

HOW CAN WE EVALUATE AND ENHANCE THE IMPACT OF THIRD-PARTY PUBLIC REPORTING ON QUALITY
IMPROVEMENT FOR HEALTH CARE IN THE PROVINCE OF ONTARIO, CANADA?

Anne C. Wojtak

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Approved by:

Suzanne Babich

Adalsteinn Brown

Sheila Leatherman

George Pink

Thomas Ricketts

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ABSTRACT

Anne C. Wojtak: How Can We Evaluate And Enhance The Impact Of Third-Party Public Reporting On Quality Improvement For Health Care In The Province of Ontario?
(Under the direction of Suzanne Babich)

Mandated public reporting on health care performance at the level of individual health care institutions and providers has been in place in most Western countries for at least three decades. The capacity to evaluate and report on quality of care is widely regarded as critical for system-wide improvement of health care delivery and patient health outcomes. However, evidence from the literature indicates that evaluation of the effectiveness of public reporting is scant. The purpose of this research is to propose an approach to evaluate the impact of third-party¹ public reporting on improving quality of health care in the province of Ontario, Canada.

Canada has a universal health care system and similar to other Canadian provinces, Ontario's provincial government is responsible for publicly-funded health care. Public reports in Ontario come in various formats and are used for multiple purposes, including for promoting accountability, transparency, quality improvement, consumer choice, and research. The array of uses for public reporting makes it challenging to understand its impact.

Starting with the research question '*How can we evaluate and enhance the impact of third-party public reporting on quality improvement for health care*', the researcher used an explanatory sequential mixed-methods design to assess the current state of public reporting in Ontario and identify opportunities to improve its effectiveness for quality improvement. Through analysis of provincial-level

¹ Third-party refers to an organization responsible for public reporting that is independent from data collection, service delivery or funding of health care services.

publicly-reported measures, the researcher found that performance results are improving for about one-third of the measures; however, where public reporting is combined with other accountability mechanisms, such as funding agreements or legislation, there is greater indication of improvement and/or sustained improvement over time. The researcher concluded that there is insufficient evidence that public reporting improves health care quality; however, public reporting can be effective when bundled with other improvement mechanisms. The researcher identified a number of opportunities to improve the effectiveness of public reporting in Ontario based on literature evidence and the research findings. The findings may be applicable to Canada as a whole and to other countries that have nationalized health care or any large-scale health system.

For my mother, forever in my heart.

*And for Denis, who provided me with endless support and encouragement,
and kept me well-fed throughout.*

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LIST OF ABBREVIATIONS

CABG	Coronary artery bypass grafting
CCAC	Community Care Access Centre
CCO	Cancer Care Ontario
CHF	Congestive heart failure
CIHI	Canadian Institute for Health Information
ER/ED	Emergency Room/Emergency Department
HQO	Health Quality Ontario
ICES	Institute for Clinical and Evaluative Sciences
LHIN	Local Health Integration Network
MI	Myocardial infarct
MOHLTC	(Ontario) Ministry of Health and Long-Term Care
OECD	Organization for Economic Cooperation and Development
OHA	Ontario Hospital Association
QBP	Quality-Based Procedure
QIP	Quality Improvement Plan

CHAPTER 1: INTRODUCTION

Statement of the Issue

Over the last few decades in Canada, mirroring global trends, there has been a significant increase in public reporting of health system performance and quality of care information at the level of individual institutions and health care providers. The more recent trends for reporting on health systems build on a long history of government and third-party public reporting of economic, social, and public health information. The available public information on health system performance includes a growing body of reports and a range of report cards for health care systems, hospitals, long-term care homes, home care agencies, community agencies, specialists, and primary care practices, among others. Performance metrics for quality of care include measures of access (e.g. surgical wait times), patient safety (e.g. rates of hospital-acquired infections), patient experience (e.g. experience with hospital discharge planning), and health outcomes (e.g. preventable mortality). Public reports are shifting attention to accountability for quality of care and are introducing benchmarking, ranking, and other types of comparisons (Brown et al., 2012).

Despite the abundance of publicly available information about health care performance, public reporting has been controversial. Criticisms of public reporting include the potential for adverse consequences from excessive focus on measures and targets, as well as concerns related to data quality and integrity, inappropriate comparisons or benchmarks, lack of application of evidence-based practices, attribution issues, and deficiencies in actionability of results. However, there is increasing consensus that we will continue to see ever greater volumes of publicly-disseminated information

(Marshall et al., 2004). In recent years, voices of opposition have faded, replaced with more thoughtful dialogue on how best to publish information in a way that engages the various audiences, maximizes the benefits of public disclosure, and minimizes the potential for adverse consequences (Marshall and Romano, 2005). In other words, now the most important question to ask about public reporting is not whether it should be done but, rather, how it can be done more effectively (Wallace et al., 2007).

For the purposes of this paper, the definition used for public reporting comes from Totten et al. (2012), “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, or organizations [e.g., hospitals, nursing facilities]) or at the health plan level” (Totten et al., 2012). Additional definitions used in this dissertation are included in Appendix A.

Public reports are standardized ways within a reporting organization or at an aggregated health system-level to present measures of the quality of health care and facilitate comparison of performance over time, among providers, and against defined standards of good practice (Marshall et al., 2000). Public reports are often produced in the form of “report cards,” “performance reports,” “consumer reports,” “dashboards,” or “quality reports”, among other titles, and generally include a combination of structural quality measures, such as number of specialists or number of beds; process measures, such as preventative screening rates; and outcome measures, such as in-patient mortality or patient satisfaction (Marshall et al., 2000).

Public reporting of health information for this level of assessment is not a new concept. Early forays into public reporting in the U.S. began in the 1980s and report cards (also known as ‘league tables’) have been available in the U.K. for several decades (Marshall et al., 2003). The rationale for public reporting, like the process of public reporting itself, has evolved. Originally, stimulus for the publication of performance information primarily came from government and from the ideological belief that this would make public services more accountable for the outcome(s) they deliver, as well as to

reduce unacceptable geographical, institutional, or provider-level variations within centrally managed or centrally financed services (Coles, 1999). Over time, we have seen the emergence of other types of third-party reporting by both public and private institutions, including the generation of reporting for commercial purposes, such as selling consulting services. More recently, the need for governments to restore or improve public confidence has become an important driver of public reporting efforts, as identified in reports stemming from public inquiries into critical deficiencies in quality (State of New South Wales, 2008; UK report, 2013). In addition, the capacity to evaluate and report on quality is now widely regarded as a critical foundation for system-wide improvement of health care delivery and patient health outcomes, as well as for achieving higher value for health care funding and accountability.

Reliable, comparative data on quality are needed for multiple purposes and audiences: to enable and motivate providers to improve the quality of care by tracking their performance against national and regional benchmarks, to facilitate competition on quality, to promote consumer choice, to inform government policies for improving health care quality, as a means to facilitate regulation and public accountability, to better understand value for money in health care spending, and to provide access to data for clinical research (Miller and Leatherman, 1999; Marshall et al., 2000; Mannion and Goddard, 2003). “Done well, public reporting can draw the attention of clinicians to areas of deficiencies and motivate positive change” (Brown et al., 2012). Done poorly, there are concerns that public reporting efforts can lead to lower quality care; have unintended negative consequences, including refusal to treat patients who are higher risk or who are less compliant with treatment directives; provide higher or lower levels of care than is needed in order to achieve performance targets; divert resources from more critical concerns; and provide an inaccurate and incomplete picture of provider performance (Davies et al., 2002; Dranove et al., 2002; Farmer et al., 2013; Konetzka, 2014; Muller and Detsky, 2010; Wachter et al., 2008; Werner and Asch, 2005).

While public reporting can be controversial, and the criticisms will be explored later in this paper, it does receive attention from institutional and organizational health care providers², but less so from physicians, purchasers/funders, policy-makers, and the public, with a few exceptions (Mannion and Davies, 2002; Rexe et al., 2008; Totten, 2012). A 2013 report entitled 'Rate My Hospital', which both ranked Canadian hospitals based on selected measures and allowed the public to rate their own experience, received particular attention (CBC website, 2013); however, from the studies assessed herein, evidence from the literature indicates that the public generally does not access or use publicly reported health performance information (Faber et al., 2009; Clough et al., 2002; Marshall et al., 2000). This lack of usage by the public is one of the primary reasons that many reporting organizations are making efforts to improve reporting and make it more useful and accessible for a public audience.

The Ontario Context

Ontario is the most populous of Canada's ten provinces and three territories, with over 13 million residents representing almost 40% of Canada's population. Canada has a universal, publicly-funded health system that provides coverage for medically-necessary primary care, hospital-based care and other services. Although roles and responsibilities for health care are shared between the federal and provincial-territorial governments, funding and delivery of health care is generally the responsibility of each provincial and territorial government. Approximately 70% of health care in Canada is publicly-funded, with the remaining 30% covered through private insurance, employment benefits, or private financing. Canada spends approximately \$219 Billion or 11% of its GDP on health care. Ontario spends \$50 Billion or 42% of its total budget on health care. Most hospitals are independent non-profit

²The literature on public reporting makes a distinction between 'institutional providers' and 'physicians'. Although physicians are included as health care providers in other circumstances, for the purposes of this paper, the researcher uses the same differentiation as the literature evidence and identifies institutional or organizational providers, including hospitals, long-term care homes, and home care agencies from physicians. Herein, physicians are defined separately as solo-practitioners, specialists, or physician group practices, including clinics.

corporations funded through global budgets and governed by volunteer Boards of Directors. Physicians operate as independent practitioners or in group practices and are remunerated through provincial insurance plans primarily through fee-for-service payments, although other types of funding arrangements such as capitation and salaried options are also available. From a public reporting perspective, most data collection for hospitals and primary care is through administrative and billing systems, although other forms of data collection are increasing.

In Ontario, one of the earliest initiatives related to public reporting at an individual health care organization level was the publication of the first 'Hospital Report' in 1999, through a collaborative effort between the University of Toronto, the Ontario Ministry of Health and Long-Term Care (MOHLTC), and the Ontario Hospital Association (OHA) (Pink et al., 2001). Since the early days of 'Hospital Report', public reporting has increased substantially in Ontario and now includes expanded measures of hospital performance, as well as indicators related to home care and long-term care. There is little information yet on primary care or other physician care that is publicly reported at an individual clinician or physician level; however, this is changing with the planned publication of new performance goals and indicators for teams of primary care practitioners. Public reporting is currently decentralized across multiple organizations and there are significant opportunities to bring the reports together, align them with an overarching strategy, and present a comprehensive picture of the performance of Ontario's health system (Wodchis, 2012).

Ontario has the opportunity to learn from other jurisdictions regarding their experiences with performance frameworks and public reporting strategies. National strategies for health that include improvement in both the population's health and the health care system have been developed in the U.K. and Australia, as well as other countries. The U.K. has created successive national performance frameworks with goals that describe health outcomes and clinically relevant outcome measures. In Australia, the approach has been to develop national strategic plans for health and health system

reform that are aligned and contain specific policy goals, performance measures, and targets. Both initiatives are intended to improve accountability (Health Council of Canada, 2012). The U.S. has one of the longest and most expansive modern histories for public reporting of health care information, starting in the 1980s with the publication of hospital mortality data by the Health Care Financing Administration, as well as experiments with cardiac care report cards in a few states, such as New York and Pennsylvania in the early 1990s (Totten et al., 2012). Given that Ontario has the largest provincial health system in Canada, these other jurisdictions provide Ontario with comparative examples of reporting frameworks in large health care systems.

Focus of Research

For the purposes of this dissertation, the researcher has focused on the impact of third-party public reporting of quality measures at the individual organization or provider level. The scope of this research therefore makes a distinction between:

- 1) third-party reporting by organizations that are independent from data collection, service delivery, or funding of health services versus information that is self-reported by health care institutions or other providers,
- 2) publicly available³ comparative information versus privately-disseminated comparative information that is only available to contributing institutions or providers,
- 3) quality measures, for example, those focused on access to care, patient safety, outcomes, or patient experience, versus other types of measures, such as human resources or financial status, and

³The researcher recognizes that there is a further delineation in defining public reporting with respect to information that is made available to the public, such as information available on open-access websites, versus structured reports that are specifically designed for a public audience, such as annual reports to the public. For the purposes of this dissertation, the researcher is primarily focused on information that is made available to the public.

4) institutional or provider level (i.e., reports from an individual hospital, agency, or physician)
versus aggregate level reporting (consolidated reports sourced from multiple organizations, providers or physicians in a given jurisdiction).

Distinguishing between types of reporting is critical for this research, in part because scoping the research is necessary for reasons of practicality, but also because analysis of performance measurement and ranking systems in different jurisdictions suggests that, for a system of performance measurement to have an impact, “it needs to have the potential to inflict reputational damage by producing information that is reliable, robust to criticism from the providers being assessed, understood in broad terms by the public, published, and then widely disseminated” (Bevan, 2010).

The focus on third-party reporting reflects an increasing trend in Canada towards a reporting body that is somewhat independent of government or service providers (Fooks and Maslove, 2004; Wallace et al., 2007). “The increased transparency from public reporting is expected to motivate providers to improve quality either to capture consumer demand or to enhance provider reputation” (Berwick et al., 2003). The evidence in favour of public versus private reporting of performance results is supported by a study by Hibbard and colleagues, in which the researchers randomly assigned hospitals in Wisconsin to receive publicly reported quality information, privately reported quality information, or no quality information (Hibbard et al., 2003). The investigators found that the hospitals that had their quality information released publicly engaged in a higher number of quality improvement activities compared with the other hospitals. These findings indicate that “publicly releasing information has a stimulus effect over and above its managerial informative value” (Contandriopoulos et al., 2014). Finally, the focus on quality, rather than other types of measures, is due to the researcher’s interest in better understanding how to drive higher quality of care in Ontario’s health system. Given that evaluation of

public reporting systems is generally lacking, there is significant opportunity through this research to understand whether public reporting is effective in achieving such objectives.

Significance of the Research

From the studies assessed herein, the literature shows that while concerns about the value of public reporting remain, demand for public reporting is increasing. Studies also indicate that “rigorous evaluation of many major public reporting systems is lacking” (Fung et al., 2008) and evaluation of the impact of report cards has not kept pace with the development of reporting systems (Marshall et al., 2000). Public reporting has been advocated as a mechanism to regulate providers of care, ensure accountability, provide information to different audiences, improve quality, promote patient choice, improve value and sustainability of health care investments, and encourage cost control. These diverse aims have made it difficult to identify evaluation criteria that can be used to assess its impact (Marshall et al., 2000). Additional research is required to understand the effectiveness of public reporting, and ultimately, how we can make it more effective. Marshall and colleagues (Marshall et al., 2000) have advocated that public reporting be evaluated just like any new medical technology; it has risks and benefits and must be evaluated for evidence of its impact.

What we learn from the literature is that there are considerable risks and opportunity costs related to public reporting. There is the potential for risks and damages to providers and patients from inadequate or poor quality reporting, and there is also the potential for an over-focus on measures and targets to distract policy-makers, funders, and health care providers from investing time and energy where it would make the most difference. However, there are also significant opportunities presented by high quality reporting. Given this context, it is critical that we consider the need to formally evaluate Ontario’s public reporting efforts. This leads us to the research question for this dissertation:

“How can we evaluate and enhance the impact of third-party public reporting on quality improvement for health care in Ontario, Canada?”

The purpose of this dissertation is to identify a conceptual framework for evaluating the effectiveness of existing public reporting for improving health care quality, to assess the current state of public reporting, and then to develop a plan for change for that uses the study findings to identify opportunities to improve the effectiveness of public reporting, and ultimately to use public reporting as a means to improve quality of health care.

Background: Introduction to Public Reporting in Ontario

A comprehensive timeline of key milestones for public reporting of Ontario’s health system performance is included in Appendix B; this section includes selected summary information. In 1994, the Institute for Clinical and Evaluative Sciences published the first edition of its practice atlas⁴, which is a compilation of health indicators, processes of care, utilization patterns, and resource consequences to enable improvements in health care delivery in Ontario. In 1997, hospitals in Ontario, supported by the Ontario Hospital Association (OHA), elected to participate in the development of a comprehensive, system-wide report on hospital performance to be released publicly in a format adapted from Kaplan and Norton’s Balanced Scorecard framework (Kaplan and Norton, 1992). The OHA recognized the value of having a third-party, arms-length research team develop the report in order to add credibility to the results. Indicators of performance were developed in four areas: clinical utilization and outcomes, patient satisfaction, system integration and change, and financial performance and condition. In November 1998, the research team, known as the Hospital Report Research Collaborative, published the first aggregated report on acute care hospital performance, followed in 1999 by the first public reporting

⁴ <http://www.ices.on.ca/Publications/Atlases-and-Reports?year=1994&page=1>

on the performance of specific hospital organizations in Ontario, as well as performance at an aggregate level (Pink et al., 2001).

