance measures designed to assess organizational efficiency and effectiveness. (Neely, 2005b; Neely, Gregory, & Platts, 1995). Its intent is to provide decision-makers with the information they need to focus their attention on particular aspects of business operations (Waggoner, Neely, & Kennerly, 1999).

Performance measurement is intricately linked to accounting, its origins dating back to the inception of the double-entry accounting system in the Middle Ages (Kennerley & Neely, 2003). In the 19th century, as industrial organizations emerged, financial performance measures became more sophisticated to account for the growing complexity of manufacturing firms (Johnson, 1972), the need to realize economies of scale (Kaplan & Norton, 1996) and greater productivity (Bititci, Garengo, Dorfler, & Nudurupati, 2012), and the increasing separation between business ownership and management (Kennerley & Neely, 2003). Over time, this led to the development of what are now common financial performance measures (Johnson, 1983), with an emphasis on productivity management (Bititci et al., 2012).

Shortly after World War I, private sector organizations began using more sophisticated accounting techniques. (Bourne & Neely, 2003). During this time, larger, evermore complex forms of enterprise began to emerge (Bititci et al., 2012). As the practice of management become more challenging, practitioners and academics came to the realization that financial measures, no matter how sophisticated, are incomplete measures of organizational performance.

Efforts to identify more balanced performance metrics date back to the middle of the 20th century. In 1951, Ralph Cordiner, then CEO of General Electric, created a task force to develop a balanced set of key performance measures for the organization, perhaps the first such initiative of its kind (Eccles, 1991). A few years later, Peter Drucker, an esteemed scholar and management consultant, called upon organizations to establish performance measures in eight key areas: “market standing; innovation; productivity; physical and financial resources; profitability; manager performance and development; worker performance and attitude; public accountability” (1954). In spite of the growing recognition of the need for a more balanced approach to performance measurement beyond traditional financial measures (Burgess, Ong, & Shaw, 2007), little changed over the following 30 years. During this time, traditional financial measures continued to be criticized for, amongst other things:

- being focused on past performance rather than future performance (Dixon, Nanni, & Vollman, 1990);

- promoting a short-term view (Banks & Wheelwright, 1979; Hayes & Abernathy, 1980; Kaplan, 1986);
- lacking strategic focus (Skinner, 1974);
- not emphasizing continuous improvement (Schmenner, 1988; Turney & Anderson, 1989);
- inhibiting innovation (Richardson & Gordon, 1980); and,
- providing an excessively internal focus (Camp, 1989; Kaplan & Norton, 1992, 1996; Neely et al., 1995).

In the 1980s, these concerns, fuelled by the pressures of globalization and the sophistication of markets (Bititci et al., 2012), gave rise to what some have called the performance measurement revolution (Neely, 1999).

In response to the widely recognized need for a more balanced approach to performance measurement, a large number of performance measurement frameworks were developed between the late 1980s and mid 2000s:

- Performance Measurement Matrix (Keegan, Eiler, & Jones, 1989)
- Performance Pyramid System (Lynch & Cross, 1991)
- Result and Determinants Framework (Lynch & Cross, 1991)
- Balanced Scorecard (Kaplan & Norton, 1992, 1996)
- Integrated Performance Measurement System (Bititci, Carrie, & McDevitt, 1997)
- Integrated Performance Measurement for Small Firms (Laitinen, 2002)

- Performance Prism (Neely, Adams, & Crowe, 2001; Neely, Adams, & Kennerley, 2002)

The most popular of these frameworks by far is the Balanced Scorecard (BSC). The BSC integrates traditional, retrospective financial performance measures with “measures of the drivers of futures performance” (Kaplan & Norton, 1996). Thus, the BSC aims to show leaders how their organization creates “value for current and future customers and how they must enhance internal capabilities and the investment in people, systems, and procedures necessary to improve future performance” (Kaplan & Norton, 1996). It does this by forcing leaders to consider and develop performance measures from four perspectives: learning and growth; business processes; customer; and financial (Kaplan & Norton, 1996).

Performance Measurement and Organizational Performance

The prescriptive literature implies that there is a positive correlation between performance measurement and organizational performance, the relationship is causal, and the causal variable is strategic management. Thus, it is widely accepted that organizations, particularly larger ones, need performance measurement systems based on strategically aligned integrated performance measures to achieve and sustain superior performance (Bititci, 1994; Bititci et al., 1997; Bititci et al., 2012; Cocca & Alberti, 2010; Kaplan & Norton, 1992, 1996; Neely, 1999, 2005a; Neely et al., 1995; Olsen et al., 2007). A well-designed performance measurement system provides information that is “integrated, dynamic,

accessible, and visible to aid fast decision-making to promote a pro-active management style leading to agility and responsiveness” (Nudurupati, Bititci, Kumar, & Chan, 2011). And yet, 30 years into the performance measurement revolution (Eccles, 1991; Neely, 1999), many performance measurement systems remain historically focused and static (Garengo, Biazzo, & Bititci, 2005; Nudurupati et al., 2011), overloading managers with excessive amounts of low-value data.

Despite the widespread adoption of the Balanced Scorecard or other performance measurement tools by all kinds of organizations in all kinds of industries, there is limited empirical evidence regarding its value (Burkert, Davila, & Oyon, 2010). Nevertheless, there is smaller-scale evidence showing that implementation of the BSC, or presumably any other well-designed and implemented performance measurement system, can positively impact organizational performance (Davis & Albright, 2004; De Geuser, Mooraj, & Oyon, 2009; Hoque & James, 2000). As with other management tools, the challenges of implementing performance measurement systems may be obscuring the extent and nature of the relationship between performance measurement and management. Indeed, there are reports that the failure rate of performance measurement system projects may be as high as 70% (McCunn, 1998).

Use of Performance Measurement by Hospitals

The history of performance measurement in healthcare dates back to the mid-1800s and the work of Florence Nightingale (Loeb, 2004), and perhaps even two centuries

earlier (Brailon, 2008). Thus, it is fair to state that there is a long tradition of performance measurement in the healthcare field (Loeb, 2004).

Though seemingly simple, performance measurement in the hospital context is an extremely complicated undertaking for a number of reasons (Loeb, 2004). First, hospitals have multiple stakeholders and performance invariably means something slightly different to each stakeholder group. Thus, hospitals must account for multiple stakeholders when designing performance measurement systems. Second, hospitals are bastions of disparate computer applications and databases making data integration difficult if not impossible (Dziuk, 2001), with potentially significant reporting result discrepancies manifesting across systems (Adair, Simpson, & Casebeer, 2006). Third, there are few standard healthcare measures and even seemingly basic metrics are defined differently by across providers and institutions (Loeb, 2004). Developing a comprehensive set of performance measures that have widespread support across different stakeholder groups can be tedious and incredibly time consuming. Last but not least, there is great controversy on the topic of risk adjustment to account for comorbidities and other factors that affect clinical and other outcomes within a given patient population (Loeb, 2004).

As noted earlier in this section, the most popular performance measurement framework is the Balanced Scorecard. This likely holds true in healthcare. Gurd and Gao identified 22 cases studies published up prior to 2006 that deal with the implementation of the BSC in healthcare (2008). It is known to have been

implemented in a wide variety of healthcare organizations, including academic health science centers, community hospitals, military hospitals, and specialty hospitals, and psychiatric centers (Zelman et al., 2003). In adopting the BSC, hospitals have demonstrated their creativity and flexibility by adapting its basic structure (number of perspectives, nature of the perspectives) to meet their specific needs (Gurd & Gao, 2008; Zelman et al., 2003).

2.4.4. Benchmarking

The word benchmarking is often used to describe the comparison of performance indicators between peers (Ettorchi-Tardy, Levif, & Michel, 2012). However, this is a simplistic view that fails to capture the true essence of the practice. Though many definitions exist (Fernandez, McCarthy, & Rakotobe-Joel, 2001), benchmarking can be described as “the process of comparing and measuring your organization against others, anywhere in the world, to gain information on philosophies, practices, and measures that will help your organization take action to improve its performance. In simple terms, benchmarking is the practice of being humble enough to admit that others are better at something and being wise enough to learn how to match – and even surpass – them at it” (American Productivity and Quality Center, 2013).

Originally used by the Japanese to help rebuild their economy after the Second World War, benchmarking has evolved significantly since then (Moriarty, 2011). Xerox is often credited for developing benchmarking into a science (Adebanjo, Abbas, & Mann, 2010; Anand & Kodali, 2008; Brailon, 2008). The company first

implemented the practice to improve its competitiveness in the copier industry while facing fierce competition (Watson, 2007). Benchmarking reportedly enabled Xerox to “reduce machine defects by more than 90 percent; improve its marketing productivity by one third; improve the level of incoming parts acceptance to 99.5 percent; and reduce its service labor costs by 30 percent” (Mittelstaedt Jr., 1992). These impressive results spurred other companies to adopt the practice and it became one of the most popular performance improvement techniques of the 1980s and 1990s (Adebanjo et al., 2010). A biennial survey of global executives reveals that benchmarking continues to consistently rank as one of the top five management tools over the past decade, placing it atop the list in 2008 and 2010 (Rigby, 2001, 2003; Rigby & Bilodeau, 2005, 2007, 2009, 2011, 2013).

Benchmarking and Organizational Performance

The prescriptive literature suggests that there is a positive correlation between benchmarking and organizational performance, the relationship is causal, and the causal variable is benchmarking (Camp, 1989; Fong, Cheng, & Ho, 1998; Watson, 1993, 2007). Case studies like those on Xerox, AlliedSignal, and General Electric certainly seem to underscore its value. However, there are few empirical studies investigating the relationship between benchmarking and organizational performance however those that do tend to find a positive association (Drew, 1997; Fotopolous & Psomas, 2010; Lema & Price, 1995; Maiga & Jacobs, 2004), though causality has not been proven.

While it is generally accepted that benchmarking positively affects organizational performance, “the issues are complex and benchmarking is not equally desirable or effective for all types of firms in all situations [because] industries differ in the rate at which innovations and knowledge develop and diffuse over time. They also differ in the sources of competitive advantage that can be sustained and the nature of knowledge applied in strategy-making and the management of the business” (Drew, 1997).

Use of Benchmarking by Hospitals

The topic of benchmarking in the public sector in general and healthcare in particular has received very little attention from academics (de Korne et al., 2010; de Korne et al., 2012; Dorsch & Yasin, 1998). As noted by de Korne et al., “peer reviewed research on the use and function of benchmarking in health organizations is very scarce” (de Korne et al., 2010). Where the term ‘benchmarking’ is used in the scholarly healthcare literature, it frequently is used to describe initiatives where clinical data is used to measure performance between providers or across institutions (Polk, Hohmann, Medvedev, & Ibrahim, 2011; Ptok et al., 2011), which is a shallow interpretation of the practice at best. One exception to this is a study on international benchmarking of specialty hospitals (cancer care centers) that identified 10 success factors for international benchmarking on operations management (van Lent, de Beer, & van Harten, 2010):

- internal stakeholders should be convinced that others might have developed solutions for problems that can be translated to their own setting;
- management must reserve sufficient resources for the total benchmark;
- limit the scope to a well-defined problem;
- define criteria to verify the compatibility of the benchmarking partners on the subject and the process;
- construct a format that enables structured comparison;
- use both quantitative and qualitative data for measurement;
- involve stakeholders to obtain consensus about the indicators, to provide information on data availability and reliability, and to assist in data collection;
- keep indicators simple so that enough time can be spent on the analysis of the underlying processes;
- for those indicators showing a large annual variation in outcomes, measurement over a number of years should be considered; and,
- adapt the identified better working methods, so that they comply with other practices in the organization.

The generalizability of these findings to other types of benchmarking in healthcare has not been demonstrated, though many of the best practices would seem to apply in other contexts.

2.4.5. Public Reporting

Public reporting is the open dissemination of information pertaining to an organization. The history of public reporting dates back to the 18th century and is closely associated with developments in accounting, public governance, and medicine. This section focuses exclusively on the influence of accounting and medicine.

From an accounting perspective, financial reporting was a necessary development arising from new forms of business ownership during the Industrial Revolution, namely the public corporation (Napier, 2010). Such reporting was necessary to hold managers accountable to the owners of a commercial enterprise (Napier, 2010). However, prior to 1900, the amount of information that firms disclosed to the public, or even shareholders, was scant and often unreliable (Hawkins, 1963, p. 135). Managers of the day, not unlike some their contemporary counterparts, believed that “the public had no right to information on these matters; that by revealing financial information they would unwittingly assist their competitors; and the doctrine of caveat emptor seemed as applicable to buyers of securities as to purchasers of horses” (Hawkins, 1963, p. 141). The need for greater transparency, at least with respect to investors, became more pressing with the dramatic rise in the number of shareholders in the early part of the 20th century (Hawkins, 1963, p. 145). From that point forward, financial reporting became significantly more robust with advances in accounting and the formalization of accounting principles. However, comprehensive

public reporting did not begin in earnest until the rise of the corporate social performance and corporate social responsibility movement in 1970s (Carroll, 1999; Cochran, 2007).

Public Reporting and Organizational Performance in Healthcare

Much of what we know about public reporting and its potential impact on organizational performance comes from the healthcare sector. Public reporting initiatives aim to improve quality by increasing accountability through greater transparency (Faber, Bosch, Wollersheim, Leatherman, & Grol, 2009; Werner & Asch, 2005). Whether or not transparency promotes accountability remains the subject of great debate (Faber et al., 2009; Werner & Asch, 2005).

From a healthcare perspective, public reporting is “data, publicly available or available to a broad audience free of charge or at a nominal cost, about a health care structure, process or outcome at any provider level (individual clinician, group, organization). While public reporting is generally understood to involve comparative data across providers” (Agency for Healthcare Research and Quality, 2011).

One of the earliest known cases of public reporting involves Florence Nightingale who, in 1863, reported mortality and infection rates in English hospitals during the Crimean War (Loeb, 2004; Shahian et al., 2011). Another notable early effort takes place a half century later, in 1911, when a Boston surgeon named Earnest Amory Cobden opened his own private hospital where he monitored and published patient

outcomes (Spiegelhalter, 1999), a novelty of the day. In spite of Cobden's leadership and his call for greater transparency and accountability on the part of hospitals (Spiegelhalter, 1999), there was "little evidence of enhanced public transparency and accountability in healthcare over the ensuing 70 years" (Shahian et al., 2011). Then, in 1989, in what is widely recognized as a seminal event in contemporary public healthcare reporting, New York State mandated the publication of physician-specific coronary artery bypass graft (CABG) surgical outcomes. The same state subsequently mandated the publication of similar data for percutaneous coronary intervention (PCI) just a few years later (Shahian et al., 2011; Turi, 2005). Since then, due to a variety of factors, including a significant reduction in CABG and PCI mortality rates following the implementation of mandatory public reporting, similar initiatives have spread wide and far (Turi, 2005). In fact, many now recognize that it is "inevitable that public reporting will increasingly become mandatory [as] the realities of contemporary healthcare provide numerous pragmatic incentives to publicly report" (Shahian et al., 2011).

In healthcare, proponents of public reporting argue that such disclosures are essential to improving the quality of healthcare (Werner & Asch, 2005). They profess that public reporting improves quality of care in two ways. First, by making performance data available to the public, individuals will use the information rationally to select higher quality healthcare providers (Faber et al., 2009; Robinowitz & Dudley, 2006; Shahian et al., 2011; Werner, Konetzka, & Kruse, 2009). Second, regardless of the impact of public disclosure on decision-making

and individual behavior, once healthcare providers become aware of their performance, as professionals, they will make a concerted effort to improve the quality of care they provide (Robinowitz & Dudley, 2006; Werner et al., 2009). In either case, the net effect is that more patients receive better care, which improves the overall quality of care delivered by the system.

Despite the widespread support for public reporting, a meta-analysis of 45 studies published between January 1986 and March 2006 reveals that, while public reporting stimulates quality improvement initiatives at the hospital level, its influence on “effectiveness, safety, and patient centeredness remains uncertain” (Fung, Lim, Mattke, Damberg, & Shekelle, 2008).

2.5. Operational-Level Devices

At the operational level, performance management focuses on “the achievement of departmental or group objectives” (Brudan, 2010). Organizations commonly use process management, public reporting, and dashboards to manage performance at this level.

2.5.1. Business Process Management

Business process management (BPM) is a systematic and structured approach to continually improving an organization’s processes (Elzinga, Horak, Chung-Yee, & Bruner, 1995; R. G. Lee & Dale, 1998), focusing on “the main aspects of business

operations where there is high leverage and a big proportion of added value” (Zairi, 1997). Under traditional organizational structures, which are predicated on functional hierarchies, processes tend to be cross-functional, which results in multiple managers ‘owning’ portions of a business process but no one being accountable for the end-to-end (overall) process (R. G. Lee & Dale, 1998). The consequence often is suboptimal process performance. Business process management aims to address many of the problems associated with traditional functional structures by emphasizing the customer, minimizing and managing handoffs between functions, and eliminating ‘turf wars’ .

Business process management is “as old as the discipline of industrial engineering” (Gulledge Jr & Sommer, 2002). Its early origins can be traced back to Frederick Winslow Taylor (1911), an American mechanical engineer and the father of scientific management. Process management, what Taylor refers to as the task idea, was the “most prominent single element of scientific management” (1911, p. 17). It involved the codification of the one best way of doing work, emphasizing standardization, the elimination of variation, and the eradication of waste. These remain central concepts and practices of modern business process management methodologies such as Lean and Six Sigma.

Modern business process management is a far more recent concept. Developed in the 1980s by Motorola, it emerged from the total quality management movement led by William Edwards Deming, Walter Shewhart, Joseph Moses Duran, Taiichi Ohno,

and Shigeo Shingo (Hammer, 2010; P. Harmon, 2010). Given the success that organization's such as Motorola, General Electric, and others have reported over the years, it is not surprising that there continues to be growing academic interest in the subject (Sidorova & Isik, 2010).

A number of business process management frameworks have been developed over the years. Two of the most popular are Lean, developed by Toyota, and Six Sigma, developed by Motorola. According to Spector, these are "two of the most effective business improvement techniques available today" (2006). Though both are touted as cost reduction systems, their approaches differ slightly. Lean focuses on the elimination of waste. Six Sigma focuses on the elimination of defects associated with non-random variation. Given their complementary fit, there has been growing interest over the past decade in merging the two systems, creating a Lean Six Sigma (LSS) hybrid that emphasizes and balances the quality focus of Six Sigma with Lean's emphasis on speed (Akbulut-Bailey, Motwani, & Smedley, 2012; Andersson, Eriksson, & Hakan, 2006; Arnheiter & Maleyeff, 2005; Atmaca & Girenes, 2013; Brett & Queen, 2005; de Koning, Verver, van den Heuvel, Bisgaard, & Does, 2006; George, 2002; George, Rowlands, & Kastle, 2003; Pepper & Spedding, 2010).

Process orientation is a focus on and organization around "chains of business operations" (Reijers, 2006), what Porter calls value chains (1985), rather than traditional hierarchies along functional lines. Thus, a process-oriented organization

is one that “in all its thinking, emphasizes process as opposed to hierarchies with special emphasis on outcomes and customer satisfaction” (McCormack & Johnson, 2001). The degree of process orientation can be measured using ‘maturity continuums’ such as the Capability Maturity Model Integration (CMMI) developed at Carnegie Mellon or the Business Process Orientation Maturity Model (BPOMM) developed by McCormack & Johnson (2001).

Business Process Management and Organizational Performance

The prescriptive business process management literature claims there is a positive causal relationship between business process management and organizational performance, with the direction of causality extending from business performance management to organizational performance. Such a claim is reinforced by reports of Motorola, General Electric, Allied Signal (now Honeywell), Dow, the Department of Defense and other organizations having saved billions of dollars subsequent to the implementation of Six Sigma and other business process management systems (Basu & Wright, 2003; Giuda, 2012; Harry & Schroeder, 2006; Pande, Neuman, & Cavanagh, 2000). The academic literature is less conclusive given the lack of robust empirical research investigating the relationship between the two constructs (Kohlbacher, 2010; Vest & Gamm, 2009).

While the evidence may be scarce, it is reasonable to postulate that the more an organization optimizes its processes, the better it will perform, assuming its processes are aligned with its strategic objectives and its strategic objectives are

sound. In fact, though limited, there is empirical evidence to support this hypothesis. McCormack and Johnson found a “surprisingly strong relationship between BPO and overall performance” (2001), with business process orientation explaining 27.9% of the variance in organizational performance (McCormack & Johnson, 2001). Several years later, in a study investigating the relationship between process orientation, as demonstrated by ISO 9000 certification, and organizational performance, Sharma found process orientation to be positively associated with organizational performance and that the majority of improvement was derived from operational efficiencies (Sharma, 2005). More recently, in a study of private sector firms operating in a transitional economy, Skrinjar et al. determined that “business process orientation leads to better non-financial performance and indirectly to better financial performance (Skrinjar, Bosilj-Vuksic, & Indihar-Stemberger, 2008).

Use of Business Process Management by Hospitals

Business process management is alive and well in healthcare. Lean, Six Sigma, and their Lean Six Sigma (LSS) variant have been adopted widely across the healthcare industry and within the hospital setting. Over a 10-year period between January 1999 and June 2009, 177 studies on Lean Six Sigma in the healthcare industry were published, with 70% focusing on Six Sigma, 23% focusing on Lean, and 7% focusing on Lean Six Sigma (Dellifraigne, Langabeer II, & Nembhard, 2010). Three years later, the number of articles published since January 1999 had risen to

310, and Lean Six Sigma accounted for 23% of the published studies (Dellifrairie, Wang, McCaughey, Langabeer II, & Erwin, 2013).

One of the earliest and best-known process management success stories in healthcare is that of Virginia Mason Medical Center (VPMS). VPMS is a 336-bed private, not-for-profit hospital located in Seattle, Washington (Virginia Mason Medical Center, 2013a). In 2002, the organization implemented an adapted version of the Toyota Production System, which it refers to as the Virginia Mason Production System (Kenney, 2010; Virginia Mason Medical Center, 2013b; Weber, 2006), the first medical center to do so at the system level (Virginia Mason Medical Center, 2013b). As a result of its efforts, the organization has been able to reduce the number of steps that nurses take per day by nearly 90% (Weber, 2006), increase the amount of nursing time spent on direct patient care to more than 90% (Weber, 2006), reduced inventory costs by 51% (Weber, 2006), realized cumulative net savings of at least \$12 million (Weber, 2006), and improve productivity in a variety of areas (Kenney, 2010).

Despite the apparent success of the Virginia Mason Medical Center, the evidence that Lean Six Sigma its variants improves healthcare quality or hospital operations remains elusive (Dellifrairie et al., 2010; Dellifrairie et al., 2013). This is because virtually all of the published studies lack the scientific rigor required to establish an empirical relationship between LSS and organizational performance (Dellifrairie et al., 2010; Dellifrairie et al., 2013; Vest & Gamm, 2009), be it clinical or operational.

2.6. Individual-Level Devices

At the individual level, performance management focuses on the achievement of individual objectives for the benefit of a work group, department, or the organization as a whole (Brudan, 2010). Organizations commonly use performance appraisals and pay-for-performance to manage performance at this level. A much less common practice, though one that has been adopted by TOH and a small number of other healthcare organizations, is rounding, which has its origins in the management by walking around (MWA) management style.

2.6.1. High Performance Work Practices

Human resource management (HRM) is the constellation of policies, practices, and systems employed by an organization to positively influence employees' attitudes, behaviors, and performance (Noe, Hollenbeck, Gerhart, Wright, & Steen, 2005, p. 4). It involves the training and development of individuals within an organization to increase their capacity so they can contribute more effectively to the organization, both as individuals and in teams (F.-H. Lee, Lee, & Wu, 2010). Strategic HRM is the alignment of an organization's HRM function with the organization's strategic objectives in order to achieve superior organizational performance (Bratton & Gold, 1999, p. 37).

High-performance work practices (HPWPs), also referred to as high-performance work systems, high-commitment work systems, high-involvement work systems, and

high-performance HRM are a bundle of strategic HRM practices that are thought to be positively associated with individual and organizational performance (Gittell, Seidner, & Wimbush, 2010). These include practices such as employee selection (Combs, Liu, Hall, & Ketchen, 2006; Gittell et al., 2010), training and development (Combs et al., 2006; Gittell et al., 2010; F.-H. Lee et al., 2010), incentive compensation (Combs et al., 2006; Gittell et al., 2010; F.-H. Lee et al., 2010), performance appraisal (F.-H. Lee et al., 2010), and knowledge management (Gittell et al., 2010), though there is disagreement on the individual components of HPWPs.

High Performance Work Practices and Organizational Performance

The prescriptive HRM literature claims there is a positive causal relationship between HRM practices and organizational performance, with the direction of causality extending from human resource practices to organizational performance (Noe et al., 2005, p. 5). For the most part, these associations, though not necessarily their causal direction, have been confirmed empirically (Boselie, Dietz, & Boon, 2005), correlating high-performance work practices with, amongst other things, decreased turnover (Huselid, 1995; Sun, Aryee, & Law, 2007), improved productivity (Huselid, 1995; Sun et al., 2007), and greater corporate financial performance (Huselid, 1995). High performance work practices are thought to improve employee performance by improving employee knowledge and skill; motivating employees to perform; and empowering them to do so (Huselid, 1995).

Use of High Performance Work Practices by Hospitals

Though HPWPs have been a growing focus of HRM research since the early to mid-1990s, interest in their use by, applicability to, and impact on healthcare organizations is relatively new (Garman, McAlearney, Harrison, Song, & McHugh, 2011). While only a few articles on HPWPs in a healthcare setting have been published, the early results are promising. One study showed that “greater use of a complementary set of HRM practices has a statistically and practically significant relationship with patient mortality” (West, Guthrie, Dawson, Borrill, & Carter, 2006). In another study, HPWPs were associated with increased employee satisfaction and decreased patient service costs that amounted to an average savings of \$1.2 million per facility (J. Harmon et al., 2003). These findings are supported by a recent case study involving five healthcare organizations that found HPWPs may indeed be associated within important employee-level outcomes related to employee satisfaction and turnover as well as important organizational-level outcomes in the areas of quality and patient safety (McAlearney et al., 2011).

2.7. Conclusion

The body of literature on the topic of organizational performance management is relatively small. Few articles focus on the subject of IPMS design or implementation. The few that do fail to provide a universally accepted definition of the IPMS construct. Furthermore, there is obvious disagreement amongst academics and practitioners about constitutes an IPMS, since the core components

vary significantly from framework to framework. Given the lack of an accepted universal definition, it is not surprising that there is little empirical evidence that such systems are associated with organizational performance, in the healthcare sector or elsewhere. Furthermore, even in the more mature management literature, there are mostly equivocal findings regarding the value of the individual components thought to constitute an IPMS. Yet, organizations continue to pursue their implementation, with hospitals and other healthcare organizations being recent adopters.

Performance measurement, considered to be a core component of IPMSs, is alive and well in healthcare. Hospitals, which tend to be data rich but information poor, are working to harness the power of the data they collect by defining performance measures that focus on what are thought to be important process and outcome measures related to patient safety and quality of care. However, there remains widespread disagreement on what these measures are, how they should be defined and thus how they are measured.

3. Methodology

3.1. Method

This study adopted the case study method to examine the recent and ongoing implementation of an IPMS at TOH, a publicly funded academic health sciences center located in Ottawa, Ontario, Canada. At 1,149 beds (The Ottawa Hospital, 2013a), TOH is one of Canada's largest hospitals (Canadian Healthcare Association, 2013). Its role as a focal point for tertiary care in eastern Ontario helps make it the busiest academic health sciences center in the country (The Ottawa Hospital, 2010a), with approximately 158,000 emergency visits, 48,000 patient admissions, 34,000 surgical visits, and 1,050,000 ambulatory care visits annually (The Ottawa Hospital, 2013a). Additional information about TOH and its IPMS is provided in Appendix 2. Information about its strategic goals and objectives is provided in Appendix 3.

The case study method was adopted because this method excels at investigating complex, contemporary phenomena within their real-life context (Yin, 2008). Since little is known about the implementation of IPMSs, the case study is the ideal method for investigating the concepts and themes associated with the four research questions.

The case study is based on a single case because the implementation of an IPMS in a hospital setting within a public healthcare system is a rare event. Thus, TOH

represents what Yin refers to as a unique and revelatory case (2008). Its importance makes it worthy of investigation, particularly while the individual and shared experiences of TOH's senior managers remains fresh in their minds. Finding additional cases in a timely manner was deemed unlikely and the additional data was not necessary to answering the research questions. Additional information about the case study method is provided in Appendix 4.

3.2. Data Collection Strategies

A concurrent mixed methods approach was adopted for this study. Using this approach, qualitative and quantitative data were collected simultaneously so that they could be analyzed and considered in tandem. Synthesizing qualitative data and quantitative data allows for a deeper analysis that provides a better understanding of the phenomenon under investigation than either form of data can achieve on its own (Creswell & Plano Clark, 2006). Additional information about the mixed methods approach is provided in Appendix 7.

3.2.1. Qualitative Data Collection

Interviewing is one of the most important methods of gathering data, particularly when the research design involves case studies (Guest, MacQueen, & Namey, 2011). A focused, semi-structured interview was used to collect qualitative data from the TOH senior management team to ensure that key questions would be asked and answered within the time allotted for each interview (60 minutes), while

allowing participants sufficient latitude to discuss whatever they felt pertinent on the topic of IPMS implementation. Additional information about research interviews is provided in Appendix 5.

The interview questionnaire was developed using an iterative approach that began with a literature review and ended with pilot testing. The questionnaire can be found in Appendix 8. A detailed account of its development is provided in Appendix 9.

Based on the findings of the literature review, the interview questionnaire was structured around Ferreira and Otley's framework for performance management systems analysis (2009). Other questions were added to investigate senior managers' perceptions about the implementation of TOH's IPMS. Additional information about Ferreira and Otley's framework is provided in Appendix 16.

3.2.2. Quantitative Data Collection

Online surveys were used to collect quantitative data from four distinct groups of healthcare leaders:

- TOH frontline and middle managers;
- TOH physician leaders;
- TOH senior managers; and,
- chief administrators of Canadian hospitals.

The surveys were designed to collect quantitative data to inform and add context to the qualitative data gathered from the interviews the impressions and the propensity of managers and medical leaders to use TOH's IPMS. The online medium was chosen because it was the most efficient and effective means for administering the survey and it enabled potential participants to complete the survey at a time and location of their choosing. This ease of access was thought important to achieving a satisfactory response rate. Additional information about surveys is provided in Appendix 6. The survey instrument is discussed in Section 3.2.4.

Similar to the interview questionnaire, the online survey questionnaires were developed using an iterative approach that began with a literature review and ended with pilot testing. The questionnaires can be found in Appendix 10 (TOH frontline and middle managers), Appendix 12 (TOH medical division and department heads), and Appendix 14 (TOH senior managers). A detailed account of their development is provided in Appendix 11 (TOH frontline and middle manager), Appendix 13 (TOH medical division and department heads), and Appendix 15 (TOH senior managers).

Three of the surveys, those administered to TOH leaders, were based on research by de Waal that identified 19 factors that influence performance management system implementation and use (2003). Other questions were added to capture demographic data and as well as data about the respondents' attitudes toward and behaviors associated with TOH's IPMS. Minor differences between the surveys were designed to focus respondents' attention toward IPMS utilization by other

leadership groups. Additional information about de Waal's research into the factors for the successful implementation and use of performance management systems is found in Appendix 17.

The survey questionnaire for chief administrators of Canadian hospitals was designed without the benefit of a preexisting framework or survey instrument as no such reference was identified during the literature review. All online surveys created with and administered through FluidSurveys (www.fluidsurveys.com). Fluid Surveys is a Canadian-owned online survey solution that enables researchers to create and administer online surveys, and analyze survey data. All data collected through FluidSurveys is stored on their servers, which are located in Canada (FluidSurveys). This is important given data privacy concerns arising from the implementation of the USA PATRIOT Act, which "allows U.S. officials to access information about citizens of other countries, including Canada, if that information is physically within the United States" (Government of Canada, 2006).

All surveys were password protected. This insured that only the intended potential respondents could access and complete the survey. In all cases, potential respondents were sent the link to and password for the respective surveys via email.

3.2.3. The Sample

Purposive sampling was used to recruit participants for the interviews. This was done to ensure that any senior manager with significant firsthand knowledge of and

experience with the implementation of TOH's IPMS would be included in the study and those with limited knowledge and experience would be excluded.

The researcher collaborated with TOH's executive sponsor of this thesis to identify potential participants with the requisite knowledge and experience. In total, 11 senior managers were thought to meet the knowledge and experience criteria. TOH's executive sponsor sent these individuals an email announcing the research project, copying the researcher on the email. The researcher subsequently contacted all 11 individuals to request an interview lasting approximately 60 minutes. This time estimate was based on piloting of the interview questions. Nine (81.8%) of the targeted senior managers accepted the request for an interview. Each participant was sent a copy of the study proposal, the consent notice and form, and survey questions at least one week in prior to the interview. Of the two (18.08%) senior managers who declined the request for an interview, one cited an inflexible work schedule and the other a lack of knowledge of or experience with the implementation of TOH's IPMS.

Data collection for the interviews began on Monday, 8 April 2013 with the first interview and ended on Wednesday, 19 June with the last interview. The average duration of each interview was 69 minutes ($s = 19.6$ minutes). The shortest interview was 45 minutes and the longest interview was 105 minutes.

Interviews were recorded using a Sony ICD-AX412B digital voice recorder. All questions and answers were recorded. Field (probe) notes were taken during each

interview. The field notes were used to prompt the researcher to ask follow-up questions as appropriate.

Though the research protocol allowed for follow-up interviews, they were not required.

3.2.4. Surveys

TOH Frontline and Middle Manager Survey

All TOH frontline and middle managers were eligible to participate in the TOH frontline and middle manager survey, obviating the need for sampling. A frontline manager was defined as any person who appears on TOH's #Managers email distribution list. These are managers, supervisors, and other personnel in frontline leadership positions, who generally report to a manager or director. A middle manager was defined as any person who appears on TOH's #Directors email distribution list. These are directors who report to vice-presidents or senior vice-presidents in the organization. In total, there were 342 potential participants. TOH's executive sponsor sent an email to these individuals inviting them to complete the survey, using text prepared by the researcher. The email included a link to and password for the survey. In addition to the original email, at the request of the researcher, TOH's executive sponsor sent three reminder emails to potential respondents while this survey remained open.

Data collection for the TOH frontline and middle manager survey began on Friday, 1 March 2013 with the launch of the survey. The first response was submitted on Friday, 1 March 2013. The last response was submitted on Sunday, 26 May 2013. The survey was closed on Friday, 31 May 2013. In total, 130 (38.0%) of the 342 potential participants completed the survey.

TOH Medical Division and Department Heads Survey

All TOH medical division and department heads were invited to complete the TOH medical division and department head survey, obviating the need for sampling. A medical division head was any person, other than administrative staff, who appears on TOH's #Medical Division Heads email distribution list. A medical department head was any person, other than administrative staff, who appears on TOH's #Medical Department Heads email distribution list. In total, there were 59 potential participants, all but one of whom was a physician. TOH's executive sponsor sent an email to these individuals inviting them to complete the survey, using text prepared by the researcher. The email included a link to and password for the survey. In addition to the original email, at the request of the researcher, TOH's executive sponsor sent three reminder emails potential respondents while this survey remained open.

Data collection for the TOH medical division and department head survey began on Friday, 1 March 2013 with the launch of the survey. The first response was submitted on Monday, 4 March 2013. The last response was submitted on Sunday,

19 May 2013. The survey was closed on Friday, 31 May 2013. In total, 26 (44.1%) of the 59 potential participants completed the survey.

TOH Senior Manager Survey

All interview participants were invited to complete the TOH senior manager survey. In total, there were 9 potential participants. The initial invitation to complete the survey was sent by the researcher as part of the interview request, which is described above. That email included a link to and password for the survey. In addition to the original email, the researcher sent two reminder emails to potential respondents while this survey remained open.

Data collection for the TOH senior manager survey began on Monday, 1 April 2013 with the launch of the survey. The first response was submitted on Tuesday, 22 April 2013. The last response was submitted on Tuesday, 22 July 2013. The survey was closed on Sunday, 4 August 2013. In total, 7 (77.7%) of the 9 potential participants completed the survey.

3.3. Data Preparation

3.3.1. Interviews

Upon completion of each interview, the researcher uploaded the audio file of the interview to a FIPS 140-2 level 3 compliant (256 bit encryption) USB drive and, after

reviewing the audio file to ensure it was intact, deleted the original file from the digital voice recorder. The audio file was then transcribed verbatim to a text document using Microsoft Word for Mac 2011. Field notes were securely stored to prevent unauthorized access to the documents.

Prior to coding, each transcript was reviewed at least twice while listening to the audio account of the interview. All known transcription errors were corrected in the transcript. As a final measure of assurance, each participant was given a copy of his or her interview transcript. They were asked to review the transcript and to contact the researcher if they had any concerns regarding the transcription. One participant contacted the researcher, however their inquiry did not concern the accuracy of the transcription. None (0%) of the participants elected to withdraw from the study.

Once all of the interviews were transcribed and validated, the transcripts were uploaded to Nvivo 10. NVivo is computer-assisted qualitative data analysis software (CAQDAS) published by QRS International. The researcher then reviewed each transcript to develop a deeper understanding of the narrative data. A preliminary list of relevant concepts and themes was developed during this exercise. A concept is a word, term, or phrase that represents a broad idea (Rubin & Rubin, 2012). In contrast, a theme is a statement or conclusion that explains what or why something happened, and “normally show[s] the relationship between two or more concepts” (Rubin & Rubin, 2012). Each relevant concept and theme was assigned a code and a coding manual was developed.

Two coders were hired to code the interview transcripts. Prior to coding, each coder received explicit instructions from the researcher on how to code the concepts and themes within the transcripts. Each coder was given his or her own 'coding package', which consisted of a hardcopy of the coding manual, a hardcopy of each anonymized interview transcript, and a color-coded highlighter. The coders worked independently, using the coding manual to identify key concepts and themes within the transcripts. As key concepts and themes were encountered, the coders highlighted the text, using a color-coded highlighter, and placed annotations in the margins of the transcript to record the code assigned to the highlighted text. The researcher then transferred each coder's work into NVivo 10, taking some liberties regarding what text to include as part of the node but never changing the coding itself. This was to ensure that sufficient text was available to analyze nodes that were queried in the analysis phase.

Intercoder reliability was measured after each coder finished coding the first two questions of all nine interviews. Intercoder reliability is "a measure of agreement between multiple coders about how they apply codes to the data" (Kurasaki, 2000). The measurement of intercoder reliability is critical because "high degrees of intercoder agreement indicate that multiple coders are applying the codes in the same manner and are thus acting as reliable measurement instruments" (Ryan, 1999). NVivo calculates intercoder reliability using Cohen's Kappa. Intercoder reliability after the first two questions was 100% ($K=1$). Coding resumed and the final intercoder reliability for all coded questions ranged from 0.86 to 1.

3.3.2. Surveys

The survey data collected through FluidSurveys were exported to IBM SPSS Statistics 21. The variable names, types, labels, and measure were reviewed and modified as appropriate. Missing values also were identified and coded appropriately. The data were then reviewed to ensure it had not been corrupted during the export process. This was done by comparing the SPSS data points to the same data points in a spreadsheet created from a second export of the data using Excel 2011 for Mac. This comparison showed that all data were intact. Missing data were excluded from the study (the imputation of missing values was not attempted).

3.4. Data Analysis

3.4.1. Qualitative Data

Qualitative data were analyzed using NVivo 10. First, the coded concepts were reviewed and collated into potential themes (Braun & Clarke, 2006). Next, the potential themes were then compared to the coded abstracts to ensure the themes fit with the concept (Braun & Clarke, 2006). Finally, the themes were analyzed and refined and clear names and definitions for each theme were produced. The results of the qualitative data analysis are presented in Section 4.

3.4.2. Quantitative Data

Quantitative data were analyzed using IBM SPSS Statistics 21. Basic statistical values were calculated for each variable, including frequency, mean, and standard deviation as appropriate. Additional statistical analyses were performed however advanced statistical methods are beyond the scope of this study. The results of the quantitative data analysis are presented in Section 4.

3.5. Ethical Considerations

All research was conducted in accordance with the policies and guidelines established by the University of Ottawa's Office of Research Ethics and Integrity. This included the submission of a research proposal to the Social Sciences and Humanities Research Ethics Board (REB) given the involvement of human subjects. Support for the study was obtained from TOH and a letter of support from the hospital was included as part of the REB application. REB approval was received on Thursday, 24 January 2013. The online surveys were not launched until after REB approval was received. The researcher consulted with his thesis supervisors on a variety of ethical matters throughout the study, both before and after REB approval was received.

A research consent notice and form was sent to each potential interview candidate at least one week prior to their interview. The consent notice is included in Appendix 18. It explained, amongst other things, the purpose of the study, its benefits, and

the respondent's rights and protections. Express consent was obtained at the beginning of each interview. Interviewees were informed that the interview was being recorded and that they would be given the opportunity to review the transcript of their interview prior to the thesis being submitted for defense. The consent notice informed respondents that they could withdraw their data at their discretion. None elected to do this.

A research and consent notice appeared at the beginning of each online survey. The consent notices can be found in Appendix 19 (TOH frontline and middle managers), Appendix 20 (TOH medical division and department heads), and Appendix 21 (TOH senior managers). The consent notices explained, amongst other things, the purpose of the study, its benefits, and the respondent's rights and protections. Tacit informed consent was obtained from all online survey respondents from their decision to complete the survey. The consent notice informed respondents that, due to the anonymous nature of the online survey, they could not withdraw their data from the study after completing the online survey because it was not possible for the researcher to identify their responses.

The anonymity of survey respondents was guaranteed and protected at all times in the hope that this would encourage participation in the online surveys and interviews and, furthermore, that it would promote more candid responses from participants. As a result, this study does not reveal the source of statements or opinions quoted herein.

4. Results

4.1. Introduction

This section presents the results of the qualitative and quantitative data analyses. It should be noted that, in some instances, respondents' quotes have been edited for the sake of clarity, brevity, grammatical correctness, readability, or to ensure the anonymity of the respondent or, in several cases, of another employee or physician. In each instance where this occurs, care has been taken to ensure that the edited quote remains faithful to the respondent's verbal response and the transcript thereof.

The qualitative analysis addresses the following questions:

Q1: What factors motivate Canadian healthcare leaders to implement an IPMS in a hospital setting?

Q2: What are the critical components of an IPMS in a hospital setting?

Q3: What challenges do Canadian healthcare leaders face when implementing an IPMS in a hospital setting?

Q4: How can Canadian healthcare leaders overcome or altogether avoid the challenges of implementing an IPMS in a hospital setting?

The quantitative analysis examines impressions and the propensity of managers and medical leaders to use TOH's IPMS.

4.2. Motivations for Implementing an IPMS in a Canadian Hospital

Eight (88.9%) of the nine interview participants were asked about the senior management team's motivations for implementing an IPMS at TOH. The respondents offered numerous reasons, which were categorized into seven themes, three of which contained two or more subthemes. Only those themes and subthemes common to two or more interviews are reported. The themes and subthemes are presented in Table 1.

Note: The anonymized source for qualitative data is included at the end of each quote using alphanumeric coding. For example, R1 refers to Respondent 1, R2 refers to Respondent 2, etc. The anonymization scheme remains consistent throughout the study, so quotes attributed to a given respondent in one section can be attributed to the same individual in other sections.

Table 1: Motivating Factors for Implementing an IPMS at TOH

Theme	Response Frequency
<i>Performance Issues</i>	7 (87.50%)
Negative patient and family feedback	7 (87.50%)
Lack of performance measures	4 (50.00%)
Third party evaluation	2 (25.00%)
<i>New Strategic Direction</i>	7 (87.50%)
New vision and mission	4 (50.00%)
New strategic goal	4 (50.00%)
CEO direction	3 (37.50%)
Board of Governors expectations	3 (37.50%)
<i>Data Challenges</i>	3 (37.50%)
Lack of robust data	3 (37.50%)
<i>Existing Performance Initiatives</i>	3 (37.50%)
Benchmarking initiatives	3 (37.50%)
<i>External Pressures</i>	2 (25.00%)
New funding models	2 (25.00%)
<i>IT Enablers</i>	2 (25.00%)
IT infrastructure in place	2 (25.00%)

4.2.1. Performance Issues

Negative Patient and Family Feedback

Many respondents reported negative patient and family feedback as being the most important motivating factor for the implementation of an IPMS. One respondent suggested it was, in fact, the most important reason for the undertaking:

“Number one was patient feedback. You’ve heard of the famous letter? It was the letter that really tugged at your heartstrings but also made you think this is happening too much.” (R3)

Other respondents agreed that *The Letter*¹ was pivotal to TOH’s decision to implement an IPMS because it represented a larger issue, providing a burning platform so to speak:

“I think it was the patient’s letter, the famous letter, but I think we were receiving so many complaints from patients and families around that time that we said there’s no way we can continue to manage the organization this way... we have to do something. I think that it was the ‘burning platform’.” (R4)

“One of the other things that I think really motivated us were the letters that we received from patients, and I think that was the kicker for us to say world-class care for ‘every patient, every time’.” (R6)

“We use the letter as a rallying cry. Sometimes it takes that to put you over the edge... to say enough is enough.” (R7)

¹ The Letter refers to a letter submitted by a patient’s husband about the lack of compassion his wife was shown while being treated at TOH for a broken hip. The letter deeply affected TOH’s management team. An excerpt is provided in Appendix 2.

Lack of Performance Measures

Several of the respondents reported the lack of robust performance measurement was a significant motivating factor for the implementation of an IPMS at TOH. As bluntly noted by one respondent:

“You need to measure metrics to manage performance.” (R3)

This viewpoint was shared by others, one of whom said:

“If you don’t have performance measures and an associated target, then you’re not evaluating yourself and you really can’t say you’re improving performance... you really can’t say whether or not you’re doing well.” (R5)

Third Party Evaluation

Respondents also mentioned that third party evaluation reinforced the need for an IPMS to guide the organization along its Journey to Excellence. Shortly before the inception of TOH’s IPMS, an associate professor from Harvard was invited by the hospital’s senior management team to come and evaluate the hospital’s performance. At the end of the visit, the professor informed TOH’s senior management team that the hospital, though doing well, was an average performer. This clearly did not sit well with TOH’s senior managers, one of whom said:

“So we have this gentleman from Harvard come to evaluate us and he says ‘you’re probably average’. Well, most of us, to get to where we are today, have never been average so when somebody says you’re average, you say okay, how do we become the top ten?” (R7)

Another respondent stated the associate professor’s evaluation of TOH’s performance was a rallying cry for the implementation of an IPMS to help manage and improve the hospital’s performance:

“We saw this one gentleman in Toronto and he was talking about patient safety. He was an adjunct professor at Harvard and he was linked with University Health Systems consortium out of Chicago. He looked at what were the factors that drove and enabled organizations, one of which was performance management and understanding the data and working towards that. He came up and said ‘well, you’re doing okay but you’re average’, so that really started us on that journey significantly.” (R1)

4.2.2. New Strategic Direction

New Vision and Mission

While the mission statement, which includes vision, mission, and values, is a component of an IPMS, several respondents noted that the development of a new mission statement provided an important opportunity to implement an IPMS.

Respondent 6 noted that TOH’s Journey to Excellence, which is inextricably linked to TOH’s vision and mission, “pushed them along” the path to an IPMS. Others agreed:

“I’d say the key thing was at the time we were going to change our vision.” (R5)

“I think it was, again, going back to the need for a new vision.” (R9)

New Strategic Goal

The Ottawa Hospital’s vision is operationalized into one overarching strategic goal: to become a top 10% performer in quality and patient safety in North America. Again, several respondents observed that an IPMS was key to helping the hospital achieve this goal. This was emphasized by *Respondent 9* who noted that an IPMS would help TOH to be far more consistent at providing “high quality and safe care to each and every patient.”

CEO Direction

Some respondents also mentioned the importance of the CEO as a driver of the development and implementation of TOH’s IPMS. As one respondent said:

“It starts with the leader, at Jack’s level, I mean the CEO. That’s where Jack’s strength is, vision in terms of trying to go to the next level.” (R7)

Others concurred, noting:

“Dr. Kitts (TOH’s CE) was a visionary in this regard.” (R4)

“Dr. Kitts (TOH’s CEO) was instrumental. He kept saying I want this” so that we can deliver exceptional care to “every patient, every time.” (R6)

Board of Governors Expectations

Some respondents recognized that the Board of Governors also played an important role in the conception of an IPMS at TOH, as illustrated by these responses:

“Some of it was driven by board expectation because our Board is very driven by metrics. The members of the Board of Governors was driving us more and more to show them the evidence, the data.” (R6)

“It was many things, one of them being a strong Board of Governors.” (R2)

4.2.3. Other

As presented in Table 1, four other themes were associated with the decision to implement an IPMS at TOH: data challenges; existing performance initiatives; external pressures; and information technology (IT) enablers.

Data Challenges

A few of the respondents identified the lack of robust data as an important reason for undertaking the development of an IPMS. As noted by one respondent, TOH was not alone in this regard; it is an issue for many, if not most, hospitals:

“Three or four years ago, if anybody asked us, ‘do you provide quality and safe care,’ we would say ‘yes, of course we do’ but how did we know that? How do you measure it? We would have been much more challenged to report upon how safe and on the quality of care that we provided. And it wasn’t just us, I think every hospital was in the same boat.” (R9)

Existing Performance Initiatives

Others emphasized the contribution of existing performance initiatives to the desire for a more comprehensive and holistic performance management solution, such as an IPMS, as illustrated by this response:

“We were starting to compare ourselves to other organizations, nationally and internationally, against metrics and then once you do that, then you’re in to performance management. So I think it was a sense of all of those things coming together at the same time.” (R2)

External Pressures

A couple respondents also mentioned Ontario's new funding model for some patient populations as having a positive impact on the implementation of an IPMS. One respondent stated:

"From what I can see and what I hear from my colleagues at other hospitals in Ontario, the budget constraints, the way that the Ontario government has changed how they're going to fund hospitals, it's no longer going to be about the number of beds that are or aren't occupied, but rather, it will be about the quality of care we provide." (R4)

Information Technology Enablers

Last but not least, having the requisite IT infrastructure in place was cited as an important factor some respondents, one of them noting:

"We've focused on what we needed to do to get here so we invested in information systems and technology that allowed us to get the metrics that allowed us to manage performance." (R3)

Putting the necessary IT infrastructure in place can be a considerable challenge for Canadian hospitals, as illustrated by this response:

"We spent the first ten years of our existence trying to get on top and most was financially driven just in terms of getting processes in place, systems in place." (R7)

4.3. Critical Components of an IPMS

Eight (88.9%) of the nine interview participants were asked about the critical components of TOH's IPMS. The respondents identified numerous items. These were categorized into seven themes, two of which contained two or more subthemes. Only those themes and subthemes common to two or more interviews are reported. The themes and subthemes are presented in Table 2.

Table 2: Core Components of TOH's IPMS

Theme	Response Frequency
<i>Performance measurement</i>	8 (100.00%)
Data, robust	6 (75.00%)
Performance measures	3 (37.50%)
Data, granular	3 (37.50%)
<i>Benchmarking</i>	3 (37.50%)
<i>High performance work practices</i>	3 (37.50%)
<i>IT systems</i>	3 (37.50%)
<i>Alignment mechanisms (unspecified)</i>	2 (25.00%)
<i>Performance-oriented culture</i>	2 (25.00%)
<i>Strategic planning</i>	2 (25.00%)
Vision and mission	2 (25.00%)
Strategic goal	2 (25.00%)

4.3.1. Performance Measurement

Robust Data

All of the respondents agreed that robust data was a fundamental component of an effective IPMS. As this response notes:

“The data needs to be available, reliable and timely. It’s all about the data. Physicians and staff are driven by data and if it’s accurate data, they will change practice because they want to be better than their colleague.” (R6)

Other respondents made similar statements about the importance of robust data in the context of an IPMS:

“We need robust and accurate data because, to motivate clinicians, they need to know that the data that we’re using is accurate, reliable, reproducible.” (R9)

“One critical component to me is having good data... the critical component to me is good data.” (R7)

Performance Measures

Members of TOH’s senior management team also made it clear that defined performance measures and associated targets, not just data, were a key component of any IPMS. As highlighted by one respondent:

“You have to have performance measures and targets... you must have explicit metrics and a targets. If you do not have metrics and targets that are explicit, then you can’t gauge your performance” (R5)

Another respondent qualified this by emphasizing the importance of objective rather than subjective performance measures:

“We’re moving towards objective performance measures. We have to remove the subjectivity around performance... we have to look at facts”. (R4)

Granular Data

Rounding out the comments about performance measures is the need for sufficiently granular data so that performance can be measured to an appropriate level of detail, as illustrated by these comments:

“I think when you start spreading down through the various layers of the organization, we don’t quite yet have enough data and enough specificity of the data for the individual to be able to say ‘ok, well here’s your department, here’s your division, here’s you as an individual’ and so we’re only able to percolate that down and we’re not able to really reflect it back and be as tight about it as we could at this point but we’re working towards that end.” (R1)

“The data is now getting down to the individual level as opposed to a hospital level or program/department level, so that’s much more powerful.” (R2)

4.3.2. Other

Respondents identified six other key components of an IPMS: benchmarking; high performance work practices; IT systems; performance oriented culture; and strategic planning.

Benchmarking

Several respondents identified benchmarking as a critical component of TOH's IPMS. According to two of them:

“Benchmarking is the most important part.” (R2)

“We need the ability to benchmark our data against our peers so that we really do know if we’re at the 25th percentile, 50th percentile, or 90th percentile in terms of performance.” (R9)

High Performance Work Practices

Respondents also identified elements of high performance work practices as being significant parts of an IPMS, as this response indicates:

“What is important in a performance management system is that you have performance measurement, that you’re clear about the expectations, and that you support your people as they work towards achieving their goals.” (R4)

Information Technology Systems

IT systems, both from a hardware and software perspective, were deemed critical to an IPMS by some respondents. Respondent 5 stated that a robust IT system was an absolute necessity for performance measurement. Respondent 1 and Respondent 9 emphasized the value of TOH's data warehouse and the central role it plays within the hospital's IPMS.

Performance-Oriented Culture

Respondents also reported that a performance-oriented culture was an important aspect of TOH's IPMS. As noted by one respondent, many people in healthcare are performance-oriented and respond well to a challenge:

"Physicians and staff are driven by data and if it's accurate data, they will change practice because they want to be better than their colleagues." (R6)

The importance of socializing performance is well illustrated by a similar response:

"It starts with a corporate goal and then you have to communicate it. I don't like the word 'buy it' but everybody has to feel that they own it." (R3)

Strategic Planning

As exemplified by the last response, *“it starts with a corporate goal”* (R3), which in the context of performance management, typically speaks to the notion of strategic planning. While only two respondents explicitly identified strategic planning as a fundamental component of TOH’s IPMS, it is likely that others share this opinion. The value of strategic planning is highlighted by both respondents who spoke to this:

“It starts with the vision and goal. We have a vision that is difficult to measure, it’s that every patient be treated like a loved one. But we have a goal that is easy, is measurable and it’s called top 10 percent in quality and safety in North America, so if you don’t have that you’re not sure what you’re going to tell the troops that you’re measuring them on. So, it starts with a corporate goal and then you have to communicate it. Number one is mission, you’ve got to have the goal.” (R3)

“I think it’s a question of having a clarity of vision about where you do want to go and what does it mean. One of the things that we’ve said from the beginning is ‘how are we going to get to the top ten percent and know when we’ve arrived.’” (R1)

Alignment mechanisms were also mentioned as being a necessary component of an IPMS. Indeed, organizational alignment the very purpose of an IPMS – it is what an IPMS is meant to achieve. The importance of alignment as it relates to an IPMS is reflected in this comment:

“You have to put the mechanisms in place to align everybody and you see that’s the skulls rowing. You can’t have people rowing off center or in a different direction, so align everybody.” (R3)

4.4. Challenges of Implementing an IPMS in a Canadian Hospital Setting

All nine (100%) of the interview participants were asked about the challenges they faced in implementing an IPMS at TOH. The respondents identified a number of challenges. These were categorized into four themes, one of which contained two subthemes. Only those themes and subthemes common to two or more interviews are reported. The themes and subthemes are presented in Table 3.

Table 3: Challenges During the Implementation of an IPMS at TOH

Theme	Response Frequency
<i>Creating a Performance-Oriented Culture</i>	7 (77.78%)
Changing the organization's culture	5 (55.56%)
Rationalizing missed targets	2 (22.22%)
<i>Control</i>	2 (22.22%)
<i>Getting the measures and data right</i>	2 (22.22%)
<i>Financial capacity</i>	2 (22.22%)

The following is a description of the performance measurement subthemes given their obvious importance as a challenge to the implementation of an IPMS.

4.4.1. Creating a Performance-Oriented Culture

Changing the organization's culture

When asked about the greatest challenge to date that TOH's senior leaders had encountered, one respondent said:

"Culture. In healthcare, we have a culture of entitlement - people feel entitled to do things their way. We have a culture of optionality, you know, 'that's very good and I like that policy but that's for the people who don't know how to do it and I do it this way.' That's optionality. And then we have a culture of non-accountability because we can rationalize why anything happened: a patient falls, 'that's not my fault, that's the patient's fault; they shouldn't have jumped over the guard rails' or a patient picks up an infection 'that's not my fault, they didn't wash their hands or I didn't wash my hands because I didn't touch the patient.' I mean, that's the culture. So the culture has to be – we have to shift that to focus on the patient experience and appreciate that top 10 percent is the responsibility of each and every person in the organization. Each individual has to know what they have to do and then feel accountable for doing it". (R3)

The challenge that culture change presents was reinforced by others:

"To change the culture. People were very threatened by this. They were very threatened in the beginning". (R6)

"The sort of thinking around certainly hospitals, but I think health care in general, is sit there and wait and when you see something that's broken, fix it. Rather than do preventative maintenance so the chances of something breaking are low. And you're not in fix it mode, you're in maintain it mode. The system is not configured to do that, it's configured to fix things". (R8)

One respondent noted that one reason it was so difficult in the beginning was that members of the organization were concerned about what an emphasis on performance would mean for them:

*“People felt very threatened by this. They felt very threatened in the beginning. We had to change the culture and we wanted to bring about the required changes, but this needs to be done without people feeling threatened and nervous, thinking ‘they’re out for my job’ and whatever, you have to do it in a way that is non-threatening and I think we’ve done that”.
(R6)*

This same respondent noted that this was why it was so important for the organization to adopt a formative, supportive, non-threatening approach to implementing its IPMS, saying:

*“One of the things that has been critical for us and why we have been successful is that we share the data without harsh judgment or condemnation. We post it and discuss it at our LDIs (leadership development forums) and everyone expects it now. When we first started presenting it I’m sure everybody thought, ‘oh God, I’m doing poorly here and are we ever going to get to excel’, but people started feeling proud as our results started to improve. People don’t feel – they’re disappointed, they’re not angry or embarrassed when we miss a target. They say ‘oh my gosh, how can we do better’, and then they call on their colleague and say ‘how the heck is your hand hygiene compliance so much better than mine, why are your patient satisfaction scores so much better...’ They actually see it now as ‘I want to do better and I’m going to touch base with so and so...they see it more as a challenge as opposed to something that they are discouraged or disappointed about. I think the mentality has truly changed”.
(R6)*

Rationalizing Missed Targets

A hallmark of a performance-oriented culture is accountability for individual, group, and organizational performance, be it good or bad. However, several respondents noted that socializing this is difficult, particularly when performance measures are not perfectly aligned and the data is not sufficiently granular:

“It’s easy to say, well that was not me, that must have been one of my colleagues or maybe our measurement tool was not the right one.” (R9)

“If we wanted to, we could rationalize away our inability to hit a target, usually based on some type of regional issue.” (R7)

The respondents noted that concerted efforts are being made at all levels of the organization to ensure that this does not happen.

4.4.2. Control

As the last respondent eluded, hospitals are part of a larger system and thus lack the autonomy enjoyed by private sector firms. Hospitals often are impacted by decisions made elsewhere in the system and this can create issues that make management control and the implementation of an IPMS very challenging, as exemplified by this response:

“It’s almost like we are watching the game and keeping score, but we have no influence over what happens, it’s like watching the Sens lose the seventh game, you can scream as loud as you want but it’s not going to help in terms of the outcome. As opposed to lacing up and getting on the ice and actually influencing - that’s the primary difference in health care”. (R8)

Another respondent echoed this viewpoint:

“We don’t control all the parts of the system, [which makes integration very important because] the healthcare system is not as integrated as one might hope it would be”. (R7)

These and other senior managers raised the issue of control, though the latter in slightly different contexts, hence their exclusion from this section. However, in all cases, the issue of control was presented as a challenge, not an excuse. TOH’s senior leaders perceived an opportunity to demonstrate leadership to address a real and significant challenge within the healthcare system.

4.4.3. Other

TOH’s senior leaders identified two other significant challenges they have encountered to date: acquiring robust data and financial capacity.

Getting the Measures and Data Right

Some respondents stated that collecting and disseminating the ‘right’ data has been a significant challenge, though one that is getting better. Correctly defining

performance measures and then acquiring the data that accurately and reliably measures these to the proper degree of granularity can seem like a herculean task at times, as demonstrated by this response:

“Getting the data right, making sure it’s accurate. For example, measuring patient satisfaction. We give this a lot of air time. It gets a lot of attention but our sample size is still quite small. Patients complete the survey by mail six to eight weeks after they’ve left the hospital. We know that if they complete on departure the scores are different – they’re better. So, when we have discussions about patient satisfaction, we have a challenge, our people say to us ‘it’s nice to know about the patients that left here three months ago, but I want to know about the patients that we discharged in the past week when I was on service, what was their satisfaction rating?’” (R9)

Financial Capacity

Some respondents raised the issue of financial capacity, though this is something that all of the respondents agreed could be dealt with through careful forethought and planning. *Respondent 5* might have summarized this dichotomy the best, stating: *“Money. It’s always a challenge, but its not money.”*

4.5. How to Avoid or Minimize the Challenges

4.5.1. What Has Worked Well

All nine (100%) of the interview participants were asked what had worked well thus far in the implementation of TOH’s IPMS. The respondents identified a number of

important practices. These were categorized into nine themes. Only those themes common to two or more interviews are reported. The themes are presented in Table 4.

Table 4: What Has Worked Well with IPMS Implementation at TOH

Theme	Response Frequency
<i>Having common goals</i>	4 (44.44%)
<i>Openly discussing performance</i>	4 (44.44%)
<i>Having courageous and resilient leadership</i>	3 (33.33%)
<i>Obtaining expert guidance</i>	2 (22.22%)
<i>Having the right people</i>	2 (22.22%)
<i>Developing leaders</i>	2 (22.22%)
<i>Linking outcomes with performance measures</i>	2 (22.22%)
<i>Benchmarking</i>	2 (22.22%)
<i>Being a leader</i>	2 (22.22%)

Having Common Goals

The goal of an IPMS is to align the organization. This is achieved, at least in part, by aligning goals, objectives, and performance measures. Almost half of the respondents mentioned that having a specific, overarching goal for the organization, one that could be used to derive lower-tier goals, was helpful early on in the IPMS implementation:

“I think it’s been facilitated a lot by having that top ten percent goal because we quantify the goal to say top ten percent, so having an ability to measure

and manage links very well with that. If we hadn't set that goal and we just had our vision statement, which focuses our attention toward providing each patient with the world class care, exceptional service and compassion that we would want for our loved ones, it might have been harder to get people to say 'ok, what do we mean by world class care.' Well we mean top ten percent. So, I think that's helped with that." (R9)

Other respondents reinforced this notion. Furthermore, it was suggested that there was a need to tie lower-tier objectives to the organization's overarching goal, as illustrated by this comment:

"I think one plan (the overarching goal) for all the organization. I think that's worked well. We're tying up our performance measurement and the development [of our IPMS] to that." (R1)

Another respondent noted that common goals have worked well to stimulate dialogue about performance across the organization:

"I think the conversation about shared goals. We've made them explicit and people are talking about them." (R2)

Openly Discussing Performance

As stated in the last response, performance is openly discussed at TOH. TOH's senior leaders felt that open, honest conversations about performance were important to have at all levels of the organization. As one respondent said:

“Every three months we get together and we give a state of the union. Here’s where we said we were going be, here’s where we are, and let’s talk about how we’re going to get there. We reaffirm the mission, vision, values, and targets, and what we’re doing to get there. We report it publicly, which is a whole new level of accountability. We talk about what’s working and what’s not working.” (R3)

The importance of openly discussing performance, including less than optimal results, is illustrated by another response:

“One of the key ingredients to this thing is transparency. You can’t hide and you know what, if you’re not performing well, just put it out there. It’s always better to disclose it - we haven’t done as well as we had hoped and this is what we’re going to do to improve it.” (R2)

One of the respondents noted that having open and honest conversations about performance had been an important part of fostering cultural change and working towards developing a performance-oriented culture:

“From the behavioral change aspect. With the LDI, we’re trying to have people share observations using these techniques to change their behaviors, what they found worked, what they found didn’t and make people feel like they’re part of a community.” (R8)

Courageous and Resilient Leadership

As noted by one respondent, the implementation of an IPMS “is not for the faint of heart” (Respondent 2). It is a long process that requires bold, courageous leaders.

TOH has benefited from such leadership according to one respondent:

“I think having the nerve as an organization to try something novel, is a testament to the CEO, the Board of Governors, and the medical leadership. It’s a willingness to challenge the status quo.” (R8)

According to another respondent, another important leadership characteristic during the implementation of an IPMS, based on his/her experience is:

“... consistent leadership. Our CEO hasn’t wavered on this. We’re trying to stay on message, so consistency of message, consistent leadership at the Board level, the CEO’s level, has worked well.” (R7)

Obtaining Expert Guidance

It is not uncommon for organizations to take on projects for which they lack the requisite knowledge or skill.

Others

Members of TOH’s senior management team discussed five other practices that had been beneficial in the early stages of its IPMS implementation: having the right people; developing leaders; linking outcomes with performance measures; benchmarking, and being a leader.

Having the Right People

A couple of the respondents also mentioned that having the right people in the right positions was helpful and had worked well for the organization. This comes though in this comment:

“I think and having the right leaders, people who are very knowledgeable, very enthusiastic, and work well across the hospital with nurses, physicians, administrators, pharmacists, logistic people, finance people is very important.” (R1)

Borrowing from Jim Collins (2001, pp. 41-42), another respondent noted how important it was to have *“the right people on the bus... and in the right seats.” (R3)*

Leadership Development

Respondents also emphasized the need for early and ongoing leadership development during the early implementation of an IPMS to prepare all managers and physician leaders for the journey.