From 2000-2007, the Ontario Ministry of Health and Long-Term Care (MOHLTC) co-sponsored the Hospital Reports with the OHA and, in 2003, the Canadian Institute for Health Information (CIHI) was asked to publish the reports. The Hospital Reports were produced annually and were intended to support efforts to enhance the quality of hospital services by allowing the hospitals to compare their performance with their peers and to identify areas of strength and/or areas for improvement (MOHLTC website, 2013). In 2007, responsibility for public reporting of hospital performance was transferred to the Ontario Health Quality Council, now part of Health Quality Ontario, which had just been established by the provincial government with a specific mandate to improve health system quality. Although the provincial government continued some of the research-related funding for a subsequent period, Hospital Report was no longer published after the Ontario Health Quality Council began focusing on provincial-level reporting (A. Brown personal communication, January 31, 2016). However, hospital-level performance data are publicly available through several sources including CIHI, Health Quality Ontario (HCO), Cancer Care Ontario (CCO), and the MOHLTC.

While early forays into public reporting by Ontario's hospitals were voluntary, over time the public reporting landscape in Ontario has evolved to include an ever greater focus on public reporting and strategies for performance improvement. Starting in 2004, the focus on the performance of the Ontario's health care system changed in a number of ways: the government launched a strategy that included targeted initiatives to reduce wait times and strengthen primary care; it created regional health networks, called Local Health Integration Networks (LHINs) to devolve substantial managerial authority to the local level for improving integration and efficiency across the health system; it created an organization with a specific mandate for public reporting of health system performance by establishing

the Ontario Health Quality Council, now part of HQO; and finally, it created several 'Health Results Teams' to drive performance improvement (Veillard et al., 2010).

More recently, the Government of Ontario passed new legislation designed to increase provider-level accountability for quality of health care, known as *The Excellent Care for All Act* (2010). This legislation requires health care providers to comply with directives intended to improve the quality of care they provide, including: establishing quality committees; annually publishing quality improvement plans with performance measures and improvement targets; linking hospital executive compensation to the achievement of performance improvement targets; and implementing patient, caregiver, and staff satisfaction surveys (MOHLTC website, 2013).

Although the Government of Ontario has not undertaken an evaluation of its overall public reporting efforts, some aspects of performance reporting have been evaluated, including an evaluation and recommendations for the Hospital Report Research Collaborative on their hospital reports (Bevan and Spiegelhalter, 2006), an early study on benchmarking data used by academic teaching hospitals in Toronto (Pink and Freedman, 1998), a study on the impact of public reporting of hospital-acquired infection rates (Daneman et al., 2012), as well as an assessment of cardiac scorecards (Tu and Cameron, 2003). These evaluations and research studies identified improvements to public reports, including identifying ways to reduce variation in data production and collection, improving data quality, developing methods of aggregation and presentation for different audiences, improving data visualization and graphical presentations, expanding use of measures for health care equity across populations, trending over time, and enhancing dissemination of the information. These evaluations were helpful for improving the usefulness, accuracy, and reach of the reporting; however, only two of the studies, the one by Daneman and colleagues (Daneman et al., 2012) and the one by Tu and Cameron (Tu and Cameron, 2003), evaluated the effectiveness of the reporting or its impact on quality improvement.

Responsibility for public reporting of health system performance information is currently distributed across several third-party government-funded organizations in Ontario. Table 1 describes the organizations⁵ responsible for provider-level public reporting on health system indicators and the types of reporting they provide. Each of these organizations will have an important role in supporting the researcher's 'Plan for Change' as described later in this document. In addition to the organizations listed in Table 1, there are other third-party organizations that produce reports and analyses on health system performance. These additional organizations include the Cardiac Care Network, Ontario Stroke Network, Critical Care Network, and BORN (Better Outcomes Registry and Network), among others. For the purposes of this study, only organizations that have a specific mandate for public reporting, are funded to provide public reporting, and make data available, versus primarily focusing on structured published reports, were included in the research.

Table 1: Organizations Responsible for Third-Party Reporting of Health Information in Ontario

Organization	Organizational History and Mandate	Summary of Publicly-Reported Measures
Canadian Institute for Health Information (CIHI)	<p>CIHI was established in 1994 following a recommendation in the report "Health Information for Canada, 1991: A Report by the National Task Force on Health Information" that recommended creating a national health information coordinating council and an independent institute for health information (National Health Information Council, 1991).</p> <p>With a Board of Directors that includes representation from Federal, Provincial, and Territorial Health Ministries, CIHI has a mandate to coordinate the collection and reporting of high-quality, relevant and timely</p>	<p>CIHI publicly reports on health system performance at both the aggregate and institutional levels. At the provider level, CIHI reports on a range of measures by hospital including mortality rates, hospital readmission rates, Caesarean section rates, and patient safety measures.</p>

⁵ While other organizations, such as private institutes, mainstream media, and social media, may also produce public reports at a provider level for the purposes of rating providers or other activities that may be 'reputational' in nature (e.g. "Rate my Doctor" websites), this research will only focus on public reporting from third-party organizations that receive funding from the government and that have a government-supported mandate to provide public reporting on health system performance. This differentiation is important in considering the policy-level applications of a public reporting strategy and evaluation framework for public reporting.

Organization	Organizational History and Mandate	Summary of Publicly-Reported Measures
	<p>data and information on health services in Canada. This includes the development of standards and methodologies, the creation and maintenance of databases with reliable and comparable data, and the promotion of improved understanding and use of health information (CIHI website, 2013).</p>	
Cancer Care Ontario (CCO)	<p>CCO was founded in 1943 as the Ontario Cancer Treatment and Research Foundation, through the <i>Ontario Cancer Act</i> (1943) (CCO website, 2013).</p> <p>CCO is an operational service agency of the provincial government and is responsible for quality and continuous improvement in disease prevention and screening, the delivery of care and the patient experience, for cancer, chronic kidney disease, as well as access to care for key health services. Its role includes establishing care guidelines and standards, and tracking performance targets to ensure system-wide improvements in cancer, chronic kidney disease, and access to care (CCO website, 2013).</p>	<p>CCO works in partnership with the Cancer Quality Council to produce the Cancer System Quality Index, a web-based report that tracks outcomes in cancer care. CCO also manages the wait times information system that is used to provide public reports on the Ministry of Health and Long-Term Care website.</p>
Health Quality Ontario (HQO)	<p>HQO is an independent government agency, created under the <i>Commitment to the Future of Medicare Act</i> (2005). (HQO website, 2013)</p> <p>In June 2008, the Ontario government tasked HQO with measuring and reporting to the public on the quality of long-term care and resident satisfaction, and, in December 2008, with measuring and reporting to the public on the quality of home care services and client satisfaction with these services.</p> <p>In 2010, the province of Ontario passed The Excellent Care for All Act, expanding HQO's role and mandate. HQO is an arm's length agency of the Government of Ontario with a mandate to evaluate the effectiveness of new health care technologies and services, report to the public on the quality of the health care system, support quality improvement activities, and make evidence-based recommendations on health care funding (HQO website, 2013).</p>	<p>HQO provides public reports on the performance of hospitals, home care, and long-term care. Hospital reporting focuses on patient safety indicators such as hospital-acquired infections, hand-hygiene compliance, inpatient mortality rates, and surgical safety checklist compliance. Home care reporting includes a range of performance indicators such as wait times, patient experience survey results, and clinical outcome measures. Long-term care reporting includes measures related to patient falls, incontinence, pressure ulcers, and the use of restraints. HQO is working on a strategy for publicly reporting at the level of primary care providers, but at the time of writing, performance measures for primary care providers were not publicly available.</p>

Organization	Organizational History and Mandate	Summary of Publicly-Reported Measures
The Institute for Clinical Evaluative Sciences (ICES)	<p>ICES was established in 1992, with sponsorship from the Ontario Ministry of Health and the Ontario Medical Association, as an independent, non-profit research organization that evaluates health care services and delivery to meet the changing needs of the people of Ontario.</p> <p>ICES research provides insight on a broad range of topics and issues, including population health, health system performance, primary care, drug safety and effectiveness, diagnostic services and chronic diseases, such as cancer, kidney disease, cardiovascular disease and diabetes (ICES website, 2013).</p>	ICES is primarily a research organization, versus a reporting organization, and as result does not produce an ongoing cycle of public reporting of health performance information, but rather provides special reports on specific topics, such as its recent reports on stroke care, care for seniors, and diabetes care, with a combination of aggregated and institution-level results.
Ontario Ministry of Health and Long-Term Care (MOHLTC)	Ontario's MOHLTC is responsible for planning, funding and delivery of publicly funded health services including hospitals, primary care, home and community care, pharmaceuticals, long-term care, assistive devices, attendant care, and other health services.	Following the implementation of a provincial wait times strategy in 2004, the government made public commitments to reduce wait times for five priority acute care services. In 2005, MOHLTC introduced public reporting and now reports average wait times for Emergency Department Care, diagnostic imaging, cancer care, and surgical wait times on its website. These reports are developed and managed on behalf of the MOHLTC by CCO. Public reporting of additional hospital service wait times has been expanded over time. More recently, in early 2013, the government committed to reducing wait times for access to publicly funded home care services and subsequently introduced public reports on wait times for home care, in the fall of 2014.

Each of these organizations provides public reporting of health information independently; however, there is some overlap between mandates and reporting. Examples of the inter-relationships between these organizations include:

- The Ontario MOHLTC provides funding to, and has accountability agreements with, CIHI, CCO,

HQO and ICES.

- CCO develops and manages the provincial hospital wait times information reporting system, the results of which are publicly reported by MOHLTC.
- HQO does not collect or produce its own data, but instead publicly reports information produced by CIHI, ICES, MOHLTC and others, including quality measures related to hospital patient safety, home care, and long-term care.
- Both CIHI and HQO utilize information from the same standardized assessment tools (called RAI-HC) for public reporting on home care and long-term care.
- CIHI publicly reports some of the same information that it provides to HQO including hospital standardized mortality ratios.

As shown by the examples above and the list of publicly reported measures shown in Appendix C, there is some overlap between the reporting by these different organizations. This highlights the potential opportunity to use evaluation methods to increase strategic alignment of public reporting in Ontario.

In addition to the public-reporting efforts by the third-party organizations identified in Table 1, there is one other important type of public reporting, known as Quality Improvement Plans, that is described here. In accordance with Ontario's *Excellent Care for All Act* (2010), which was legislation designed to improve the quality of health care services in the province, hospitals are required to publicly post organizational Quality Improvement Plans (QIPs) that outline annual quality improvement goals and performance measures with improvement targets. The requirement for posting QIPs has since been expanded to team-based primary care models, Community Care Access Centres (CCACs), and Long-Term Care Homes.

Although improvement on QIP measures is not a legislated requirement, for hospitals in Ontario, Executive Team compensation is tied to achievement of these performance targets. Measures

and targets are selected by organizations based on a standard framework and from a choice of measures approved by the MOHLTC. Hospital QIPs include measures related to patient safety, wait times, and patient satisfaction survey results (MOHLTC website, 2013). These plans are posted locally by each health care organization and HQO produces an annual summary of the results at both the provincial and organizational-level. The QIPs are referenced here although they are reports produced by the health providers themselves, rather than by independent third-party organizations. They have relevance to this research because many of their measures are also publicly reported by third-party organizations and the potential influence of the QIP measures on third-party public reporting results is assessed as part of the quantitative research.

Research Question

Public reporting has been promoted as a means to regulate health care providers, ensure accountability and transparency, improve quality of care, and encourage cost control (Marshall et al., 2000). While the researcher acknowledges that there are several potential aims for public reporting in Ontario, the researcher has chosen to focus this study on public reporting as a potential means to improve health system quality. This is due to the increasing focus of Ontario's efforts to improve quality of care particularly following the enactment of specific legislation in the form of *The Excellent Care for All Act* (2010). In spite of increasing public reporting of health performance information, to date, there is no evidence that the Ontario government has assessed or evaluated the effectiveness or impact⁶ of its overall efforts for public reporting of health system performance measures, although there have been evaluations of a small number of individual activities related to public reporting.

⁶ By 'effectiveness or impact' the researcher means whether or not the fact that performance measures are publicly-reported has made a difference to the results.

Given that Ontario has not formally evaluated its public reporting efforts, the researcher conducted a review of the literature to help answer the following sub-questions:

“What do we know about the value of public reporting⁷?”

“What do we know about how to improve the effectiveness of public reporting?”

The results of the literature review were then used by the researcher to help build the methodology for answering the dissertation question:

“How can we evaluate and enhance the impact of third-party public reporting on quality improvement for health care in the province of Ontario, Canada?”

These three questions form the thread of research in this dissertation that follows through the literature review, conceptual model, research methods, results, discussion, and ultimately the plan for change.

⁷ By ‘value of public reporting’ the researcher means the relative importance of public reporting as a quality improvement strategy.

CHAPTER 2: LITERATURE REVIEW

Introduction to the Literature Review Methods

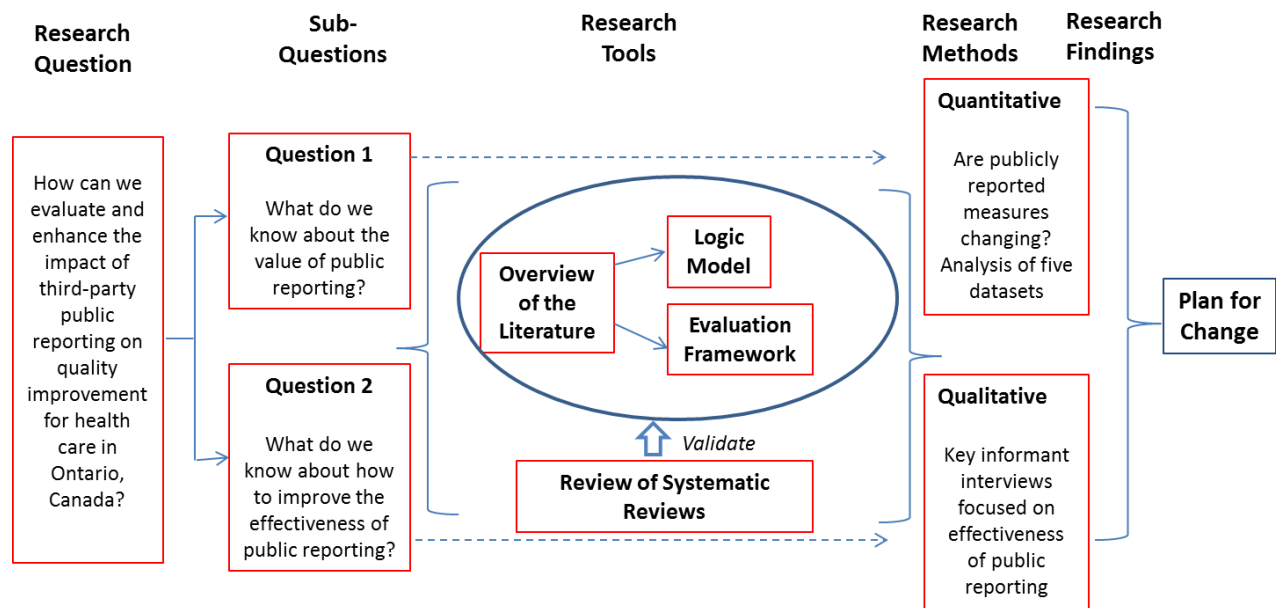
In order to begin to answer the dissertation question, the researcher completed a staged approach to the literature. This staged approach is described as follows:

- i) The researcher initiated a literature review based on the first sub-question “*What do we know about the value of public reporting?*”. The purpose of the review was to identify what could be understood from the literature about public reporting and its value in terms of whether it produces desirable effects in the form of higher quality care.
- ii) As the literature review progressed, it became apparent that as experience with public reporting increased over time, the focus in the literature shifted from understanding the value of public reporting to figuring out how to make it more effective. This then led the researcher to add a second sub-question to the literature review “*What do we know about how to improve the effectiveness of public reporting?*”
- iii) As the researcher continued with the literature review process, it became further apparent that the sheer volume of individual studies available on the topic of public reporting made a systematic review of the literature prohibitive in terms of time. To make the process more manageable, the researcher opted to separate the literature review into two types of reviews. The first review, based on the questions described in

(i) and (ii) above, is described as an overview⁸ of the literature, and its purpose was to assist the researcher in understanding the general findings from the literature on this topic. Given the extent of the literature, the researcher decided to undertake a second, more systematic review of the literature that focused exclusively on a review of systematic reviews on the topic of public reporting. This purpose of the second, and more systematic, review was primarily to validate and refine the findings from the first review.