Associating Outcomes to Performance Measures

Others noted the importance of explaining why specific performance measures were important. They expressed the need to connect the dots between the measure, current results, and what that meant for patients. For instance, one respondent said:

“Staff are constantly reminded about hand hygiene. Hand hygiene is linked to C-difficile. Connecting the dots for people so that they really understand why you want that goal on their LEM (performance measurement) tool is really important.” (R4)

A further example illustrating the need to personalize performance measures and associate performance with outcomes was provided by another respondent:

“Dr. Kitts (TOH’s CEO) has been able to do that both on the quantitative side but as you know, at the LDIs (leadership development forums), he often uses letters and subjective feedback to say this was or this wasn’t world class care and this will or won’t allow us to get to top ten percent. So translating the numbers into stories and real patient experiences is important as well, and I think Jack in particular has done a very good job at that.” (R9)

Benchmarking

TOH has been involved in benchmarking initiatives for a while and some senior leaders specifically addressed how benchmarking initiatives had helped the organization with its IPMS early on:

“I would say it’s like our IHO group and our NISQP, we are getting such good data now and it’s coming from...like the National Surgical Quality Improvement Program, that’s North American and we’re comparing against all of our peers, so the fact that we’ve been able to participate in some of this – there are very few hospitals in Canada that are supporting NISQP – and we’re the only hospital in Canada that’s working with the Institute for Healthcare Optimization, that team from Harvard for our surgery group. So the fact that we’ve actually engaged some of these groups that have all the evidence and the expertise I think lends itself to say that there is validity and there’s a robustness behind it that just validates why we’ve moved it in this direction.” (R6)

Being a Leader

Interestingly, two respondents mentioned that being a leader, an early adopter, of an IPMS had been a good thing. Recognizing that this is not so much a practice or tactic as much as it is a finite temporal opportunity, both respondents reported that feeling energized and motivated by this circumstance. As noted by one of these individuals:

“I think when you start to see these improvements and you start to be able to profile that you’re ahead of the pack, it’s very rewarding being a leader on this. The interesting thing is, when it’s based on data, considering we’re an academic center, you can actually publish, or you can do things around that to profile yourself as a strong leader in the industry. There’s something very rewarding about that. We’ve had lots of organizations come here to see what we’re doing. It builds energy.” (R5)

4.5.2. Early Mistakes

All nine (100%) of the interview participants were asked what had worked well thus far in the implementation of TOH’s IPMS. The respondents identified a number of areas. These were categorized into three themes, one of which has five closely related subthemes. Only those themes common to two or more interviews are reported. The themes are presented in Table 5. It should be noted that, in all other sections, only those subthemes that are common across two or more interviews are presented. However, due to the stated importance of performance measurement, performance measures, and data that appear elsewhere in this study, an exception

has been made in this case as the related theme is felt to be too important in and of itself to be ignored.

Table 5: Early Missteps with IPMS Implementation at TOH

Theme	Response Frequency
<i>Performance measures</i>	3 (33.33%)
Too many performance measures	1 (11.11%)
Wrong performance measures	1 (11.11%)
Alignment of performance measures	1 (11.11%)
Too many process measures	1 (11.11%)
Data granularity	1 (11.11%)
<i>Physician engagement</i>	2 (22.22%)
<i>Holding people accountable</i>	2 (22.22%)

Performance Measures

Several respondents noted difficulties with performance measures early in the implementation of TOH's IPMS. One respondent noted that, at the beginning, TOH included too many performance measures in its IPMS:

"I think at the beginning we carried far too many indicators, we carried far too many indicators." (R5)

In some cases, the wrong performance measures were chosen:

"I think there are performance measures that, in hindsight, we might say that we picked the wrong goal here or we picked the wrong target there." (R9)

In other cases, even if the performance measures were appropriate in and of themselves, they were not within the scope of the manager's area of responsibility:

"In the beginning some of us were carrying 18 and 19 indicators, and not even accountable for some of them." (R5)

One manager also noted that, early on, there was an overemphasis on process measures rather than outcome measures and, as a result, performance measurement might have been more subjective since efficacy was not necessarily being evaluated:

"I think if we did it again, we wouldn't have carried so many process related indicators" (R5)

The last measurement-related issue raised by the respondents is the lack of sufficiently granular data to measure performance, mostly in the clinical realm, at the level of the individual. As noted by one respondent:

"We're not down to brass tacks yet. We're not down to the individual level. Clearly measuring with good data and metrics all the things that are important to us in the organization." (R2)

Physician Engagement

Physician engagement is an issue across healthcare, so it is not surprising that it factors into the implementation of an IPMS. Several respondents noted that TOH's

physician leaders were not involved as early as they should have been in the design and implementation of the hospitals IPMS, as evidenced by these responses:

“Engaging the physicians – we didn’t engage them as quickly as we did our management team here. Now we’re trying to play catch up and, you know what, we did that out of synch. We should have had them hand and glove with us entirely along the way. We had the department heads at the senior management table but I think they thought ‘this is just everybody else doing this, we get to listen to it but it doesn’t impact me’. But, you know what, it’s now impacting them and they haven’t had the same length of time to get up to speed and assimilate this and think ‘how is this going to impact us?’

We’ve done a disadvantage to them. We really have. That’s what I would say is our biggest gap.” (R6)

Holding People Accountable

Accountability is a defining characteristic of a performance-oriented organizational culture and a cornerstone of performance management in general. TOH consciously adopted a non-punitive approach to the implementation of their IPMS and focused on supporting its leaders early in the process. Greater accountability is being introduced gradually. However, as noted by one respondent, encouraging a more disciplined approach that pushed managers further along the ‘accountability continuum’ would have been beneficial, as reflected in this response:

“We would have created a far more robust way to make sure people had actions and plans to achieve the indicator.” (R5)

4.5.3. Advice to Others

All nine (100%) of the interview participants were asked about important lessons they had learned and advice they would give to peers about to undertake the an IPMS implementation. Respondents were quick to offer advice that might benefit future adopters of IPMSs. This advice was categorized into five themes, three of which contained two or more subthemes. Only those themes and subthemes common to two or more interviews are reported. The themes and subthemes are presented in Table 6.

Table 6: Advice on IPMS Implementation from TOH's Senior Leaders

Theme	Response Frequency
<i>Prepare for the journey</i>	9 (100.00%)
Learn from others	4 (44.44%)
Get the data you need	3 (33.33%)
Invest in IT	3 (33.33%)
<i>Be strategic</i>	6 (66.67%)
Make sure the model fits	3 (33.33%)
Integrate the system	2 (22.22%)
<i>Ensure strong leadership</i>	4 (44.44%)
Consistent leadership	2 (22.22%)
Manage expectations	2 (22.22%)
<i>Engage your people</i>	3 (33.33%)
<i>Don't be timid</i>	2 (22.22%)

Prepare for the Journey

All of the respondents stressed that anyone who is considering implementing an IPMS should prepare for the journey by learning from others, making sure that they will have access to the data they need for the system to be effective, and building a solid IT infrastructure.

Many of the respondents recommended that much could be learned from those who had gone through the implementation experience, potentially allowing new adopters to avoid some of the pitfalls experienced by early adopters:

“I’d suggest that if you haven’t been out there get out and take a look at what others have done and what they’ve learned along the way.” (R5)

“Don’t reinvent the wheel, so learn from others, what they’ve done.” (R9)

Reinforcing the message of ‘not reinventing the wheel’ is this response, which also encourages hospital leaders look beyond the healthcare sector when looking for advice and guidance about IPMSs:

“Look around you, look outside of health care. Open your eyes to the larger world out there. Don’t hesitate to borrow and copy from others.” (R8)

Others emphasized the need to ensure that the required data is available and that it will be carried by the IPMS. This piece though is not just about having the data

though, it's also about having the necessary IT infrastructure to support the performance measurement component of the IPMS:

“Plan in terms of how you’re going to develop that data and the infrastructure you need to create reports and metrics that are going to allow you to drive the change.” (R5)

“Make sure you’ve got very good reliable systems to track and monitor and report the data, and make sure that the data is timely.” (R6)

Be Strategic

Two-thirds of the respondents stressed the importance of adopting a strategic approach to implementing an IPMS. According to the respondents, this entails: choose the right model; have strong leaders; engage people across the organization; and be bold, not timid.

Choose the Right Model

So far, the literature has failed to produce a prescriptive model for IPMSs. Abstract frameworks in the form of business excellence and other types of models, but these are not immensely helpful to practitioners. Some of the respondents underscored the importance of choosing the right model and structuring it appropriately. Two respondents suggested that someone considering an IPMS should:

“... take a look at how you’re structured and who’s going to be responsible and your lines of accountability for running this. Are you structured in the proper manner?” (R5)

“... identify the clear why and how people will be involved, and how important their involvement is. It can’t be add one here and one there to get the numbers up. Everyone needs to know and understand the value of their presence. Ensure that the role of each piece is known and understood in the overall plan.” (R1)

Another respondent emphasized the need to make sure that whatever model is chosen, it has to be adapted for the organization on a case-by-case basis.

“The complexity comes in that a model can’t simply be lifted and then dropped on healthcare [or applied generically to an organization.]” (R8)

Integrate the System

The purpose of an IPMS is to align the across its strategic, operational, and individual levels. Some of the respondents noted the importance of alignment but said that, in order to achieve it, the IPMS must itself be aligned and integrated:

“Align your whole system around what you want to achieve.” (R9)

“I’d basically say bring all the parts together.” (R1)

Provide Strong Leadership

Respondents noted the importance of strong, effective leadership during the implementation phase of an IPMS. Two dimensions of the leadership theme emerged during the qualitative data analysis: consistent leadership and managing expectations.

Consistent Leadership

Some respondents highlighted the need for leaders to be aligned so in order to present a united front and communicate the same information, promoting consistency of thought and action throughout the organization. As noted by these respondents:

“The fact that the senior team is all aligned and on the same page has made it that much easier. So irrespective, if I was talking to a team or someone else, we’re all saying the same thing.” (R6)

“Be ready to be consistent and take the time that’s required. Because it takes so long to do this stuff, the consistency of leadership is pretty crucial on this thing because it’s all about communication.” (R7)

Others indicated that strong leadership was also about managing expectations, realizing that the implementation of something as large as an IPMS is “a process” (R2) that doesn’t happen or produce results overnight. Another said:

“Don’t expect results immediately. Don’t expect huge changes overnight. It’s cultural change and, again, I would argue that in the public sector in Ontario, measuring and managing performance has probably lagged, so you’re not going to change that overnight. You have to be ready for a long journey.” (R7)

Engage Your People

As with any change initiative, change tends to be more successful, longer lasting when it is a shared journey rather than something thrust upon an individual or group. A few of the respondents underlined this point. Two respondents were particularly vocal:

“Consult with your front line managers. Make sure that you get their buy-in because they are the ones who are going to make it work.” (R4)

“It has to be driven by the grassroots, it cannot be top down, because if it is, you’re not going to have engagement.” (R6)

Don't be Timid

At one point or another during each interview, respondents observed that the decision to implement an IPMS is not one that should be taken lightly because it is long, hard work that requires significant time and effort. In direct response to this question, two respondents indicated that this should not be an obstacle, that hospitals should:

“Jump in with both feet.” (R6)

“Do it!” (R2)

4.6. Quantitative Results

4.6.1. Respondents

Three groups of leaders within TOH were asked to complete an online survey as part this study. Response rates ranged from a low of 38% for frontline and middle managers to a high of 77.8% for senior management team members (see Table 7).

Table 7: Survey Response Rates

Item	FMM	MDDH	SMT
Number of potential respondents	342	59	9
Number of complete responses received	130	26	7
Response rate	38.0%	44.1%	77.8%
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team			

Demographic data for the respondents is presented in Table 8.

TOH Frontline and Middle Managers

Most (64.6%) of the respondents were frontline managers and, as expected, the majority were based at the Civic (43.8%) and General (39.2%) campuses, TOH's largest facilities. More than three quarters (76.2%) had a clinical background and 84.9% were university educated. Four out of every five respondents (80%) were female. Just over half (51.5%) were 45 and 54 years of age and 56.1% had been employed as a manager at TOH for more than five years, thus predating the implementation of TOH's IPMS. FMMs who responded to the survey tended to have a large span of control, with 53.8% having 50 or more people reporting to them either directly or indirectly.

TOH Medical Division and Department Heads

Similar to the frontline and middle managers, the majority of medical division and department heads (MDDHs) were based at Civic (34.6%) and General (57.7%)

campuses. All MDDHs at TOH have a clinical background, though this was not captured by the survey and at least 88.4% were university educated. Unlike FMMs, MDDHs were predominantly male (96.2%). Like FMMs, the majority of respondents (65.4%) were 45 to 54 years of age. In contrast to FMMs, only 26.9% of respondents had been in a management position at TOH for more than 5 years, meaning most (73.1%) had been appointed around or after the inception of TOH's IPMS. MDDHs also tended to have a large spans of control, with 34.6% having 50 or more direct and indirect reports.

TOH Senior Management Team Members

All of the respondents were based out of the Civic (57.1%) and General (42.9%) campuses. Only 57.1% had a clinical background, which is significantly lower than in the other TOH survey groups. Respondents were more likely to be male (71.4%) than female (28.6%). Though 28.6% of the respondents were aged 45 to 54 years, the majority (57.1%) were 55 to 64 years of age. All of the respondents were university educated, with a graduate degree being the most commonly attained (85.7%). All but one (85.7%) of the senior management team members had been in a management position with the organization for 10 or more years. Not surprisingly, span of control is greatest at this level in the organization, with 71.4% of respondents being responsible for more than 100 direct and indirect reports.

Table 8: Demographic Data

Item	FMM No. (%)	MDDH No. (%)	SMT No. (%)
Role			
Supervisor	1 (0.8%)		
Manager	84 (64.6%)		
Director	24 (18.5%)		
Medical division / department head		26 (100.0%)	
Vice-President			1 (14.3%)
Senior Vice-President			4 (57.1%)
CEO			1 (14.3%)
Other	11 (8.5%)	0 (0.0%)	1 (14.3%)
No response	10 (7.7%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Campus			
Civic	57 (43.8%)	9 (34.6%)	4 (57.1%)
General	51 (39.2%)	15 (57.7%)	3 (42.9%)
Riverside	6 (4.6%)	0 (0.0%)	0 (0.0%)
Other	16 (12.3%)	2 (7.7%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Background			
Clinical	99 (76.2%)	26 (100.0%)	4 (57.1%)
Non-clinical	31 (23.8%)	0 (0.0%)	3 (42.9%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Gender			
Female	104 (80.0%)	1 (3.8%)	2 (28.6%)
Male	25 (19.2%)	25 (96.2%)	5 (71.4%)
No response	1 (0.8%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Age			
25-34 years	4 (3.1%)	0 (0.0%)	0 (0.0%)
35-44 years	33 (25.4%)	4 (15.4%)	1 (14.3%)
45-54 years	67 (51.5%)	17 (65.4%)	2 (28.6%)
55-64 years	25 (19.2%)	5 (19.2%)	4 (57.1%)
No response	1 (0.8%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Education			
High school	5 (3.8%)	0 (0.0%)	0 (0.0%)
Bachelor's degree	54 (41.5%)	0 (0.0%)	0 (0.0%)
Master's degree	47 (36.2%)	1 (3.8%)	6 (85.7%)
Doctorate degree	8 (6.2%)	22 (84.6%)	1 (14.3%)
Other	15 (11.5%)	3 (11.5%)	0 (0.0%)
Unknown	1 (0.8%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team			
Continued on next page			

Item	FMM No. (%)	MDDH No. (%)	SMT No. (%)
Length of Time in Mgmt Position			
< 1 year	9 (6.9%)	9 (34.6%)	1 (14.3%)
1-2 years	23 (17.7%)	4 (15.4%)	0 (0.0%)
3-5 years	24 (18.5%)	5 (19.2%)	0 (0.0%)
6-9 years	31 (23.8%)	3 (11.5%)	0 (0.0%)
≥ 10 years	42 (32.3%)	4 (15.4%)	6 (85.7%)
I'm not in a management position	1 (0.8%)	1 (3.8%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
Span of Control			
0	2 (1.5%)	1 (3.8%)	0 (0.0%)
1-9	17 (13.1%)	4 (15.4%)	1 (14.3%)
10-24	19 (14.6%)	5 (19.2%)	1 (14.3%)
25-49	22 (16.9%)	7 (26.9%)	0 (0.0%)
50-99	35 (26.9%)	3 (11.5%)	0 (0.0%)
≥ 100	35 (26.9%)	6 (23.1%)	5 (71.4%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team			
Continued from previous page			

4.6.2. Factors Associated IPMS Implementation Success and Use

As noted in Section 3, the surveys administered to all three groups of TOH leaders were based on de Waal's research identifying factors associated with the successful implementation and use of performance management systems. Nineteen items related to de Waal's research were included. Respondents' mean scores for these items are reported in Table 9.

Table 9: Mean Scores and Standard Deviations for Factors Important for the Successful Implementation and Use of IPMS

Item	FMM Mean (SD)	MDDH Mean (SD)	SMT Mean (SD)
Leaders' Understanding			
UND1: Meaning of KPIs	1.82 ** (0.38)	1.04 ** (0.96)	2.00 ** (0.00)
UND2: Processes affect KPI results	1.76 ** (0.51)	0.88 ** (0.99)	1.86 ** (0.38)
UND3: Peers have similar KPIs	1.40 ** (0.92)	0.65 * (1.14)	1.57 ** (0.79)
UND4: KPIs are reasonable and fair	1.12 ** (0.97)	0.74 * (1.24)	2.00 ** (0.00)
Leaders' Attitudes			
ATT1: Positive exp. with PMSs	0.98 ** (0.99)	0.43 * (0.81)	1.71 ** (0.76)
ATT2: Help decide start time	0.62 ** (1.17)	-0.58 (1.31)	1.71 ** (0.49)
ATT3: Realize how KPIs help	1.35 ** (0.87)	0.64 * (1.09)	2.00 ** (0.00)
ATT4: View KPIs as positive	1.42 ** (0.84)	1.30 ** (0.82)	2.00 ** (0.00)
PMS Alignment			
ALI1: KPIs aligned with responsibility	1.16 ** (0.92)	0.71 ** (1.10)	2.00 ** (0.00)
ALI2: Can influence KPIs	0.82 ** (1.09)	0.05 (1.28)	1.71 ** (0.49)
ALI3: KPIs help manage performance	0.98 ** (1.01)	0.59 * (1.01)	2.00 ** (0.00)
ALI4: Involved in data analysis	0.76 ** (1.18)	0.04 (1.40)	1.71 ** (0.49)
Organizational Culture			
CUL1: Performance openly comm.	1.47 ** (0.89)	0.12 (1.45)	1.86 ** (0.38)
CUL2: PMS stimulates improvement	0.80 ** (1.14)	1.00 ** (0.85)	1.86 ** (0.38)
CUL3: Trust in information	0.88 ** (1.10)	0.30 (1.11)	2.00 ** (0.00)
CUL4: See superior using PMS	1.18 ** (1.20)	0.33 (1.53)	1.71 ** (0.49)
CUL5: See SMT using PMS	1.08 ** (1.18)	0.55 (1.44)	1.86 ** (0.38)
PMS Focus			
FOC1: PMS used strategically by org.	1.19 ** (0.91)	1.09 ** (0.92)	1.86 ** (0.38)
FOC2: PMS measures what is important	1.03 ** (0.99)	0.48 (1.16)	2.00 ** (0.00)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team * Significant at the .05 level ** Significant at the .01 level Ratings were given on a five-point scale: -2 = completely disagree -1 = partially disagree 0 = neither agree nor disagree 1 = partially agree 2 = agree			

All items were scored using a five-point Likert scale that had a range from -2 to 2. A score of zero represents neutrality. Positive scores reflect agreement with a scale item while negative scores indicate the opposite. The more extreme a given mean score, the greater the respondents' agreement or disagreement with that item.

The mean scores are all positive except for one item from the MDDH survey (ATT2), which had a mean score of -.56. The one-sample t-test was used to determine whether or not the observed mean scores were significantly different from zero. This proved to be the case for all items on the FMM and SMT surveys. However, eight mean scores from the MDDH survey failed the test at the .01 and 0.5 levels of significance. Four of these items were on that survey's organizational culture subscale.

Though the mean scores are all positive except as previously noted, there is considerable variation amongst the groups. The SMT group has the highest mean scores for every item while the MDDH group has the lowest scores for each item, except for CUL2². The independent samples t-test was used to determine if the mean score differences were statistically significant. This analysis revealed that the mean score differences were statistically significant in 14 of 19 instances between the SMT group and FMM group (see Table 10). When the mean score differences between the FMM group and MDDH group were analyzed, the differences between eight of the 19 items were statistically significant (see Table 11). Finally, as the results show, 15 of the 19 mean score differences between the SMT group and MDDH group were statistically significant (see Table 12).

² The PMS stimulates me to improve my performance

Table 10: Difference Between SMT and FMM Item Mean Scores for Factors Important for the Successful Implementation and Use of IPMS

Item	SMT Mean (SD)	FMM Mean (SD)	Mean Difference	Sig.
Leaders' Understanding				
UND1: Meaning of KPIs	2.00 (0.00)	1.82 (0.38)	0.18	0.002 **
UND2: Processes affect KPI results	1.86 (0.38)	1.76 (0.51)	0.10	0.306
UND3: Peers have similar KPIs	1.57 (0.79)	1.40 (0.92)	0.17	0.690
UND4: KPIs are reasonable and fair	2.00 (0.00)	1.12 (0.97)	0.88	0.009 **
Leaders' Attitudes				
ATT1: Positive exp. with PMSs	1.71 (0.76)	0.98 (0.99)	0.73	0.428
ATT2: Help decide start time	1.71 (0.49)	0.62 (1.17)	1.09	0.025 *
ATT3: Realize how KPIs help	2.00 (0.00)	1.35 (0.87)	0.65	0.000 **
ATT4: View KPIs as positive	2.00 (0.00)	1.42 (0.84)	0.58	0.000 **
PMS Alignment				
ALI1: KPIs aligned with responsibility	2.00 (0.00)	1.16 (0.92)	0.84	0.009 **
ALI2: Can influence KPIs	1.71 (0.49)	0.82 (1.09)	0.89	0.149
ALI3: KPIs help manage performance	2.00 (0.00)	0.98 (1.01)	1.02	0.028 *
ALI4: Involved in data analysis	1.71 (0.49)	0.76 (1.18)	0.95	0.079
Organizational Culture				
CUL1: Performance openly comm.	1.86 (0.38)	1.47 (0.89)	0.39	0.045 *
CUL2: PMS stimulates improvement	1.86 (0.38)	0.80 (1.14)	1.06	0.019 *
CUL3: Trust in information	2.00 (0.00)	0.88 (1.10)	1.12	0.001 **
CUL4: See superior using PMS	1.71 (0.49)	1.18 (1.20)	0.53	0.033 *
CUL5: See SMT using PMS	1.86 (0.38)	1.08 (1.18)	0.78	0.015 *
PMS Focus				
FOC1: PMS used strategically by org.	1.86 (0.38)	1.19 (0.91)	0.67	0.028 *
FOC2: PMS measures what is important	2.00 (0.00)	1.03 (0.99)	0.97	0.007 **
FMM = Frontline and middle managers SMT = Senior management team			SMT - FMM is positive SMT - FMM is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings were given on a five-point scale: -2 = completely disagree -1 = partially disagree 0 = neither agree nor disagree 1 = partially agree 2 = agree				

Table 11: Difference Between FMM and MDDH Item Mean Scores for Factors Important for the Successful Implementation and Use of IPMS

Item	FMM Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Leaders' Understanding				
UND1: Meaning of KPIs	1.82 (0.38)	1.04 (0.96)	0.78	0.000 **
UND2: Processes affect KPI results	1.76 (0.51)	0.88 (0.99)	0.88	0.001 **
UND3: Peers have similar KPIs	1.40 (0.92)	0.65 (1.14)	0.75	0.077
UND4: KPIs are reasonable and fair	1.12 (0.97)	0.74 (1.24)	0.38	0.020 *
Leaders' Attitudes				
ATT1: Positive exp. with PMSs	0.98 (0.99)	0.43 (0.81)	0.55	0.954
ATT2: Help decide start time	0.62 (1.17)	-0.58 (1.31)	1.20	0.173
ATT3: Realize how KPIs help	1.35 (0.87)	0.64 (1.09)	0.71	0.209
ATT4: View KPIs as positive	1.42 (0.84)	1.30 (0.82)	0.12	0.869
PMS Alignment				
ALI1: KPIs aligned with responsibility	1.16 (0.92)	0.71 (1.10)	0.45	0.073
ALI2: Can influence KPIs	0.82 (1.09)	0.05 (1.28)	0.77	0.088
ALI3: KPIs help manage performance	0.98 (1.01)	0.59 (1.01)	0.39	0.253
ALI4: Involved in data analysis	0.76 (1.18)	0.04 (1.40)	0.72	0.109
Organizational Culture				
CUL1: Performance openly comm.	1.47 (0.89)	0.12 (1.45)	1.35	0.000 **
CUL2: PMS stimulates improvement	0.80 (1.14)	1.00 (0.85)	0.20	0.023 *
CUL3: Trust in information	0.88 (1.10)	0.30 (1.11)	0.58	0.510
CUL4: See superior using PMS	1.18 (1.20)	0.33 (1.53)	0.85	0.016 *
CUL5: See SMT using PMS	1.08 (1.18)	0.55 (1.44)	0.53	0.040 *
PMS Focus				
FOC1: PMS used strategically by org.	1.19 (0.91)	1.09 (0.92)	0.10	0.824
FOC2: PMS measures what is important	1.03 (0.99)	0.48 (1.16)	0.55	0.038 *
FMM = Frontline and middle managers			FMM - MDDH is positive	
MDDH = Medical division and department heads			FMM - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings were given on a five-point scale:				
-2 = completely disagree -1 = partially disagree 0 = neither agree nor disagree 1 = partially agree 2 = agree				

Table 12: Difference Between SMT and MDDH Item Mean Scores for Factors Important for the Successful Implementation and Use of IPMS

Item	SMT Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Leaders' Understanding				
UND1: Meaning of KPIs	2.00 (0.00)	1.04 (0.96)	0.96	0.023 *
UND2: Processes affect KPI results	1.86 (0.38)	0.88 (0.99)	0.98	0.103
UND3: Peers have similar KPIs	1.57 (0.79)	0.65 (1.14)	0.92	0.164
UND4: KPIs are reasonable and fair	2.00 (0.00)	0.74 (1.24)	1.26	0.000 **
Leaders' Attitudes				
ATT1: Positive exp. with PMSs	1.71 (0.76)	0.43 (0.81)	1.28	0.286
ATT2: Help decide start time	1.71 (0.49)	-0.58 (1.31)	2.29	0.000 **
ATT3: Realize how KPIs help	2.00 (0.00)	0.64 (1.09)	1.36	0.002 **
ATT4: View KPIs as positive	2.00 (0.00)	1.30 (0.82)	0.70	0.001 **
PMS Alignment				
ALI1: KPIs aligned with responsibility	2.00 (0.00)	0.71 (1.10)	1.29	0.000 **
ALI2: Can influence KPIs	1.71 (0.49)	0.05 (1.28)	1.66	0.008 **
ALI3: KPIs help manage performance	2.00 (0.00)	0.59 (1.01)	1.41	0.000 **
ALI4: Involved in data analysis	1.71 (0.49)	0.04 (1.40)	1.67	0.009 **
Organizational Culture				
CUL1: Performance openly comm.	1.86 (0.38)	0.12 (1.45)	1.74	0.000 **
CUL2: PMS stimulates improvement	1.86 (0.38)	1.00 (0.85)	0.86	0.297
CUL3: Trust in information	2.00 (0.00)	0.30 (1.11)	1.70	0.000 **
CUL4: See superior using PMS	1.71 (0.49)	0.33 (1.53)	1.38	0.000 **
CUL5: See SMT using PMS	1.86 (0.38)	0.55 (1.44)	1.31	0.000 **
PMS Focus				
FOC1: PMS used strategically by org.	1.86 (0.38)	1.09 (0.92)	0.77	0.022 *
FOC2: PMS measures what is important	2.00 (0.00)	0.48 (1.16)	1.52	0.000 **
FMM = Frontline and middle managers			SMT - MDDH is positive	
MDDH = Medical division and department heads			SMT - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings were given on a five-point scale:				
-2 = completely disagree -1 = partially disagree 0 = neither agree nor disagree 1 = partially agree 2 = agree				

4.6.3. Use, Utility, and Potential for Change

The surveys administered to TOH leaders also included additional items designed to measure respondents' use of certain parts of the organization's IPMS, namely its performance measurement component. Other items were incorporated to measure perceptions of the utility of TOH's IPMS to respondents and their appraisal of its potential impact on their work practices. The following results were observed.

Use

As Table 13 shows, the IPMS is used differently by the three groups.

The majority of FMMs (71.6%) use TOH's IPMS to review corporate goals and objectives on a monthly (40.8%) or quarterly (30.8%) basis. Another 6.9% of FMMs used the IPMS to review this information on a weekly basis. Only 3.8% of FMMs admitted to never using TOH's IPMS for this purpose. Though the majority of MDDH group respondents also reported using the organizations IPMS on a monthly (30.8%) or quarterly (23.1%) basis, 30.8% indicated that they never used TOH's IPMS to view such information, which is in sharp contrast to the FMM group. Not surprisingly, the SMT group shows the most frequent use of the IPMS to review corporate goals and objectives, with more than half of the respondents using the system on a monthly (28.6%) or quarterly (28.6%) basis, and 42.9% of respondents using it weekly.

Similar (within group) usage patterns are seen by all three groups when using the system to monitor personal goals, objectives, and performance.

Table 13: Frequency of IPMS Use

Item	FMM No. (%)	MDDH No. (%)	SMT No. (%)
USE1: Viewing Corporate Goals and Objectives			
Never	5 (3.8%)	8 (30.8%)	0 (0.0%)
Annually	6 (4.6%)	0 (0.0%)	0 (0.0%)
Semi-Annually	9 (6.9%)	2 (7.7%)	0 (0.0%)
Quarterly	40 (30.8%)	6 (23.1%)	2 (28.6%)
Monthly	53 (40.8%)	8 (30.8%)	2 (28.6%)
Weekly	9 (6.9%)	2 (7.7%)	3 (42.9%)
Daily	7 (5.4%)	0 (0.0%)	0 (0.0%)
No response	1 (0.8%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
USE2: Personal Goals and Objectives			
Never	3 (2.3%)	10 (38.5%)	0 (0.0%)
Annually	7 (5.4%)	1 (3.8%)	0 (0.0%)
Semi-Annually	6 (4.6%)	3 (11.5%)	0 (0.0%)
Quarterly	45 (34.6%)	6 (23.1%)	2 (28.6%)
Monthly	53 (40.8%)	6 (23.1%)	5 (71.4%)
Weekly	9 (6.9%)	0 (0.0%)	0 (0.0%)
Daily	4 (3.1%)	0 (0.0%)	0 (0.0%)
No response	3 (2.3%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
USE3: Personal Performance Results			
Never	3 (2.3%)	12 (46.2%)	0 (0.0%)
Annually	11 (8.5%)	1 (3.8%)	1 (14.3%)
Semi-Annually	9 (6.9%)	2 (7.7%)	0 (0.0%)
Quarterly	38 (29.2%)	6 (23.1%)	2 (28.6%)
Monthly	59 (45.4%)	5 (19.2%)	3 (42.9%)
Weekly	5 (3.8%)	0 (0.0%)	1 (14.3%)
Daily	3 (2.3%)	0 (0.0%)	0 (0.0%)
No response	2 (1.5%)	0 (0.0%)	0 (0.0%)
Total	130 (100.0%)	26 (100.0%)	7 (100.0%)
FMM = Frontline and middle managers			
MDDH = Medical division and department heads			
SMT = Senior management team			

Table 14: Mean Scores and Standard Deviations for IPMS Use

Item	FMM Mean (SD)	MDDH Mean (SD)	SMT Mean (SD)
TOH IPMS Use			
USE1: Corporate goals and objectives	3.43 ** (1.27)	2.46 ** (1.82)	4.14 ** (0.90)
USE2: Personal goals and objectives	3.43 ** (1.14)	1.88 ** (1.68)	3.71 ** (0.49)
USE3: Personal performance results	3.30 ** (1.17)	1.65 ** (1.70)	3.43 ** (1.27)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team * Significant at the .05 level ** Significant at the .01 level Ratings for USE1, USE2, and USE3 were given on a seven-point scale: 0 = never 1 = annually 2 = semi-annually 3 = quarterly 4 = monthly 5 = weekly 6 = daily			

A seven-point scale with a range of 0 (never) to 6 (daily) was used to measure the frequency with which respondents used TOH's IPMS to review corporate and personal goals and objectives, and personal performance. The mean scores and standard deviations for these survey items are presented in Table 14. The one-sample t-test was used to determine whether or not the observed mean scores were significantly different from zero. This proved to be the case for all items across all three survey groups.