Details of the two reviews (the overview of the literature and the review of systematic reviews) are described in more detail in the following sections. Both of the reviews were useful in developing and refining the conceptual framework for the research approach, including a logic model and evaluation framework for public reporting. Figure 1 depicts the flow of the research stemming from the research questions and literature review process.

Figure 1: Overview of Research Plan



⁸The term 'overview' of the literature is based on the definition by M.J. Grant and A. Booth (Grant and Booth, 2009).

Overview of the Literature

This initial stage of the literature review was designed to 1) identify individual studies that demonstrated why public reporting is important or effective in helping improve the quality or performance of the health care system, 2) understand the criticisms and potential for negative impacts, and, 3) identify best practices and how to increase its effectiveness. No specific hypothesis was generated prior to developing the research questions.

PubMed was the primary electronic research database used to identify relevant literature for the initial literature review of this topic. The literature review was conducted in PubMed using the following MeSH terms in a Boolean formula ‘public reporting’, ‘health care’, ‘outcome’, ‘performance’, and ‘evaluation’. These terms were identified from an article by Wallace and colleagues on public reporting (Wallace et al., 2007), which was particularly relevant to this research. The literature review, based on the key word search in PubMed for titles and abstracts with these Boolean search terms, resulted in over 25,000 titles. The author reviewed the first 2,000 titles and selected 133 based on the following categories:

- Studies that provided empirical evidence of the value of public reporting.
- Studies that provided empirical evidence of non-value or negative impact of public reporting.
- Articles or reports that focused on improving the effectiveness of public reporting.

The overview of the literature enabled the researcher to identify four different audiences for public reporting as referenced in the following sections. These audiences are defined by the researcher below, as well as in Appendix A:

- 1) Consumers – defined as patients and patient representatives.
- 2) Funders – defined as organizations that provide funding to support or purchase health care delivery including government, government agencies, and health insurance plans. In many

jurisdictions, funders are also policy-makers, those legislatively responsible for determining government policy including political or government bureaucracy leadership. In the literature, where there is evidence for differences between funders and policy-makers, these are noted by the researcher; otherwise, they have been included in the same group.

- 3) Physicians – defined as solo-practitioners, specialists, physician group practices, including clinics.
- 4) Institutional Providers – defined as institutional or organizational entities including hospitals, long-term care homes, and home care agencies that are responsible for the provision of direct care to a group of patients.

The following four key themes were identified from the literature overview:

- 1) Public reporting appears to have a positive impact on the behavior of institutional providers, but has less impact on consumers, physicians, and funders.
- 2) Public reporting shows mixed impact on outcomes and performance.
- 3) There is no conclusive evidence in the literature that links public reporting to adverse consequences.
- 4) There is significant opportunity to improve the effectiveness of public reporting and there are many examples and recommendations provided in the literature.

Each of these themes is explored in more detail in the next section.

Specific Findings from the Overview of the Literature:

1. Public reporting can have a positive impact on the behavior of institutional providers, but has less influence on the behavior of consumers, physicians, and funders.

Impact on Institutional Providers – Several studies showed that both hospitals and long-term care homes increased their focus on quality improvement efforts either following, or in relation to, the

release of public information about their performance. Changes in organizational behavior included increased use of best practices (Joynt et al., 2012; Renzi et al., 2012; Tu and Cameron, 2003); targeting new quality improvement initiatives (Barr et al., 2006); reduced use of poor practices (Clement et al., 2012); and increased attention on quality and performance improvement activities, which could include changes in organizational priorities, increased attention from senior management, and increased motivation and energy to improve (Davies, 2001; Fung et al., 2008; Hafner et al., 2011; Hibbard, 2003; Mannion and Goddard, 2003; Marshall et al., 2000; Werner and Bradlow, 2010; Werner et al., 2010). In addition, there is some evidence that public reporting is associated with greater change in lower-performing providers, as opposed to higher-performing ones (Hendriks et al., 2009; Jha and Epstein, 2006).

Impact on Consumers – Evidence for impact on consumer behavior was less compelling. Several studies showed no impact of public reporting on consumer choice (Chen et al., 2012; Grabowski and Town, 2011; Jha and Epstein, 2006; Schlesinger et al., 2013; Shaller et al., 2013). Other studies found some evidence of the impact of public reporting on consumer behavior, with a small increase in volumes of patients at higher-performing institutions following the public release of performance results (Castle et al., 2007; Rodrigues et al., 2014; Romano and Zhou, 2004; Romano et al., 2011; Werner et al., 2010; Werner et al., 2012), although several of these studies were cautious about their results due to limited data and there were indications that any positive impact did not persist over time.

Impact on Physicians – A few studies were found to show a positive impact related to public reporting on physician behavior in physician groups (Alexander et al., 2013; Lamb et al., 2013), and in the behavior of cardiac surgeons related to publication of rates and outcomes of coronary artery bypass grafting (CABG) and percutaneous coronary intervention procedures (Carey et al., 2006). Other studies showed no link between physician quality improvement, or physician behaviors, and

public reporting (Chen et al., 2012; Lanier et al., 2003). Evidence from the literature indicates that physicians are skeptical of public report cards citing concerns about intent, accuracy, the ability to attribute results to the actions of individual physicians, and relevance (Dehmer et al., 2014; Glickman and Schulman, 2013; Marshall et al., 2000; Natale et al., 2011; Rosenstein, 2000; Sherman et al., 2013). The implications of these findings are that physicians are less likely to change behaviors as a result of public reporting.

Impact on Funders – Although studies in the U.S. and U.K. showed growing evidence of the use of public reporting results by policy-makers and funders (Baker et al., 2013; Higgins et al., 2013; Lindenauer et al., 2007), this does not appear to be the case in Canada. Studies reviewed evidence for changes in behaviour of funders, including selection of higher performing providers, avoiding or delisting lower-performing providers, or changing volumes or funding-levels related to performance of health care providers. Earlier studies showed that health plan purchasers gave only minimal consideration to publicly-reported quality when selecting providers (Totten et al., 2012). However, the situation of funders is now changing in the U.S. with the implementation of the *Affordable Care Act* (2010) that provides incentives for organizations to improve quality and performance through Medicaid funding. The ‘star’ rating system in the U.K. is perhaps one of the best known examples of government use of performance information to both incent high performance and punish poor performance among hospitals (Bevan and Hood, 2006). Canadian researchers noted that governments in Canada need to be more strategic in their approach to health care and ensure greater accountability for the performance of their health systems (Abbott, 2012), and that there needs to be greater accountability and consequences for poor performance (Fooks and Maslove, 2004).

2. Public reporting shows mixed impact on outcomes and performance.

Several studies that found positive changes in performance results, or in health outcomes related to public reporting, included improved patient satisfaction/experience scores (Barr et al., 2002; Elliott et al., 2010); reduced wait times for clinical care, including emergency department, inpatient and outpatient care (Bevan, 2010); improved post-cardiac surgery outcomes and cardiac care (Carey et al., 2006; McLean, 2010); reduced hospital-acquired infection rates (Daneman et al., 2012); improved access to treatment (Renzi et al., 2014); and reduced rates for inpatient mortality (Hollenbeak, 2008; McCrum et al., 2013). While these studies identified a positive impact related to public reporting, either through increased attention to quality improvement efforts, improved outcomes, or both, in general researchers were cautious about identifying a direct causal pathway but instead focused on a general association between public reporting and positive impacts. Concerns about attribution were particularly noted when no comparative group was available (Elliott et al., 2010) or when other factors, such as pre-existing trends, may have contributed to positive outcomes (Ryan et al., 2012).

Multiple studies showed no impact from public reporting on health outcomes or on the behavior of institutional providers, physicians, consumers, policy-makers or funders. Research evidence on health outcomes found no association between public reporting and changes in:

- hospital mortality rates (Clough et al., 2002; Joynt et al., 2012; Ryan et al., 2012),
- avoidable hospital readmissions (Jha et al., 2009),
- infection rates (Linkin et al., 2013; Rinke et al., 2014),
- consumer behavior related to their choice of health care providers (Clough et al., 2002; Faber et al., 2009; Grabowski and Town, 2011; Jha and Epstein, 2006; Ketalaar et al., 2011; Marshall et al., 2003; Marshall et al., 2000; Rodrigues et al., 2014; Romano and

Zhou, 2004; Schaufli and Mordavsky, 2001; Schneider and Lieberman, 2001; Werner et al., 2012),

- institutional provider behavior (Ketalaar et al., 2011; Tu et al., 2009),
- physician behavior (Chen et al., 2012; Fung et al., 2008; Lanier et al., 2003; Marshall et al., 2000; Rosenstein, 2000), or
- behaviors of funders or policy-makers, including no increased focus on accountability (Abbott, 2012; Fooks and Maslove, 2004; Mannion and Goddard, 2003; Marshall et al., 2000).

One Canadian study showed that outcomes improved sharply after performance results were confidentially disclosed at an institutional level, but when the results were later publicly reported, there was no discernible impact on performance indicating that in some cases, the confidential disclosure of outcomes was sufficient to accelerate quality improvement in a public system with little competition for patients between hospitals (Guru et al., 2006).

3) There is no conclusive evidence in the literature that links public reporting to adverse consequences.

While there is evidence supporting the value of public reporting, the literature also identified some evidence of the lack of value or effectiveness of public reporting, and raised the possibility for adverse consequences. Concerns raised in the literature included 1) questions about the potential for inappropriate diversion of resources to public reporting, 2) attention drawn to what is publicly reported and not necessarily to what is most important, 3) questions about data quality and validity, 4) questions about the ability to attribute outcomes to providers, 5) lack of adjustment for changes in case mix, 6) “gaming” of data by providers, 7) lagging data, and 8) the potential for perverse incentives (Bevan, 2010; Coles, 1999; Davies, 2001; Dranove et al., 2002; Farmer et al., 2013; Gruenir et al., 2010; Guru et al., 2009; McLoughlin et al., 2001; Miller and Leatherman, 1999).

The most significant concern about public reporting was the potential for adverse and unintended consequences related to the publishing of performance data, in particular, the potential for public reports to create perverse incentives that might reduce quality or harm patients, including: not treating marginalized patients who tend to have lower compliance with treatment directives (Davies et al., 2002), avoiding patients who are sicker and therefore likely to have poorer outcomes (Dranove et al., 2002; Fung et al., 2008; Guru et al., 2009; Hofer et al., 1999; Mosucci et al. 2005), or over/under treating patients in order to achieve performance targets (Konetzka et al., 2014; Rambur et al., 2013; Wachter et al., 2008; Werner and Asch, 2005). In addition, there is the potential for providers to impact the accuracy of reporting rates (“gaming”) in order to improve their standing in public reports (Bevan and Hood, 2006; Farmer et al., 2013; Guru et al., 2009; Hamblin, 2007; McLoughlin et al., 2001; Muller and Detsky, 2010).

Friedberg and colleagues (Friedberg et al., 2009) explored concerns that public reporting was associated with the over-diagnosis of pneumonia, excessive antibiotic use, and the inappropriate prioritization of patients with respiratory symptoms. These concerns were related to previous studies showing that payment systems increased inappropriate use of antibiotics (Wachter et al., 2008). Results of the analysis showed no difference in provider practice patterns related to public reporting (Freidberg et al., 2009). A study on the effects of bypass surgery in New York, with regard to access to care and patient outcomes in the elderly, showed no evidence that elderly high risk patients were being denied access to surgery due to their increased likelihood of poor outcomes. In fact, this same study showed a link between public reporting and significantly improved outcomes as compared to the national average (Peterson et al., 1998). Another study on post-acute care found that both unreported and reported care improved following the launch of public reporting. The findings were more consistent with the hypothesis that the positive effect of public reporting influences other important but unreported areas of care, and were less consistent with the

hypothesis that measuring and reporting quality in some areas crowds out quality in other areas (Werner et al., 2009). In the end, the researcher found no conclusive evidence in the literature that linked public reporting to adverse consequences.

4) Recommendations for improving the effectiveness of public reporting.

Not surprisingly, recommendations for improvements to public reporting are also a reflection of the strengths and criticisms. It appears that substantial improvements in public reporting are required in order for it to be effective in influencing consumer behavior (Hibbard, 2008; Hibbard et al., 2002; Hibbard and Peters, 2003; Mannion and Goddard, 2003; van den Heuvel et al., 2013). One study noted a change in consumer views after the release of a report on hospital performance that was made easy to understand and widely available (Hibbard et al., 2005). Multiple researchers provide recommendations for improving the effectiveness of public reporting, as listed in Figure 2.

Figure 2: Recommendations for Improving the Effectiveness of Public Reporting

<ul style="list-style-type: none"> • Adjusting for case mix • Aligning measures with stakeholders' needs • Assessing the impact of public reporting on disadvantaged groups • Comparing performance against standards rather than comparing providers to each other • Creating a culture and environment within organizations that enables the appropriate use of performance information • Creating clear objectives for public reporting • Engaging the public • Evaluating public reporting efforts • Increasing accountability for results • Improving measures and data quality • Improving motivation of providers to make improvements • Introducing test periods • Placing greater emphasis on outcome rather than process measures • Prioritizing measures 	<ul style="list-style-type: none"> • Reducing the potential for “gaming” of results by providers • Reducing potential for perverse incentives • Understanding factors that impact patient choice • Using appropriate performance incentives • Using standardized measures. <p>(Auras et al., 2012; Berger et al., 2013; Berwick et al., 2003; Bevan, 2010; Davies et al., 2002; Dranove et al., 2002; El Turabi et al., 2007; Fooks and Maslove, 2004; Friedberg and Damberg 2012; Greene and Hall, 2012; Hibbard, 2008; Hibbard et al., 2002; Hibbard et al, 2003; Klazinga et al., 2011; Klein and Nashef, 2008; Lucet et al., 2013; Mannion and Goddard, 2003; Marshall et al., 2004; Marshall et al., 2000; McLoughlin et al. 2001; Meddings et al., 2013; Meltzer and Chung, 2014; Morris and Zelmer, 2005; Papadimitriou et al., 2013; Powell et al., 2003; Reineck et al., 2014; Robinowitz and Dudley, 2006; Rodrigues et al., 2014; Smith, 2003; Specchia et al., 2012; Tehrani et al., 2013; Wallace et al., 2007; Walker et al., 2013)</p>
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A few articles recommended checklists or frameworks for improving the effectiveness of public reporting (Friedberg and Damberg, 2012; Hibbard, 2008; McKibben et al., 2006; McMurtry, 2005; Miller and Leatherman, 1999) (Morris and Zelmer, 2005; Suchy, 2010; van den Berg, 2014; van den Heuvel et al., 2013). One of the most often cited recommendations for improving the effectiveness of public reporting was to evaluate its impact, noting that rigorous evaluation of public reporting efforts is generally lacking (Brown et al., 2005; Friedberg and Damberg, 2012; Fung et al., 2008; Marshall et al., 2000; McKibben et al., 2006; Werner et al., 2012).

Discussion of the Overview of the Literature

The purpose of this overview of the literature was to understand generally what the literature reveals about the value of third-party public reporting for quality improvement and improved health outcomes, as well as to identify opportunities to improve the effectiveness of public reporting. This review was also intended to help identify what Ontario could learn from other jurisdictions, to inform an approach to evaluating Ontario's existing public reporting efforts, and to identify potential opportunities to improve its effectiveness for improving health system quality. The literature review was useful in understanding the benefits and challenges of public reporting; however, the evidence supporting its value in improving quality of care was mixed. The researcher's conclusion from this review was that, although evidence for the value of public reporting is mixed and it remains controversial, on balance it appears to have more benefit than harm. It also seems likely that increasing societal trends for greater transparency will mean that public reporting efforts will continue to grow and will remain as an important means to increase the accountability of health providers and as a contributing factor to improving health system quality.

The researcher further found that while the literature identifies lower levels of impact and/or sometimes mixed impact of public reporting on behaviors of consumers, physicians, policy-makers, and funders, the same is not true of health care organizations. Of all the research on the impact of public reporting, the strongest evidence is for use of the data as a catalyst to stimulate and promote internal quality improvement efforts at the level of the organizational provider. Marshall et al. urged a more targeted approach to public reporting based on evidence, stating that "it is critical to articulate the purpose for public disclosure and the development of an evidence base to guide its implementation to ensure that disclosure is conducted in a way that will maximize the potential benefits and reduce the associated risks" (Marshall et al., 2000). The researcher finds that the literature review supports the

rationale for focusing public reporting efforts on providers as a means to improve quality of care, which then informs the research methodology for this dissertation.

Although this initial overview was helpful in providing a broad summation of the literature as described in this discussion, it was evident that the large body of literature required a more systematic approach to a literature review. In addition, the researcher concluded from a review of the MeSH terms in the literature that using only five search terms ('public reporting', 'health care', 'outcome', 'performance', and 'evaluation') was not sufficiently inclusive for this topic. The researcher therefore opted to conduct a second more systematic literature review, as described in the next section.

The final contribution of the overview of the literature was to assist the researcher with the identification of the key categories in the literature as the basis for an analytic framework for the large body of literature that is available on this topic. Different studies touched on some or all of the following themes:

- 1) Impact on consumers
- 2) Impact on organizational or institutional providers
- 3) Impact on physicians
- 4) Impact on funders/policy-makers
- 5) Impact on quality of care outcomes
- 6) Potential for negative/adverse consequences
- 7) Opportunities to improve public reporting

The researcher then used these themes to help support analysis of a more systematic review of the literature, as described in the next section and summarized in Tables 2 and 3.

Review of Systematic Reviews

As a second stage in the literature review process, the researcher conducted what is described in the literature as a systematized review⁹ of systematic reviews on the topic, using the methodology described by Smith et al. for identifying and appraising systematic reviews (Smith et al., 2011). The purpose of such a “review of reviews” is to describe their quality, summarize and compare their conclusions, and discuss the strength of these conclusions so that the best evidence is made available (Smith et al. 2011). In this case, the additional purpose for the review was to validate the findings from the earlier overview of the literature.

In this two stage review of the literature, no other such review of systematic reviews on the topic of public reporting of health performance information was found. As such, the author believes that this review will be a valuable contribution to existing literature on the topic of public reporting by providing a summary of the systematic reviews in a single source document.

Sources and Search Strategy

The search strategy for a review of systematic reviews differs from a review of individual studies in that a review of systematic reviews can be targeted to databases specific to systematic reviews, such as the Cochrane Database of Systematic Reviews, whereas for a review of individual studies, the search should be as wide as possible to maximize the likelihood of capturing all relevant data and minimizing the effects of reporting biases (Smith et al., 2011). In keeping with this approach, the author limited the

⁹The term ‘systematized review’ of the literature is based on the description from M.J. Grant and A. Booth (Grant and Booth, 2009). As described in Grant and Booth’s description of a systematized review, the researcher conducted a review that includes elements of a systematic review process, but lacks all the requirements and resources involved in a full systematic review, including independent review from a second researcher. As such, the researcher has referred to this review as a ‘systematized review of systematic reviews’ as opposed to a ‘systematic review of systematic reviews’ to indicate that this was not a strictly systematic review process.

search to two databases i) the Cochrane Database of Systematic Reviews and ii) PubMed, which was the primary search database for the researcher's earlier review of individual studies.

In order to provide a comprehensive search of articles related to this topic, the author identified fourteen related terms for public reporting from MeSH [mh] terms used in the articles obtained from the first search. With the assistance of a librarian at the University of North Carolina Health Sciences Library, the researcher created a search string for a title and abstract [tiab] search, including all of the fourteen related terms for public reporting as shown below:

"systematic review"[tiab] OR "systematic reviews"[tiab] OR "literature review"[tiab] OR "review of the literature"[tiab]) AND "truth disclosure"[mh] OR "public release"[tiab] OR "public disclosure"[tiab] OR "public reporting"[tiab] OR "publicly reported"[tiab] OR "performance report"[tiab] OR "performance reports" [tiab] OR "performance reporting"[tiab] OR "performance indicator"[tiab] OR "performance indicators"[tiab] OR "performance measure"[tiab] OR "performance data"[tiab] OR "report cards"[tiab] OR "medical registries"[tiab]

Inclusion criteria

The following criteria were used to identify articles for inclusion in the review:

- English language and,
- systematic reviews that:
 - focus on public reporting as opposed to performance reporting that is not made public, as well as that provide comparisons of public reporting with other types of reporting, and,
 - (building on the preliminary overview of the literature) include articles with empirical evidence on the value, non-value, or negative impact of public reporting on consumer choice, physician behavior, provider behavior, purchaser/funder behavior, adverse consequences, or quality of care/outcomes, as well as that identify ways to improve the effectiveness of public reporting and,

- include at least three articles (i.e., reviews covering only one or two articles were less suitable for comparative purposes) and,
- meet the criteria for being systematic reviews of the literature and,
- have been peer-reviewed.

Review Results

Using the search methods described previously, the author identified 10 articles for inclusion in the final review. The following section describes the methods used to select these articles. Figure 3 outlines the flowchart for study selection.

Step 1: Search terms in PubMed yielded 257 articles

Search terms in Cochrane Database yielded 144 articles

Three (3) additional articles were identified from the earlier literature review

Step 2: Duplicates were removed

Step 3: Title and abstract review yielded 19 articles for full article review.

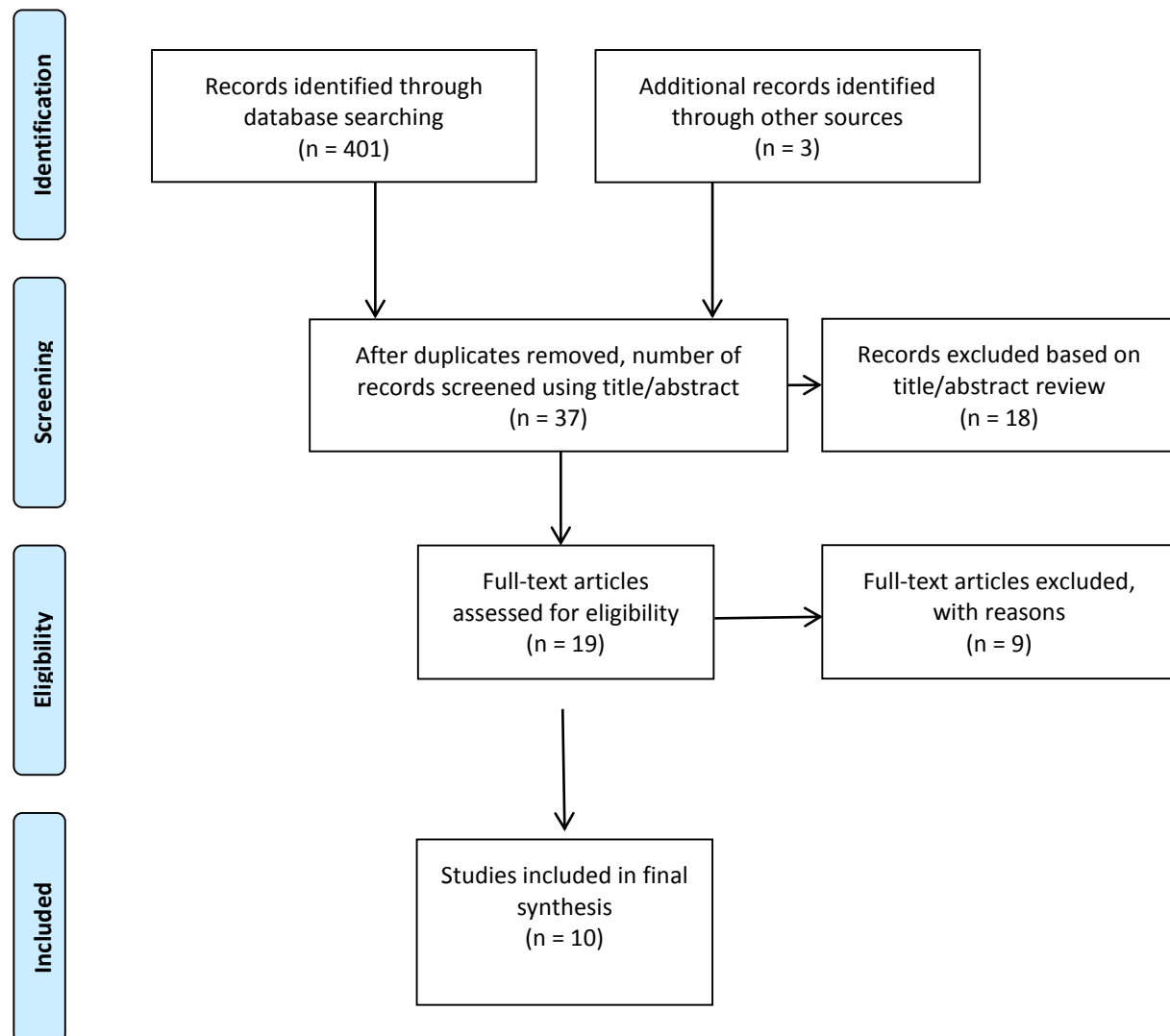
Step 4: Using a combination of the inclusion criteria and evaluation criteria, the author eliminated nine articles. A description of the excluded articles and the reason for exclusion is included in Appendix D. The final synthesis included 10 articles.

Excluded Studies

Nine studies were excluded from the study selection after full text review. A list of the excluded studies and rationale for exclusion are included in Appendix D.

Figure 3: Flowchart for Study Selection

(adapted from Moher et al., 2009)



Quality Assessment of Reviews

As observed by Smith et al. (Smith et al., 2011), in conducting a review of systematic reviews, it is necessary to determine the quality of the reviews for inclusion in the final review of the literature. The researcher reviewed both PRISMA (Moher et al., 2009) and AMSTAR (Shea et al., 2009) to determine which tool to use to assess the methodological quality of the systematic reviews. AMSTAR was selected as the preferred tool, based on the review by Smith et al. identifying AMSTAR as the only validated tool for assessing the methodological quality of systematic reviews (Smith et al., 2011). A copy of the AMSTAR tool, including the criteria for assessing quality of systematic reviews, is found in Appendix E.

Articles that met all of the inclusion criteria were then assessed for their methodological quality as systematic reviews using the AMSTAR tool. The AMSTAR tool uses eleven items in a checklist format that includes assessment of study design, literature review methodology, description of articles reviewed, quality review methods, as well as statements of bias and conflict of interest. Using the AMSTAR tool, each article was assessed item by item and scored as ‘yes’, ‘no’ or ‘can’t assess’ in terms of having met the quality criteria. The final quality ratings were characterized as “very good” (articles that had a quality rating of 9-11), “good” (articles that had a quality rating of 6-8), “fair” (articles that had a quality rating of 3-5), or “poor” (articles that had a quality rating of 0-2). Articles with a rating of “poor” were excluded from the final review.

Results

The ten systematic reviews that met the inclusion and quality criteria were then analyzed and details of the reviews were placed into summary tables. Appendix F lists the studies included in each of the systematic reviews and was used to identify duplications in the review of specific studies. Table 2 is a summary table that describes the scope of each of the systematic reviews. Table 3 provides a summary of the conclusions of each systematic review. Of the ten studies included in the final review, nine of the

studies used a standard approach to their systematic reviews and one (Lemire et al., 2013) used a narrative synthesis approach to describe the underlying processes of the interventions.

Timelines for the reviews and assessment of duplications: The review by Lemire et al. did not include a list of articles and is therefore excluded from this section of the analysis. The reviews covered almost 25 years of literature from 1988 to 2012. The nine reviews (excluding Lemire et al., 2013) included a total of 232 individual studies, of which 142 (61%) were included in only one review; the remaining articles were included in at least two of the systematic reviews. This repeated use of studies was expected given that there was overlap in both the publication years included in the reviews and in the purpose of the reviews. The review by Totten et al. included the most comprehensive list of articles of all of the reviews (Totten et al., 2012), with a total of 198 studies, both quantitative and qualitative in nature. Predictably, this review had the most comprehensive list of search databases and included several studies not used in any of the other reviews. The remaining systematic reviews included between four and 55 studies. The repeated use of almost 40% of the studies across the nine reviews increased the likelihood of overlap in the findings.

Use of quality ratings: The AMSTAR tool was used to rate the quality of each review. In addition to assisting with the selection of articles for inclusion, i.e., studies with scores of 2 or less were excluded from the final review, the AMSTAR grading criteria were also used to rank studies on whether they should carry great (rating of 9-11 “very good”), moderate (rating of 6-8 “good”) or little (rating of 3-5 “fair”) weight when considering the strength of evidence. For the included studies rated using AMSTAR, three (Ketelaar et al., 2011; Berger et al., 2013; Totten et al., 2012) were rated as “very good”, four (Shekelle et al., 2008; Fung et al., 2008; Faber et al., 2008; Totten et al. 2011) were rated as “good”, and the remaining three (Marshall et al., 2000; Schauffler and Mordavsky, 2001; Lemire et al., 2013) were rated as “fair”. Details of the ratings are provided in Appendix G.

Aim/Purpose of reviews: Given that all of the reviews were designed to assess the impact of public reporting, it is expected that there would be a degree of overlap in the stated aim/purpose of the reviews. In most cases, the reviews stated more than one purpose. Six of the ten reviews assessed the impact of public reporting on the behavior of different stakeholder groups, including consumers, physicians, and providers, as well as the impact on quality improvement or improvement in performance outcomes. Four of the six identified the impact on consumer choice as a particular focus. Two of the reviews identified the impact of public reporting on improving quality as a stated purpose. Finally, three separate reviews specifically identified improving the effectiveness of public reporting, identifying potential unintended consequences, and identifying the causal pathways by which public reporting may improve performance as a stated aim(s).

Types of studies included: The types of studies included by the reviews were wide-ranging, including both quantitative and qualitative studies as shown in Table 2. Given this heterogeneity, it was not possible for the researcher to further pool or synthesize the results beyond the general results described at the end of this section.

Settings: All of the systematic reviews included the US as a geographic location for the individual studies they included; three of these only included studies from the US. Other countries included in the studies were the UK, Canada, Netherlands, Italy, and “other” (not identified). This is important to note since, of this list of countries, the US has the most competitive market for health care and is therefore more subject to market forces that can be brought to bear by the availability of public information about provider performance.

Comparison of Results: The results were analyzed using the categories identified from the initial overview of the literature. Greater emphasis on the evidence was placed on the reviews that were rated higher using the AMSTAR rating system.

- 1) **Impact on consumers:** The reviews found no, limited¹⁰, or mixed impact of public reporting on consumer behavior (Faber et al., 2009; Fung et al., 2008; Marshall et al., 2000; Schauffler and Mordavsky, 2001; Totten et al., 2011; Totten et al., 2012). Where there was a positive impact, the impact was limited and not generalizable (Berger et al., 2013), or did not persist (Ketalaar et al., 2011; Shekelle et al., 2008).
- 2) **Impact on institutional providers:** The most compelling evidence for the impact of public reporting indicates that it stimulates quality improvement activities in hospitals (Ketalaar et al., 2011; Schauffler and Mordavsky, 2001; Shekelle et al., 2008 ; Totten et al., 2011; Totten et al., 2012) and long-term care homes (Berger et al., 2013; Totten et al., 2012). This was particularly evident in competitive markets such as the US (Marshall et al., 2000).
- 3) **Impact on physicians:** Evidence for the impact of public reporting on physician behavior was mixed. Two of the reviews found no evidence of impact on physician behavior (Marshall et al., 2000; Schauffler and Mordavsky, 2001). However, more recent reviews indicated that where surgeon-specific data were made public, surgeons performing in the bottom quartile were more likely to leave their practice (Shekelle et al., 2008; Totten et al., 2012). Other than this specific impact, no other impacts on physician behavior were found.
- 4) **Impact on funders/policy-makers:** There was limited assessment of the impact of public reporting on the behavior of funders/policy-makers. Where there was some positive impact, evidence shows there was only minimal consideration given to publicly reported information.

¹⁰ In the summary of the literature review findings, the terms 'limited, minimal/modest, mixed and inconclusive' are used throughout. Although used frequently in the literature, these terms were generally not defined in the systematic reviews; however, for consistency of comparison across the literature reviews the researcher interpreted these terms as follows: 'limited' or 'minimal/modest' findings meant that there was some evidence of interpretable results, but that the quality or quantity of evidence was weak or, in some cases, results were short-lived. The term 'mixed' was interpreted to mean that a combination of results was found, but no result dominated. Finally, the term 'inconclusive' was interpreted as meaning the quality or quantity of results was insufficient to produce interpretable results.