The mean scores reveal that all three groups use TOH's IPMS to view corporate goals and objectives, personal goals and objectives, and personal performance results, though the frequency of use varies between the groups. The mean scores indicate that the SMT group uses TOH's IPMS more frequently than the other groups, though the difference in the mean scores between the SMT group and FMM group are marginal. The independent samples t-test was used to determine if the

mean score differences between the groups were statistically significant. This analysis revealed that the mean score differences between the SMT group and FMM group were not statistically significant (see Table 15). Conversely, the mean score differences between the FMM group and MDDH group were statistically significant for all three items (see Table 16).

Table 15: Mean Score Difference Between SMT and FMM Groups for IPMS Use

Item	SMT Mean (SD)	FMM Mean (SD)	Mean Difference	Sig.
Use				
USE1: Corporate goals and objectives	4.14 (0.90)	3.43 (1.27)	0.71	0.470
USE2: Personal goals and objectives	3.71 (0.49)	3.43 (1.14)	0.28	0.104
USE3: Personal performance results	3.43 (1.27)	3.30 (1.17)	0.13	0.915
FMM = Frontline and middle managers			SMT - FMM is positive	
SMT = Senior management team			SMT - FMM is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for USE1, USE2, and USE3 were given on a seven-point scale:				
0 = never 1 = annually 2 = semi-annually 3 = quarterly 4 = monthly 5 = weekly 6 = daily				

Table 16: Mean Score Difference Between FMM and MDDH Groups for IPMS Use

Item	FMM Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Use				
USE1: Corporate goals and objectives	3.43 (1.27)	2.46 (1.82)	0.97	0.001 **
USE2: Personal goals and objectives	3.43 (1.14)	1.88 (1.68)	1.55	0.000 **
USE3: Personal performance results	3.30 (1.17)	1.65 (1.70)	1.65	0.000 **
FMM = Frontline and middle managers			FMM - MDDH is positive	
MDDH = Medical division and department heads			FMM - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for USE1, USE2, and USE3 were given on a seven-point scale:				
0 = never 1 = annually 2 = semi-annually 3 = quarterly 4 = monthly 5 = weekly 6 = daily				

Utility

An eleven-point scale with a range of 0 to 10 was employed to gauge respondents appraisal of the utility of TOH's IPMS. The one-sample t-test was used to determine whether or not the observed mean scores were significantly different from zero. This proved to be the case for all items across all three survey groups.

Table 17: Mean Scores and Standard Deviations for IPMS Utility

Item	FMM Mean (SD)	MDDH Mean (SD)	SMT Mean (SD)
Utility			
UTIL	5.60 ** (2.27)	4.19 ** (2.68)	8.14 ** (1.07)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team * Significant at the .05 level ** Significant at the .01 level Ratings for UTIL were given on an eleven-point scale: 0 = not useful 10 = very useful			

As with other items from the survey, the mean score for the SMT group is the highest of all three groups and the mean score for the MMDH group is the lowest, placing the FMM group mean score somewhere in between. The mean scores and standard deviations for these survey items are presented in Table 17. The independent samples t-test was used to determine if the mean score differences were statistically significant. This results of the analysis show that the mean score difference between the SMT group and the FMM group is significant at the .05 level (see Table 18) however the difference between the FMM group and the MDDH

group mean score is not statistically significant (see Table 19). The mean score difference between the SMT group and MDDH group is statistically significant at the 0.1 level (see Table 20).

Table 18: Difference Between SMT and FMM Mean Scores for IPMS Utility

Item	SMT Mean (SD)	FMM Mean (SD)	Mean Difference	Sig.
Utility				
UTIL	8.14 (1.07)	5.60 (2.27)	2.54	0.036 *
FMM = Frontline and middle managers SMT = Senior management team			SMT - FMM is positive SMT - FMM is negative	
* Significant at the .05 level ** Significant at the .01 level				
Ratings for UTIL were given on an eleven-point scale: 0 = not useful 10 = very useful				

Table 19: Difference Between FMM and MDDH Mean Scores for IPMS Utility

Item	FMM Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Utility				
UTIL	5.60 (2.27)	4.19 (2.68)	1.41	0.134
FMM = Frontline and middle managers			FMM - MDDH is positive	
MDDH = Medical division and department heads			FMM - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for UTIL were given on an eleven-point scale: 0 = not useful 10 = very useful				

Table 20: Difference Between SMT and MDDH Mean Scores for IPMS Utility

Item	SMT Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Utility				
UTIL	8.14 (1.07)	4.19 (2.68)	3.95	0.009 **
MDDH = Medical division and department heads			SMT - MDDH is positive	
SMT = Senior management team			SMT - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for UTIL were given on an eleven-point scale: 0 = not useful 10 = very useful				

Change

An eleven-point scale with a range of 0 to 10 was employed to gauge respondents' perceptions of the likelihood that information provided by TOH's IPMS would change their work practices. The mean scores and standard deviations for these survey items are presented in Table 20. The one-sample t-test was used to determine whether or not the observed mean scores were significantly different from zero. This proved to be the case for all items across all three survey groups.

Table 21: Mean Scores and Standard Deviations for Likelihood of IPMS Information Changing Personal Work Practices

Item	FMM Mean (SD)	MDDH Mean (SD)	SMT Mean (SD)
Change in Practice			
CHA1: IPMS will change my practice	6.38 ** (2.13)	4.96 ** (2.96)	8.57 ** (1.27)
FMM = Frontline and middle managers MDDH = Medical division and department heads SMT = Senior management team * Significant at the .05 level ** Significant at the .01 level Ratings for CHA1 were given on an eleven-point scale: 0 = not likely 10 = very likely			

Here too, the mean score for the SMT group is the highest of all three groups, though only marginally higher than that of the FMM group. Again, the mean score for the MMDH group was the lowest of the three groups. The independent samples t-test was used to determine if the mean score differences were statistically significant. This results of the analysis show that the mean score difference between the SMT group and the FMM group is significant at the .05 level (see Table 22) however the difference between the FMM group and the MDDH group mean score is not statistically significant (see Table 23). The mean score difference between he SMT group and MDDH group is statistically significant at the 0.1 level (see Table 24).

Table 22: Difference Between SMT and FMM Mean Scores for Likelihood of IPMS Information Changing Personal Work Practices

Item	SMT Mean (SD)	FMM Mean (SD)	Mean Difference	Sig.
Change in Practice				
CHA1: IPMS will change my practice	8.57 (1.27)	6.38 (2.13)	2.19	0.257
FMM = Frontline and middle managers SMT = Senior management team			SMT - FMM is positive SMT - FMM is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for CHA1 were given on an eleven-point scale: 0 = not likely 10 = very likely				

Table 23: Difference Between FMM and MDDH Mean Scores for Likelihood of IPMS Information Changing Personal Work Practices

Item	FMM Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Change in Practice				
CHA1: IPMS will change my practice	6.38 (2.13)	4.96 (2.96)	1.42	0.009 **
FMM = Frontline and middle managers MDDH = Medical division and department heads			FMM - MDDH is positive FMM - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for CHA1 were given on an eleven-point scale: 0 = not likely 10 = very likely				

Table 24: Difference Between SMT and MDDH Mean Scores for Likelihood of IPMS Information Changing Personal Work Practices

Item	SMT Mean (SD)	MDDH Mean (SD)	Mean Difference	Sig.
Change in Practice				
CHA1: IPMS will change my practice	8.57 (1.27)	4.96 (2.96)	3.61	0.035 *
MDDH = Medical division and department heads SMT = Senior management team			SMT - MDDH is positive SMT - MDDH is negative	
* Significant at the .05 level				
** Significant at the .01 level				
Ratings for CHA1 were given on an eleven-point scale: 0 = not likely 10 = very likely				

5. Discussion

5.1. Findings

5.1.1. Motivating Factors

This study is the first empirical investigation to identify the motivating factors that underlie an organization's decision to implement an IPMS. Six major themes were identified:

- performance issues;
- new strategic direction;
- data challenges;
- existing performance initiatives;
- external pressures; and,
- IT enablers.

The primary drivers underlying TOH's decision to pursue an IPMS were external pressures, most notably negative patient and family feedback, third-party evaluation and, to a lesser extent, new funding models introduced by the Ontario Ministry of Health and Long-Term Care. The Ottawa Hospital's internal leadership responded to these pressures by envisioning a bold new strategic direction for the organization. The role of external pressures and internal leadership as motivating factors for the implementation of an IPMS has previously been reported in the literature.

Sears (2009) and Cheng (2006) both identified external pressures as a significant driving force behind the decision to implement an IPMS. In the former case study, an IPMS was implemented after gaps in performance were noted on the hospital's Balanced Scorecard (Sears, 2009). In the latter, it was to ensure accountability in a system undergoing the devolution of responsibility for the provision of care by a provincial program to regional integrated cancer programs (Cheng & Thompson, 2006). Inamdar and Kaplan also identified external pressures as reason why organizations implement the Balanced Scorecard (Inamdar & Kaplan, 2002). The importance of external pressures as a driver of the need for an IPMS is also referenced in the popular literature (Kenney, 2010).

In TOH's case, some of the external factors were related to performance issues. Letters from patients and the external evaluation suggested that overall performance could be improved. Whether or not the IPMS would have been implemented without these trigger events is uncertain.

In response to external pressures, most notably patient, family, and third-party feedback, TOH's leadership team envisioned a bold new strategic direction for the hospital. This was not an expectation on the part of its external governance structure (i.e. LHIN or MOH<C) – the status quo was a legitimate option given the hospital's reputation for providing good, safe care. However, its leadership wanted something more for TOH's patients and thus chose a far more challenging path. The popular literature defines this as courageous leadership (Hybels, 2009). In the

academic literature, it has been referred to as visionary leadership (Westley & Mintzberg, 1989) or transformational leadership (Vaccaro, Jansen, Van Den Bosch, & Volberda, 2012).

Cheng and Thompson (2006) and Sears (2009) both acknowledge that internal leadership is an important motivating factor for the implementation of an IPMS, though Sears is far more explicit on the matter, stating that the organization he studied “is very fortunate to have visionary and innovative leaders who, well before others in health care, saw the tremendous need and potential for performance improvement” (2009). Furthermore, transformational leadership is known to be important for management innovation, particularly in large, complex organizations (Vaccaro et al., 2012). This certainly describes many hospitals, which have a large number of stakeholders with divergent interests. However, in the absence of market forces, as is the case in Canada’s healthcare system, the importance of transformational leadership is perhaps even more paramount than in the private sector, where organizations have many ways to incent their employees to do better. In healthcare, where managers and staff work at a relentlessly frenetic pace, and new projects are often piled on to already taxing workloads due to a lack of resources with no recompense for the individual, it is likely that transformation leadership is the most important tool at a hospital’s disposal to exact change.

5.1.2. Core Components

The prescriptive literature identifies a significant number of potential IPMS components, though these vary significantly from one framework or model to the next with little rhyme or reason. The empirical literature is silent on the topic.

Despite the variation, some components are common to multiple frameworks. These include strategic planning; performance measurement; and high performance work practices. Other potentially important components, though not specifically addressed in the IPMS literature, can be surmised based on the wider body of management literature. These include benchmarking and process management. Specific to healthcare, others have suggested that public reporting is vital to accountability and performance improvement at the individual, institutional, and system levels.

In this study, TOH's leaders identified six key components in their IPMS:

- strategic planning;
- performance measurement;
- benchmarking;
- high performance work practices;
- IT systems; and,
- performance-oriented culture.

These components are consistent with what has been defined in the literature, with one notable exception: performance-oriented culture is not explicitly mentioned in any of the popular frameworks. If any come close, it would be the EFQM Excellence Model, which counsels organizations to create a “culture of empowerment for the achievement of both organizational and personal goals” (EFQM, 2013b). Interestingly, the term performance-oriented culture is not well defined in the academic literature, though its artifacts have been described as what is rewarded; what is talked about; and what senior managers do (Richards, 2007).

The recognition that performance-oriented culture is a core component of an IPMS is a critical finding as it implies that an organization’s senior leadership must work to nurture and sustain such a culture, even before a full IPMS is considered. Otherwise, a misaligned organizational culture risks impeding or derailing leaders’ attempts to implement an IPMS. This finding also implies that, when all else is equal, organizations with a performance-oriented culture should be more successful at implementing an IPMS.

A robust performance-oriented culture is unlikely to emerge spontaneously or by happenstance in any organization. Rather, it is most likely to develop as the product of a focused change management initiative, particularly in cases where a significant cultural shift is necessary. Furthermore, given the challenges associated with implementing an IPMS, even in the setting of a burgeoning or robust performance-oriented culture, it is important to begin by assessing the organization’s readiness

for change and then developing an organizational change management plan to support the changes associated with IPMS implementation.

As reported by TOH's senior leaders, physicians, non-physician clinicians, and managers, who often have a clinical background in the hospital setting, are, by nature, highly competitive individuals who intrinsically want to outperform their peers. This is a fundamental characteristic of a performance-oriented culture at the grassroots level, which bodes well for hospitals in their quest for an IPMS. TOH's senior leaders need to leverage this through their burgeoning IPMS by fostering spirited competition through the wide dissemination of performance data while simultaneously supporting high and low performances. This will help the organization to build "a results-oriented collective system" as described by Fullan (2010).

While the identification of IPMS components is an important aspect, the question of maturity of the IPMS as a whole might be even more critical to its impact in healthcare organizations. As demonstrated by the qualitative data, there was significant variation in the components that TOH's senior leaders identified as core to their IPMS. It may be that TOH's senior leaders chose to discuss only those components that they thought were most important to their IPMS from their perspective, or because some components seemed far too obvious to warrant mentioning. However it might also be that this has not been fully deliberated within the organization. Comments by and questions from senior leaders during the

interviews support the latter view. This is not surprising and it is unlikely to be unique to healthcare organizations. Consensus amongst the senior leaders of any organization about what constitutes an IPMS is likely very rare, particularly in the early stages of IPMS implementation, though there is no empirical evidence anywhere that confirms this. However, the notion of IPMS maturity is not new. Verweire and Van den Berghe have created an integrated performance management maturity model, which addresses the issue (Verweire & van den Berghe, 2003). The data collected for this study supports the need for such models.

TOH's senior leaders have only recently implemented an IPMS. As such, the organization is likely to be at a low to medium maturity level with respect to integrated performance management and the development of its IPMS. This is almost certainly to be the case in hospitals across Canada. This notion of maturity recognizes that, as with most things, there is a learning curve that all organizations must progress through while new knowledge, capacity and, ultimately, expertise is being developed. The concept of an IPMS is relatively new, particularly in healthcare. The lesson to be learned is that hospitals and other organizations choosing to implement an IPMS must carefully consider how best to navigate the learning curve so that they may progress to higher levels of maturity as quickly as possible.

5.1.3. Implementation Challenges

In this study, TOH's senior leaders identified four major challenges to implementing their IPMS:

- creating a performance-oriented culture;
- getting the measures and data right;
- control; and,
- financial capacity.

Despite a paucity of research on the topic of IPMS implementation, these findings mimic those reported in the academic and popular literature. For instance, Bourne et al. identified that resistance to measurement, which would fall under the theme of creating a performance-oriented culture, is a major obstacle to the implementation of a performance measurement system (Bourne, Mills, Wilcox, Neely, & Platts, 2000), which is a component of an IPMS. Others have published extensively on the challenges associated with performance measure definition and measurement. With regard to the control and financial capacity themes, these come as a surprise to few people inside and outside of healthcare, as these constraints are regularly reported by the popular media and are widely accepted as realities within a public healthcare system.

This study identified performance-oriented culture as a core component of an IPMS. In TOH's experience, it also has proven to be a challenge with IPMS implementation, presumably because this is not the prevalent culture within the

organization. Perhaps an even greater challenge is that there likely are at least two distinct cultures within the organization, one amongst managers and another amongst physicians, as has been found in other hospitals and healthcare systems (Davies, Nutley, & Mannion, 2000). This, at least to some extent, is evident in the survey results, where medical division and departments heads show less frequent use of the performance measurement component of TOH's IPMS and their own perceptions about the potential impact that information from TOH's IPMS will have on their practice. A possible reason for this is described in section 5.1.4. Regardless, this is an issue that requires and is getting prompt attention at TOH. It is recognized that physicians, who, for the most part, are not employed by hospitals, control a significant percentage of a hospital's resources. Thus, for a hospital to achieve performance gains from its IPMS, all members of the organization, including physicians, must use the system and respond appropriately to the information it provides, particularly those individuals who ultimately determine how the organization deploys its resources. Otherwise, there is little value in implementing such a system. The culture of optionality that exists within the medical profession presents a risk to successful IPMS implementation in the hospital setting. Hospital leaders must hold physicians accountable should they be dismissive of the IPMS. This can be difficult given that the vast majority of physicians are not employed by the hospitals where they practice. Ideally, physician support and compliance can be achieved through effective change management practices and by engaging physician early in IPMS projects. However, if this strategy is not successful, it might require a more dramatic change such as a reconsideration of the relationship

between hospitals and physicians to one of employer and employee. This would most certainly integrate physicians better into the overall management structure of the hospital, which might make it easier to implement an IPMS, at least in the long-term.

The performance revolution is new to healthcare, having only taken root within the last 10-20 years. Culture, organizational or otherwise, is not something that changes overnight, as reported by many of TOH's senior leaders.

5.1.4. Overcoming the Challenges

In this study, TOH's senior leaders offer the following advice to those who are considering implementing an IPMS in a hospital setting:

- prepare for the journey;
- be strategic;
- provide strong leadership;
- engage your people; and,
- don't be timid.

These findings are not dissimilar to what has previously been reported throughout the systems implementation literature, and they are not unique to healthcare, save for the issue of physician engagement, which is the focus of the remainder of this section.

Physician engagement is perhaps the most important issue in healthcare today. Physicians are gatekeepers in the healthcare system and their support for or opposition to managerial initiatives within a hospital setting often determines whether a particular initiative succeeds or fails, despite the fact that most physicians are not employed by the hospitals where they work.

The data shows that TOH's medical leaders have been slower than the hospital's frontline, middle, and senior managers to adopt the performance measurement component of TOH's IPMS. The question is why? One of the early mistakes that TOH's leaders now recognize was the late involvement of their medical leadership in the design and implementation of the hospital's IPMS. Though the hospital communicated the initiative to its medical and division department heads, and updated them periodically about their progress, they failed to truly engage the medical leadership. As a result, they are later adopters than their managerial counterparts. TOH's senior leaders have worked hard to rectify this issue, reporting some success. Nevertheless, this is a mistake they counsel others not to make.

5.2. Conclusions

The purpose of this study was to identify the factors that motivate Canadian healthcare leaders to implement an IPMS, what they consider to be core components of an IPMS, the challenges they face when implementing an IPMS, and how these challenges might be avoided or, at least mitigated. These questions have been answered through the concurrent analysis and interpretation of the both

qualitative and quantitative data. In answering these questions, three important conclusions can be drawn.

First, since performance-oriented culture is a core component of an IPMS, perhaps the most important one at that, senior leaders must pay proper attention to organizational culture before deciding to embark on the IPMS journey. Full IPMS implementation should only be considered if the organizational culture is ripe. A performance-oriented culture may well be the foundation of an IPMS, the glue that meshes its individual components. In cases where an organizational culture might be antithetical to an IPMS, senior leaders would be wise to first focus their efforts toward cultural change before implementing a full IPMS. Otherwise, cultural misalignment risks stalling or derailing its implementation. And even with a burgeoning or robust performance-oriented culture in place, senior leaders should dedicate sufficient time and effort toward nurturing and sustaining it, since organizational culture is one of the most difficult things to change in any organization. Senior leaders can foster and support a performance-oriented culture by rewarding employees who live the organization's values; having open and honest discussions about performance, using stories to personalize what the importance of high performance for the organization and its customers; and modeling the values and behaviors they want to see shared across the organization. This is where hospitals have a distinct advantage. Few would disagree with need to provide each patient with the world-class care, exceptional service, and compassion that we would want for our own loved ones. These are powerful tools for enacting change.

Second, while it is important and necessary to engage all the members of an organization, in a hospital, it is particularly important to engage the physicians. Physicians are the gatekeepers of our healthcare system. They are fiercely independent and anything that is perceived as having the potential to threaten their independence, as might be the case with an IPMS, may be ignored or actively undermined. And yet physicians are data driven creatures with a strong intrinsic motivation to better their peers. So, in reality, if given the opportunity to partake in the IPMS journey early on, it is likely that most physicians would see the value in creating a system that ensures a hospital delivers the very best care possible at the most affordable price.

Last, but most importantly, hospital leaders contemplating an IPMS must prepare for the journey. Implementing an IPMS takes years. In fact, it's a never-ending process given the dynamic environment that hospitals find themselves in. This requires consistent, courageous, and resilient leadership. One of the most important aspects of planning for the journey is deciding how to tackle the learning curve. Initially, everyone in the organization will be on a steep learning curve, though, as the data suggests, this might be better conceptualized using a surfing analogy to incorporate the notions of tides and waves. In the beginning, during the first tide, which represents IPMS implementation, everyone will be riding a steep wave. Senior leaders will begin the journey first, as they are most likely to be originators of the IPMS. Frontline and middle managers will catch the next wave, followed by frontline staff who will catch a later wave still. This implies at least three 'waves'. But we

can't forget the physicians. Where are the physicians in this surfing analogy? Riding the first and second waves with the senior leaders and frontline managers. Ideally, these waves should be cycled appropriately, ensuring that too much time is not allowed to elapse between them, which could result in dissonance from the perspective of a maturity model. Additional tides will follow. These represent critical points along the IPMS journey where the system is redesigned, key people in the organization leave and are replaced, etc. Regardless, in the end, the senior leaders' responsibility to prevent breaks in the wave and ensure that everyone make it to shore.

5.3. Limitations

Although great care was taken in designing the study, developing the data collection instruments, recruiting participants, and collecting, analyzing, and interpreting the data, one important limitation must be acknowledged.

TOH is a large academic health science center, one of the largest and busiest in Canada. The organization may not be representative of smaller hospitals or non-academic health science centers, though many hospitals face similar challenges. That said, it also is recognized that organizational capacity may be more serious issue for smaller hospitals. Thus, additional research is required to confirm the generalizability of the findings.

Despite these limitations, this study achieved its aim of answering four important research questions related to the implementation of IPMSs in the context of the Canadian healthcare system:

Q1: What factors motivate Canadian healthcare leaders to implement an IPMS in a hospital setting?

Q2: What are the critical components of an IPMS in a hospital setting?

Q3: What challenges do Canadian healthcare leaders face when implementing an IPMS in a hospital setting?

Q4: How can Canadian healthcare leaders overcome or altogether avoid the challenges of implementing an IPMS in a hospital setting?

5.4. Future Research

This study is believed to be the first empirical investigation of the implementation of an IPMS in a hospital setting. Though illustrative case studies have previously been published, this is the first work to adopt a mixed methods design. While this is an important step toward a better understanding of IPMSs in general and, more specifically, their implementation within a healthcare setting, it must only serve as the beginning of a research agenda on IPMSs. At a minimum, future research should attempt to validate the findings presented in this study. More importantly, however, subsequent investigations should attempt to identify a framework for the design, implementation, and use of IPMSs, both within and outside the healthcare

sector. Only then will academics and practitioners be able to speak with a measure of confidence about how such systems can contribute to business excellence.

6. Bibliography

- Ackoff, Russell L. (1987). Mission statements. *Strategy & Leadership*, 15(4), 30-31. doi: 10.1108/eb054196
- Adair, Carol E, Simpson, Elizabeth, & Casebeer, Ann L. (2006). Performance measurement in healthcare: part II - state of the science findings by stage of the performance measurement process. *Healthcare Policy*, 2(1), 56-78. doi: 10.12927/hcpol.2006.18338
- Adebanjo, Dotun, Abbas, Ahmed, & Mann, Robin. (2010). An investigation of the adoption and implementation of benchmarking. *International Journal of Operations & Production Management*, 30(11), 1140-1169. doi: 10.1108/01443571011087369
- Agency for Healthcare Research and Quality. (2011). Public reporting as a quality improvement strategy: a systematic review of the multiple pathways public reporting may influence quality of health care (pp. 18): AHRQ.
- Aidermark, Lars-Goran, & Funck, Elin K. (2009). Measurement and health care management. *Financial Accountability & Management*, 25(2), 253-276. doi: 10.1111/j.1468-0408.2009.00476.x
- Akbulut-Bailey, Asli Yagmur, Motwani, Jaideep, & Smedley, Everett M. (2012). When Lean and Six Sigma converge: a case study of a successful implementation of Lean Six Sigma at an aerospace

company. *International Journal of Technology Management*, 57(1), 18-32. doi: 10.1504/IJTM.2012.043949

Alberta Physician Link. (2013). Levels of care. Retrieved July 1, 2013

American Productivity and Quality Center. (2013). Retrieved May 25, 2013, from <http://www.apqc.org/benchmarking>

Anand, G, & Kodali, Rambabu. (2008). Benchmarking the benchmarking models. *Benchmarking: An International Journal*, 15(3), 257-291. doi: 10.1108/14635770810876593

Andersen, Bjorn, Henriksen, Bjornar, & Aarseth, Wenche. (2006). Holistic performance management: an integrated framework. *International Journal of Productivity and Performance Management*, 55(1), 17. doi: 10.1108/17410400610635507

Andersen, Torben Juul. (2004). Integrating decentralized strategy making and strategic planning processes in dynamic environments. *Journal of Management Studies*, 41(8), 1271-1299. doi: 10.1111/j.1467-6486.2004.00475.x

Andersson, Roy, Eriksson, Henrik, & Hakan, Torstensson. (2006). Similarities and differences between TQM, six sigma and lean. *The TQM Magazine*, 18(3), 282-296. doi: 10.1108/09544780610660004

Anthony, Robert N, & Govindarajan, Vijay. (2007). *Management Control Systems* (12th ed.): McGraw-Hill Education.

Arnheiter, Edward D, & Maleyeff, John. (2005). The integration of lean management and Six Sigma. *The TQM Magazine*, 17(1), 5-18. doi: 10.1108/09544780510573020

Atmaca, E, & Girenes, S Sule. (2013). Lean Six Sigma methodology and application. *Quality & Quantity*, 47(4), 2107-2127. doi: 10.1007/s11135-011-9645-4

Bain and Co. (2011). Management tools & trends 2011 (pp. 12).

Baker, G Ross, & Pink, George H. (1995). A Balanced Scorecard for Canadian hospitals. *Healthcare Management Forum*, 8(4), 7-21. doi: 10.1016/S0840-4704(10)60926-X

Baldwin, Kim S, Dimunation, Nancy, & Alexander, Jack. (2011). Health care leadership and the dyad model. *Physician Executive*, 37(4), 66-70.

Banks, R L, & Wheelwright, S C. (1979). Operations versus strategy - trading tomorrow for today. *Harvard Business Review*, 57(3), 112-120.

Barnardo, Catherine, & Jivanni, Amin. (2009). Evaluating the Fraser Health Balanced Scorecard - a formative evaluation. *Healthcare Management Forum*, 22(2), 49-60. doi: 10.1016/S0840-4704(10)60466-8

- Bart, Christopher Kenneth, & Baetz, Marck C. (1998). The relationship between mission statements and firm performance: an exploratory study. *Journal of Management Studies*, 35(6), 823-853. doi: 10.1111/1467-6486.00121
- Bart, Christopher Kenneth, Bontis, Nick, & Taggar, Simon. (2001). A model of the impact of mission statements on firm performance. *Management Decision*, 39(1), 19-35. doi: 10.1108/EUM0000000005404
- Bart, Christopher Kenneth, & Hupfer, Maureen. (2004). Mission statements in Canadian hospitals. *Journal of Health Organization and Management*, 18(2), 92-110. doi: 10.1108/14777260410538889
- Bart, Christopher Kenneth, & Tabone, John C. (1998). Mission statement rationales and organizational alignment in the not-for-profit health care sector. *Health Care Management Review*, 23(4), 17.
- Bartkus, Barbara, & Glassman, Myron. (2008). Do firms practice what the preach? The relationship between mission statements and stakeholder management. *Journal of Business Ethics*, 83(2), 207-216. doi: 10.1007/s10551-007-9612-0
- Bartkus, Barbara, Glassman, Myron, & McAfee, Bruce. (2006). Mission statement quality and financial performance. *European Management Journal*, 24(1), 9. doi: 10.1016/j.emj.2005.12.010

- Bartkus, Barbara, Glassman, Myron, & McAfee, R Bruce. (2000). Mission statements: are they smoke and mirrors? *Business Horizons*, 43(6), 23-28. doi: 10.1016/S0007-6813(00)80018-X
- Basu, Ron, & Wright, J Nevan. (2003). *Quality beyond Six Sigma*. Burlington, MA: Butterworth-Heinemann.
- Begun, James W, & Kaissi, Amer A. (2005). An exploratory study of healthcare strategic planning in two metropolitan areas. *Journal of Healthcare Management*, 50(4), 264-275.
- Bititci, Umit S. (1994). Measuring your way to profit. *Management Decision*, 32(6), 16-24. doi: 10.1108/00251749410065088
- Bititci, Umit S, Carrie, Allan S, & McDevitt, Liam. (1997). Integrated performance measurement systems: a development guide. *International Journal of Operations & Production Management*, 17(5), 522-534. doi: 10.1108/01443579710167230
- Bititci, Umit S, Garengo, Patrizia, Dorfler, Viktor, & Nudurupati, Sai. (2012). Performance measurement: challenges for tomorrow. *International Journal of Management Reviews*, 14(3), 305-327. doi: 10.1111/j.1468-2370.2011.00318.x
- Bolon, Douglas S. (2005). Comparing mission statement content in for-profit and not-for-profit hospitals: does mission really matter? *Hospital Topics*, 83(4), 2-9. doi: 10.3200/HTPS.83.4.2-10

- Boselie, Paul, Dietz, Graham, & Boon, Corine. (2005). Commonalities and contradictions in HRM and performance research. *Human Resource Management Journal*, 15(3), 67-94. doi: 10.1111/j.1748-8583.2005.tb00154.x
- Bourne, Mike, Mills, John, Wilcox, Mark, Neely, Andy, & Platts, Ken. (2000). Designing, implementing and updating performance measurement systems. *International Journal of Operations & Production Management*, 20(7), 754-771. doi: 10.1108/01443570010330739
- Bourne, Mike, & Neely, Andy. (2003). Implementing performance measurement systems: a literature review. *International Journal of Business Performance Management*, 5(1), 1-24. doi: 10.1504/ijbpm.2003.002097
- Braillon. (2008). Le benchmarking, une histoire exemplaire pour la qualité des soins. *Annales Françaises d'Anesthésie et de Réanimation*, 27(6), 467-469. doi: 10.1016/j.annfar.2008.05.009
- Bratton, John, & Gold, Jeffrey. (1999). *Human resource management: theory and practice*: Lawrence Erlbaum.
- Braun, Virginia, & Clarke, Victoria. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101. doi: 10.1191/1478088706qp063oa

- Bresser, Rudi K, & Bishop, Ronald C. (1983). Dysfunctional effects of formal planning: two theoretical explanations. *Academy of Management Review*, 8(4), 588-599. doi: 10.5465/AMR.1983.4284658
- Brett, Charles, & Queen, Patrick. (2005). Streamlining enterprise records management with Lean Six Sigma. *The Information Management Journal*, 39(6), 58-62.
- Brinckmann, Jan, Grichnik, Dietmar, & Kapsa, Diana. (2010). Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms. *Journal of Business Venturing*, 25(1), 24-40. doi: 10.1016/j.jbusvent.2008.10.007
- Browne, Paul Leduc. (2000). *Unsafe practices: restructuring and privatization in Ontario health care*. Ottawa, ON: Canadian Centre for Policy Alternatives.
- Brudan, Aurel. (2010). Rediscovering performance management: systems, learning and integration. *Measuring Business Excellence*, 14(1), 15. doi: 10.1108/13683041011027490
- Bryson, John M. (2011). *Strategic planning for public and nonprofit organizations: a guide to strengthening and sustaining organizational achievement* (4th ed.). San Francisco, CA, USA: John Wiley & Sons.

- Burgess, T F, Ong, T S, & Shaw, N E. (2007). Traditional or contemporary? The prevalence of performance measurement system types. *International Journal of Productivity and Performance Management*, 56(7), 583-602. doi: 10.1108/17410400710823633
- Burkert, Michael, Davila, Antonio, & Oyon, Daniel. (2010). Performance consequences of Balanced Scorecard adoptions: claim for large-scale evidence and propositions for future research. In M. J. Epstein, J.-F. Manzoni & A. Davila (Eds.), *Performance Measurement and Management Control: Innovative Concepts and Practices* (Vol. 20, pp. 345-361). Bingley, United Kingdom: Emerald Group Publishing.
- CAEP. (2005). Taking action on the issue of overcrowding in Canada's emergency departments (pp. 6): Canadian Association of Emergency Physicians.
- Camp, Robert C. (1989). *Benchmarking: the search for industry best practices that lead to superior performance* (1st ed.): ASQC Quality Press.
- Campbell, Andrew, & Yeung, Sally. (1991). Creating a sense of mission. *Long Range Planning*, 24(4), 10-20. doi: 10.1016/0024-6301(91)90002-6
- Canadian Healthcare Association. (2013). Guide to Canadian healthcare facilities (Vol. 20, pp. 550). Ottawa, ON: Canadian Healthcare Association.

Canadian Institute for Health Information. (2011). National health expenditure trends, 1975 to 2011 (S. a. H. Workforce, Trans.) (pp. 181). Ottawa, ON: CIHI.