This was specific to employer selection of health plans in the US (Schauffler and Mordavsky, 2001; Totten et al., 2012).

- 5) **Impact on quality of care outcomes:** The reviews found limited, mixed, or inconclusive impact of public reporting on improving quality of care outcomes (Ketelaar et al., 2011; Berger et al., 2013; Shekelle et al. 2008; Fung et al., 2008; Totten et al., 2011). Where there was a small indication of positive impact, it was for measures related to cardiac care (Ketelaar et al., 2011; Marshall et al., 2000); patient satisfaction (Marshall et al., 2000), Caesarean delivery rates (Marshall et al., 2000), and mortality rates (Totten et al., 2012). Results were not uniformly consistent and there were questions raised about the appropriateness of comparisons.
- 6) **Potential for negative/adverse consequences:** Evidence for negative or unintended consequences related to public reporting was minimal at best, and only two of the reviews assessed this theme related to public reporting. One review found inconclusive evidence of adverse consequences of public reporting on case mix, with some indication of a propensity in New York State providers for avoiding higher-risk cardiac cases (Fung et al., 2008). The other review generally found greater evidence for “no harm” than for harm, but with some evidence that public reporting can create adverse incentives that lead to unintended negative behavior by providers in long-term care (Totten et al., 2012).
- 7) **Opportunities to improve public reporting:** Several studies reviewed the evidence for improving the effectiveness of public reporting. While there was limited quantitative evidence for improvement, qualitative evidence pointed to improvement opportunities related to design and dissemination of public reporting systems (Fung et al., 2008; Totten et al., 2011; Lemire et al., 2013; Totten et al., 2012). Research evidence cites the need for more evaluation of existing reporting systems as an opportunity to improve the effectiveness of existing public reporting (Fung et al., 2008).

Table 2: Descriptive Table of Systematic Reviews

Authors, Year	Aim/Purpose of Systematic Review	Search Databases	Types of Studies Included	No. of Studies Included	Review Dates	Summary of Results	Geographic Location¹¹ of Studies Included
Marshall et al. (2000)	To summarize the empirical evidence concerning public disclosure of performance data, relate the results to the potential gains, and identify areas requiring further research.	MEDLINE EMBASE	Descriptive Observational Quasi-experimental Randomized Control Trials	26	January 1986 – October 1999	There is some evidence that provider organizations are more responsive to publicly reported performance data than consumers, purchasers, or individual physicians. The most promising area for further research is the use of data as a catalyst to stimulate and promote internal quality improvement mechanisms by provider organizations.	US studies only
Schauffler and Mordavsky (2001)	To evaluate the evidence on the impact of consumer report cards on the behavior of consumers, providers, and purchasers.	Medline Healthstar	Empirical studies	32	1995 – 2000	The evidence indicates that consumer report cards do not make a difference in decision making, improvement, quality or competition.	US studies only
Fung et al. (2008)	To synthesize the evidence for using publicly reported performance data	Web of Science MEDLINE EconLit	Observational cohort Analysis of time trend	45	January 1999 – March 2006	Evidence is scant, particularly about individual provider and practices. Rigorous evaluation of	43 US studies 1 Canadian study 1 UK study

¹¹The author included geographic location of the studies as the earlier review of individual studies indicated some potential bias in the findings when studies were primarily limited to a single country (the US).

Authors, Year	Aim/Purpose of Systematic Review	Search Databases	Types of Studies Included	No. of Studies Included	Review Dates	Summary of Results	Geographic Location ¹¹ of Studies Included
	to 1) stimulate quality improvement activity, affect selection of providers, and improve clinical outcomes, and 2) to assess the evidence for unintended consequences.	Wilson Business Periodicals (1999 – 2006) Independent review of articles (1986 – 1999) identified in a previous systematic review.	Time series Case series Case study Survey (descriptive) Controlled Trial Interviews			major public reporting systems is lacking. Evidence suggests that publicly releasing performance data stimulates quality improvement activity at the hospital level. The effect of public reporting on effectiveness, safety, and patient-centeredness is uncertain.	
Shekelle et al. (2008)	To assess the hypothesis that public reporting can improve performance (effectiveness of care, patient safety, and patient-centeredness) through two pathways (selection and change), which are interconnected by a provider's motivation to maintain or increase market share.	Web of Science MEDLINE EconLit Wilson Business Periodicals Abstracts	Time series Observational Survey Descriptive Case studies Cross sectional RCT Experimental Controlled Trial Interviews	50	1986; January 1999 – March 2006 Plus additional articles sourced from Marshall et al. (2000)	The evidence provides additional support for the conclusion that the public release of performance stimulates change at the hospital level.	US and UK studies

Authors, Year	Aim/Purpose of Systematic Review	Search Databases	Types of Studies Included	No. of Studies Included	Review Dates	Summary of Results	Geographic Location¹¹ of Studies Included
Faber et al. (2009)	To study the effectiveness of public reporting on consumers' choice.	PubMed Cochrane Clinical Trial EPOC Databases	Randomized Controlled Trial Controlled Before-After Interrupted Time Series	14	January 1990 – January 2008	There is limited evidence about the effectiveness of quality information on consumer choice.	US studies only
Ketelaar et al. (2011)	To determine the effectiveness of the public release of performance data in changing the behavior of health care consumers, professionals, and organizations.	Cochrane Central Register of Controlled Trials (CENTRAL) Cochrane Effective Practice and Organization of Care (EPOC) Trials Register MEDLINE Ovid CINAHL PsychINFO Ovid DARE	RCTs Quasi-randomized trials Interrupted time series Controlled before-after studies	4	Up to 2011	In a limited number of studies (4), the publication of performance data has been associated with a slight positive impact on consumer behavior. However, these effects did not persist longer than two months after each public release. No consistent evidence that the public release of performance data changes consumer behavior or improves care.	3 US studies 1 Canadian study
Totten et al. (2011)	To summarize current research about patients' and families' use of performance data and how the presentation and distribution could be designed to maximize their use	Web of Science Google	(Not stated)	55	Up to 2011	Five new studies concluded that public reporting has a positive impact on quality or safety outcomes; however, the effect was small. The evidence is consistent that most consumers do not know about, or make little use of, publicly available	US and Canada

Authors, Year	Aim/Purpose of Systematic Review	Search Databases	Types of Studies Included	No. of Studies Included	Review Dates	Summary of Results	Geographic Location¹¹ of Studies Included
	by veterans and family members.					performance data for choice.	
Totten et al. (2012)	To evaluate the effectiveness of public reporting of health care quality information as a quality improvement strategy, including: improvements in health care delivery and patient outcomes, effects on the behavior of patients or health care providers, and whether the characteristics of public reports and context affect their impact.	MEDLINE Embase EconLit PsychINFO Business Source Premier CINAHL PAIS Cochrane Database EPOC CARE NHS EED HEED NYAM Grey Literature Report Database Other sources (experts, reference lists, and grey literature)	All types (including quantitative and qualitative)	198	1980 – 2011	The strength of the evidence available to assess the impact of public reporting was moderate. Public reporting is more likely to be associated with changes in health care provider behaviors than with selection of health services providers by patients or families. Quality measures that are publicly reported improve over time. There is limited or no evidence showing potential for adverse effects of public reporting.	US and other countries
Berger et al. (2013)	To synthesize evidence assessing the impact that public reporting has on patient outcomes and disparities.	PubMed Scopus PsychINFO Sociological Abstracts Social Science Citation Index (Web of Science) EconLit Anthropology PLUS	Studies of any design with original data addressing the effects of public reporting on measures of morbidity, mortality, or patient-	25	2002 – 2012	The evidence supporting the effect of public reporting on outcomes is mixed and of low quality in general, with consistent evidence of a positive effect of public reporting in nursing homes. The evidence for the effect of public reporting on disparities is minimal.	23 US studies 1 Dutch study 1 Italian study

Authors, Year	Aim/Purpose of Systematic Review	Search Databases	Types of Studies Included	No. of Studies Included	Review Dates	Summary of Results	Geographic Location¹¹ of Studies Included
			reported outcomes.				
Lemire et al. (2013)	To highlight the factors associated with dissemination of performance information that generate and support continuous improvement in health organizations.	EMBASE Web of Science Current Contents MEDLINE	Empirical and theoretical research	114	1980 – 2010	Dissemination is insufficient to produce improvement initiatives. Successful dissemination depends on various factors.	US, Canada, UK, other

Table 3: Summary of Findings from each Systematic Review

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
Marshall et al. (2000)	A review of eight studies identified no evidence that individual consumers appear to search out, understand, or use the currently available information to any significant extent.	A review of two studies found that physicians are skeptical of publicly reported data and consider it to be of minimal use.	A review of eight studies found that publication of performance data results in provider behavior change that contributes to observed improvement in both the processes and outcomes of care. For example, hospitals in competitive markets were twice as likely to implement changes as those with monopolies.	A review of two studies found no evidence that group purchasers appear to search out, understand, or use the currently available information to any significant extent.	A review of four studies found that clinical outcome indicators improved after publication, including patient satisfaction, CABG mortality rates, and caesarean delivery rates.	-	-
Schauffler and Mordavsky (2001)	A review of eight studies found that the evidence on the impact of providing consumers with information on health care quality using report cards is limited, largely negative, and often	A review of four studies found evidence suggesting that physicians do not value or use the reports, and that the reports had not affected their referral practices.	A review of seven studies found evidence showing that public ratings of quality have little effect on hospital occupancy rates, market share, operational governance, or changes. Hospitals were found to	One study found that employers did not use quality information to make decisions about which health plans to purchase for their employees; however, there was some	-	-	-

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
	contradictory. Research suggests that consumers have limited knowledge or understanding of measures of quality.		have made some changes related to the type of services they offered.	evidence that employers have begun to use information about quality to improve the quality of care in their health plans, by tying payment to improvements in performance.			
Fung et al. (2008)	A review of eight studies found mixed conclusions about the effects of public reporting on selection of health plans by consumers, some indication that it impacted consumers' selection of surgeons, and no impact on selection of hospitals. A few studies showed a small increase in consumer selection of plans with higher quality	Found no published studies of the effect of publicly reporting performance data on quality improvement activity among physicians or physician groups.	A review of seven studies found some support for the conclusion that public reporting stimulates hospital quality improvement activity, although studies were mostly descriptive in nature and lacking empirical evidence.	-	Synthesis of eleven studies suggested that public reporting stimulates quality improvement activity in hospitals. Studies included comparing hospitals that were subject to public reporting versus no reporting or confidential reporting. Evidence for linking publicly released	A review of six studies found inconclusive evidence of adverse consequences of public reporting on case mix, with some indication of a propensity in New York State providers for avoiding higher-risk cardiac cases potentially as a result of publicly	The authors recommend three areas for future research: i) more evaluation of existing reporting systems, ii) studies on the effect of report design and implementation on the report's impact, and iii) empirical study of the causal

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
	ratings or avoidance of health plans with lower quality ratings.				performance results to improved outcomes was mixed.	reported metrics.	pathways through which public reporting influences quality of care.
Shekelle et al. (2008)	A review of ten studies found some evidence that providing consumers with information on health plan quality may affect their selection of health plans; in particular employees tended to avoid plans with below-average ratings, but were not strongly attracted to higher-rated plans. A review of ten studies found limited evidence of an effect on choice of hospitals; only one study found a decrease in volume for high-mortality outliers	Two studies found evidence that surgeons performing in the bottom quartile had a higher likelihood of leaving their practice. No other published studies on the effect of public reporting on physician behavior were found.	A review of eleven studies found some evidence that publicly releasing performance data drives higher activity in hospitals related to quality improvement, including improving surgery programs, obstetrical care, monitoring clinicians' performance, and other process improvements. Three studies found no impact.	-	A review of eighteen studies found that evidence for effectiveness of public reporting systems to improve health care performance is inconclusive.	-	-

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
	but the effect lasted only two months. Finally, a review of seven articles examining the impact of public reporting on consumers' choice of physicians found mixed results.						
Faber et al. (2009)	Based on a review of fourteen studies, the authors used four stages of engagement by consumers to assess the impact of public reporting on choice, including patients': <ul style="list-style-type: none"> • awareness of the information • ability to understand the information • attitudes toward the data 	-	-	-	-	-	-

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
	<ul style="list-style-type: none"> • behavior based on the data. <p>The study concluded that the current state of public reporting has limited power to attract the attention of consumers and modify their behavior.</p>						
Ketelaar et al. (2011)	Two of three studies showed no impact of public release of information on health plan choice by consumers. One study found a small positive effect on patient volumes for two hospital procedures (CABG and lumbar discectomy), but these effects did not persist. No effect on patient volumes for a third hospital procedure	-	One study found that more quality improvement activities were initiated as a result of data reported on the three procedures included in the study (CABG, lumbar discectomy and MI).	-	One study found no effects for the composite process-of-care indicators for two conditions, but there were some improvements in the individual indicators for acute MI and Congestive Heart Failure (CHF) and in acute MI mortality rates.	-	-

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
	(acute Myocardial Infarct - MI) was found.						
Totten et al. (2011)	A review of thirty-three studies found mixed conclusions, most studies found the use of publicly available data by consumers to be modest at best.	-	A review of thirteen studies found some evidence that public reporting stimulates quality improvement activities in hospitals.	-	A review of twenty-one studies found empirical evidence that public reporting has a positive impact on quality or safety outcomes, but the effect was small.	-	A review of six studies provided a summary of the evidence for how to best produce and disseminate public reports.
Berger et al. (2013)	Two studies were associated with a positive effect on choice. However, the two studies were in different settings (hospital, nursing home) making it difficult to generalize conclusions about the effect on choice to all settings.	-	-	-	A review of twenty-five studies found that evidence supporting the effect of public reporting on outcomes is mixed, and of low quality in general, with consistent evidence of a positive effect of public reporting in the nursing home setting.	-	-

Study	Impact on Consumer Behavior	Impact on Physician Behavior	Impact on Institutional Provider Behavior	Impact on Purchaser Behavior	Impact on Quality of Care Outcomes	Potential for Negative Effects	Improving Effectiveness of Public Reporting
					The evidence to judge the effect of public reporting on disparities is minimal.		
Lemire et al. (2013)	-	-	-	-	-	-	A review of 114 articles yielded numerous examples to make dissemination of performance information more effective for organizational users.

Discussion and Implications for Further Research

The findings from this systematized review of systematic reviews were consistent with the findings of the earlier overview of the literature and thus the researcher was successful in using the second review to validate the findings from the first review. The summarized findings from the two reviews are in Figure 4. The strongest evidence for the value of public reporting is that it stimulates quality improvement activity among providers. It is additionally important for this research that the literature evidence commonly indicates a gap in evaluation, in that only a relatively small number of reporting systems have been evaluated and yet evaluation of public reporting is identified as being critical for improving the effectiveness of public reporting.

Although the evidence shows a positive association between public reporting and quality improvement by health providers, further research is required to better understand the causal pathway between the two. A recent article by Contandriopoulos and colleagues offered multiple potential causal pathways linking public reporting and quality improvement, and noted that the relationship between the two is very complex (Contandriopoulos et al., 2014). Evaluation of public reporting efforts is, therefore, an essential step in understanding and improving health care quality through public reporting. This discussion leads us back to the purpose of this dissertation, which is to identify a conceptual framework for evaluating the effectiveness of existing third-party public reporting for health performance information – focusing primarily on the role of, and impact on, health care organizations – and then to develop a plan for change, using the conceptual framework to assess the current state of public reporting and identify opportunities to improve its effectiveness. These are potentially important areas of exploration in informing a plan for change to increase the effectiveness of health care public reporting in Ontario.

Figure 4: Summary of Literature Review Findings

Areas of Impact	Literature Evidence Supporting Impact of Public Reporting on Quality Improvement and/or Positive Changes in Behavior	
Consumers	→	Limited evidence of use by consumers, including limited impact on consumer choice of providers. However, consumer usage improves with engagement and better report design.
Funders	→	Limited evidence of use by funders in Canada, stronger evidence of use of public reporting by UK and US funders related to actions including funding decisions, performance management and choice of providers by health plans.
Physicians	→	General evidence that physicians are skeptical of public reporting, although some usage evident by cardiac surgeons and small physician groups.
Health Care Institutions / Organizations	→	Strongest evidence of impact of public reporting on providers, including increased focus on quality improvement efforts, improved processes of care and positive changes in behaviors. This is particularly evident in competitive markets.
Quality of Care	→	Limited, mixed or inconclusive evidence that public reporting alone improves quality of care outcomes.
Adverse Consequences	→	There is no conclusive evidence that public reporting leads to adverse consequences, although there is minor evidence that public reporting can lead to unintended negative behavior by providers in some circumstances.
Improving Effectiveness of Reporting	→	Several studies indicated opportunities to improve the design and dissemination of public reports. Evaluation of existing public reporting systems is cited as a significant opportunity to realize improvements.

Limitations of this study

The researcher acknowledges that due to the significant body of literature on the topic of public reporting, the first stage of the search process, the overview of the literature, was not a strictly systematic review of the literature. As a result, this initial review may have missed additional evidence for or against public reporting. In addition, due to the large number of articles found, i.e., over 24,000 titles found for the various search terms, the researcher limited the search to the first 2,000 titles for some of the search terms. Although searching was discontinued after obtaining 2,000 titles, because no

new titles were being found, continued searching of the entire set of results may have resulted in other relevant titles. The researcher also notes that using expanded search terms such as “performance measurement”, “results reporting”, and “quality reporting” may have achieved additional results, but due to the large number of articles already included, the researcher did not add additional search terms. It is possible that by using additional search techniques or databases, other relevant articles may have been found. It is for these reasons that a second, more systematic review of the literature was conducted in the form of a review of systematic reviews on the topic of public reporting. With respect to this second stage of the literature review, the systemized review of systematic reviews, the researcher recognizes formal systematic reviews require validation from a second researcher. Given that this literature review was undertaken by a single researcher, there are potential limitations that may have impacted the total number of reviews found in the literature search, the assessment of quality using the AMSTAR rating system, and the identification of themes and findings.

CHAPTER 3: RESEARCH METHODOLOGY

Conceptual Framework for the Research

As noted in the earlier sections, Ontario lacks an assessment of the impact of current public reporting efforts that would help guide a future strategy for third-party public reporting of health system performance measures across the province. There has been no formal evaluation of the overall effectiveness of public reporting in Ontario and no framework for improving it, although there has been research evaluating the effectiveness of some aspects of public reporting in Ontario (Bevan and Spiegelhalter, 2006; Daneman et al., 2012; Pink and Freedman, 1998; Tu and Cameron, 2003). Thus, while public reporting can be useful in driving change and improving quality, in order to increase the overall effectiveness of Ontario's health care public reporting, there needs to be an evaluation of public reporting initiatives, an understanding from the literature of what constitutes best practices for public reporting, and a gap analysis to identify opportunities for Ontario to achieve greater value from its investment in public reporting. It must also be noted that there is no evidence showing that public reporting alone will improve quality of care or performance results (Lemire et al., 2013). Public reporting can be one contributing factor to improving quality of care, but evidence does not support that it is sufficient on its own to drive quality improvement.

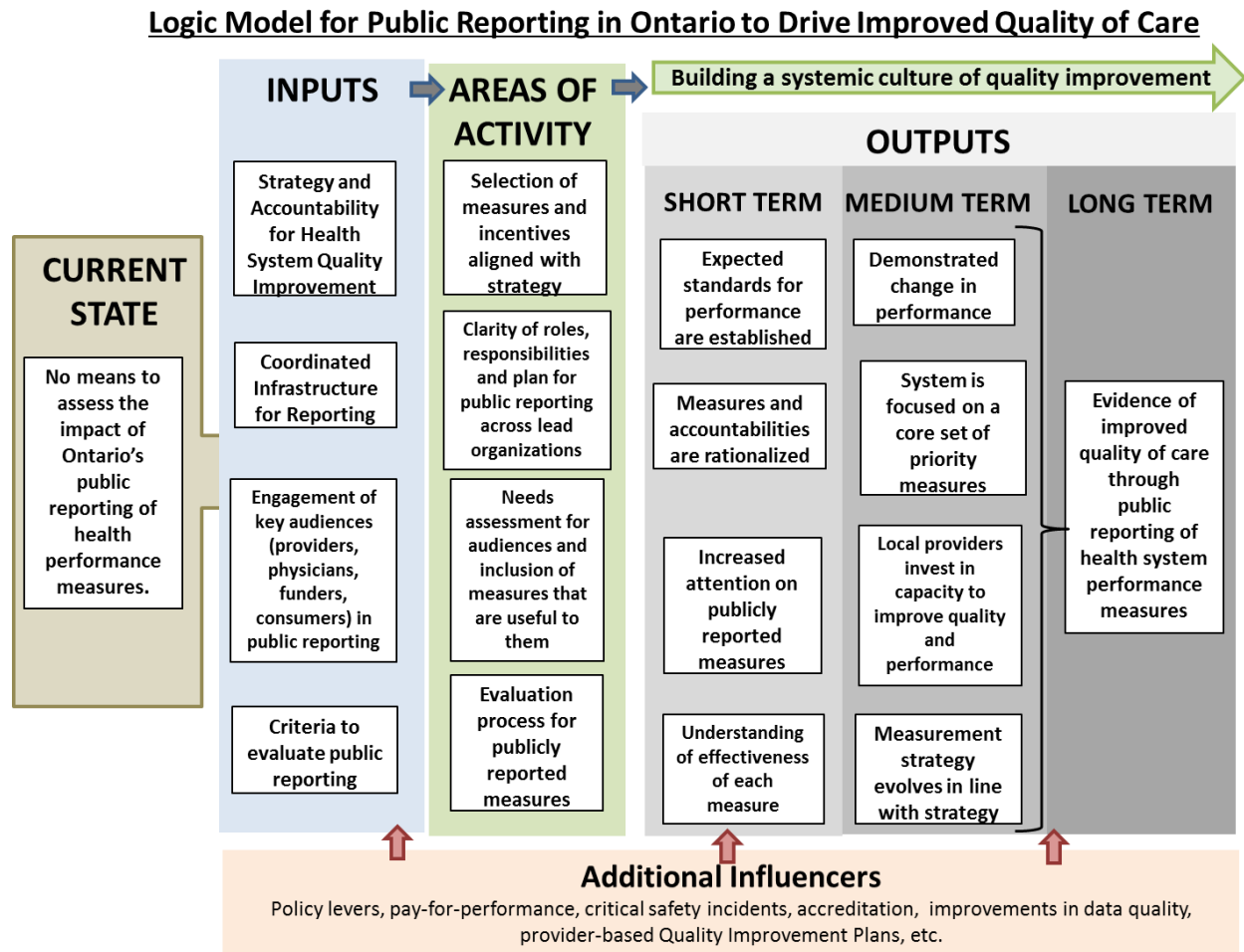
Based on the findings from the literature reviews, the researcher created a draft logic model (Figure 5) and an evaluation framework (Figure 6) to describe what is required for the development of a more effective public reporting approach for Ontario. Together, the logic model and evaluation framework make up the conceptual framework used by the researcher to consider a revised approach to public reporting in Ontario.

Logic Model

In designing the logic model, the researcher reviewed and analyzed similar conceptual models for public reporting, including conceptual models by Marshall and colleagues (Marshall et al., 2000) and by Contandriopoulos and colleagues (Contandriopoulos et al., 2000), an analytic framework by Totten et al. and colleagues (Totten et al., 2012), as well as a hybridized logic model and conceptual model for defining performance indicators that are aligned to the strategic aims of a health research system (El Turabi et al., 2011). In reviewing the other models from the literature, the researcher found that they are useful for clarifying how public reporting works at a high level, for example, who the primary users are or what questions should be asked in developing a public reporting model, but the researcher felt that the models lacked sufficient detail to assist in understanding the factors that are needed in developing an effective model for public reporting to improve quality of care. Given this apparent gap in public reporting models, the researcher designed a logic model (Figure 5) for public reporting, with the intent to later refine it with input from qualitative interviews with experts in the field of public reporting in Ontario.

The logic model depicts the optimized (as opposed to current) state assessment of public reporting efforts in Ontario, along with four key inputs needed to achieve a long-term output (goal) to have evidence of improved quality of care through public reporting of health performance measures. The inputs and areas of activity that are required to improve the effectiveness of public reporting are based on the evidence amassed through the literature review. The logic model also demonstrates that public reporting is one input to quality improvement and that there are other contextual factors that contribute to building a systemic culture of quality improvement. Ultimately, the logic model represents a theory of change for how public reporting could lead to improved quality of care as an output of a performance improvement strategy.

Figure 5: Logic Model



After the researcher had drafted the logic model and completed the research, the researcher became aware of the existence of another published logic model and framework for public reporting available on the website of the Office of the Assistant Secretary for Planning and Evaluation at the US Department of Health and Human Services (Tu and Lauer, 2008). Elements of this other logic model and framework, along with findings from this research study, were used to help refine the final version of the researcher's conceptual framework found later in this paper. The changes and final version of the researcher's logic model are described in the Discussion section of the dissertation.

The Evaluation Framework

Based on identified best practices in the literature for effective public reporting, the researcher expanded on the key elements of the Logic Model to design a detailed evaluation framework for public reporting in Ontario. While several studies from the literature identified brief checklists or other frameworks for improving the effectiveness of public reporting (Friedberg and Damberg, 2012; Hibbard, 2008; McKibben et al., 2006; McMurtry, 2005; Miller and Leatherman, 1999; Morris and Zelmer, 2005; Suchy, 2010; van den Berg, 2014; van den Heuvel et al., 2013), the researcher found them lacking in sufficient detail to be useful in identifying specific opportunities for improvement when designing or evaluating a public reporting system.

A first draft of the evaluation framework is included in Figure 6. The evaluation framework is designed to answer the question “What do we know about how to improve the effectiveness of public reporting *in Ontario*?” (or alternatively framed as “what conditions are needed to improve the effectiveness of public reporting in Ontario?”). The Evaluation Framework was subsequently validated through key informant interviews with health care leaders who have responsibility for and/or expert knowledge of public reporting in Ontario, as described in the next section. The changes and final version of the evaluation framework are described in the Discussion section of the dissertation.

It is important to note that, similar to the logic model, the evaluation framework represents an “optimized” versus “current” state perspective on public reporting. The evaluation framework, in its final iteration, may be used by policy leaders and decision-makers to identify gaps in public reporting and areas for improvement, including adapting it for use as a checklist, scorecard, or maturity model to assess opportunities for designing or improving a public reporting system.

Figure 6: Evaluation Framework

Evaluation Framework for Third-Party Public Reporting of Health Care Performance (in Ontario)	
<i>What do we know about how (what conditions are needed) to improve the effectiveness of public reporting in Ontario?</i>	
A core set of metrics are aligned with strategic goals for health system quality improvement and additional influencing factors	<ul style="list-style-type: none"> • Strategic goals for health system quality improvement are established. • Objectives for public reporting and intended audiences for reports are established. • Measures are aligned with strategic goals for health system quality improvement, as well as with additional influencing factors such as policy levers, accreditation, pay-for-performance and other incentives. • There are consequences for poor performance and/or incentives for high performance, or, at a minimum, it should be evident that incentives are not 'misaligned' with quality. • Indicators measure what they are intended to measure. • Measures are focused and relevant to providers, with the same indicator definitions used across the system. • Measures are perceived as fair for comparisons. • Measures can be reasonably attributed. • Quality improvement measures and accountability measures are categorized separately. • Measures reflect a balance of structural, outcome, and process measures. • Data are verifiable, have integrity, are adjusted for case mix, and opportunities for inaccurate reporting ("gaming") are minimized. • There are targets for improving performance, but targets are also used sparingly in order to minimize the adverse impacts of too much focus on targets. • Decisions are made as to the appropriate approach for creating targets or benchmarking based on evidence and strategic goals, i.e., determining whether providers are compared against expected standards of performance, against each other, or against an average or target performance. • There is clarity about which measures providers will be held accountable for improving, and providers are held accountable for the results by funders and/or policy-makers. • System and provider performance are taken into account in developing and evaluating strategy and policy. • The potential for adverse consequences is minimized through the use of balancing measures and other strategies.
There is a coordinated system-level infrastructure for reporting	<ul style="list-style-type: none"> • There is clarity of roles for public reporting, including differentiating measures for the purposes of accountability and quality measures. • A system-level strategy for public reporting is implemented that coordinates across the different organizations responsible for public reporting. • Results are regularly reported. • Public reporting efforts are evaluated regularly to ensure that measures continue to add value. • A process to develop new measures is implemented so that there is the capacity to measure quality as the system evolves. • How performance is measured changes as the health care system evolves.

Evaluation Framework for Third-Party Public Reporting of Health Care Performance (in Ontario)	
<i>What do we know about how (what conditions are needed) to improve the effectiveness of public reporting in Ontario?</i>	
	<ul style="list-style-type: none"> • Reporting includes a combination of public and private reporting to encourage a culture of improvement and a ‘safe’ place to test the development of new measures, as well as a testing period.
Key stakeholders (providers, public) are engaged in public reporting efforts	<ul style="list-style-type: none"> • Measures are useful to providers and the public in assessing the quality of health care and the performance of the system. • Providers are engaged in the development of public reporting measures and of reports to ensure that they can use the measures to improve quality of care. • The public is engaged in the development of measures and reports that are meaningful to them. • The measures are sensitive to improvement actions taken by providers. • Results are timely and available regularly to providers to support quality improvement activities. • Providers have the internal culture, resources, leadership, and capacity to support quality improvement. • Where providers do not have the capacity for quality improvement, there is external support available (e.g. by funders or organizations mandated to do so such as Health Quality Ontario).
There are ongoing processes to evaluate the impact and effectiveness of public reporting	<ul style="list-style-type: none"> • Key stakeholders are engaged to establish criteria by which to evaluate the impact and effectiveness of public reporting efforts. • An evaluation framework is established and applied for all public reporting. • The results of all publicly reported measures are trended over time to identify whether there is movement in the appropriate direction. If no change is evident, there is an assessment process to understand why and what actions need to be taken as a result. • The evaluation framework supports recommendations for changes to metrics over time, i.e., measurement evolves in line with the strategy for health system improvement. • The evaluation process is transparent to providers and the public.

Overview of Research Methods

The research question for this dissertation is *“How can we evaluate and enhance the impact of third-party public reporting on quality improvement for health care in the province of Ontario, Canada?”*. In reviewing the literature evidence, the researcher noted that because there is not strong evidence related to evaluation of public reporting systems, the literature review was expanded to focus on two more basic but related sub-questions *“What do we know about the value of public reporting?”* and *“What do we know about how to improve the effectiveness of public reporting?”*. As described earlier in Figure 1, these two sub-questions also helped frame the quantitative and qualitative components of the research. The two sub-questions were used by the researcher to frame the two different components of the research plan, which is based on a mixed methods approach. The first question, *“What do we know about the value of public reporting?”*, was used to frame the quantitative component of the research plan. The second question, *“What do we know about how to improve the effectiveness of public reporting?”*, was used to frame the qualitative component of the research plan.

An explanatory sequential mixed methods design (Cresswell, 2014), which involves collecting and analyzing quantitative and qualitative data in two consecutive phases within one study, was chosen by the researcher. This design enabled the researcher to use the quantitative research to inform questions in the subsequent qualitative research, as well as use the qualitative results to further explain findings from the earlier quantitative research. The following sections explain the quantitative and qualitative aspects of the research in further detail.

Quantitative Research: What do we know about the value of public reporting in Ontario? – Assessing the results of existing public reporting efforts.

The most important question for evaluating public reporting is to understand whether or not performance on the actual measures of quality is improving, at least in part because they are publicly reported (Wallace et al., 2007). The most often cited framework for understanding the causal relationship between publicly-reported performance measurement and performance improvement is the one proposed by Berwick and colleagues (Berwick et al., 2003). This framework includes two potential causal pathways through which health system quality improves after performance results are made public, generally related to the impact of reputational damage; the first pathway called ‘selection’ involves consumers making decisions about their choice of health care providers based on publicly available performance results thus placing pressure on providers to improve their performance or lose market share. The second pathway called ‘change’ is based on the concept that lower performing providers will improve or be eliminated from the market thus improving overall performance of the system. Additional research by Contandriopoulos and colleagues further delineated the ‘change’ pathway into three separate pathways; the first change pathway relates to top-down improvements made by managers of health care organizations in response to publicly-reported performance; the second change pathway relates to improvements made by organizations due to external pressures, including pressure by funders; and, the third change pathway relates to improvements made by organizations due to internal pressure, including from different levels of stakeholders within an organization such as clinicians, trustees, and administrators (Contandriopoulos et al., 2014).