Canadian Museum of Civilization. (2010, April 21). Making Medicare: the history of health care in Canada, 1914-2007. Retrieved July 5, 2013, from <http://www.civilization.ca/cmc/exhibitions/hist/medicare/medic-5h24e.shtml>

Carroll, Archie B. (1999). Corporate social responsibility: evolution of a definitional construct. *Business & Society*, 38(3), 268-295. doi: 10.1177/000765039903800303

Chan, Yee-Ching Lilian. (2009). How strategy map works for Ontario's health system. *International Journal of Public Sector Management*, 22(4), 15. doi: 10.11108/09513550910961628

Cheng, Siu Mee, & Thompson, Leslee J. (2006). Cancer Care Ontario and integrated cancer programs: portrait of a performance management system and lessons learned. *Journal of Health, Organization and Management*, 20(4), 9. doi: 10.1108/14777260610680131

City of Ottawa. (2008). 2006 Census Data Handbook. Retrieved July 12, 2013, from <http://ottawa.ca/en/city-hall/get-know-your-city/statistics-and-economic-profile/data-handbook/economics/40-major>

Cocca, Paola, & Alberti, Marco. (2010). A framework to assess performance measurement systems in SMEs. *International Journal of Productivity*

and Performance Management, 59(2), 186-200. doi:
10.1108/17410401011014258

Cochran, Philip L. (2007). The evolution of corporate social responsibility. *Business Horizons*, 50(6), 448-454. doi: 10.1016/j.bushor.2007.06.004

Collins, James C, & Porras, Jerry I. (1991). Organizational vision and visionary organizations. *California Management Review*, 34(1), 30-52.

Collins, Jim. (2001). *Good to great: why some companies make the leap... and others don't*. New York, NY: HarperCollins.

Combs, James, Liu, Yongmei, Hall, Angela, & Ketchen, David. (2006). How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology*, 59(3), 501-528. doi: 10.1111/j.1744-6570.2006.00045.x

Conrad, Lynne, & Uslu, Pinar Guven (2011). Investigation of the impact of 'Payment by Results' measurement and management in NHS Trusts. *Management Accounting Research*, 22(1), 10. doi: 10.1016/j.mar.2010.10.007

Cooper, Donald R, & Schindler, Pamela S. (2005). *Business research methods* (9th ed.): McGraw-Hill Irwin.

- Coulson-Thomas, Colin. (1992). Strategic vision or strategic con?: Rhetoric or reality? *Long Range Planning*, 25(1), 81-89. doi: 10.1016/0024-6301(92)90313-Q
- Covin, Jeffrey G, Green, Kimberley M, & Slevin, Dennis P. (2006). Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Entrepreneurship Theory and Practice*, 30(1), 57-81. doi: 10.1111/j.1540-6520.2006.00110.x
- Creswell, John W. (2009). *Research design: qualitative, quantitative, and mixed methods approaches [Amazon Kindle version]* (pp. 297).
- Creswell, John W, & Plano Clark, Vivki L. (2006). *Designing and conducting mixed methods research [Amazon Kindle version]* (pp. 275).
- Curtright, Jonathan W, Stolp-Smith, Steven C, & Edell, Eric S. (2000). Strategic performance management: development of a performance measurement system at the Mayo Clinic. *Journal of Healthcare Management*, 45(1), 58-68.
- Davies, Huw T O, Nutley, Sandra M, & Mannion, Russell. (2000). Organisational culture and quality of health care. *Quality in Health Care*, 9(2), 111-119. doi: 10.1136/qhc.9.2.111
- Davis, Stan, & Albright, Tom. (2004). An investigation of the effect of Balanced Scorecard implementation on financial performance.

Management Accounting Research, 15(2), 19. doi:
10.1016/j.mar.2003.11.001

De Geuser, Fabien, Mooraj, Stella, & Oyon, Daniel. (2009). Does the Balanced Scorecard add value? Empirical evidence on its effect on performance. *European Accounting Review*, 18(1), 93-122. doi: 10.1080/09638180802481698

de Koning, Henk, Verver, John P S, van den Heuvel, Jaap, Bisgaard, Soren, & Does, Ronald J M M. (2006). Lean Six Sigma in healthcare. *Journal for Healthcare Quality*, 28(2), 4-11. doi: 10.1111/j.1945-1474.2006.tb00596.x

de Korne, Dirk F, Sol, Keys (J C A), van Wijngaarden, Jeroen D H , van Vliet, Ellen J, Custers, Thomas, Cubbon, Mark, . . . Klazinga, Niek S. (2010). Evaluation of an international benchmarking initiative in nine eye hospitals. *Health Care Management Review*, 35(1), 23-35. doi: 10.1097/HMR.0b013e3181c22bdc

de Korne, Dirk F, van Wijngaarden, Jeroen D H, Sol, Keys (J C A), Betz, Robert, Thomas, Richard C, Schein, Oliver D, & Klazinga, Niek S. (2012). Hospital benchmarking: are U.S. eye hospitals ready? *Health Care Management Review*, 37(2), 187-198. doi: 10.1097/HMR.0b013e31822aa46d

de Waal, Andre A. (2002). The power of world-class performance management: use it! *Measuring Business Excellence*, 6(3), 11. doi: 10.1108/13683040210441940

de Waal, Andre A. (2003). Behavioral factors important for the successful implementation and use of performance management systems. *Management Decision*, 41(8), 688-697. doi: 10.1108/00251740310496206

Dellifrairie, Jami L, Langabeer II, James R, & Nembhard, Ingrid M. (2010). Assessing the evidence of Six Sigma and Lean in the health care industry. *Quality Management in Health Care*, 19(3), 211-225. doi: 10.1097/QMH.0b013e3181eb140e

Dellifrairie, Jami L, Wang, Zheng, McCaughey, Deirdre, Langabeer II, James R, & Erwin, Cathleen O. (2013). The use of Six Sigma in health care management: are we using it to its full potential? *Quality Management in Health Care*, 22(3), 210-223. doi: 10.1097/QMH.0b013e31829a838e

Desmidt, Sebastian, & Heene, Aime. (2007). Mission statement perceptionL are we all on the same wavelength? A case study in a Flemish hospital. *Health Care Management Review*, 32(1), 77-87.

Dixon, J R, Nanni, A J, & Vollman, T E. (1990). *The new performance challenge - measuring operations for world-class competition*. Homewood, IL: McGraw-Hill.

- Dorsch, Jeffrey J, & Yasin, Mahmoud M. (1998). A framework for benchmarking in the public sector: literature review and directions for future research. *International Journal of Public Sector Management*, 11(2/3), 91-115. doi: 10.1108/09513559810216410
- Drew, Stephen A W. (1997). From knowledge to action: the impact of benchmarking on organizational performance. *Long Range Planning*, 30(3), 427-441. doi: 10.1016/S0024-6301(97)90262-4
- Drucker, Peter Ferdinand. (1954). *The practice of management*. New York, NY: Harper & Row.
- Drucker, Peter Ferdinand. (1974). *Management: tasks, responsibilities and practices*. New York: Harper & Row.
- Drucker, Peter Ferdinand. (2001). What is our business? *Executive Excellence*, 18(6), 2.
- Dubbs, Nicole L, & Mailman, Joseph L. (2002). Organizational design consistency: the PennCARE and Henry Ford Health System experiences. *Journal of Healthcare Management*, 47(5), 307-319.
- Dziuk, Dave. (2001). So many systems, so little communication *Health Management Technology*, 22(2), 50-51.
- Eccles, Robert G. (1991). The performance measurement manifesto. *Harvard Business Review*, 69(1), 63-74.

- Edelman, Linda F., Brush, Candida G., & Manoloval, Tatiana. (2005). Co-alignment in the resource-performance relationship: strategy as mediator. *Journal of Business Venturing*, 20(3), 25. doi: 10.1016/j.jbusvent.2004.01.004
- EFQM. (2013a). Enablers. Retrieved August 4, 2012, from <http://www.efqm.org/efqm-model/criteria/enablers>
- EFQM. (2013b). Fundamental concepts. Retrieved August 27, 2013
- Elson, Steve. (2006). The evolution of health system governance in Canada and Ontario. *Law and Governance*, 10(2), 9-16.
- Elzinga, D Jack, Horak, Tomas, Chung-Yee, Lee, & Bruner, Charles. (1995). Business process management: survey and methodology. *Engineering Management, IEEE Transactions on*, 42(2), 119-128. doi: 10.1109/17.387274
- Ettorchi-Tardy, Amina, Levif, Marie, & Michel, Philippe. (2012). Benchmarking: a method for continuous quality improvement in Health. *Healthcare Policy*, 7(4), e101-e119. doi: 10.12927.hcpol.2012.22872
- Faber, Marjan, Bosch, Marije, Wollersheim, Hub, Leatherman, Sheila, & Grol, Richard. (2009). Public reporting in health care: how do consumers use quality-of-care information? A systematic review. *Med Care*, 47(1), 1-8. doi: 10.1097/MLR.0b013e3181808bb5

- Fairhurst, Gail T, Jordan, Jerry Monroe, & Neuwirth, Kurt. (1997). Why are we here? Managing the meaning of an organizational mission statement. *Journal of applies communication research*, 25(4), 243-263. doi: 10.1080/00909889709365480
- Fernandez, P, McCarthy, I P, & Rakotobe-Joel, T. (2001). An evolutionary approach to benchmarking. *Benchmarking: An International Journal*, 8(4), 281-305. doi: 10.1108/14635770110403783
- Ferreira, Aldonio, & Otley, David. (2009). The design and use of performance management systems: an extended framework for analysis. *Management Accounting Research*, 20, 20. doi: 10.1016/j.mar.2009.07.003
- Fink, Arlene. (2002). *The survey handbook [Amazon Kindle version]* (pp. 184). Retrieved from http://books.google.ca/books?id=s_7GVySNWVgC
- FluidSurveys.). Data privacy in Canada. Retrieved July 19, 2013, from <http://fluidsurveys.com/canada/data-privacy-canada/>
- Fong, Sik Wah, Cheng, Eddie W L, & Ho, Danny C K. (1998). Benchmarking: a general reading for management practitioners. *Management Decision*, 36(6), 407-418. doi: 10.1108/00251749810223646
- Fotopolous, Christos V, & Psomas, Evangelos L. (2010). The structural relationships between TQM factors and organizational performance. *The TQM Journal*, 22(5), 539-552. doi: 10.1108/17542731011072874

- Fullan, Michael. (2010). *All systems go: the change imperative for whole system reform*. SAGE Publications.
- Fung, Constance H, Lim, Yee-Wei, Mattke, Soersen, Damberg, Cheryl, & Shekelle, Paul G. (2008). Systematic review: the evidence that publishing patient care performance data improves quality of care. *Annals of Internal Medicine*, 148(2), 111-123. doi: 10.7326/0003-4819-148-2-200801150-00006
- Garengo, Patrizia, Biazzo, Stefano, & Bititci, Umit S. (2005). Performance measurement systems in SMEs: a review for a research agenda. *International Journal of Management Reviews*, 7(1), 25-47. doi: 10.1111/j.1468-2370.2005.00105.x
- Garman, Andrew N, McAlearney, Ann Scheck, Harrison, Michael I, Song, Paula H, & McHugh, Megan. (2011). High-performance work systems in health care management, part I: development of an evidence-informed model. *Health Care Management Review*, 36(3), 201-213. doi: 10.1097/HMR.0b013e318201d1bf
- George, Michael L. (2002). *Lean Six Sigma: combining Six Sigma quality with Lean speed*. New York, NY: McGraw-Hill.
- George, Michael L, Rowlands, David, & Kastle, Bill. (2003). *What is Lean Six Sigma?* (1st ed.). New York, NY: McGraw-Hill.

- Gibson, C Kendrick, Newton, David J, & Cochran, Daniel S. (1990). An empirical investigation of the nature of hospital mission statements. *Health Care Management Review*, 15(3), 35-45.
- Ginter, Peter M, Duncan, W Jack, & Swayne, Linda E. (2013). *Strategic management of health care organizations* (7th ed.). San Francisco, CA: Jossey-Bass.
- Gittell, Jody Hoffer, Seidner, Rob, & Wimbush, Julian. (2010). A relational model of how high-performance works systems work. *Organization Science*, 21(2), 490-506. doi: 10.1287/orsc.1090.0446
- Giuda, Kellen. (2012, September 9). Lean government Six Sigma? Why do politicians ignore it? *Forbes*. Retrieved June 24, 2013, from <http://www.forbes.com/sites/realspin/2012/09/09/lean-government-six-sigma-why-do-politicians-ignore-it/>
- Glaister, Keith W, Dincer, Omer, Tatoglu, Ekrem, Demirbag, Mehmet, & Zaim, Selim. (2008). A causal analysis of formal strategic planning and firm performance. *Management Decision*, 46(3), 27. doi: 10.1108/00251740810863843
- Glaister, Keith W, & Falshaw, R Richard. (1999). Strategic planning: still going strong? *Long Range Planning*, 32(1), 107-116. doi: 10.1016/S0024-6301(98)00131-9
- Government of Canada. (2002). *Canada's aging population*.

- Government of Canada. (2006, March 28). What is the USA PATRIOT Act and why is it considered an issue related to the privacy and the protection of personal information? Retrieved July 19, 2013, from http://www.tbs-sct.gc.ca/pubs_pol/gospubs/TBM_128/usapa/faq-eng.asp - Q1
- Government of Canada. (2009, July 27). Provincial / territorial role in health. Retrieved July 28, 2013, from <http://www.hc-sc.gc.ca/hcs-sss/delivery-prestation/ptrole/index-eng.php>
- Government of Canada. (2012, October 9). Canada's health care system. Retrieved July 28, 2013, from <http://www.hc-sc.gc.ca/hcs-sss/pubs/system-regime/2011-hcs-sss/index-eng.php>
- Government of Ontario. (2010). *Ontario's long-term report on the economy*. Toronto, ON: Queen's Printer for Ontario.
- Government of Ontario. (2012a). *Backgrounder: patient-based funding for hospitals*. Toronto, ON.
- Government of Ontario. (2012b, November 3). Excellent care for all. Retrieved July 31, 2013
- Government of Ontario. (2012c). *Ontario's action plan for health care: better patient care through better value from our health care dollars*. Toronto, ON: Queen's Printer for Ontario Retrieved from http://www.health.gov.on.ca/en/ms/ecfa/healthy_change/docs/rep_healthychange.pdf

- Grant, Robert M. (2003). Strategic planning in a turbulent environment: evidence from the oil majors. *Strategic Management Journal*, 24(6), 491-517. doi: 10.1002/smj.314
- Gratzer, David. (1999). *Code blue: reviving Canada's health care system*. Toronto, ON: ECW Press.
- Greenley, Gordon E. (1994). Strategic planning and company performance: an appraisal of the empirical evidence. *Scandinavian Journal of Management*, 10(4), 383-396. doi: 10.1016/0956-5221(94)90025-6
- Guest, Greg S., MacQueen, Kathleen M., & Namey, Emily E. (2011). *Applied thematic analysis [Amazon Kindle version]*
- Gulledge Jr, Thomas R, & Sommer, Rainer A. (2002). Business process management: public sector implications. *Business Process Management Journal*, 8(4), 364-376. doi: 10.1108/14637150210435017
- Gurd, Bruce, & Gao, Tian. (2008). Lives in the balance: an analysis of the Balanced Scorecard (BSC) in healthcare organizations. *International Journal of Productivity and Performance Management*, 57(1), 16. doi: 10.1108/17410400810841209
- Hamel, Gary, & Prahalad, C. K. (1989). Strategic intent. *Harvard Business Review*, 67(3), 63-78.

- Hamilton, Robert D, Eskin, Eric D, & Michaels, Max P. (1998). Assessing competitors: the gap between strategic intent and core capability. *Long Range Planning*, 31(3), 406-417. doi: 10.1016/S0024-6301(98)80007-1
- Hammer, Michael. (2010). What is business process management? In J. vom Brocke & M. Rosemann (Eds.), *Handbook on business process management 1: introduction, methods, and information systems* (pp. 616). New York, NY: Springer-Verlag Berlin Heidelberg.
- Harmon, Joel, Scotti, Dennis J, Behson, Scott, Farias, Gerard, Petzel, Robert, Neuman, Joel H, & Keashly, Loreleigh. (2003). Effects of high-involvement work systems on employee satisfaction and service costs in veterans healthcare. *Journal of Healthcare Management*, 48(6), 393-406.
- Harmon, Paul. (2010). The scope and evolution of business process management. In J. vom Brocke & M. Rosemann (Eds.), *Handbook on business process management 1: introduction, methods, and information systems* (pp. 616). New York, NY: Springer-Verlag Berlin Heidelberg.
- Harry, Mikel J, & Schroeder, Richard R. (2006). *Six Sigma: the breakthrough management strategy revolutionizing the world's top corporations*. New York, NY: Currency Press.

- Hawkins, David F. (1963). The development of modern financial reporting practices among American manufacturing corporations. *The Business History Review*, 37(3), 135-168. doi: 10.2307/3112231
- Hayes, Robert H., & Abernathy, William J. (1980). Managing our way to economic decline. *Harvard Business Review*, 58(4), 67-77.
- Hoque, Zahirul, & James, Wendy. (2000). Linking Balanced Scorecard measures to size and market factors: impact on organizational performance. *Journal of Management Accounting Research*, 12, 1-17. doi: 10.2308/jmar.2000.12.1.1
- Huselid, Mark A. (1995). The impact of human resource management practices on turnover, productivity, and corporate financial performance. *Academy of Management Journal*, 38(3), 635-672. doi: 10.2307/256741
- Hybels, Bill. (2009). *Courageous leadership*: Zondervan.
- Inamdar, Noorein, & Kaplan, Robert S. (2002). Applying the Balanced Scorecard in healthcare provider organizations. *Journal of Healthcare Management*, 47(3), 179-195.
- Ireland, R. Duane, & Hitt, Michael A. (1992). Mission statements: importance, challenge, and recommendations for development. *Business Horizons*, 35(3), 9. doi: 10.1016/0007-6813(92)90067-J

- Johnson, H Thomas. (1972). Early cost accounting for internal management control: Lyman Mills in the 1850's. *Business History Review*, 46(4), 466-474. doi: 10.2307/3113343
- Johnson, H Thomas. (1983). The search for gain in markets and firms: a review of the historical emergency of management accounting systems. *Accounting, Organizations and Society*, 8(2-3), 139-146. doi: 10.1016/0361-3682(83)90021-1
- Kaissi, Amer A, & Begun, James W. (2008). Strategic planning processes and hospital financial performance. *Journal of Healthcare Management*, 53(3), 197-208.
- Kaplan, Robert S. (1986). Accounting lag: the obsolescence of cost accounting systems. *California Management Review*, 28(2), 174-199.
- Kaplan, Robert S. (2005). How the Balanced Scorecard complements the McKinsey 7-S model. *Strategy & Leadership*, 33(3), 6. doi: 10.1108/10878570510594442
- Kaplan, Robert S, & Norton, David P. (1992). The Balanced Scorecard: measures that drive performance. *Harvard Business Review*, 70(1), 9.
- Kaplan, Robert S, & Norton, David P. (1996). *The Balanced Scorecard: translating strategy into action*. Boston, MA: Harvard Business School Press.

Keegan, D P, Eiler, R G, & Jones, C R. (1989). Are your performance measures obsolete? *Management Accounting*, 70(12), 45-50.

Kennerley, Mike, & Neely, Andy. (2003). Measuring performance in a changing business environment. *International Journal of Operations & Production Management*, 23(2), 213-229. doi: 10.1108/01443570310458465

Kenney, Charles. (2010). *Transforming health care: Virginia Mason Medical Center's pursuit of the perfect patient experience [Amazon Kindle version]*

Khalifa, Azaddin Salem. (2011). Three Fs for the mission statement: what's next? *Journal of Strategy and Management*, 4(1), 20. doi: 10.1108/17554251111110104

Kohlbacher, Marcus. (2010). The effects of process orientation: a literature review. *Business Process Management Journal*, 16(1), 18. doi: 10.1108/14637151011017985

Kotter, John P. (1995). Leading change: why transformation efforts fail. *Harvard Business Review*, 73(7), 59-67.

Kurasaki, Karen S. (2000). Intercoder reliability for validating conclusions drawn from pen-ended interview data. *Field Methods*, 12(3), 179-194. doi: 10.1177/1525822X0001200301

- Laitinen, Erkki K. (2002). Dynamic performance measurement system: evidence from small Finnish technology companies. *Scandinavian Journal of Management*, 18(1), 65-99. doi: 10.1016/S0956-5221(00)00021-X
- Lebas, Michel J. (1995). Performance measurement and performance management. *International Journal of Production Economics*, 41(1-3), 13. doi: 10.1016/0925-5273(95)00081-X
- Lee, Feng-Hui, Lee, Tzai-Zang, & Wu, Wann-Yih. (2010). The relationship between human resource management practices, business strategy and firm performance: evidence from steel industry in Taiwan. *The International Journal of Human Resource Management*, 21(9), 1351-1372. doi: 10.1080/09585192.2010.488428
- Lee, R G, & Dale, Barrie G. (1998). Business process management: a review and evaluation. *Business Process Management Journal*, 4(3), 214-225. doi: 10.1108/14637159810224322
- Lema, N M, & Price, A D F. (1995). Benchmarking: performance improvement toward competitive advantage. *Journal of Management in Engineering*, 11(1), 28-37. doi: 10.1061/(ASCE)0742-597X(1995)11:1(28)
- Lemak, Christy Harris, & Goodrick, Elizabeth. (2003). Strategy as simple rules: understanding success in a rural clinic. *Health Care Management Review*, 28(2), 179-188.

- Lewis, Steven, & Kouri, Denise. (2004). Regionalization: making sense of the Canadian experience. *HealthcarePapers*, 5(1), 12-31. doi: 10.12927/hcpap.2004.16847
- Lipton, Mark. (1996). Demistifying the development of organizational vision. *Sloan Management Review*, 37(4), 83-92.
- Locke, Edwin A, & Latham, Gary P. (2002). Building a practically useful theory of goal setting and task motivation. *American Psychologist*, 57(9), 705-717. doi: 10.1037//0003-066X.57.9.705
- Loeb, Jerod M. (2004). The current state of performance measurement in health care. *International Journal of Quality in Health Care*, 16(S1), i5-i9. doi: 10.1093/intqhc/mzh007
- Lundall, Evan, & Bales, Kerry. (2013). Dyad healthcare leadership: what we've learned in real time (pp. 31): Alberta Health Services.
- Lynch, Richard, & Cross, Kelvin. (1991). *Measure up! Yardsticks for continuous improvement*. Cambridge, MA: Blackwell.
- MacKinnon, Janice. (2013). Health care reform from the cradle of Medicare (pp. 21). Ottawa, ON: MacDonald-Laurier Institute.
- Maiga, Adam S, & Jacobs, Fred A. (2004). The association between benchmarking and organizational performance: an empirical

investigation. *Managerial Finance*, 30(8), 13-33. doi: 10.1108/03074350410769209

Malmi, Teemu, & Brown, David A. (2008). Management control systems as a package - opportunities, challenges and research directions. *Management Accounting Research*, 19(4), 287-300. doi: 10.1016/j.mar.2008.09.003

McAlearney, Ann Scheck, Garman, Andrew N, Song, Paula H, McHugh, Megan, Robbins, Julie, & Harrison, Michael I. (2011). High-performance work systems in health care management, part 2: qualitative evidence from five case studies. doi: 10.1097/HMR.0b013e3182100dc4

McCormack, Kevin P, & Johnson, William C. (2001). *Business process orientation: gaining the e-business competitive advantage [Amazon Kindle version]* (pp. 208).

McCunn, Paul. (1998). The Balanced Scorecard... the eleventh commandment. *Management Accounting*, 76(11), 34-36.

Miller, C Chet, & Cardinal, Laura B. (1994). Strategic planning and firm performance: a synthesis of more than two decades of research. *Academy of Management Journal*, 37(6), 1649-1665. doi: 10.2307/256804

Mintzberg, Henry. (1987). Crafting strategy. *Harvard Business Review*, 65(4), 66-75.

- Mintzberg, Henry. (1994a). The fall and rise of strategic planning. *Harvard Business Review*, 72(1), 107-114.
- Mintzberg, Henry. (1994b). Rethinking strategic planning part I: pitfalls and fallacies. *Long Range Planning*, 27(3), 22-30.
- Mittelstaedt Jr., Robert E. (1992). BenchmarkingL how to learn from best-in-class practices. *National Productivity Review*, 11(3), 301-315. doi: 10.1002/npr.4040110303
- Moriarty, John P. (2011). A theory of benchmarking. *Benchmarking: An International Journal*, 18(4), 588-612. doi: 10.1108/14635771111147650
- Morlock, Laura L, & Alexander, Jeffrey A. (1986). Models of governance in multihospital systems: implications for hospital and system-level decision-making. *Med Care*, 24(12), 1118-1135.
- Nanos, Nik. (2009). Canadians overwhelmingly support universal health care; think Obama is on the right track in United States. *Policy Options*, 30(10), 12-14.
- Napier, Christopher. (2010). United Kingdom. In G. Previts, P. Walton & P. Wolnizer (Eds.), *A global history of accounting, financial reporting, and public policy* (pp. 302): Emerald Group.

National Institute for Standards and Technology. (2013, June 16). 2013-2014 criteria for performance excellence. Retrieved August 4, 2013, from http://www.nist.gov/baldrige/publications/business_nonprofit_criteria.cfm

Neely, Andy. (1999). The performance measurement revolution: why now and what next? *International Journal of Operations & Production Management*, 19(2), 205-228. doi: 10.1108/01443579910247437

Neely, Andy. (2005a). The evolution of performance measurement research: developments in the last decade and a research agenda for the next. *International Journal of Operations & Production Management*, 25(12), 14. doi: 10.1108/01443570510633648

Neely, Andy. (2005b). Performance measurement system design: a literature review and research agenda. *International Journal of Operations & Production Management*, 25(12), 1228-1263. doi: 10.1108/01443570510633639

Neely, Andy, Adams, Chris, & Crowe, Paul. (2001). The performance prism in practice. *Measuring Business Excellence*, 5(2), 7. doi: 10.1108/13683040110385142

Neely, Andy, Adams, Chris, & Kennerley, Mike. (2002). *The performance prism: the scorecard for measuring and managing business success*. Pearson Education.

Neely, Andy, Gregory, Mike, & Platts, Ken. (1995). Performance measurement system design: a literature review and research agenda.

International Journal of Operations & Production Management, 15(4), 80-116. doi: 10.1108/01443579510083622

Newman, Isadore, & Benz, Carolyn R. (1998). *Qualitative-quantitative research methodology: exploring the interactive continuum*. Carbondale, IL: Southern Illinois University Press.

Noe, Raymond A, Hollenbeck, John R, Gerhart, Barry, Wright, Patrick M, & Steen, Sandra. (2005). *Fundamentals of Human Resource Management* (Canadian ed.): McGraw-Hill Ryerson.

Nudurupati, S S, Bititci, Umit S, Kumar, V, & Chan, F T S. (2011). State of the art literature review on performance measurement. *Computers & Industrial Engineering*, 60(2), 279-290. doi: 10.1016/j.cie.2010.11.010

O'Regan, Nicholas, & Ghobadian, Abby. (2004). The importance of capabilities for strategic direction and performance. *Management Decision*, 42(2), 22. doi: 10.1108/00251740410518525

O'Sullivan, Guy (Writer). (2004). *The greatest Canadian* [Television]: Canadian Broadcast Corporation.

OECD. (2011). *Health at a Glance 2011 - OECD Indicators* (pp. 200).

Olsen, Eric O, Zhou, Honggeng, Lee, Dennis M S, Ng, Yoke-Eng, Chong, Chow Chewn, & Padunchwit, Pean. (2007). Performance measurement system and relationships with performance results. *International*

Journal of Productivity and Performance Management, 56(7), 559-582.
doi: 10.1108/17410400710823624

Ontario Local Health Integration Networks. (2013, July 28). Ontario LHIN legislation. Retrieved July 28, 2013

Otley, David. (1999). Performance management: a framework for management control systems research. *Management Accounting Research*, 10(4), 20. doi: 10.1006/mare.1999.0115

Pande, Peter, Neuman, Robert, & Cavanagh, Roland. (2000). *The Six Sigma way: how GE, Motorola, and other top companies are honing their performance*. New York, NY: McGraw-Hill Professional Publishing.

Papke-Shields, Karen, & Malhotra, Manoj K. (2001). Assessing the impact of the manufacturing executive's role on business performance through strategic alignment. *Journal of Operations Management*, 19(1), 18.

Pearce II, John A, Freeman, Elizabeth B, & Robinson Jr, Richard B. (1987). The tenuous link between formal strategic planning and financial performance. *Academy of Management Review*, 12(4), 658-675. doi: 10.2307/258071

Pepper, M P J, & Spedding, T A. (2010). The evolution of lean Six Sigma. *International Journal of Quality & Reliability Management*, 27(2), 138-155. doi: 10.1108/02656711011014276

- Polk, Ron E, Hohmann, Samuel F, Medvedev, Sofia, & Ibrahim, Omar. (2011). Benchmarking risk-adjusted adult antibacterial drug use in 70 US academic medical center hospitals. *Clinical Infections Diseases*, 53(11), 1100-1110. doi: 10.1093/cid/cir672
- Porter, Michael E. (1985). *Competitive advantage: creating and sustaining superior performance* (1st ed.). New York, NY: Free Press.
- Porter, Michael E. (1996). What is strategy? *Harvard Business Review*, 74(61-78).
- Ptok, Henry, Marusch, Frank, Schmidt, Uwe, Gastinger, Ingo, Wenish, Hubertus J C, & Lippert, Hans. (2011). Risk adjustment as basis for rational benchmarking: the example of colon carcinoma. *World Journal of Surgery*, 35(1), 196-205. doi: 10.1007/s00268-010-0796-6
- Rachlis, Michael, & Kushner, Carol. (1994). *Strong medicine: how to save Canada's health care system*. Toronto, ON: HarperCollins.
- Radnor, Zoe, & McGuire, Mary. (2004). Performance management in the public sector: fact or fiction? *International Journal of Productivity and Performance Management*, 53(3), 16. doi: 10.1108/17410400410523783
- Rarick, Charles A, & Vitton, John. (1995). Mission statements make cents. *Journal of business Strategy*, 16(1), 11-12. doi: 10.1108/eb039673

- Reijers, Hajo A. (2006). Implementing BPM systems: the role of process orientation. *Business Process Management Journal*, 14(2), 21. doi: 10.1108/14637150610678041
- Richards, Gregory S. (2007). Performance culture: strategies for achievement. *Canadian Government Executive*, 13(9), 14-16.
- Richardson, Peter R, & Gordon, John R M. (1980). Measuring total manufacturing performance. *Sloan Management Review*, 21(2), 47-58.
- Rigby, Darrell. (2001). Management tools & trends 2001 *Management tools & trends*. Boston, MA: Bain & Company, Inc.
- Rigby, Darrell. (2003). Management tools & trends 2003 *Management tools & trends*. Boston, MA: Bain & Company, Inc.
- Rigby, Darrell, & Bilodeau, Barbara. (2005). Management tools & trends 2005 *Management tools & trends*. Boston, MA: Bain & Company, Inc.
- Rigby, Darrell, & Bilodeau, Barbara. (2007). Management tools & trends 2007 *Management tools & trends*. Boston, MA: Bain & Company, Inc.
- Rigby, Darrell, & Bilodeau, Barbara. (2009). Management tools & trends 2009 *Management tools & trends*. Boston, MA: Bain & Company, Inc.
- Rigby, Darrell, & Bilodeau, Barbara. (2011). Management tools & trends 2011 *Management tools & trends*. Boston, MA: Bain & Company, Inc.

Rigby, Darrell, & Bilodeau, Barbara. (2013). Management tools & trends 2013
Management tools & trends. Boston, MA: Bain & Company, Inc.

Robinowitz, David L, & Dudley, R Adams. (2006). Public reporting of provider performance: can its impact be made greater? *Annual Review of Public Health*, 27, 517-536. doi: 10.1146/annurev.publhealth.27.021405.102210

Rubin, Herbert J, & Rubin, Irene S. (2012). *Qualitative interviewing: the art of hearing data [Amazon Kindle version]*

Rudd, John M, Greenley, Gordon E, Beatson, Amanda T, & Lings, Ian N. (2008). Strategic planning and performance: extending the debate. *Journal of Business Research*, 61(2), 99-108. doi: 10.1016/j.jbusres.2007.06.014

Ryan, Gery W. (1999). Measuring the typicality of text: using multiple coders for more than just reliability and validity checks. *Human Organization*, 58(3), 313-322.

Saunders, Mark N K, Lewis, Philip, & Thornhill, Adrian. (2012). *Research methods for business students* (6th ed.). Essex, UK: Pearson Education.