If one or a combination of different causal pathways acts to promote improvement efforts in health care organizations, it would be expected that publicly reported performance results would generally improve over time, particularly for measures with change mechanisms that are within the

span of control of health care organizations or providers¹²; but likely not in all cases and not for all measures, unless the system has unlimited resources to focus on improvement efforts. In contrast, from the two literature reviews completed by the researcher, there was inconclusive evidence that quality of care improves when information is publicly reported. Given these differing perspectives, the researcher created a predictive framework to attempt to understand what might result from an analysis of publicly-reported results. The following key points summarize the framework:

1. If the literature on causal pathways (Berwick et al., 2003; Contrandriopolous et al., 2014) holds true, one would predict that generally, publicly reported performance of health care organizations should improve over time in response to the reputational threat posed by public reporting. The degree to which there is improvement across all measures may be limited by improvement capacity and span of control.
2. If the general literature on public reporting holds true, then one would predict that publicly reported measures would show more mixed results over time (see Figure 4). Some measures will improve; others will show no change in performance or show declining performance. The degree to which we see change in performance results may be due to other factors, rather than due to public reporting alone.

To address the question on the value of public reporting and to understand the degree to which we can predict performance results as outlined above, the researcher completed a quantitative analysis of currently reported measures available to the public to understand whether or not there have been changes in performance that may be associated with public reporting of these measures, as well as which types of measures are more likely to show improvement and why. The ability to answer this

¹² For example, a hospital would likely have more control over surgical wait times than readmission rates, where the latter may be dependent on availability of alternate health care services outside of the hospital.

question is linked to the researcher's findings and policy recommendations. If there is not a positive (and logical) relationship between current public reporting efforts and improvement in health provider performance, this information will provide evidence for the need to evaluate the approach to and/or goals for public reporting. If there is evidence indicating a positive relationship between aspects of current public reporting efforts and improvement in health provider performance, this information will be useful in supporting evidence of a potential causal link between public reporting and improvement in performance, and/or evidence that some aspects of public reporting show more value or effectiveness than others. These results may be used to justify further evaluation efforts through the plan for change to: understand the strength and nature of the causal link; identify which types of publicly reported measures are more valuable or effective for quality improvement, and/or; identify opportunities to improve the effectiveness of public reporting.

As shown in the logic model in Figure 5, there are additional contextual factors, such as policy changes and accreditation practices, which influence quality improvement; however, the degree to which these additional variables have impacted the results of publicly reported health care information is not always known. Through the quantitative analysis, the researcher identified where selected external factors, such as specific policy changes (i.e., the implementation of the provincial wait times strategy or introduction of mandatory hospital QIPs), introduced at defined times may have impacted reporting results.

As indicated in the Background section, while there are multiple organizations that make health system performance reports available to the public in Ontario, the researcher has focused on five secondary datasets to determine the extent to which public reporting results for health performance measures have improved, or not improved, over time. The five datasets include i) Ontario hospital performance measures reported by CIHI, ii) wait time measures reported by the MOHLTC, iii) hospital quality and safety measures reported by HQO, iv) CCAC home care performance measures reported by

HQO, and v) the Cancer System Quality Index reported by CCO. In total, these five data sets include public reporting for just over 280 health system performance measures, as shown in Table 6 and Appendix C.

Whereas other organizations, such as long-term care homes, are included in public reporting, the researcher opted to limit the scope of the evaluation to reporting for hospitals and home care (as provided by CCACs). Hospitals are in scope because they have the most robust data set, in terms of largest number of indicators and longest period of historical data, for public reporting. CCACs are in scope given that the researcher works in a CCAC and plays a leadership role in public reporting efforts for home care; as a result there is greater opportunity for the researcher to influence the advancement of public reporting efforts in that sector. Sectors that are out-of-scope include long-term care, primary care, and community support services. The decision to limit the scope to two sectors was made by the researcher for reasons of practicality; having too many sectors included in the evaluation would make the project too large to be completed within the dissertation time period. It is the researcher's intent, once the conceptual framework has been finalized, to promote the use of the framework for the evaluation of all public reporting efforts in the province.

Before conducting the analysis, the publicly reported measures were each assessed to determine whether or not there was a sufficient period of reported data to show a change over time. Measures were excluded if they did not have a minimum of three data points. Where measures had at least the minimum number of data points and graphs were not already available, the data were then graphed in MS Excel, and analyzed using linear trend analysis. Trend lines were established using the trendline function in MS Excel. The slope of the trend line was used to determine whether the trend was increasing, decreasing, or had no change. The linear trend analysis was also validated by a second researcher, who was from HQO. Where there was discrepancy in the interpretation by the primary and

secondary researcher, the two researchers reviewed the analysis together to reach consensus. The results were then categorized as follows:

- 1) Measures that show decline in performance over time.
- 2) Measures that show no change over time.
- 3) Measures that show improvement in performance over time.
- 4) Measures where an assessment of performance was not possible, primarily because the purpose of the measure or preferred directionality of the trend was unclear.

For reasons of practicality, data were analyzed at an aggregated (provincial) versus individual organization-level to assess whether or not there has been improvement in results over time. Given this situation, the researcher chose to additionally test a hypothesis that if public reporting has a positive impact on organizational performance, then public reporting at an organizational-level should lead to positive change in the aggregated results at the provincial-level. This researcher attempted to test this hypothesis by assessing if there was any difference in the aggregated results for measures that were also reported at the level of an individual hospital or CCAC, versus measures that were not reported at an individual organization-level.

Results of the quantitative analysis were presented graphically and then the trends were summarized in an overall “report card” in Appendix C. Results were also shared with the key informants as part of the qualitative component of the research, as described in the next section. The researcher further evaluated whether there were specific patterns in categories of measures, such as wait times or patient safety measures, to understand if certain types of measures are more likely to show decline, no change, or improvement over time. The researcher also assessed whether significant external factors, such as policy changes (i.e., the implementation of the provincial wait times strategy or the implementation of mandatory QIPs for hospitals) introduced at defined times, may have impacted

performance of specific measures. Finally, the researcher completed a limited assessment of Ontario's results as compared to other jurisdictions to provide some context for Ontario's performance.

The potential for additional influencing factors, such as improvements in data quality, accreditation, and other issues that may impact results, but for which there is no identifiable time-specific impact, are acknowledged in the Logic Model as potentially having impact; however, these were not assessed as part of the research study.

Qualitative Research: What do we know about how to improve the effectiveness of public reporting in Ontario? – Interviews with key informants

To address this question, the researcher applied qualitative methods involving key informant interviews with health care leaders and others who have responsibility for and/or expert knowledge of public reporting in Ontario. The purpose of the key informant interviews was to 1) learn more about the objectives and impact of Ontario's third-party public reporting on health performance, 2) identify factors that would assist in evaluating the effectiveness of third-party public reporting, and 3) validate the conceptual framework. The answer to this question is also linked to the researcher's findings and policy recommendations.

The qualitative research portion of the dissertation was accomplished via one-on-one interviews with 17 individuals representing a cross-section of stakeholders in the public reporting landscape, including senior leaders who represent organizations responsible for public reporting and/or who are experts from Ontario and other jurisdictions on the topic of public reporting, as well as other stakeholders who are engaged with public reporting efforts. The researcher placed key informants into three different categories of stakeholders: producers of publicly reported data, including the MOHLTC and CCO, which are also funding agencies; providers (i.e., representing organizations accountable for the delivery of health care); and other stakeholders, including patients, media, and others who use publicly

reported data. Interviews were conducted using a standardized interview tool and set of questions, and were recorded with the permission of the interviewees.

Key informants include representatives from the following organizations/groups, which were clustered according to the three major stakeholder categories:

Category 1: Producers of publicly reported data

- Canadian Institute for Health Information (CIHI)
- Cancer Care Ontario (CCO)
- Health Quality Ontario (HQO)
- Institute for Clinical and Evaluative Sciences (ICES)
- Ontario Ministry of Health and Long-Term Care (MOHLTC) representing different branches, including policy, accountability, and health system quality

Category 2: Health system providers

- Ontario Association of CCACs (representing 14 CCACs)
- Ontario Hospital Association (representing 155 hospital corporations)
- Local Health Integration Networks (representing 14 LHINs)¹³

Category 3: Other stakeholders

- Patients/Patient advocates
- Thought-leaders – with representatives from Ontario, UK, and the Netherlands
- Media

¹³While LHINs do not actually deliver health care services, they are accountable for the delivery of health care in their regions.

The key informants were selected for two reasons: the first is for their first-hand knowledge of public reporting efforts and its impact, and the second was to increase the likelihood that the researcher could involve them, as key influencers in Ontario, in the plan for change resulting from this research.

An interview guide was first developed by the researcher and then tested with a volunteer, who is a program evaluation researcher at the University of Toronto, prior to use in the field. Potential subjects were contacted by email to request their participation in the key informant interviews, and were also provided with a brief description of the study using a standardized script in English. A copy of the email letter is included in Appendix H. When participants agreed to be interviewed, an appointment was scheduled at a time convenient to them. The meetings were conducted face-to-face, with the exception of two interviews conducted via telephone, and all sessions were recorded with the participants' permission.

At the time of the interview, the researcher orally reviewed the consent form (shown in Appendix I) with the participants and asked them to sign the form. Study participants were interviewed in English and were invited to ask questions about the study. All study procedures were described so that the participants were fully informed of their requirements while in the study. During the consent process, the participants were reminded that they were free to participate in the study or not, they were not obligated to answer any particular question, and were informed that information they provided through interviews would not be ascribed to them. No participant refused to be enrolled in the study and no participant declined to answer any of the questions. All participants agreed to be identified as having participated in the research. A list of participants can be found in Appendix J.

Privacy risks and confidentiality were addressed as follows:

1. All interviews were conducted in locations of the participants' choosing or via telephone.
2. Identification numbers, rather than names, were used on research materials to identify participants.

3. Hard copies of data and collateral materials such as consent forms were stored separately in the locked office of the researcher. All interview data are stored in password protected files on the principal investigator's private computer.

Once the dissertation has been completed, all recordings will be destroyed to ensure that no responses can be linked to an individual. The results are presented in an aggregated format and the names of the individuals are not ascribed to specific responses.

The interview guide, shown in Figure 7, was developed by the researcher based on the findings from the literature review, as well as based on the draft logic model and evaluation framework. The questions were designed to assist the researcher to better understand the current state of public reporting in Ontario and identify opportunities to increase its effectiveness.

Figure 7: Interview Guide for Key Informant Interviews

Section 1: Introduction

The objective of this research is to create a model for evaluating the effectiveness of Ontario's third-party public reporting of health performance information. This research is being conducted as part of my doctoral dissertation in health leadership at the Gillings School of Global Public Health, University of North Carolina - Chapel Hill.

The purpose of this interview is to learn more about the objectives and impact of Ontario's third-party public reporting on health performance and to identify factors that will assist in evaluating its effectiveness. You are one of 15-20 key informants who have been identified as playing a critical role in Ontario's public reporting of health information and have been selected to participate in interviews.

This interview is intended to:

- Identify the essential components and objectives for an effective third-party public reporting strategy in Ontario,
- Understand how well we are meeting those objectives and identify opportunities for improvement, and,
- Ask for your feedback on a proposed evaluation strategy for Ontario's public reporting efforts.

The interview should take about 50 minutes. The interview will be confidential and your name will not be connected to your answers in any way. With your permission, I would like to record our interview. Tapes and transcriptions will be destroyed at the end of the research study.

- Are there any questions that you have about the research study or the interview?
- May I record the interview?

- Please describe your position title and role in your organization. How long have you been in this position?

(note, for international participants, questions will be generalized, i.e., not specific to Ontario, or deleted if not appropriate)

Section 2: General Information on Purpose of Public Reporting

- Describe your connection to third-party public reporting in Ontario
- Who do you believe is/are the primary audience(s) for Ontario's public reports?
- What do you believe are the major objectives of Ontario's third-party public reporting efforts?
- How effective do you believe current efforts have been in achieving these objectives?

Section 3: Public Reporting – Alignment with Best Practices

What is your general assessment of public reporting in Ontario?

- Please provide your general perspectives on current third-party public reporting of provider performance in Ontario, for example, strengths, weaknesses, and areas for improvement.

Prompts

- *How do measures get selected? How are they used? How should we determine what gets publicly reported?*
- *What are the most significant criticisms or concerns of current public reporting?*
- *Which measures do you think are most important to report on? Least important? Why?*
- *Are there any adverse consequences to current public reporting? What are they?*
- *To what extent do you believe the data that are reported have integrity? Why?*
- *To what extent do you believe there may be 'gaming' in the data? Please explain.*
- *To what extent do you believe 'providers' trust the data? The public? Physicians? Policy-makers/funders? Please explain.*
- *What are the most significant benefits/ advantages or impacts of current public reporting?*
- *To what degree are quality improvement efforts by the field aligned with/related to public reporting on quality?*

How do you use public reporting?

- Which public reports do you look at? How do you interact with these reports? Do you use them? What for? If not, why not?
- What do you know about current trends in public reporting? i.e., what is happening to wait times, patient safety, readmission rates, HSMR/mortality results? (show actual trends – does any of this surprise you?)

How does public reporting currently work in Ontario?

- To what extent do you believe providers in Ontario use these data for quality improvement?
- Do you believe that providers are held accountable for improving their results? If yes, by whom? If no, why not?

How do you think we could improve public reporting?

- Which organization(s) do you think should be responsible for third-party public reporting of health information in Ontario?

- Do you think we should set performance improvement targets? Who do you think should set targets? Do you think there should be pay-for-performance incentives/penalties? Do they work?
- How should providers be compared? (*to each other, to standards, to average/mean, to their previous performance*)?
- Should we use and report indicators related to quality differently from indicators for accountability? If so, how should each be managed?
- To what extent do you believe health care providers are engaged in public reporting? Do you think this important? Why or why not?
- To what extent do you believe the public is engaged in public reporting? Do you think this is important? Why or why not?
- To what degree have Ontario's public reporting efforts been evaluated? How do you think we should evaluate Ontario's public reporting efforts?
- What would make a plan for improving Ontario's public reporting efforts successful?

Section 4: Conclusions and Wrap-Up

Is there anything that we did not discuss that you think is relevant/important for public reporting in Ontario? What else should I be thinking about? Is there anyone else you would recommend I speak with?

Thank you very much for your participation. If you are interested, I would be pleased to share the results of my research when the final report has been approved by UNC.

Interviews were transcribed verbatim and verified against the audio recording to ensure that all thoughts and opinions were included in the analysis. The researcher then conducted a content analysis, which involved identifying themes within the pre-determined categories used in the interview guide. The set of codes or themes in Table 4 was developed by the researcher based on the questions in the interview guide and follows the same order as discussed in the interviews. This set of codes was used as a codebook following the methods described by Cresswell in his book on research design (Cresswell, 2014). These themes were then used to code the interview results using the software program NVivo.

Table 4: Coding for Qualitative Analysis

Code/Theme	Explanation of code
Audiences	Identifying the populations/categories of stakeholders who are the intended recipients/users of publicly reported information
Objective/Purpose of public reporting	The goal or rationale for developing and disseminating public reports on health system and provider performance
Effectiveness of current public reporting	The degree to which public reporting is meeting the intended objectives
Determining what gets reported	Understanding the process for selecting measures for public reporting and who selects them
Adverse consequences/criticisms of public reporting	Identifying any areas of concern or potential negative effects of public reporting
Data quality	The degree to which the data that are reported have integrity and are trusted by the reporting agencies and audience(s)
Alignment with priorities	How well current publicly reported measures reflect stated priorities for health system performance
Alignment with incentives	The degree to which there is or is not alignment between incentives for performance and publicly reported measures and targets
Determining who should be responsible for public reporting	Understanding whether it is important to have centralized reporting, and which agency(ies) should be responsible for public reporting
Setting targets	Understanding the process for selecting targets for public reporting, and who selects them
Comparisons	Assessing the degree to which comparative data are used in public reporting efforts in Ontario, including comparisons within Ontario and with other jurisdictions
Public/stakeholder engagement in public reporting	Understanding how well stakeholders are currently engaged and perspectives on ideally who should be engaged in public reporting and how they should be engaged
Evaluating public reporting	Identifying what key informants know about existing evaluation efforts for public reporting and what they would consider as important to be included in an evaluation process
Opportunities for improvement	Identifying how public reporting efforts in Ontario could be improved

IRB Approval

Ethics approval for the research study was obtained through the Institutional Review Board at the University of North Carolina at Chapel Hill.

Research Delimitations

Although the results of this study may have implications for other jurisdictions that publicly report health system performance information, the geographic scope of this study is the province of Ontario in Canada.