Schmenner, Roger W. (1988). Escaping the black holes of cost accounting. *Business Horizons*, 31(1), 66-72. doi: 10.1016/0007-6813(88)90043-2

- Sears, H Douglas. (2009). Bon Secours Health System integrates Lean Six Sigma and knowledge transfer to drive clinical and operational excellence. *Global Business and Organizational Excellence*, 28(6), 31-45. doi: 10.1002/joe.20286
- Shahian, David M, Edwards, Fred H, Jacobs, Jeffrey P, Prager, Richard L, Normand, Sharon-Lise T, Shewan, Cynthia M, . . . Grover, Frederick L. (2011). Public reporting of cardiac surgery performance: part 1 - history, rationale, consequences. *Annals of Thoracic Surgery*, 92(3-Supplement), S2-S11. doi: 10.1016/j.athoracsur.2011.06.100
- Sharma, Divesh S. (2005). The association between ISO 9000 certification and financial performance. *The International Journal of Accounting*, 40(2), 151-172. doi: 10.1016/j.intacc.2005.01.011
- Shortell, Stephen M, Morrissey, Michael A, & Conrad, Douglas A. (1985). Economic regulation and hospital behaviour: the effects on medical staff organization and hospital-physician relationships. *Health Services Research*, 20(5), 597-628.
- Shortt, Samuel Edward Dole. (1999). *The doctor dilemma: public policy and the changing role of physicians under Ontario Medicare*. Montreal, QC: McGill-Queen's University Press.
- Sidhu, Jatinder. (2003). Mission statements: is it time to shelve them? *European Management Journal*, 21(4), 8. doi: 10.1016/S0263-2373(03)00072-0

- Sidorova, Anna, & Isik, Oyku. (2010). Business process research: a cross-disciplinary review. *Business Process Management Journal*, 16(4), 566-597. doi: 10.1108/14637151011065928
- Silva, Paulino, & Ferreira, Aldonio. (2010). Performance management in primary health services: evidence from a field study. *Qualitative Research in Accounting and Management*, 7(4), 27. doi: 10.1108/11766091011094527
- Simons, Robert. (1995). *Levers of control: how managers use innovative control systems to drive strategic renewal*. Boston: Harvard Business Press.
- Simons, Robert, Dávila, Antonio, & Kaplan, Robert S. (2000). *Performance measurement and control systems for implementing strategy: text and cases*: Prentice Hall PTR.
- Skinner, Wickham. (1974). The focused factory. *Harvard Business Review*, 52(3), 113-121.
- Skrinjar, Rok, Bosilj-Vuksic, Vesna, & Indihar-Stemberger, Mojca. (2008). The impact of business process orientation on financial and non-financial performance. *Business Process Management Journal*, 14(5), 738-754. doi: 10.1108/14637150810903084

- Sollenberger, Donna K. (2006). Strategic planning in healthcare: the experience of the University of Wisconsin Hospital and Clinics. *Frontiers of Health Services Management*, 23(2), 17-31.
- Southeast LHIIN. (2012). Patient-based funding: quality-based procedures.
- Speckbacher, Gerhard, Bischof, Juergen, & Pfeiffer, Thomas. (2003). A descriptive analysis on the implementation of Balanced Scorecards in German-speaking countries. *Management Accounting Research*, 14(4), 361-387. doi: 10.1016/j.mar.2003.10.001
- Spector, Robert E. (2006). How constraints management enhances Lean and Six Sigma. *Supply Chain Management Review*, 10(1), 42-47.
- Spiegelhalter, David J. (1999). Surgical audit: statistical lessons from Nightingale and Codman. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 162(1), 45-58. doi: 10.1111/1467-985X.00120
- Studer Group.). About Studer Group. Retrieved July 12, 2013, from [https://
http://www.studergroup.com/who-we-are/about-studer-group/](https://http://www.studergroup.com/who-we-are/about-studer-group/)
- Studer Group.). Our Baldrige journey. Retrieved July 12, 2013, from [https://
http://www.studergroup.com/who-we-are/our-baldrige-journey/](https://http://www.studergroup.com/who-we-are/our-baldrige-journey/)
- Sun, Li-Yun, Aryee, Samuel, & Law, Kenneth S. (2007). High-performance human resource practices, citizenship behavior, and organizational

performance: a relational perspective. *Academy of Management Journal*, 50(3), 558-577. doi: 10.5465/AMJ.2007.25525821

Sutherland, Jason M. (2011). Hospital payment mechanisms: an overview and options for Canada *Cost drivers and health system efficiency* (pp. 24). Ottawa, ON: Canadian Health Services Research Foundation.

Taylor, Frederick Winslow. (1911). *The principles of scientific management*. New York, NY: Harper & Brothers.

Terziovski, Mile. (2010). Innovation practice and its performance implications in small and medium enterprises (SMEs) in the manufacturing sector: a resource-based view. *Strategic Management Journal*, 31(8), 892-902. doi: 10.1002/smj.841

The Ottawa Hospital. (2007). The Ottawa Hospital 2006-2007 annual report. Retrieved July 5, 2013, from <http://www.ottawahospital.on.ca/wps/wcm/connect/70b17e004b25b2278fd3df1faf30e8c1/annual-report-06-07-e.pdf?MOD=AJPERES>

The Ottawa Hospital. (2008a). Celebrating 10 years. Retrieved July 7, 2013, from <http://www.ottawahospital.on.ca/wps/wcm/connect/25d040004b25b2008ea7df1faf30e8c1/10-Anniversary-Retro.pdf?MOD=AJPERES>

The Ottawa Hospital. (2008b). The Ottawa Hospital 2007-2008 annual report. Retrieved July 5, 2013, from <http://www.ottawahospital.on.ca/wps/wcm/connect/8626a8004b25b2278fd4df1faf30e8c1/annual-report-07-08-e.pdf?MOD=AJPERES>

- The Ottawa Hospital. (2009). The Ottawa Hospital 2008-2009 annual report. Retrieved July 5, 2013, from <http://www.worldclasscare.ca/2009/en/>
- The Ottawa Hospital. (2010a). About our hospital. Retrieved July 4, 2013, from <http://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/AboutOurHospital>
- The Ottawa Hospital. (2010b). Governors. Retrieved July 29, 2013, from <http://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/AboutOurHospital/OurLeadershipTeam/Board/Governors>
- The Ottawa Hospital. (2010c). The Ottawa Hospital 2009-2010 annual report. Retrieved July 5, 2013, from <http://www.worldclasscare.ca/2010/en/>
- The Ottawa Hospital. (2010d). Our history. Retrieved July 4, 2013, from <http://www.ottawahospital.on.ca/wps/wcm/connect/4cca34804dcfbba09157df62660efeb4/Our+History+EN.pdf?MOD=AJPERES&useDefaultText=0&useDefaultDesc=0>
- The Ottawa Hospital. (2010e). Our vision. Retrieved July 12, 2013, from <http://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/AboutOurHospital/OurVision>
- The Ottawa Hospital. (2010f). Senior management team. Retrieved July 29, 2013, from <http://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/AboutOurHospital/OurLeadershipTeam/SeniorManagement>
- The Ottawa Hospital. (2011). The Ottawa Hospital 2010-2011 annual report. Retrieved July 5, 2013, from <http://www.worldclasscare.ca/2011/en/>

The Ottawa Hospital. (2012a). 2012-2015 strategic directions: compassionate care for every patient, every time. Ottawa, ON: The Ottawa Hospital.

The Ottawa Hospital. (2012b). The Ottawa Hospital 2011-2012 annual report. Retrieved July 5, 2013, from <http://www.worldclasscare.ca/2012/en/>

The Ottawa Hospital. (2013a). The Ottawa Hospital 2012-2013 annual report. Retrieved July 5, 2013, from <http://www.worldclasscare.ca/>

The Ottawa Hospital. (2013b, January 30). The Ottawa Hospital continues its Journey to Excellence despite budget challenge. Retrieved July 12, 2013, from

http://www.ottawahospital.on.ca/wps/portal/Base/TheHospital/AboutOurHospital/Newsroom!/ut/p/c5/rVHLcoJAEPyWfEDcWfYBHpFd2CUsylPgQqI5lBgflbK09OsDpZWbySXTx-6a6Z5GDeqxW5zWH4vjer9bfKIKNbwtbQnjCXZhqgsHtJvSRGSSAOdojuggF9W8nQBOX0ihjlqwD1qEhswSBqD4HytC1KyX29F5tR3ByLIwGwNIDHNSU0o4qhSqUWO3AWQB9RkFKAkGzb0o4mmlqUNQjmp9EwnHVoGmFkwVZqATVSQzy4YQoBdVQNusuxz0dXNNu2tCss438Zd7NnKD8-UUjsK7GPGq806SLEpN3M2tXB4MrMa49BPphs9VKPZPd0OIJ-3BUGDFvSETMklIhAuL_Out-dDJ4wd69Mb_JHeMEH1yzwkmSmCAO_9bPQMpd8YFFKv99g0dtqeIneL3AZnu6DfP8EIF/dl3/d3/L

Titus Jr, Varkey K, Covin, Jeffrey G, & Slevin, Dennis P. (2011). Aligning strategic processes in pursuit of firm growth. *Journal of Business Research*, 64(5), 446-453. doi: 10.1016/j.jbusres.2010.03.003

Turi, Zoltan G. (2005). The big chill. *Journal of the American College of Cardiology*, 45(11), 1766-1768. doi: 10.1016/j.jacc.2005.03.003

- Turney, Peter B B, & Anderson, Bruce. (1989). Accounting for continuous improvement. *Sloan Management Review*, 30(2), 37-46.
- Vaccaro, Ignacio G, Jansen, Justin J P, Van Den Bosch, Frans A J, & Volberda, Henk W. (2012). Management innovation and leadership: the moderating role of organizational size. *Journal of Management Studies*, 49(1), 28-51. doi: 10.1111/j.1467-6486.2010.00976.x
- van Dooren, Wouter, Bouckaert, Geert, & Halligan, John. (2010). *Performance management in the public sector*. Taylor & Francis Group.
- van Lent, Wineke A M, de Beer, Relinde D, & van Harten, Wim. (2010). International benchmarking of specialty hospitals. A series of case studies on comprehensive cancer centers. *BMC Health Services Research*, 10, 253-263. doi: 10.1186/1472-6963-10-253
- Verweire, Kurt, & van den Berghe, Lutgart. (2003). Integrated performance management: adding a new dimension. *Management Decision*, 41(8), 9. doi: 10.1108/00251740310496297
- Verweire, Kurt, & van den Berghe, Lutgart. (2004). Integrated performance management: a guide to strategy implementation [Sony Reader version]. 352.
- Vest, Joshua R, & Gamm, Larry D. (2009). A critical review of the research literature on Six Sigma, Lean, and StuderGroup's Hardwiring Excellence in the United States: the need to demonstrate and

communicate the effectiveness of transformation strategies in healthcare. *Implementation Science*, 4:35(July), 9. doi: 10.1186/1748-5908-4-35

Virginia Mason Medical Center. (2013a). About Virginia Mason. Retrieved August 15, 2013, from [https://
http://www.virginiamason.org/AboutVirginiaMason](https://http://www.virginiamason.org/AboutVirginiaMason)

Virginia Mason Medical Center. (2013b). Virginia Mason Production System. Retrieved August 15, 2013, from [https://
http://www.virginiamason.org/VMPS](https://http://www.virginiamason.org/VMPS)

Waggoner, Daniel B, Neely, Andy D, & Kennerly, Mike P. (1999). The forces that shape organisational performance measurement systems: an interdisciplinary review. *International Journal of Production Economics*, 60-61, 53-60. doi: 10.1016/S0925-5273(98)00201-1

Wait Time Alliance. (2010). No time for complacency: report card on wait times in Canada.

Wait Time Alliance. (2011). Time out!

Watson, Gregory H. (1993). *Strategic benchmarking: how to rate your company's performance against the world's best* (1st ed.). New York, NY: J. Wiley & Sons.

- Watson, Gregory H. (2007). *Strategic benchmarking reloaded with Six Sigma*. Hoboken, NJ: John Wiley & Sons.
- Weber, David Ollier. (2006). Toyota-style management drives Virginia Mason. *Physician Executive*, 32(1), 12-17.
- Wells, Rebecca, Lee, Shoou-Yih Daniel, McClure, Jennifer, Baronner, Larry, & Davis, Lisa. (2004). Strategy development in small hospitals: stakeholder management in constrained circumstances. *Health Care Management Review*, 29(3), 218-228.
- Werner, Rachel M, & Asch, David A. (2005). The unintended consequences of publicly reporting quality information. *Journal of the American Medical Association*, 293(10), 1239-1244. doi: 10.1001/jama.293.10.1239
- Werner, Rachel M, Konetzka, R Tamara, & Kruse, Gregory B. (2009). Impact of public reporting on unreported quality of care. *Health Services Research*, 44(2p1), 379-398. doi: 10.1111/j.1475-6773.2008.00915.x
- West, Michael A, Guthrie, James P, Dawson, Jeremy F, Borrill, Carol S, & Carter, Matthew. (2006). Reducing patient mortality in hospitals: the role of human resource management. *Journal of Organizational Behavior*, 27(7), 983-1002. doi: 10.1002/job.396

- Westley, Frances, & Mintzberg, Henry. (1989). Visionary leadership and strategic management. *Strategic Management Journal*, 10(S1), 17-32. doi: 10.1002/smj.4250100704
- Wholey, Joseph S. (1996). Formative and summative evaluation: related issues in performance measurement. *Evaluation Practive*, 17(2), 5. doi: 10.1016/S0886-1633(96)90019-7
- Williams, Jaime, Smythe, William, Hadjistavropoulos, Thomas, Malloy, David C, & Martin, Ronald. (2005). A study of thematic content in hospital mission statements: a question of values. *Health Care Management Review*, 30(4), 304-314.
- Williams, Linda Stallworth. (2008). The mission statement: a corporate reporting tool with a past, present, and future. *Journal of Business Communication*, 45(2), 26. doi: 10.1177/0021943607313989
- World Health Organization. (2005). Preventing chronic diseases: a vital investment. Geneva, Switzerland: World Health Organization.
- Wright, J Nevan. (2002). Mission and reality and why not? *Journal of Change Management*, 3(1), 30-44. doi: 10.1080/146970102123656296
- Yin, Robert K. (2008). *Case study research design and methods [Amazon Kindle version]* (pp. 240).

- Yin, Robert K, & Davis, Darnella. (2007). Adding new dimensions to case study evaluations: the case of evaluating comprehensive reforms. *New Directions for Evaluation*(113), 75-93. doi: 10.1002/ev/216
- Zairi, Mohamed. (1997). Business process management: a boundaryless approach to modern competitiveness. *Business Process Management Journal*, 3(1), 64-80. doi: 10.1108/14637159710161585
- Zelman, William N, Pink, George H, & Matthias, Catherine B. (2003). Use of the Balanced Scorecard in health care. *Journal of Health Care Finance*, 29(4), 1-16.
- Zuckerman, Alan M. (2006). Advancing the state of the art in healthcare strategic planning. *Frontiers of Health Services Management*, 23(2), 3-15.

Appendix 1: Hospital Funding

For many years, hospitals in Canada were funded almost exclusively through global budgets. In fact, global budgeting remains the principal funding mechanism for hospitals to this day (Sutherland, 2011). Global budgeting is a funding model where a funding authority capitalizes a hospital to provide healthcare services for a fixed period of time (Gratzer, 1999, p. 141; Sutherland, 2011). Under this model, the amount of funding a hospital receives usually is determined by a number of factors, including historical funding, inflation, and the addition of new programs (Sutherland, 2011).

The problem with global budgeting is that it is dissociated from clinical and financial performance. In fact, one might even say that, if anything, global budgeting creates perverse incentives that can promote inappropriate decision-making. For example, if a hospital improves operational efficiency that allows it to reduce the cost of service delivery and subsequently realizes a significant favorable budget variance at fiscal year-end, then this money is 'lost' (it has to be returned to the funding authority) and it may even lead to reduced funding the subsequent fiscal year because the funding authority may assume that the hospital is over-funded (Gratzer, 1999, p. 141). Conversely, if the hospital finds capacity efficiencies that allow it to treat more patients, assuming the cost of treatment remains unchanged, it incurs additional costs without additional funding (Gratzer, 1999, p. 142).

One alternative to global budgeting is activity-based funding. Unlike global budgets, activity-based funding (ABF), alternatively known as case-based funding, compensates hospitals based on the volume of patients treated within a specific diagnosis-related group (DRG) (Sutherland, 2011). A DRG represents a “constellation of clinically similar patients whose costs are expected to be similar” (Sutherland, 2011). Thus, the more patients that are treated, the greater the amount of funding the hospital receives. The primary goals of ABF, at least in the context of the Canadian healthcare system, are to improve productivity and efficiency (Government of Ontario, 2012b; Southeast LHIIN, 2012; Sutherland, 2011). However, ABF also can help to improve the quality of care given the flat funding that each case receives as this strongly encourages the adoption of best practice to minimize complications and other developments that could increase the cost of providing care.

In Ontario, ABF is being implemented in the form of ‘quality-based procedures’ (QBP) as part of that province’s Health System Funding Reform (HSFR) initiative (Government of Ontario, 2012b). Though global funding remains the bulk of a hospital’s funding envelope, QBPs for four groups of services were implemented in 2012: total hip replacement, total knee replacement, chronic kidney disease, and cataracts (Government of Ontario, 2012a). More QBPs will be implemented over time (Government of Ontario, 2012a). Funding for three of the four QBPs is set at the 40th percentile of the historic costs incurred for those services over a three-year period, though this may change to reflect the ‘best price’ sometime in the future

(Southeast LHIIN, 2012). The intent is to drive down and reduce the variance in the cost of providing these services.

Appendix 2: The Ottawa Hospital

The Ottawa Hospital (TOH) is a publicly funded academic health sciences center located in Ottawa, Ontario, which falls within the Champlain LHIN. At 1,149 beds (The Ottawa Hospital, 2013a), TOH is one of Canada's largest hospitals (Canadian Healthcare Association, 2013). The hospital is a focal point for tertiary care in eastern Ontario (The Ottawa Hospital, 2010a), which helps to make it the busiest academic health sciences center in the country (The Ottawa Hospital, 2010a). Table 25 shows the volume of key patient care activities fiscal 2012-2013 (The Ottawa Hospital, 2013a). TOH was founded in 1998 through the merger of the former Civic, General, and Riverside hospitals (The Ottawa Hospital, 2010d).

Table 25: TOH Case Volumes for the 2012-2013 Fiscal Year

Item	Volume
Laboratory procedures	14,918,949
Ambulatory care visits	1,052,117
Emergency visits	158,684
Patient admissions	48,232
Surgical cases	33,874
Eye care surgical cases	13,684
Deliveries	6,538

The Ottawa Hospital delivers healthcare services across three campuses. The hospital has adopted a corporate governance structure, which means there is one board of governors, one senior management team, but no other governing or advisory boards or committees at the campus level (Morlock & Alexander, 1986).

Other multi-site hospitals elsewhere in Ontario and across Canada, such as the University Health Network in Toronto, have chosen to adopt a network or “parent holding company” governance structure, which is characterized by a board of governors at the system level and advisory boards and senior management teams at the hospital or campus level (Morlock & Alexander, 1986). Table 26 shows membership on The Ottawa Hospital’s Board of Governors (The Ottawa Hospital, 2010b) and Table 27 shows membership on The Ottawa Hospital’s Senior Management Team (The Ottawa Hospital, 2010f). Jack Kitts, TOH’s current president and CEO, was appointed to the position in February 2002 (The Ottawa Hospital, 2008a).

Table 26: TOH Board of Governors

Name	Position	Name	Position
Carole Workman	Chair	Dr. Jack Kitts	Ex-Officio
James G. McCracken	Vice-Chair	Michel Lavigne	
Martin Parizeau	Treasurer	Dr. John Mahoney	Ex-Officio
Dr. Jacques Bradwejn	Ex-Officio	Dr. Ginette Rodger	Ex-Officio
Derek Burney		Marc Seaman	
Katherine Cotton		Shafique Shamji	
Mary Dawson		Bashir Surani	
Emily Gruenwoldt		Lillian Thomsen	
Dr. Haissam Haddad	Ex-Officio	Dr. Jeff Turnbull	Ex-Officio
Dr. Dave Holmes	Ex-Officio	Vincent Westwick	

Table 27: TOH Senior Management Team

Name	Position
Dr. Jack Kitts	President and CEO
Dr. Jeffrey Turnbull	Chief of Staff
Dale Potter	Senior Vice-President, Strategy and Transformation
Dr. James Worthington	Senior Vice-President, Medical Affairs, Quality and Performance
Renée Légaré	Senior Vice-President, Human Resources
Richard Wilson	Senior Vice-President, Finance and Business Development
Ginette Rodger	Senior Vice-President, Professional Practice, and Chief Nursing Executive
Cameron Love	Senior Vice-President, Operations and Clinical Programs
Allison Neill	Senior Vice-President, Communications and Outreach
Paula Doering	Senior Vice-President, Perioperative Services, Cancer and Diagnostics
Michael Tierney	Vice-President, Critical Care, Emergency and Clinical Programs
Dr. Duncan Stewart	CEO, Ottawa Hospital Research Institute and Vice-President, Research (TOH)
Dr. Bob Roberts	President and CEO, University of Ottawa Heart Institute
Tim Kluge	President and CEO, The Ottawa Hospital Foundation
Dr. Philip Wells	Medical Director, Medicine
Dr. Sudhir Sundaresan	Interim Medical Director, Surgery
Dr. Robert Swenson	Medical Director, Mental Health
Dr. Homer Yang	Medical Director, Anesthesiology
Andrée Gruslin	Acting Medical Director, Obstetrics, Gynecology and Newborn Care
Dr. Adam Cwinn	Medical Director, Emergency and Critical Care
Dr. Mark Schweitzer	Medical Director, Medical Imaging

The Ottawa Hospital had an operating budget of \$ 1.273 billion in fiscal 2012-2013 (The Ottawa Hospital, 2013a). As illustrated in Figure 2, this represents an average growth rate of 3.8% over the past seven years (The Ottawa Hospital, 2008b, 2009, 2010c, 2011, 2012b, 2013a). In fiscal 2012-2013, 77% of revenue came from provincial funding, as outlined in Figure 3 (The Ottawa Hospital, 2013a). Figure 4 shows the proportion of revenue from provincial funding has been relatively stable over the past seven years, though there was a 2% decline in 2008-2009, the year of

the global economic slowdown, and provincial funding has remained stable at 77% ever since, except for fiscal 2010-2011 when provincial funding fell to 76% of overall revenue (The Ottawa Hospital, 2007, 2008b, 2009, 2010c, 2011, 2012b, 2013a). TOH has a long history of delivering balanced budgets (see Figure 2), achieving its highest favorable budget variance in fiscal 2012-2013 when revenue exceeded expenses by almost \$28 million (The Ottawa Hospital, 2007, 2008b, 2009, 2010c, 2011, 2012b, 2013a). While hospitals in Ontario are legally required to deliver a balanced budget (Government of Ontario, 2012c), this is becoming increasingly difficult given inflationary pressures, particularly in the form of collective bargaining and other wage increases since, as noted in Figure 5, salary and medical staff disbursements account for approximately two-thirds of all expenditures (The Ottawa Hospital, 2013a). Given mounting budgetary pressures, The Ottawa Hospital was projecting a \$31 million shortfall for fiscal 2013-2014 (The Ottawa Hospital, 2013b). In order to balance its budget, the hospital is eliminating 290 full time positions, including 90 nursing positions, 100 administrative and support positions, and 100 allied healthcare provider positions (The Ottawa Hospital, 2013b). TOH hopes to redeploy affected staff into currently vacant positions (The Ottawa Hospital, 2013b).

Figure 2: TOH Annual Revenue and Expenses

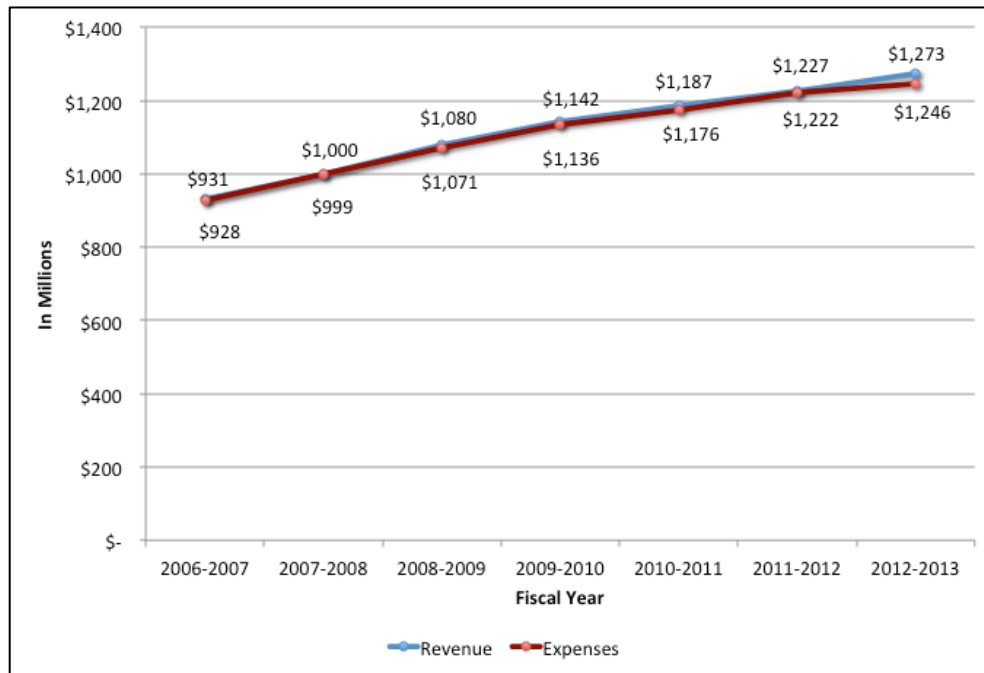


Figure 3: TOH Revenue Distribution for Fiscal 2012-2013

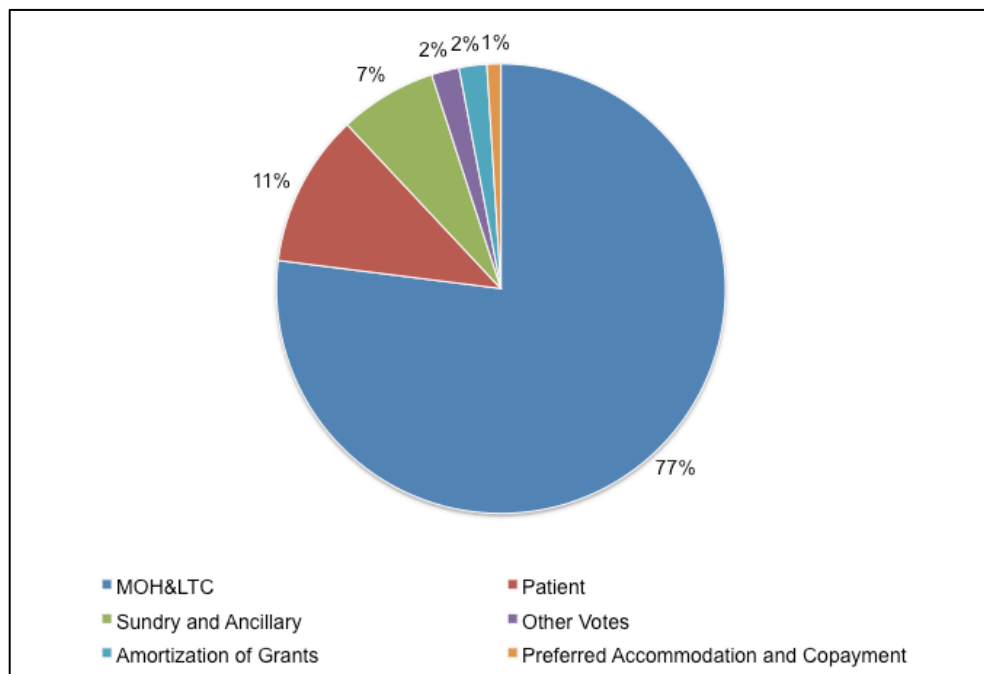


Figure 4: Percentage of TOH Revenue from MOH<C Funding

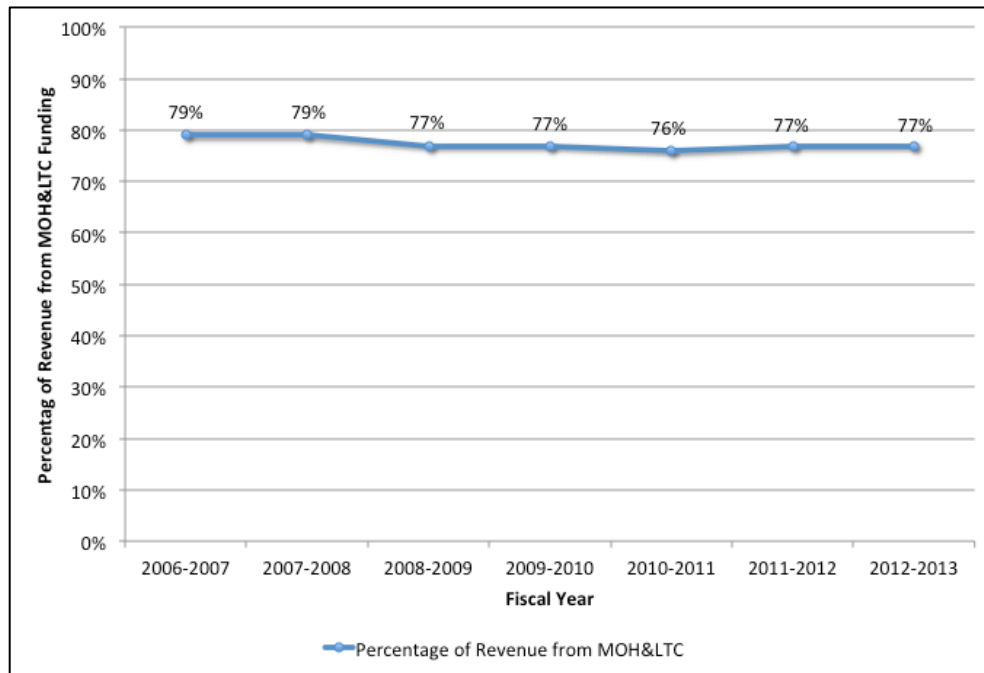
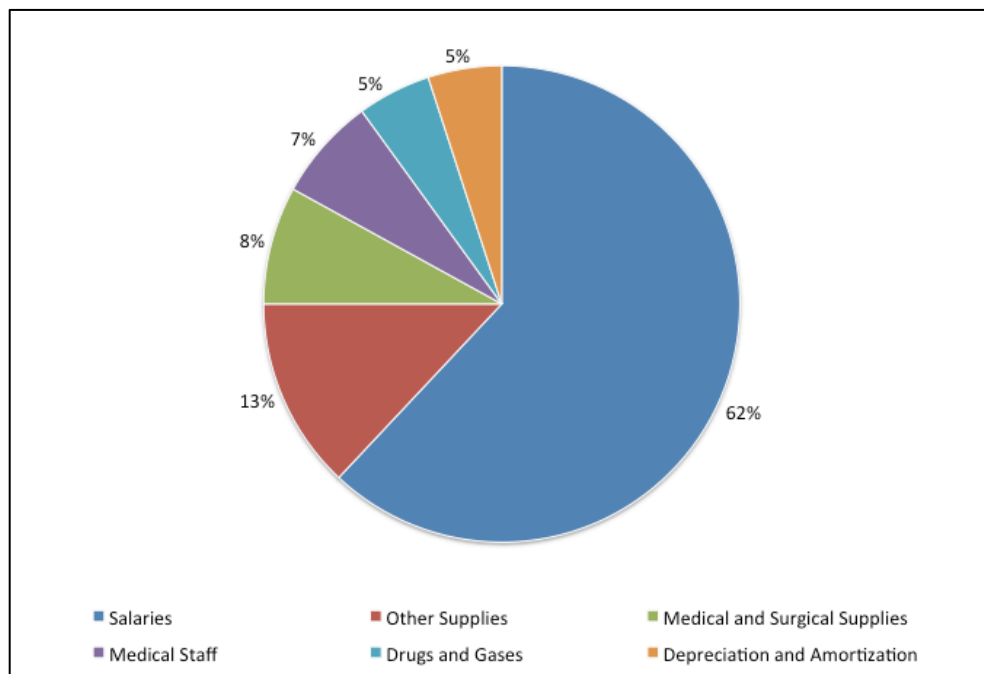


Figure 5: TOH Expense Distribution (Fiscal 2012-2013)



Despite these cutbacks, TOH remains the second largest employer in Ottawa (City of Ottawa, 2008). As noted in Figure 6, the hospital had 13,113 staff and physicians in fiscal 2012-2013 (The Ottawa Hospital, 2013a). Given its role as an academic health sciences center, TOH also hosts a significant number of clinicians in training. Figure 7 shows a breakdown of the hospital's 4,046 clinical placements in fiscal 2012-2013 (The Ottawa Hospital, 2013a).

Figure 6: TOH Staff, Physicians, and Volunteers (Fiscal 2012-2013)

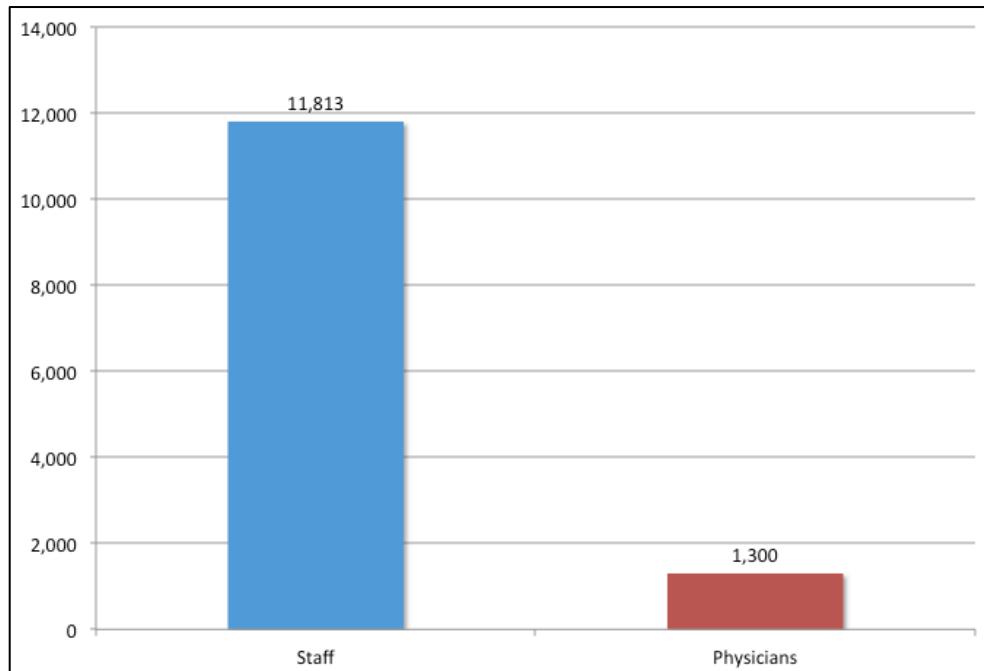
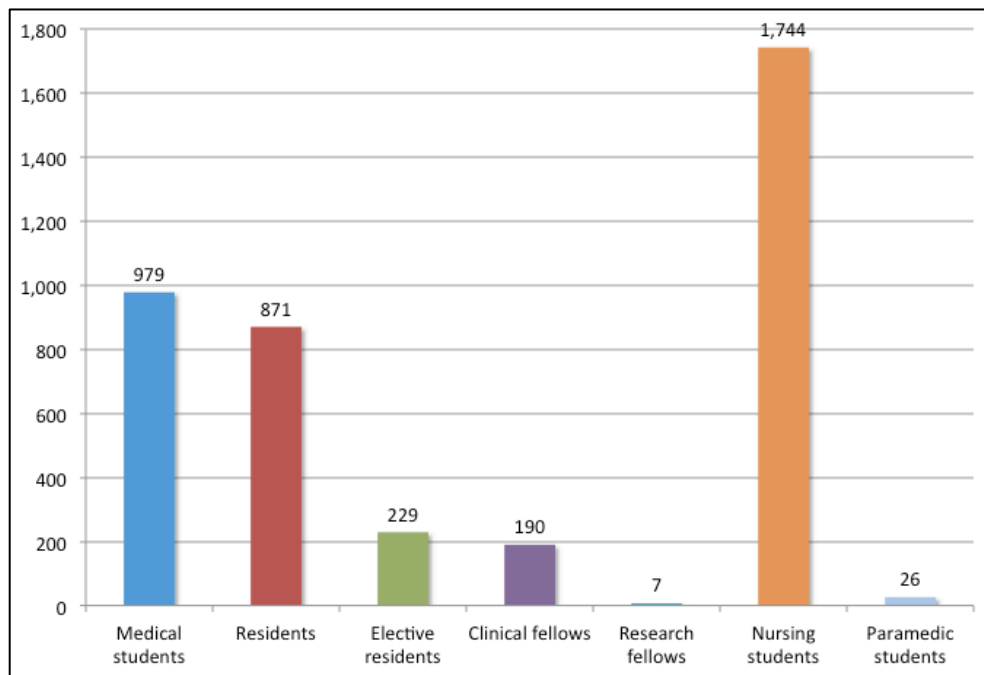


Figure 7: TOH Clinical Placements (Fiscal 2012-2013)



The Ottawa Hospital's vision is "to provide each patient with the world-class care, exceptional service, and compassion we would want for our loved ones" (The Ottawa Hospital, 2010e). This vision, implemented in 2010, is the cornerstone of the hospital's Journey to Excellence. As often told by Jack Kitts, The Ottawa Hospital's President and CEO, the need for a new vision became apparent in 2008 when he received what is commonly known across TOH as 'The Letter':

"As the Senior Leadership Team at The Ottawa Hospital (TOH), we receive many letters from patients and their families, but one in the spring of 2008 was exceptional in its restrained eloquence and the clarity of its message.

The author's wife had fallen at the family cottage on a long weekend and had badly broken her hip and wrist. She was transferred from a Gatineau hospital to TOH for surgery. The author was writing not about his wife's medical treatment (the surgery was successful and she recovered fully) but about the care she received – or rather, didn't receive – while she waited several days for surgery. What was lacking at every stage, the author said, was compassion.

We were deeply affected by this letter. TOH had failed a distressed patient, and we believed that the experiences of this patient and her husband were, sadly, not uncommon in health care.

We believe that every patient has a right to expect the best possible experience in our hospital, and that everyone working at TOH has a responsibility to meet those expectations. We knew it was time to make a profound and lasting change at TOH" (The Ottawa Hospital, 2012a).

What does it mean to provide world-class care and exceptional service? TOH's senior management team defines this, amongst other things, as "becoming a top 10-percent performer in quality and safety of patient care in North America" (The Ottawa Hospital, 2013a). Aware of its current standing as an average performer, TOH engaged the assistance of the Studer Group and Ernst & Young to ensure its success along its Journey to Excellence.

The Studer Group is an American consulting firm that teaches healthcare organizations how to “achieve, sustain, and accelerate exceptional clinical, operational, and financial outcomes” (Studer Group). The firm was a Malcolm Baldrige National Quality Award recipient in 2010 (Studer Group). TOH is collaborating with the Studer Group to implement Studer’s nine principles (see Table 28) using a variety of tactics such as quarterly leadership development (Leadership Development Institute™), objective and transparent leadership evaluation (Leadership Evaluation Manager™), rounding on staff (Rounding for Performance), and rounding on patients (Hourly Rounding™), as well as others.

Table 28: Studer Group's Nine Principles™

Principle
1. Commit to excellence
2. Measure the important things
3. Build a culture around service
4. Create and develop leaders
5. Focus on employee satisfaction
6. Build individual accountability
7. Align behaviors with goals and values
8. Communicate at all levels
9. Recognize and reward success

Ernst & Young is a large multinational auditing and consulting firm. TOH is collaborating with Ernst & Young to implement a transformation initiative that will allow the hospital to standardize and optimize high-value processes across the hospital. This \$50 million initiative, which aims to produce a return on investment of

at least \$90 million over the next five years, is meant to transform The Ottawa Hospital into a high performing process-oriented learning organization capable of delivering the safest and highest quality care to every patient, every time, at the lowest possible cost.

Over the past four years, as part of its Journey to Excellence, beginning with the development of a new vision, mission, and strategy, The Ottawa Hospital has been developing and implementing an IPMS to provide its leaders with valuable near real-time data that enables them to make and execute effective, timely decisions in support of the organization's vision, mission, and strategy. While the system is not fully developed, it is undoubtedly changing how leaders manage the organization. TOH's purposeful, focused and ongoing effort to develop and implement an IPMS provides a rare opportunity to learn from the challenges the organization has encountered thus far in deploying such a system, potentially reducing the slope of the learning curve for those who will follow, hence this study.

Appendix 3: TOH Strategic Goals and Objectives

Legend

- SG: Strategic goal
- SO: Strategic objective

Quality Pillar

SG1: Provide each patient with an exceptional experience.

- SO1: Create a culture of courtesy and compassion.
- SO2: Improve patient satisfaction by effectively managing pain.
- SO3: Improve satisfaction with transitions of care.
- SO4: Engage patients and families managing their care.

SG2: Enable a safe, reliable continuum of care.

- SO1: Ensure continuity during transition from hospital to community.
- SO2: Adopt evidence-based practices to reduce infection and prevent harm.
- SO3: Implement electronic tools to inform and improve quality and safety and mitigate harm.

SG3: Provide timely access to care, and appropriate care, by optimizing processes and capacity

- SO1: Develop and implement an organization-wide approach to drive performance improvement and clinical transformation, particularly in ambulatory care, cancer care, Emergency Department services, the medication cycle, and perioperative services.
- SO2: Focus on providing specialty services, aligned with TOH's academic mission.

SG4: Strategically invest in information systems and technology to enable high quality of care and improve the work experience.

- SO1: Complete the development of the electronic health record and data warehouse to enable performance measurement and evidence-based decision making.
- SO2: Measure and report performance to drive improvement, benchmarking with high-performing systems.

People Pillar

SG1: Create a workplace that inspires and engages each individual.

- SO1: Ensure that all staff members understand their role in helping TOH achieve its vision and can connect their work to TOH's goals.
- SO2: Reward and recognize staff, physicians, trainees, and volunteers for individual and team excellence.
- SO3: Create a culture of physician leadership and accountability.

SG2: Attract, develop, and retain the best people.

- SO1: Develop a highly skilled workforce with a sufficient number and mix of clinicians, researchers, health professionals, and other service providers.
- SO2: Create inter-professional teams focused on patient-centered care.
- SO3: Invest in leadership development.
- SO4: Engage staff in developing new skills and abilities by leveraging technology and leading learning practices.
- SO5: Implement a system and culture of effective performance management across TOH for staff and physicians.

SG3: Create a safe and healthy workplace.

- SO1: Implement a TOH wellness program, collaborating with staff members to improve their health.

- SO2: Complete the implementation of the Health and Safety Management System.

Academics Pillar

SG1: Together with its health research partners, be a leader in making discoveries and translating findings to the bedside.

- SO1: Create a culture that values research and clinical practices as key contributors to making discoveries and translating them to the bedside.
- SO2: Build strong and sustainable research programs.
- SO3: Recruit and retain outstanding researchers.

SG2: Together with the University of Ottawa, be a leader in training the next generation of health professionals.

- SO1: Provide each trainee with an exceptional learning experience.
- SO2: Engage trainees and align them with TOH's vision and goals..
- SO3: Foster a culture of continuous learning and discovery throughout TOH.
- SO4: Offer best education and deliberate practice through the University of Ottawa Skills and Simulation Center.

Partner Pillar

SG1: Collaborate with health partners to ensure that patients receive the care they need, when they need it, and in the right environment.

- SO1: Support effective regional distribution of clinical services and the development of associated infrastructure, aligned with TOH's Master Plan.
- SO2: Create partnerships with primary care physicians.
- SO3: Create a senior-friendly hospital.

SG2: Foster effective community partnerships in order to understand health needs and respond to priorities aligned with TOH's mission and vision.

- SO1: Inspire the community to support leading patient care and research at TOH and OHRI through TOHF.
- SO2: Enable TOH's health-provider partners to grow and provide care to meet the health needs of Champlain residents.

SG3: Improve the health of the population through advocacy for health promotion and disease prevention.

- SO1: Provide quality chronic disease prevention and management programs.

Finance Pillar

SG1: Maximize efficiencies and increase productivity.

- SO1: Set the benchmark for clinical and operational efficiency by applying performance improvement methods to clinical and support services.
- SO2: Achieve stable sources of funding and adapt to a changing financial environment with new funding models, to support high-quality care.

SG2: Strategically invest in facilities and equipment.

- SO1: Pursue The Ottawa Hospital 2020 Master Plan, including plans for a new Civic Campus and expanded University of Ottawa Heart Institute.

Appendix 4: Case Studies

A case study is an “empirical inquiry that investigates contemporary phenomenon in depth and within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident” (Yin, 2008), where “the subject of evaluation may be considered the phenomenon of interest and the surrounding events its context” (Yin & Davis, 2007). It allows the researcher to cope with “the technically distinctive situation in which there will be many more variables of interest than data points” (Yin, 2008). Case studies are ideal for investigating the ‘what’, ‘why’, and ‘how’ of contemporary phenomenon (Yin, 2008). This study adopted the case study for the reason(s) explained in Section 3.

A case study may consist of one single case or multiple cases. This study focused on a single case, that of The Ottawa Hospital’s recent and ongoing implementation of an IPMS. There are five major rationales for basing a case study on a single case. The first rationale is that the case in question represents “the critical case in testing a well-formulated theory” (Yin, 2008). The second rationale is that the case in question represents “an extreme case or unique case” (Yin, 2008). A third rationale is that the case in question is “the representative or typical case [and] the lessons learned from these cases are assumed to be informative about the experiences of the average person or institution” (Yin, 2008). The fourth rationale is that the “investigator has an opportunity to observe and analyze a phenomenon previously inaccessible to [...] inquiry” (Yin, 2008). Finally, the fifth rationale is the

opportunity to study a case across two or more distinct moments in time (Yin, 2008).

TOH's implementation of an IPMS constitutes a unique and revelatory case.

Appendix 5: Research Interviews

The research interview is “a purposeful conversation between two or more people, requiring the interviewer to establish rapport, to ask concise and unambiguous questions to the interviewee who is willing to respond and to listen attentively” (Saunders, Lewis, & Thornhill, 2012). They are amongst the most important methods of gathering data, particularly with the case study methodology, when concepts and themes are being explored (Guest et al., 2011; Yin, 2008).

Several typologies are used to classify research interviews. One common typology classifies interviews according to the duration of the interview. Under this typology, interviews may be classified as focused or in-depth (Yin, 2008). This study adopted the focused interview method. Focused interviews are those “in which a person is interviewed for a short period of time – an hour, for example” (Yin, 2008). This study adopted the focused interview for the reason(s) explained in Section 3.

Another common typology classifies interviews according to their degree of formality and the extent to which the interviewer adheres to a predefined set of questions. Under this typology, interviews may be classified as structured, semi-structured, or unstructured (Cooper & Schindler, 2005, p. 204; Saunders et al., 2012, p. 374). This study adopted the semi-structured interview method for the reason(s) explained in Section 3. A semi-structured interview is one where the interviewer has a set of predefined questions however, the order of the questions, as well as their emphasis

within the interview, may vary (Cooper & Schindler, 2005, p. 717; Saunders et al., 2012, p. 374).

Appendix 6: Surveys

A survey is “a system for collecting information about people to describe, compare, or explain their knowledge, attitudes, and behavior” (Fink, 2002, p. 1). A survey can be administered by questionnaire, structured interview, structured observation, or structured review. This study adopted the survey for the reason(s) explained in Section 3. Questionnaires are undoubtedly the most common method of conducting survey research. A questionnaire is “an instrument delivered to the participant via personal [...] or nonpersonal [...] means that is completed by the participant” (Cooper & Schindler, 2005, p. 716).

Several typologies are used to classify questionnaires. One common typology classifies questionnaires by how they are administered. Under this typology, questionnaires may be classified as self-administered or interviewer-administered (Saunders et al., 2012, pp. 419-420), the latter of which is also known as a structured interview (Rubin & Rubin, 2012). This study adopted the self-administered questionnaire. A self-administered questionnaire is a questionnaire that a respondent completes on his or her own (Saunders et al., 2012, p. 419). Such questionnaires can be administered through a variety of media. Computer-based self-administered questionnaires, more commonly referred to as computer-assisted self-interviews (CASI) are pervasive (Cooper & Schindler, 2005, p. 254) and frequently encountered in the online (web-based) environment. Other common techniques for these types of questionnaires include mail, email, and hand delivery

(Saunders et al., 2012, p. 419). This study adopted the online questionnaire for the reason(s) explained in Section 3.

Appendix 7: Mixed Methods Research

There are two main research designs: quantitative and qualitative. Quantitative research is “a means for testing objective theories by examining the relationship among variables. These variables, in turn, can be measured, typically on instruments, so that numbered data can be analyzed using statistical procedures” (Creswell, 2009). Qualitative research, on the other hand, is “a means for exploring and understanding the meaning individuals and groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant’s setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data” (Creswell, 2009). The discussion of research method is often “dichotomized and presented in either a quantitative or qualitative category because the two paradigms have been assumed to be polar opposites and, among some, even separate and distinct scientific absolutes” (Newman & Benz, 1998, p. 13). However, it is more appropriate to view qualitative and quantitative research as the ends of a design continuum, at the center of which lies a third increasingly popular and valued approach known as mixed methods research (Creswell & Plano Clark, 2006; Newman & Benz, 1998). Mixed methods research is a means of inquiry that combines qualitative and quantitative research, which provides “a better understanding of research problems than either approach alone” (Creswell & Plano Clark, 2006). This study adopted the mixed method design for the reason(s) explained in Section 3.

Appendix 8: Interview Questionnaire

PART 1 – History, Motivation, and Components

1. When did TOH seriously start looking to implement an IPMS?
2. What factors motivated TOH's senior leaders to pursue the implementation of an IPMS? What made its implementation so important at that time?
3. What are the critical components of TOH's IPMS?
4. In your opinion, how important is it for TOH or any other Canadian hospital to implement an IPMS?

PART 2 – FRAMEWORK ANALYSIS (FERREIRA AND OTLEY, 2009)

5. How are TOH's vision and mission brought to the attention of managers and employees? What mechanisms, processes, and networks does TOH use to convey its overarching purpose and objectives to its members?
6. What key factors are central to TOH's overall future success? How are these brought to the attention of managers and employees?
7. How does TOH's organizational structure impact the design and use of its IPMS?
8. What strategies and plans has TOH adopted and what processes and tactics are required for success? How are strategies and plans generated and communicated to managers and employees?
9. What are TOH's key performance measures? Are they linked closely with performance objectives, key success factors, and strategies and plans? How are they specified and communicated to managers and employees, and what role do they play in performance evaluation? Are there significant omissions?
10. How does TOH go about setting appropriate performance targets for key performance measures? How challenging are the performance targets?

11. What processes, if any, does the organization follow for evaluating individual, group, and organizational performance? Are performance evaluations primarily objective, subjective or mixed and how important are formal and informal information and controls in these processes?
12. What rewards, both financial and non-financial, will managers and other employees gain by achieving performance targets or other assessed aspects of performance. Conversely, what penalties will they suffer by failing to achieve them?
13. What specific information flows, systems, and networks has the organization put in place to support the operation of its IPMS?
14. How does TOH use information from its control mechanisms? How do controls and their uses differ at different hierarchical levels? Does TOH have all of the data it needs for its IPMS?
15. How has the IPMS altered in light of changing dynamics of the organization and its environment? Have changes to the IPMS design or use generally been proactive or reactive?
16. How well integrated is TOH's IPMS? (i.e. how strong and coherent are the links between the components of TOH's various PMSs? And the way in which they are used?)

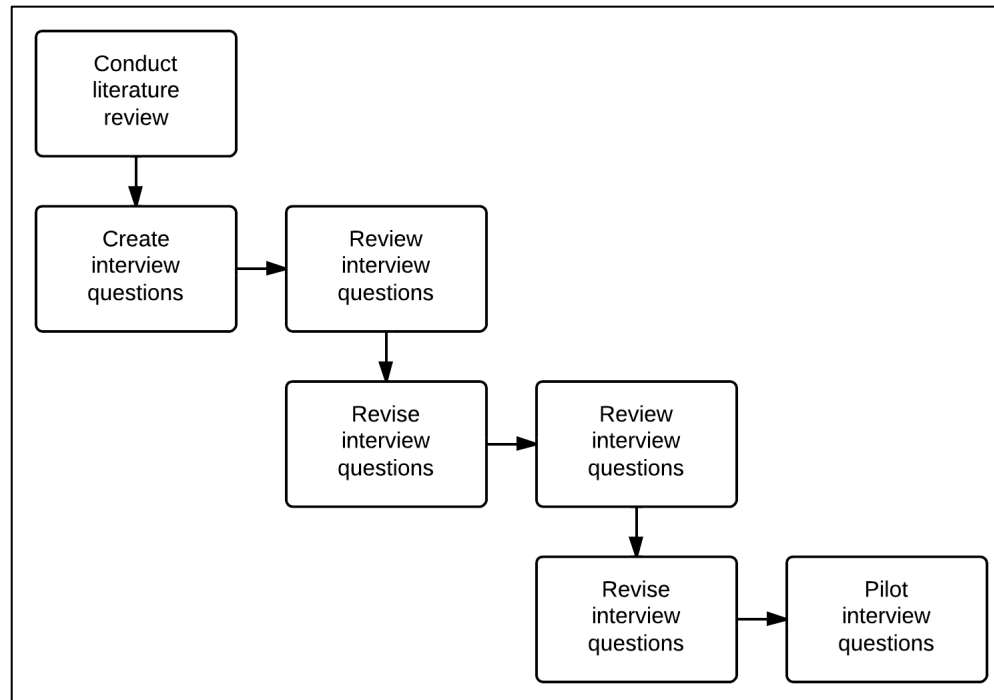
PART 3 – LESSONS LEARNED

17. What are the biggest challenges that TOH has encountered in its efforts to date to implement a robust IPMS?
18. What has worked well?
19. What hasn't worked well?
20. What advice would you give colleagues at another hospital about implementing an IPMS?

Appendix 9: Development of the Interview Questionnaire

Figure 8 outlines the process used to develop the interview questions.

Figure 8: Process for Developing Interview Questions



A literature review was conducted to identify the most appropriate framework with which to analyze TOH's IPMSs. A first draft of the interview questionnaire was created based on Ferreira and Otley's framework analysis tool (2009). One of the researcher's supervisors then reviewed the draft questionnaire. Minor revisions were made based on the thesis supervisor's feedback. Next, a member of TOH's senior management team reviewed the revised interview questionnaire. Again, minor revisions were made based on their feedback. Finally, the interview

questionnaire was piloted with four TOH managers who were not eligible to participate in the interviews. No further revisions were made to the interview questions based on their feedback.

Appendix 10: TOH Frontline and Middle Manager Survey

What is your role at TOH?

- ☐ Supervisor
- ☐ Manager
- ☐ Director
- ☐ Other

What is your home campus?

- ☐ Civic
- ☐ General
- ☐ Riverside
- ☐ Other

Do you have a clinical (medical) background, that is, are you or have you ever been a member of a medical profession (MD, RN, RT, etc)?

- ☐ Yes
- ☐ No

What is your gender?

- ☐ Female
- ☐ Male

What is your age?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

What is the highest level of education that you completed?

- ☐ Some high school but did not finish
- ☐ High school
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree
- ☐ Other

How long have you been in a management position at TOH?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-9 years
- ☐ 10+ years
- ☐ I am not in a management position

How many employees report to you, either directly or through people who report to you directly?

- ☐ 0
- ☐ 1-9
- ☐ 10-24
- ☐ 25-49
- ☐ 50-99
- ☐ 100+

Managers' understanding of the nature of performance management.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I understand the meaning of key performance indicators that measure my performance.	☐	☐	☐	☐	☐	☐
I understand how different processes affect my key performance indicator results.	☐	☐	☐	☐	☐	☐
Other managers in similar positions across the organization have key performance indicators that are similar to mine.	☐	☐	☐	☐	☐	☐

The key performance indicators that I have selected and/or are assigned to me are reasonable and fair.	☐	☐	☐	☐	☐	☐
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Managers' attitudes toward performance management and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I have had positive experiences with performance management systems.	☐	☐	☐	☐	☐	☐
I help decide the start time of performance management projects that measure my performance.	☐	☐	☐	☐	☐	☐
I realize how key performance indicators help me manage my performance.	☐	☐	☐	☐	☐	☐

I view key performance indicators as positive, not threatening.	☐	☐	☐	☐	☐	☐
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Alignment between managers' responsibilities and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My key performance indicators are aligned with my areas of responsibility.	☐	☐	☐	☐	☐	☐
I can influence the key performance indicators that are assigned to me and the weighting of each.	☐	☐	☐	☐	☐	☐
My key performance indicators help me manage my performance and my employees.	☐	☐	☐	☐	☐	☐

I am involved in analyzing performance data.	☐	☐	☐	☐	☐	☐
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The organizational culture's focus on using the performance management system to improve.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My performance results against key performance indicators are openly communicated with others.	☐	☐	☐	☐	☐	☐
The performance management system stimulates me to improve my performance.	☐	☐	☐	☐	☐	☐
I trust the information in the performance management system.	☐	☐	☐	☐	☐	☐
I see the person I report to using the performance management system.	☐	☐	☐	☐	☐	☐

I see the senior management team using the performance management system.	☐	☐	☐	☐	☐	☐
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A clear focus of the performance management system on internal management and control.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
The performance management system is used strategically by the organization to improve performance.	☐	☐	☐	☐	☐	☐
The performance management system is relevant because it measures what is most important to the organization's success.	☐	☐	☐	☐	☐	☐

Use and utility of TOH's performance management system.

On average, how often do you use TOH's performance management system to review corporate performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

On average, how often do you use TOH's performance management system to review your personal performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

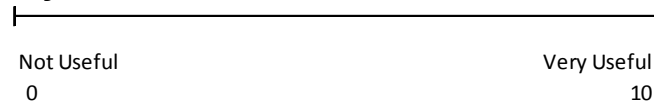
On average, how often do you use TOH's performance management system to review your performance results?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

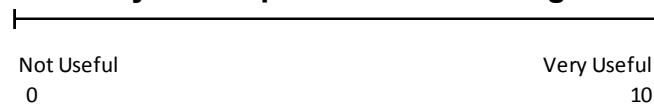
On average, how many hours per week do you spend strategizing about how to improve performance?

- ☐ 0 hours
- ☐ 1-2 hours
- ☐ 3-5 hours
- ☐ 5-10 hours
- ☐ 11+ hours

On a scale from 0 to 10, how useful is TOH's performance management system in helping you improve your performance and the performance of those who report to you?



On a scale from 0 to 10, how likely are you to to change your practice(s) based on information provided by TOH's performance management system?



Perceived propensity of the system to effect changes in practice amongst groups.

In your opinion, how likely is it that physicians, as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

In your opinion, how likely is it that non-physician clinical staff (nurses, respiratory therapists, dietitians, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

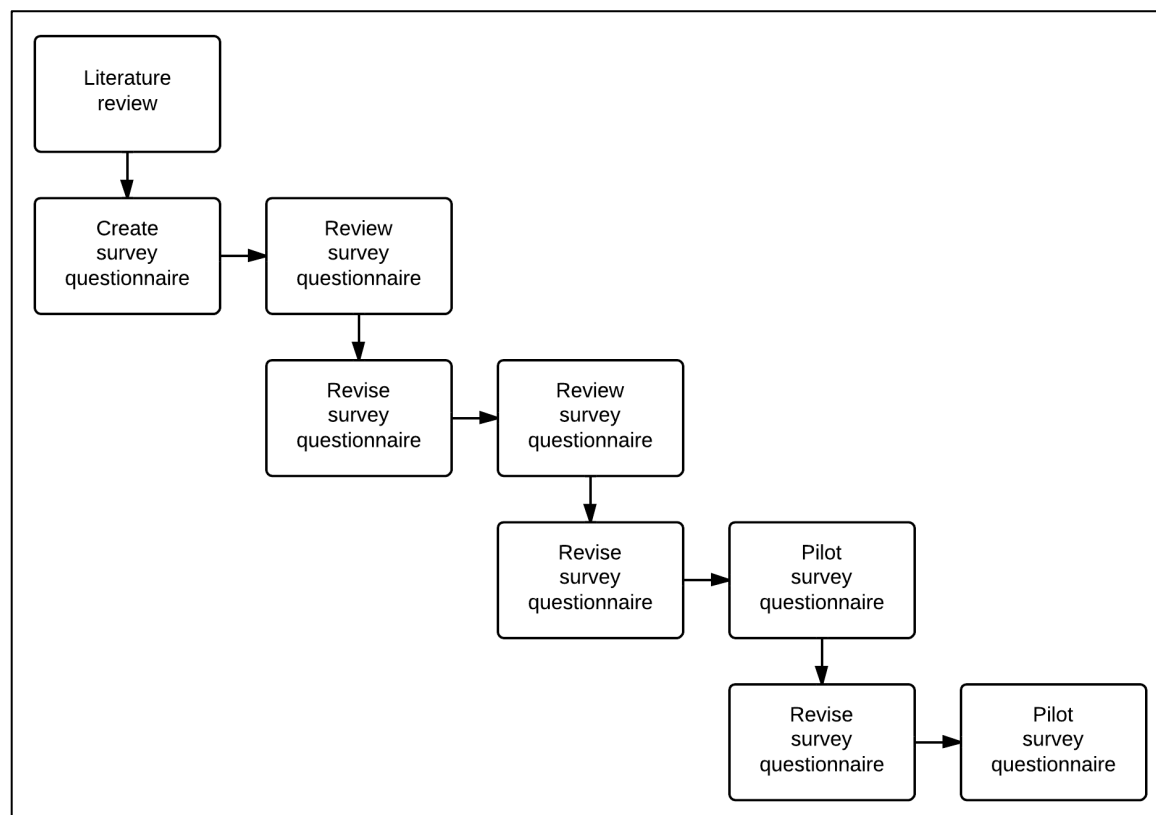
In your opinion, how likely is it that managers (CEO, VPs, directors, managers, coordinators, supervisors, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

Appendix 11: Development of the TOH Frontline and Middle Manager Survey

Figure 9 outlines the process used to develop the TOH frontline and middle manager survey.

Figure 9: Process for Developing TOH Frontline and Middle Manager Survey



A literature review was first conducted to identify suitable frameworks with which to analyze frontline and middle manager attitudes and experiences with TOH's IPMS. A first draft of the TOH frontline and middle manager survey was created based on de Waal's research that identified factors affecting performance management system use (de Waal, 2003). One of the researcher's thesis supervisors then

reviewed the draft survey. Minor revisions were made based on the thesis supervisor's feedback. Next, a member of TOH's senior management team reviewed the survey. Again, minor revisions were made based on their feedback. Afterward, the survey was piloted with five managers who were not eligible to participate in the online survey. Their feedback resulted in a third round of revisions and they were then asked to pilot the survey a second time. No further revisions were made to the online survey based on their subsequent feedback.

Appendix 12: TOH Medical Division and Department Head Survey

What is your home campus?

- ☐ Civic
- ☐ General
- ☐ Riverside
- ☐ Other

What is your gender?

- ☐ Female
- ☐ Male

What is your age?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

What is the highest level of education that you completed?

- ☐ Some high school but did not finish
- ☐ High school
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree
- ☐ Other

How long have you been in a management position at TOH?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-9 years
- ☐ 10+ years
- ☐ I am not in a management position

How many employees report to you, either directly or through people who report to you directly?

- ☐ 0
- ☐ 1-9
- ☐ 10-24
- ☐ 25-49
- ☐ 50-99
- ☐ 100+

Managers' understanding of the nature of performance management.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I understand the meaning of key performance indicators that measure my performance.	☐	☐	☐	☐	☐	☐

I understand how different processes affect my key performance indicator results.	☐	☐	☐	☐	☐	☐
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Other managers in similar positions across the organization have key performance indicators that are similar to mine.	☐	☐	☐	☐	☐	☐
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The key performance indicators that I have selected and/or are assigned to me are reasonable and fair.	☐	☐	☐	☐	☐	☐
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Managers' attitudes toward performance management and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I have had positive experiences with performance management systems.	☐	☐	☐	☐	☐	☐

I help decide the start time of performance management projects that measure my performance.	☐	☐	☐	☐	☐	☐
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I realize how key performance indicators help me manage my performance.	☐	☐	☐	☐	☐	☐
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I view key performance indicators as positive, not threatening.	☐	☐	☐	☐	☐	☐
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Alignment between managers' responsibilities and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My key performance indicators are aligned with my areas of responsibility.	☐	☐	☐	☐	☐	☐

I can influence the key performance indicators that are assigned to me and the weighting of each.	☐	☐	☐	☐	☐	☐
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My key performance indicators help me manage my performance and my employees.	☐	☐	☐	☐	☐	☐
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I am involved in analyzing performance data.	☐	☐	☐	☐	☐	☐
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The organizational culture's focus on using the performance management system to improve.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My performance results against key performance indicators are openly communicated with others.	☐	☐	☐	☐	☐	☐

The performance management system stimulates me to improve my performance.	☐	☐	☐	☐	☐	☐
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I trust the information in the performance management system.	☐	☐	☐	☐	☐	☐
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I see the person I report to using the performance management system.	☐	☐	☐	☐	☐	☐
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I see the senior management team using the performance management system.	☐	☐	☐	☐	☐	☐
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A clear focus of the performance management system on internal management and control.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
The performance management system is used strategically by the organization to improve performance.	☐	☐	☐	☐	☐	☐

The performance management system is relevant because it measures what is most important to the organization's success.

☐ ☐ ☐ ☐ ☐ ☐

Use and utility of TOH's performance management system to the respondent.

On average, how often do you use TOH's performance management system to review corporate performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

On average, how often do you use TOH's performance management system to review your personal performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

On average, how often do you use TOH's performance management system to review your performance results?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

On average, how many hours per week do you spend strategizing about how to improve performance?

- ☐ 0 hours
- ☐ 1-2 hours
- ☐ 3-5 hours
- ☐ 5-10 hours
- ☐ 11+ hours

On a scale from 0 to 10, how useful is TOH's performance management system in helping you improve your performance and the performance of those who report to you?

On a scale from 0 to 10, how likely are you to to change your practice(s) based on information provided by TOH's performance management system?

Perceived propensity of the system to effect changes in practice amongst groups.

In your opinion, how likely is it that physicians, as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

In your opinion, how likely is it that non-physician clinical staff (nurses, respiratory therapists, dietitians, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

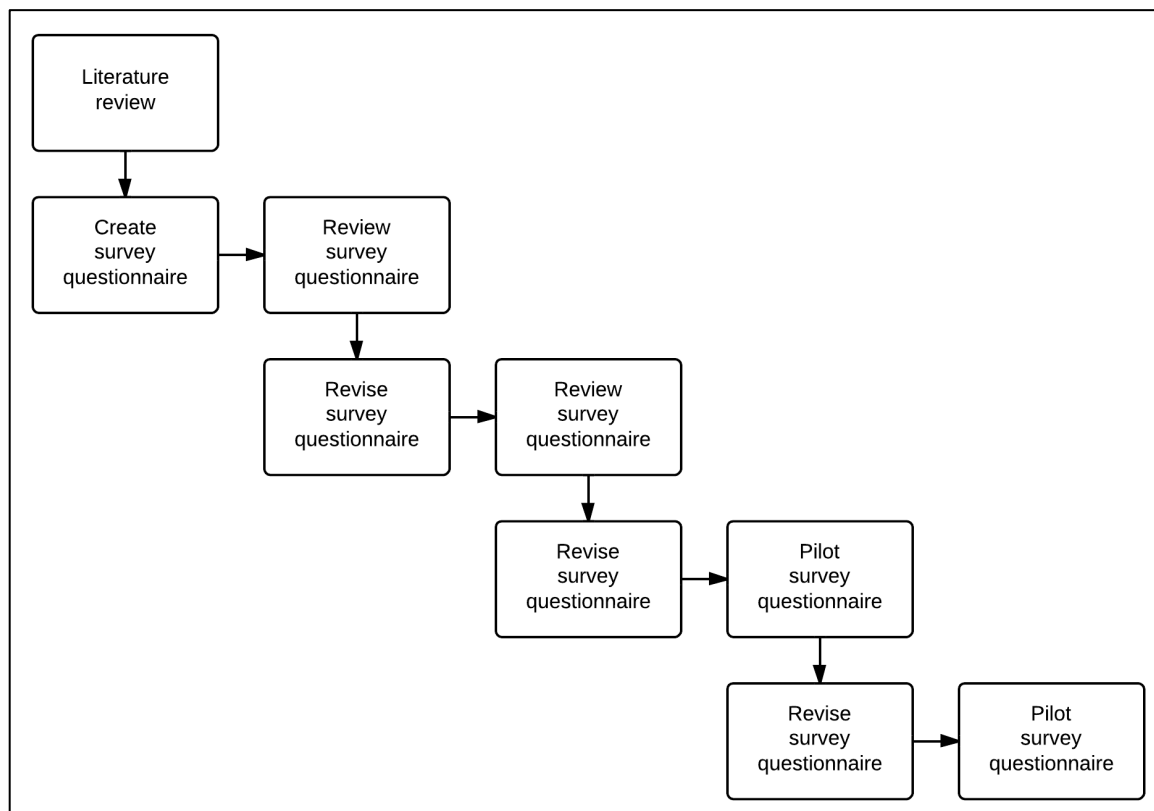
In your opinion, how likely is it that managers (CEO, VPs, directors, managers, coordinators, supervisors, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

Appendix 13: Development of the TOH Medical Division and Department Head Survey

Figure 10 outlines the process used to develop the TOH medical division and department head survey.

Figure 10: Process for Developing TOH Medical Division and Department Head Survey



A literature review was first conducted to identify suitable frameworks with which to analyze medical leaders' attitudes and experiences with TOH's IPMS. A first draft of the TOH medical division and department head survey was created based on de

Waal's research that identified factors affecting performance management system use (de Waal, 2003). One of the researcher's thesis supervisors then reviewed the draft survey. Minor revisions were made based on the thesis supervisor's feedback. Next, a member of TOH's senior management team reviewed the survey. Again, minor revisions were made based on their feedback. Afterward, the survey was piloted with five managers who were not eligible to participate in the online survey. Their feedback resulted in a third round of revisions and they were then asked to pilot the survey a second time. No further revisions were made to the online survey based on their subsequent feedback.

Appendix 14: TOH Senior Manager Survey

What is your name?

This information is required to match these responses with your interview responses.

What is your role at TOH?

- ☐ Vice-President
- ☐ Senior Vice-President
- ☐ CEO
- ☐ Other

What is your home campus?

- ☐ Civic
- ☐ General
- ☐ Riverside
- ☐ Other

Do you have a clinical (medical) background, that is, are you or have you ever been a member of a medical profession (MD, RN, RT, etc)?

- ☐ Yes
- ☐ No

What is your gender?

- ☐ Female
- ☐ Male

What is your age?

- ☐ 18-24
- ☐ 25-34
- ☐ 35-44
- ☐ 45-54
- ☐ 55-64
- ☐ 65+

What is the highest level of education that you completed?

- ☐ Some high school but did not finish
- ☐ High school
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctorate degree
- ☐ Other

How long have you been in a management position at TOH?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-5 years
- ☐ 6-9 years
- ☐ 10+ years
- ☐ I am not in a management position

How many employees report to you, either directly or through people who report to you directly?

- ☐ 0
- ☐ 1-9
- ☐ 10-24
- ☐ 25-49
- ☐ 50-99
- ☐ 100+

Managers' understanding of the nature of performance management.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I understand the meaning of key performance indicators that measure my performance.	☐	☐	☐	☐	☐	☐
I understand how different processes affect my key performance indicator results.	☐	☐	☐	☐	☐	☐
Other managers in similar positions across the organization have key performance indicators that are similar to mine.	☐	☐	☐	☐	☐	☐

The key performance indicators that I have selected and/or are assigned to me are reasonable and fair.	☐	☐	☐	☐	☐	☐
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Managers' attitudes toward performance management and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
I have had positive experiences with performance management systems.	☐	☐	☐	☐	☐	☐
I help decide the start time of performance management projects that measure my performance.	☐	☐	☐	☐	☐	☐
I realize how key performance indicators help me manage my performance.	☐	☐	☐	☐	☐	☐

I view key performance indicators as positive, not threatening.	☐	☐	☐	☐	☐	☐
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Alignment between managers' responsibilities and the performance management system.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My key performance indicators are aligned with my areas of responsibility.	☐	☐	☐	☐	☐	☐
I can influence the key performance indicators that are assigned to me and the weighting of each.	☐	☐	☐	☐	☐	☐
My key performance indicators help me manage my performance and my employees.	☐	☐	☐	☐	☐	☐

I am involved in analyzing performance data.	☐	☐	☐	☐	☐	☐
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The organizational culture's focus on using the performance management system to improve.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
My performance results against key performance indicators are openly communicated with others.	☐	☐	☐	☐	☐	☐
The performance management system stimulates me to improve my performance.	☐	☐	☐	☐	☐	☐
I trust the information in the performance management system.	☐	☐	☐	☐	☐	☐
I see the person I report to using the performance management system.	☐	☐	☐	☐	☐	☐

I see the senior management team using the performance management system.	☐	☐	☐	☐	☐	☐
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A clear focus of the performance management system on internal management and control.

	Completely disagree	Partially disagree	Neither agree nor disagree	Partially agree	Completely agree	Uncertain / I don't know
The performance management system is used strategically by the organization to improve performance.	☐	☐	☐	☐	☐	☐
The performance management system is relevant because it measures what is most important to the organization's success.	☐	☐	☐	☐	☐	☐

Use and utility of TOH's performance management system.

On average, how often do you use TOH's performance management system to review corporate performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

On average, how often do you use TOH's performance management system to review your personal performance goals and objectives?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

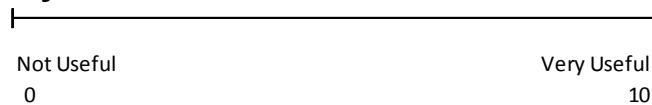
On average, how often do you use TOH's performance management system to review your performance results?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ Never

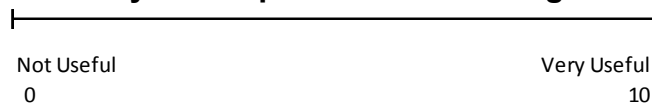
On average, how many hours per week do you spend strategizing about how to improve performance?

- ☐ 0 hours
- ☐ 1-2 hours
- ☐ 3-5 hours
- ☐ 5-10 hours
- ☐ 11+ hours

On a scale from 0 to 10, how useful is TOH's performance management system in helping you improve your performance and the performance of those who report to you?



On a scale from 0 to 10, how likely are you to change your practice(s) based on information provided by TOH's performance management system?



Perceived propensity of the system to effect changes in practice amongst groups.

In your opinion, how likely is it that physicians, as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

In your opinion, how likely is it that non-physician clinical staff (nurses, respiratory therapists, dietitians, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

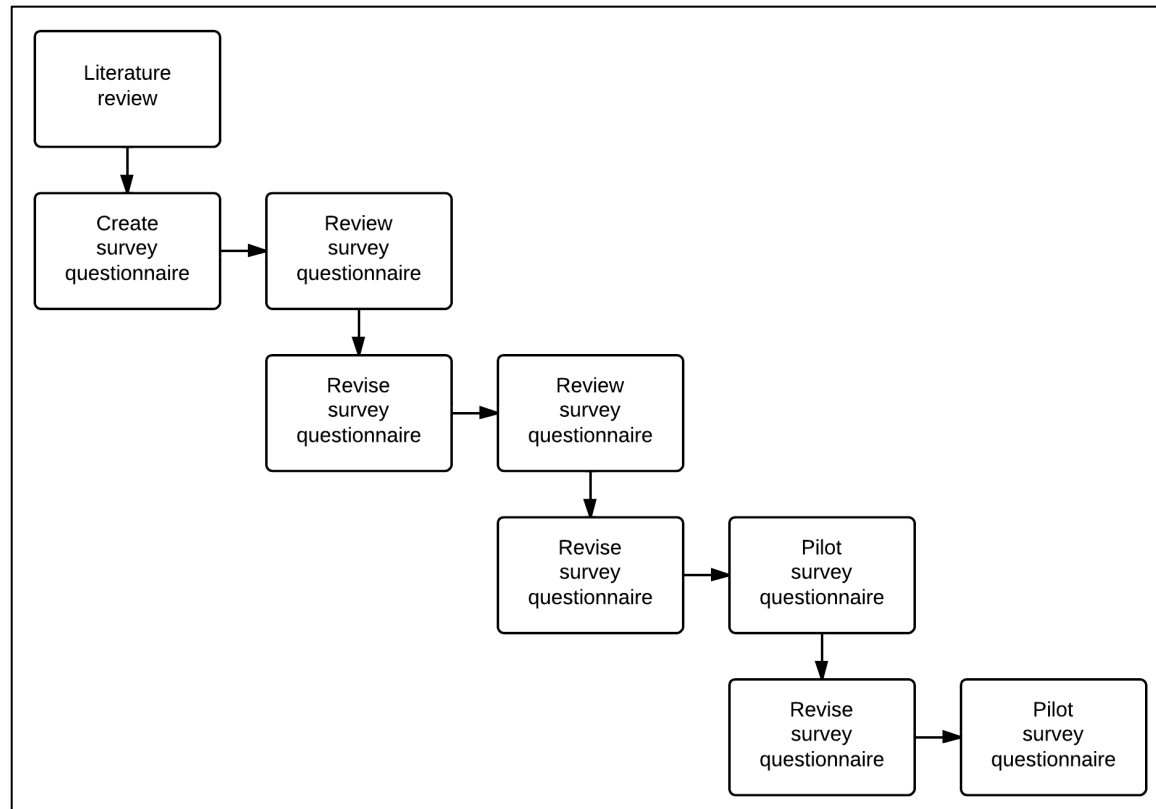
In your opinion, how likely is it that managers (CEO, VPs, directors, managers, coordinators, supervisors, etc), as a whole, change their practices based on information provided by TOH's performance management system?

- ☐ Not likely
- ☐ Somewhat likely
- ☐ Very likely
- ☐ I don't know

Appendix 15: Development of the TOH Senior Manager Survey

Figure 11 outlines the process used to develop the TOH senior manager survey.

Figure 11: Process for Developing TOH Frontline and Middle Manager Survey



A literature review was first conducted to identify suitable frameworks with which to analyze senior manager attitudes and experiences with TOH's IPMS. A first draft of the TOH senior manager survey was created based on de Waal's research that identified factors affecting performance management system use (de Waal, 2003). One of the researcher's thesis supervisors then reviewed the draft survey. Minor revisions were made based on the thesis supervisor's feedback. Next, a member of

TOH's senior management team reviewed the survey. Again, minor revisions were made based on their feedback. Afterward, the survey was piloted with five managers who were not eligible to participate in the online survey. Their feedback resulted in a third round of revisions and they were then asked to pilot the survey a second time. No further revisions were made to the online survey based on their subsequent feedback.

Appendix 16: Framework for IPMS Analysis

Ferreira and Otley developed their framework for performance management systems analysis to provide researchers with a standardized tool that would facilitate the description and analysis of performance management systems “in a more holistic manner” (2009). Their collaboration is an extension of Otley’s earlier work in this area (1999). The updated framework is designed to evaluate the integration of key aspects of an organization’s performance management system and consists of 12 questions (Ferreira & Otley, 2009):

1. What is the vision and mission of the organization and how is this brought to the attention of managers and employees? What mechanisms, processes, and networks are used to convey the organization’s overarching purpose and objectives to its members?
2. What are the key success factors that are believed to be central to the organization’s overall future success and how are they brought to the attention of managers and employees?
3. What is the organization structure and what impact does it have on the design and use of the performance management systems? How does it influence and how is it influenced by the strategic management process?

4. What strategies and plans has the organization adopted and what are the processes and activities that it has decided will be required for it to ensure its success? How are strategies and plans adapted, generated, and communicated to managers and employees?
5. What are the organization's key performance measures deriving from its objectives, key success factors, and strategies and plans? How are these specified and communicated and what role do they play in performance evaluation? Are there significant omissions?
6. What level of performance does the organization need to achieve for each of its key performance measures, how does it go about setting appropriate performance targets for them, and how challenging are those performance targets?
7. What processes, if any, does the organization follow for evaluating individual, group, and organizational performance? Are performance evaluations primarily objective, subjective, or mixed and how important are formal and informal information and controls in these processes?
8. What rewards – financial and/or non-financial – will managers and other employees gain by achieving performance targets or other assessed aspects of performance (or, conversely, what penalties will they suffer by failing to achieve them)?

9. What specific information flows – feedback and feedforward –, systems and networks has the organization in place to support operation of its performance management systems?
10. What type of use is made of information and of the various control mechanisms in place? Can these uses be characterized in terms of various typologies in the literature? How do controls and their uses differ at different hierarchical levels?
11. How have the performance management systems altered in the light of the change dynamics of the organization and its environment? Have the changes in performance measurement systems design or use been made in a proactive or reactive manner?
12. How strong and coherent are the links between the components of performance management systems and the ways in which they are used?

Appendix 17: Factors Important for Successful Implementation and Use of Performance Management Systems

During a case study of three organizations from the Netherlands, de Waal identified 18 behavioral factors that are thought to be important to the successful implementation and regular use of a performance management system (de Waal, 2003). He lumped these factors into five categories “in such a way that an overview appears of the areas an organization has to pay special attention to, in order to increase the chance of implementing a new performance management system that will be regularly used” (de Waal, 2003).

- **Managers’ understanding**

1. Managers understand the meaning of KPIs
2. Managers have insight into the relationship between business process and CSFs / KPIs.
3. Managers’ frames of reference contain similar KPIs.
4. Managers agree on changes in the CSF / KPI set.

- **Managers’ attitudes**

5. Managers agree on the starting time of projects
6. Managers have earlier (positive) experiences with performance management.

7. Managers realize the importance of CSFs / KPIs / BSC to their performance.

8. Managers do not experience CSFs / KPIs / BSC as threatening

- **Performance management system alignment**

9. Managers' KPI sets are aligned with their responsibility areas.

10. Managers can influence the KPIs assigned to them.

11. Managers are involved in making analyses.

12. Managers can use their CSFs / KPIs / BSC for managing their employees.

- **Organizational culture**

13. Managers results on CSFs/ KPIs / BSC are openly communicated.

14. Managers are stimulated to improve their performance.

15. Managers trust the performance information.

16. Managers clearly see the promoter using the performance management system.

- **Performance management system focus**

17. Managers find the performance management system relevant because it has a clear internal control purpose.

18. Managers find the performance management system relevant because only those stakeholders' interests that are important to the organizations success are incorporated.

Appendix 18: Consent Notice and Form TOH Senior Manager Interviews

Title

The Challenges of Implementing an Integrated Performance Management System (IPMS) in the Canadian Public Healthcare System: The Early Experience of The Ottawa Hospital

Investigator

Christopher Bourque
MBA candidate
University of Ottawa
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Phone: 613-###-####

Supervisors

Greg Richards, M.A., M.B.A., Ph.D.
Professor of Performance Management
University of Ottawa
Email: user@uottawa.ca
Phone: 613-###-####

Michael Miles, B.A., M.A., M.Sc., M.S., Ph.D.

Director, MBA Program

Assistant Professor

University of Ottawa

Email: user@uottawa.ca

Phone: 613-###-####

Sponsor

None

Introduction

You are being asked to take part in a study being conducted by Christopher Bourque, a MBA candidate from the Telfer School of Management at the University of Ottawa. The information that you and other participants provide will be used exclusively for his thesis. Please read this explanation about the study and its risks and benefits before you decide if you would like to participate. You should take as much time as you need to make your decision. You should ask the investigator to explain anything you do not understand about this study and make sure that all of your questions are answered before signing this consent form. Before you make your decision, feel free to talk about this study with anyone you wish. Participation in this study is voluntary.

Purpose of the Study

This purpose of this study is to determine:

- the factors that motivate Canadian healthcare leaders to pursue the implementation of an integrated performance management system;
- the critical components of integrated performance management systems in the Canadian healthcare system;
- the challenges that healthcare leaders face when implementing an integrated performance management system;
- how Canadian healthcare leaders can overcome or altogether avoid the challenges of implementing an integrated performance management system in their hospital.

Design

This study is based on a mixed method design. At its heart is a case study of The Ottawa Hospital's (TOH's) recent and ongoing implementation of an IPMS as part of its 'Journey to Excellence'. Qualitative data is also being gathered to better understand Canadian healthcare leaders' perceptions of, attitudes towards, beliefs about, and experiences with IPMSs.

Procedures

If you decide to participate in this study, you will be asked to:

- complete a 10-15 minute online survey;
- participate in a 60 minute interview; and,
- participate in a 30 minute follow-up interview if contradictory information is provided by the interviewees.

Online Survey

You will be asked to complete a 37-question online survey that takes 10-15 minutes to complete.

Preliminary Interview

This meeting will take place at a time and location of your choosing, during which you will be asked 20 open-ended questions about:

- the history, motivation, and components of TOH's integrated performance management system;
- TOH's integrated performance management framework;
- the lessons you have learned about the implementation of an integrated performance management system in a hospital environment; and,
- your appraisal of manager involvement in, understanding of, and valuation of TOH's integrated performance management system.

Follow-Up Interview

If conflicting information about TOH's integrated performance management system is provided to the investigator, he may ask you to participate in a 15-30 minute follow-up interview, at a time and location of your choosing, to clarify your responses from the primary interview or to solicit additional information if appropriate.

Potential Risks, Inconveniences, and Discomforts

Your participation in this survey may consume up to 100 minutes of your time. No other significant risks, inconveniences, or discomforts are anticipated.

Potential Benefits to Participants and/or to Society

Very little research on the implementation of integrated performance management systems exists. Given Canada's ageing population, the rising incidence of chronic disease, and global economic instability, it is essential that Canadian hospitals provide their patients with the most effective and efficient healthcare possible. Otherwise, Canada's universal healthcare system is at risk.

This study aims to identify the challenges of implementing an integrated performance management system in a Canadian hospital. This knowledge will help Canadian healthcare leaders to better understand and plan for these challenges, which in turn, may allow them to mitigate the risks associated with such projects and reduce the learning and failure costs.

Payment for Participation

Participation in this study is voluntary. You will not be paid for your participation.

Confidentiality

Every effort will be made to ensure the confidentiality of any identifying information obtained in connection with this study.

Your responses to the interview questions will be captured in writing and the interview will be recorded using a digital audio recorder. The purpose of the audio recording is to validate your responses to questions whenever there is uncertainty about the completeness or accuracy of the written notes. Written notes will be digitized and all non-digital copies will be destroyed immediately thereafter. All digital documents, regardless of format, will be stored on an encrypted USB drive that is FIPS 140-2 level 3 compliant (256 bit encryption), and then the original recording on the recorder will be erased. A backup copy will be made, and they too will be stored on a FIPS 140-2 level 3 compliant USB device. The documents will be saved for a period of five years post completion of the thesis, at which time the investigator, using appropriate methods and technologies of the day, will erase all copies.

You will be given the opportunity to review the transcript from your interview(s). The investigator will send the transcript to you within 21 days of your interview. In the event you do not receive your transcript(s), please contact the investigator at your discretion. Contact information is provided on page 1 of this consent form.

Any data shared with either of the thesis supervisors will be transferred in person, directly from an encrypted USB device. Under no circumstances will data be transferred electronically (e.g. email, VPN account, etc). One or both thesis supervisors will be required to securely store the raw data generated by this research project on site (on campus) for a period of five years, in accordance with University of Ottawa policy and procedure.

In the manuscript (published work), your identity will be protected through the use of a pseudonym or code (i.e. Respondent 1 / R1) when it refers to you or your responses.

Participation and Withdrawal

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw your consent at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you do not want to answer and remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

Rights of Research Participants

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and has received ethics clearance through the University of Ottawa Research Ethics Board. If you have questions regarding your rights as a research participant, please contact:

Office of Research Ethics and Integrity

Tabaret Hall

550 Cumberland St

Room 154

Ottawa, ON, Canada

K1N 6N5

Tel.: (613) 562-5387

Fax.: (613) 562-5338

Consent

This study has been explained to me and any questions I had have been answered.
I know that I may leave the study at any time. I agree to take part in this study.

Participant's Name (Print)

Participant's Signature

Date

(You will be given a copy of the signed consent form)

My signature means that I have explained the study to the participant named above.
I have answered all of his/her questions.

Name of Researcher (Print)

Signature of Researcher

Date

Appendix 19: Consent Notice for TOH Frontline and Middle Manager Survey

Title

The Challenges of Implementing an Integrated Performance Management System (IPMS) in the Canadian Public Healthcare System: The Early Experience of The Ottawa Hospital

Investigator

Christopher Bourque
MBA candidate
University of Ottawa
Email: user@uottawa.ca
Phone: 613-###-####

Supervisors

Greg Richards, M.A., M.B.A., Ph.D.
Professor of Performance Management
University of Ottawa
Email: user@uottawa.ca
Phone: 613-###-####

Michael Miles, B.A., M.A., M.Sc., M.S., Ph.D.

Director, MBA Program

Assistant Professor

University of Ottawa

Email: user@uottawa.ca

Phone: 613-###-####

Sponsor

None

Introduction

You are being asked to take part in a study being conducted by Christopher Bourque, a MBA candidate from the Telfer School of Management at the University of Ottawa. The information that you and other participants provide will be used exclusively for his thesis. Please read this explanation about the study and its risks and benefits before you decide if you would like to participate. If you have any questions or concerns about this project, you may contact the lead investigator or either of his supervisors at your discretion.

Purpose of the Study

This purpose of this study is to determine:

- the factors that motivate Canadian healthcare leaders to pursue the implementation of an integrated performance management system;
- the critical components of integrated performance management systems in the Canadian healthcare system;

- the challenges that healthcare leaders face when implementing an integrated performance management system;
- how Canadian healthcare leaders can overcome or altogether avoid the challenges of implementing an integrated performance management system in their hospital.

Design

This study is based on a mixed method design. At its heart is a case study of The Ottawa Hospital's (TOH's) recent and ongoing implementation of an IPMS as part of its 'journey toward excellence'. Qualitative data is also being gathered to better understand Canadian healthcare leaders' perceptions of, attitudes towards, beliefs about, and experiences with IPMSs.

Procedures

If you decide to participate in this study, you will be asked to complete a 36-question online survey that takes approximately 10 minutes to complete.

Potential Risks, Inconveniences, and Discomforts

No significant risks, inconveniences, or discomforts are anticipated.

Potential Benefits to Participants and/or to Society

Very little research on the implementation of integrated performance management systems exists. Given Canada's ageing population, the rising incidence of chronic

disease, and global economic instability, it is essential that Canadian hospitals provide their patients with the most effective and efficient healthcare possible. Otherwise, Canada's universal healthcare system is at risk.

This study aims to identify the challenges of implementing an integrated performance management system in a Canadian hospital. This knowledge will help Canadian healthcare leaders to better understand and plan for these challenges, which in turn, may allow them to mitigate the risks associated with such projects and reduce the learning and failure costs.

Payment for Participation

Participation in this study is voluntary. You will not be paid for your participation.

Confidentiality

This is an anonymous online survey. Identifying data, including IP address are not being recorded.

Your responses to the interview questions will be captured electronically using an online survey portal (Fluid Surveys). Survey results will be downloaded to a spreadsheet or database for analysis. All digital documents, regardless of format, will be stored on an encrypted USB drive that is FIPS 140-2 level 3 compliant (256 bit encryption). A backup copy will be made, and it too will be stored on a FIPS 140-2 level 3 compliant USB device. The documents will be saved for a period of five years post completion of the thesis, at which time the investigator, using appropriate methods and technologies of the day, will erase all copies.

Any data shared with either of the thesis supervisors will be transferred in person, directly from an encrypted USB device. Under no circumstances will data be transferred electronically (e.g. email, VPN account, etc). One or both thesis supervisors will be required to securely store the raw data generated by this research project on site (on campus) for a period of five years, in accordance with University of Ottawa policy and procedure.

Participation and Withdrawal

You can choose whether to be in this study or not.

This is an anonymous survey. Identifying data, including IP address, are not recorded as part of your submission. Since the investigator is unable to determine your identity, once you submit your responses, they cannot be excluded from the study should you wish to withdraw.

Participants should print a copy of the consent form to keep for their personal records.

Rights of Research Participants

You are not waiving any legal claims, rights or remedies because of your participation in this study. This project has been reviewed and received ethics clearance through the University of Ottawa Research Ethics Board. If you have questions regarding your rights as a research participant, please contact:

Office of Research Ethics and Integrity

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Ottawa, ON, Canada

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**Appendix 20: Consent Notice for TOH Medical Division and Department Head
Survey**

Title

The Challenges of Implementing an Integrated Performance Management System (IPMS) in the Canadian Public Healthcare System: The Early Experience of The Ottawa Hospital

Investigator

Christopher Bourque
MBA candidate
University of Ottawa
Email: user@uottawa.ca
Phone: 613-###-####

Supervisors

Greg Richards, M.A., M.B.A., Ph.D.
Professor of Performance Management
University of Ottawa
Email: user@uottawa.ca
Phone: 613-###-####

Michael Miles, B.A., M.A., M.Sc., M.S., Ph.D.

Director, MBA Program

Assistant Professor

University of Ottawa

Email: user@uottawa.ca

Phone: 613-###-####

Sponsor

None

Introduction

You are being asked to take part in a study being conducted by Christopher Bourque, a MBA candidate from the Telfer School of Management at the University of Ottawa. The information that you and other participants provide will be used exclusively for his thesis. Please read this explanation about the study and its risks and benefits before you decide if you would like to participate. If you have any questions or concerns about this project, you may contact the lead investigator or either of his supervisors at your discretion.

Purpose of the Study

This purpose of this study is to determine:

- the factors that motivate Canadian healthcare leaders to pursue the implementation of an integrated performance management system;
- the critical components of integrated performance management systems in the Canadian healthcare system;

- the challenges that healthcare leaders face when implementing an integrated performance management system;
- how Canadian healthcare leaders can overcome or altogether avoid the challenges of implementing an integrated performance management system in their hospital.

Design

This study is based on a mixed method design. At its heart is a case study of The Ottawa Hospital's (TOH's) recent and ongoing implementation of an IPMS as part of its 'journey toward excellence'. Qualitative data is also being gathered to better understand Canadian healthcare leaders' perceptions of, attitudes towards, beliefs about, and experiences with IPMSs.

Procedures

If you decide to participate in this study, you will be asked to complete a 36-question online survey that takes approximately 10 minutes to complete.

Potential Risks, Inconveniences, and Discomforts

No significant risks, inconveniences, or discomforts are anticipated.

Potential Benefits to Participants and/or to Society

Very little research on the implementation of integrated performance management systems exists. Given Canada's ageing population, the rising incidence of chronic

disease, and global economic instability, it is essential that Canadian hospitals provide their patients with the most effective and efficient healthcare possible. Otherwise, Canada's universal healthcare system is at risk.

This study aims to identify the challenges of implementing an integrated performance management system in a Canadian hospital. This knowledge will help Canadian healthcare leaders to better understand and plan for these challenges, which in turn, may allow them to mitigate the risks associated with such projects and reduce the learning and failure costs.

Payment for Participation

Participation in this study is voluntary. You will not be paid for your participation.

Confidentiality

This is an anonymous online survey. Identifying data, including IP address are not being recorded.

Your responses to the interview questions will be captured electronically using an online survey portal (Fluid Surveys). Survey results will be downloaded to a spreadsheet or database for analysis. All digital documents, regardless of format, will be stored on an encrypted USB drive that is FIPS 140-2 level 3 compliant (256 bit encryption). A backup copy will be made, and it too will be stored on a FIPS 140-2 level 3 compliant USB device. The documents will be saved for a period of five years post completion of the thesis, at which time the investigator, using appropriate methods and technologies of the day, will erase all copies.

Any data shared with either of the thesis supervisors will be transferred in person, directly from an encrypted USB device. Under no circumstances will data be transferred electronically (e.g. email, VPN account, etc). One or both thesis supervisors will be required to securely store the raw data generated by this research project on site (on campus) for a period of five years, in accordance with University of Ottawa policy and procedure.

Participation and Withdrawal

You can choose whether to be in this study or not.

This is an anonymous survey. Identifying data, including IP address, are not recorded as part of your submission. Since the investigator is unable to determine your identity, once you submit your responses, they cannot be excluded from the study should you wish to withdraw.

Participants should print a copy of the consent form to keep for their personal records.

Rights of Research Participants

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Fax.: (613) 562-5338

Appendix 21: Consent Notice for TOH Senior Manager Survey

Title

The Challenges of Implementing an Integrated Performance Management System (IPMS) in the Canadian Public Healthcare System: The Early Experience of The Ottawa Hospital

Investigator

Christopher Bourque

MBA candidate

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Email: user@uottawa.ca

Phone: 613-###-####

Supervisors

Greg Richards, M.A., M.B.A., Ph.D.

Professor of Performance Management

University of Ottawa

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Michael Miles, B.A., M.A., M.Sc., M.S., Ph.D.

Director, MBA Program

Assistant Professor

University of Ottawa

Email: user@uottawa.ca

Phone: 613-###-####

Sponsor

None

Introduction

You are being asked to take part in a study being conducted by Christopher Bourque, a MBA candidate from the Telfer School of Management at the University of Ottawa. The information that you and other participants provide will be used exclusively for his thesis. Please read this explanation about the study and its risks and benefits before you decide if you would like to participate. If you have any questions or concerns about this project, you may contact the lead investigator or either of his supervisors at your discretion.

Purpose of the Study

This purpose of this study is to determine:

- the factors that motivate Canadian healthcare leaders to pursue the implementation of an integrated performance management system;
- the critical components of integrated performance management systems in the Canadian healthcare system;

- the challenges that healthcare leaders face when implementing an integrated performance management system;
- how Canadian healthcare leaders can overcome or altogether avoid the challenges of implementing an integrated performance management system in their hospital.

Design

This study is based on a mixed method design. At its heart is a case study of The Ottawa Hospital's (TOH's) recent and ongoing implementation of an IPMS as part of its 'journey toward excellence'. Qualitative data is also being gathered to better understand Canadian healthcare leaders' perceptions of, attitudes towards, beliefs about, and experiences with IPMSs.

Procedures

If you decide to participate in this study, you will be asked to complete a 36-question online survey that takes approximately 10 minutes to complete.

Potential Risks, Inconveniences, and Discomforts

No significant risks, inconveniences, or discomforts are anticipated.

Potential Benefits to Participants and/or to Society

Very little research on the implementation of integrated performance management systems exists. Given Canada's ageing population, the rising incidence of chronic

disease, and global economic instability, it is essential that Canadian hospitals provide their patients with the most effective and efficient healthcare possible. Otherwise, Canada's universal healthcare system is at risk.

This study aims to identify the challenges of implementing an integrated performance management system in a Canadian hospital. This knowledge will help Canadian healthcare leaders to better understand and plan for these challenges, which in turn, may allow them to mitigate the risks associated with such projects and reduce the learning and failure costs.

Payment for Participation

Participation in this study is voluntary. You will not be paid for your participation.

Confidentiality

This is an anonymous online survey. Identifying data, including IP address are not being recorded.

Your responses to the interview questions will be captured electronically using an online survey portal (Fluid Surveys). Survey results will be downloaded to a spreadsheet or database for analysis. All digital documents, regardless of format, will be stored on an encrypted USB drive that is FIPS 140-2 level 3 compliant (256 bit encryption). A backup copy will be made, and it too will be stored on a FIPS 140-2 level 3 compliant USB device. The documents will be saved for a period of five years post completion of the thesis, at which time the investigator, using appropriate methods and technologies of the day, will erase all copies.

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Participation and Withdrawal

You can choose whether to be in this study or not.

This is an anonymous survey. Identifying data, including IP address, are not recorded as part of your submission. Since the investigator is unable to determine your identity, once you submit your responses, they cannot be excluded from the study should you wish to withdraw.

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