The quantitative and qualitative analyses have been delimited as follows:

- Number of data sources: The quantitative analysis used secondary datasets from five data sources, including publicly reported information from CIHI, the MOHLTC, HQO, and CCO. Two of the datasets were from HQO.
- Number of health care sectors: The analyses are limited to two sectors – hospitals and home care (as provided by CCACs).
- Number of data points: Only measures with a minimum of three data points were included in the quantitative analysis.
- Number of key informants: The qualitative analysis was limited to interviews with senior leaders who represent organizations responsible for public reporting and/or who are recognized experts on the topic of public reporting, as well as other stakeholders engaged with public reporting.

Research Limitations

The researcher acknowledges there are limitations to the quantitative analysis, such as the quality of the data and consistency in coding. It is expected that health care providers that participate in public reporting and agencies responsible for public reporting are engaged in ongoing activities related to improving data quality. Changes in data quality and improvements in coding consistency during the period of measurement may impact results. In addition, the period for selection and analysis of publicly reported data was November 2014 to April 2015; reporting agencies continue to make changes to their

websites and publicly reported measures may have been changed or updated since that time. Any changes made since that time have not been included in this analysis.

As with other forms of qualitative research, the researcher acknowledges there are limitations to this approach, such as the fact that the perspectives provided by interviewees on public reporting are not generalizable to other stakeholders.

CHAPTER 4: RESEARCH RESULTS

The results of this study are presented in a variety of formats including tables, graphs, and narrative text. This section summarizes the results from both the quantitative and qualitative components of the research.

Summary of Quantitative Results

The purpose of the quantitative research was to determine the degree to which there may, or may not be, a positive relationship between public reporting of results and improved outcomes for currently reported health care quality measures in Ontario.

Five secondary datasets were examined to determine the extent to which publicly reported results for health performance measures have improved, or not improved, over time. In total, from these five data sets the researcher included public reporting for 262¹⁴ health system performance measures, as shown in Appendix C. Only those measures that had a minimum of three data points and that were related to either hospitals or CCAC performance were included in the analysis.

Each measure was analyzed by plotting and analyzing the linear trend to determine whether results are improving, declining, or showing no change in performance over time. An example for one measure (90th percentile wait time for knee replacement surgery) from the Ministry of Health Wait Times public website (Ontario Ministry website, 2015) is shown in Table 5 and the same data are also plotted in Figure 8 to display the linear trend. For quality improvement to be evident in the results for

¹⁴These five datasets include more than 300 measures that are publicly-reported. Only 262 of these measures are specific to hospital or CCAC performance. For example, CCO reports a number of cancer screening measures that are related to primary care and which were excluded from this analysis.

the sample measure for wait times for knee replacement surgery, the results should show a decreasing trend over time (denoted by 'Preferred Trend' ↓). The actual results show that to be the case (denoted by 'Actual Trend' ↓) and, therefore, the trend analysis for this measure indicates that quality is improving.

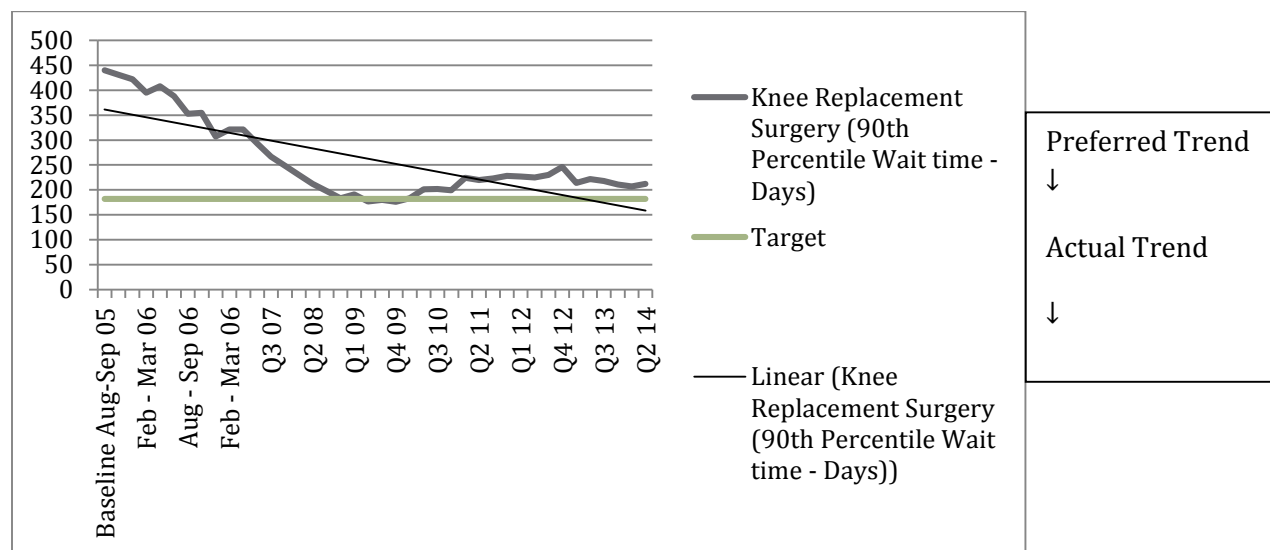
Table 5: Sample Data Set – 90th percentile wait time for knee replacement surgery (target is 182 days)

Reporting Period	Aug - Sep 2005	Oct - Nov 2005	Dec - Jan 2006	Feb - Mar 2006	Apr - May 2006	Jun - Jul 2006	Aug - Sep 2006	Oct - Nov 2006	Dec - Jan 2006	Feb - Mar 2006	Q1 2007	Q2 2007	Q3 2007	Q4 2007	Q1 2008
90 th percentile wait time, in days	440	431	422	395	408	388	353	355	307	321	321	293	267	249	230

Reporting Period	Q2 2008	Q3 2008	Q4 2008	Q1 2009	Q2 2009	Q3 2009	Q4 2009	Q1 2010	Q2 2010	Q3 2010	Q4 2010	Q1 2011	Q2 2011	Q3 2011
90 th percentile wait time, in days	212	198	183	191	177	180	176	183	201	202	199	224	220	223

Reporting Period	Q4 2011	Q1 2012	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014
90 th percentile wait time, in days	228	227	225	230	246	214	222	218	211	207	212

Figure 8: Sample Display of Data - Linear Trend in 90th Percentile Wait Time for Knee Replacement Surgery



The analysis process described above was carried out for each of the 262 measures in the five identified datasets. The graphs and trend analyses for all the analyzed measures are available as a separate document. A summary scorecard of the measures was then created by the researcher and is included in Appendix C.

The summary of the measure results in Appendix C was used as the basis of the researcher's analysis of trend results to respond to the following research questions:

- General Results: Overall, what do we know about publicly-reported measures – do we see performance improving, showing no change, or worsening over time?
- Category Results: Are there certain categories of measures that are showing improvement, no change over time, or worsening?
- Impact from External Forces: Where do we see a potential impact on results related to external forces, such as major policy changes, media attention, pay-for-performance, or other incentives for improvement? (i.e. is it possible to differentiate the impact of public reporting from other

factors influencing performance or to see a relationship between public reporting and other external forces?)

- Impact of Organizational-Level Reporting: Does reporting at an individual organization-level increase the likelihood of improvement at an aggregate (provincial) level?
- International Comparison: How do Ontario's results compare to other jurisdictions?

General Results

For the 262¹⁵ measures analyzed from the five datasets and summarized in Appendix C, the researcher found the following results:

- 77 measures (29%) showed improvement over time (i.e., where the actual trend followed the same direction as the preferred trend).
- 138 measures (53%) showed no change over time.
- 39 measures (15%) showed worsening performance over time (i.e., where the actual trend was in the opposite direction to the preferred trend).
- Eight measures (3%) were excluded from the analysis, as indicated by a (?) in the preferred trend column in Appendix C, because the preferred trend was not apparent to the researcher and no explanation or context was provided by the source.

Category Results

Table 6 displays the results of the analysis of measures by category and sub-categories of measures from the source datasets. Sub-categories of measures are italicized below their related category. Note for some of measures reported by CIHI, the categories were more apparent, for example

¹⁵Data were obtained by the researcher between November 2014 and April 2015. The number and types of measures may have changed since that time.

all measures related to mortality were grouped by the researcher under the category ‘mortality rates’.

In other cases, categorization of measures was less obvious and the researcher categorized measures through a process based on ‘best fit’ as determined by the researcher. For the other data sources, HQO, CCO, and MOHLTC, the categorizations were pre-determined by the reporting agencies. The categories and their related measures are shown in Appendix C.

Table 6: Analysis of Measures by Category

Measure Category / Sub-Category	Source	Number of Measures Included	Trend Direction			
			Positive	No Change	Negative	Could not assess
Mortality Rates	CIHI	11	11	0	0	0
Hospital Readmission Rates	CIHI	7	3	2	2	0
Potentially Avoidable Hospital Days	CIHI	11	8	1	2	0
Use of Evidence-Based Practice	CIHI	9	1	1	2	5
Patient Safety	CIHI	1	0	1	0	0
Appropriate Access to Care	CIHI	2	0	0	0	2
Hospital Wait Times (hip fracture)	CIHI	3	2	0	0	1
Home Care						
<i>Home Care Wait times</i>	HQO	2	1	1	0	0
<i>Home Care Quality of Care</i>	HQO	6	1	2	3	0
<i>Home Care Patient Safety</i>	HQO	2	0	1	1	0
Hospital Patient Safety	HQO	8	7	1	0	0
Hospital Wait Times						
<i>Emergency Department</i>	Ministry	2	2	0	0	0
<i>Cancer Surgery</i>	Ministry	12	8	4	0	0
<i>Cardiac Surgery</i>	Ministry	3	0	3	0	0
<i>General Surgery</i>	Ministry	18	2	15	1	0
<i>Gynaecologic Surgery</i>	Ministry	12	3	4	5	0
<i>Neurosurgery</i>	Ministry	13	2	7	4	0
<i>Ophthalmic Surgery</i>	Ministry	12	2	8	2	0

Measure Category / Sub-Category	Source	Number of Measures Included	Trend Direction			
			Positive	No Change	Negative	Could not assess
<i>Oral and Maxillofacial Surgery and Dentistry</i>	Ministry	12	4	8	0	0
<i>Orthopaedic Surgery (Bone/Spine)</i>	Ministry	21	3	12	6	0
<i>Otolaryngic Surgery</i>	Ministry	12	0	10	2	0
<i>Plastic and Reconstructive Surgery</i>	Ministry	14	1	11	2	0
<i>Thoracic Surgery</i>	Ministry	8	0	8	0	0
<i>Urologic Surgery</i>	Ministry	15	1	11	3	0
<i>Vascular Surgery</i>	Ministry	10	2	8	0	0
<i>Diagnostic Imaging</i>	Ministry	2	2	0	0	0
<i>Pediatric Surgery</i>	Ministry	10	0	6	4	0
Cancer Care						
<i>Cancer System – Safety</i>	CCO	1	0	1	0	0
<i>Valid Reporting of Cancer Staging</i>	CCO	3	0	3	0	0
<i>Appropriate Cancer Treatment</i>	CCO	6	4	2	0	0
<i>Cancer Surgery Wait Times</i>	CCO	3	3	0	0	0
<i>Patient Experience</i>	CCO	2	0	2	0	0
<i>Symptom Assessment and Management</i>	CCO	8	4	4	0	0
<i>End of Life Care</i>	CCO	1	0	1	0	0
TOTALS		262	77	138	39	8

From Table 6, of the 34 categories and sub-categories of measures analyzed from the five datasets and summarized in Appendix C, the researcher found the following results:

- There was improvement in nine categories/sub-categories (i.e., greater proportion of measures showing a positive trend rather than either a negative trend or no change) over time: mortality rates, potentially avoidable hospital days, hospital wait times for hip fracture treatment (reported by CIHI), hospital patient safety, wait times for emergency departments, wait times

for cancer surgery (reported by MOHLTC), wait times for cancer surgery (reported by CCO), wait times for diagnostic imaging, and appropriate cancer treatment.

- There was primarily no change in 17 categories/sub-categories (i.e. greater proportion of measures showing no change rather than a positive or negative trend) over time: patient safety (in-hospital hip fractures reported by CIHI), cardiac surgery, general surgery, neurosurgery, ophthalmic surgery, oral and maxillofacial surgery and dentistry, orthopaedic surgery, otolaryngic surgery, plastic and reconstructive surgery, thoracic surgery, urologic surgery, vascular surgery, paediatric surgery, cancer system – safety, valid reporting of cancer staging, cancer patient experience, and end-of-life care.
- There were no categories in which there was primarily worsening performance.
- There were two categories in which the researcher was unable to assess the trends: use of evidence-based practice and appropriate access to care (both reported by CIHI), which included measures in which the preferred trend was unclear to researcher and no explanation was provided by the data source.
- There were six categories/sub-categories for which there was no clear trend in the results. These were: hospital readmission rates, home care wait times, home care quality of care, home care patient safety, gynaecologic surgery, and cancer system assessment and management.

The researcher additionally found through this analysis that Ontario's surgical wait times have a standard target of 182 days, regardless of baseline or current performance. In many cases, current performance is either well above or well below the target. It appears the standard target has not been adjusted since the wait times strategy was launched.

Table 6 displayed the results of the analysis of measures by category and sub-categories of measures as generally defined by the source datasets. To complement this analysis, the researcher

completed a second categorization. As the purpose of this research is to assess the impact of public reporting on quality improvement, the researcher took the categories/sub-categories of measures and applied the six dimensions of quality as defined in HQO's 2015 report entitled *Quality Matters: Realizing Excellent Care for All*¹⁶, which sets a vision and a proposed framework for a high quality health care system in Ontario. These six dimensions are:

- Safe
- Effective
- Patient-centered
- Efficient
- Timely
- Equitable

Using these six dimensions of quality, the researcher re-categorized the 262 publicly-reported measures as shown in Table 7.

Table 7: Publicly Reported Measures Categorized by HQO's Attributes of Quality

HQO's Dimensions of Quality	Measurement Categories by Source	Source	Number of Measures Included	Trend Direction			
				Positive	No Change	Negative	Could not assess
Safe (N = 23)	Mortality Rates	CIHI	11	11	0	0	0
	Patient Safety	CIHI	1	0	1	0	0
	Home Care Patient Safety	HQO	2	0	1	1	0
	Hospital Patient Safety	HQO	8	7	1	0	0
	Cancer System – Safety	CCO	1	0	1	0	0
Effective (N = 53)	Hospital Readmission Rates	CIHI	7	3	2	2	0

¹⁶ <http://www.hqontario.ca/Portals/0/documents/pr/quality-poster-en.pdf>

HQO's Dimensions of Quality	Measurement Categories by Source	Source	Number of Measures Included	Trend Direction			
				Positive	No Change	Negative	Could not assess
	Potentially Avoidable Hospital Days	CIHI	11	8	1	2	0
	Use of Evidence-Based Practice	CIHI	9	1	1	2	5
	Appropriate Access to Care	CIHI	2	0	0	0	2
	Home Care Quality of Care	HQO	6	1	2	3	0
	Valid Reporting of Cancer Staging	CCO	3	0	3	0	0
	Appropriate Cancer Treatment	CCO	6	4	2	0	0
	End of Life Care	CCO	1	0	1	0	0
	Symptom Assessment and Management	CCO	8	4	4	0	0
Patient-centered¹⁷ (N = 2)	Patient Experience	CCO	2	0	2	0	0
Efficient (N = 0)	N/A		0				
Timely (N = 184)	Hospital Wait Times	CIHI	3	2	0	0	1
	Home Care Wait times	HQO	2	1	1	0	0
	Hospital Wait Times						
	<i>Emergency Department</i>	Ministry	2	2	0	0	0
	<i>Cancer Surgery</i>	Ministry	12	8	4	0	0
	<i>Cardiac Surgery</i>	Ministry	3	0	3	0	0
	<i>General Surgery</i>	Ministry	18	2	15	1	0
	<i>Gynaecologic Surgery</i>	Ministry	12	3	4	5	0

¹⁷ HQO publicly reports 'home care patient experience', however, only two years of data are publicly available and therefore the researcher excluded this measure. Only measures with a minimum of three data points were included in the analysis in order to establish a trend.

HQO's Dimensions of Quality	Measurement Categories by Source	Source	Number of Measures Included	Trend Direction			
				Positive	No Change	Negative	Could not assess
	<i>Neurosurgery</i>	Ministry	13	2	7	4	0
	<i>Ophthalmic Surgery</i>	Ministry	12	2	8	2	0
	<i>Oral and Maxillofacial Surgery and Dentistry</i>	Ministry	12	4	8	0	0
	<i>Orthopaedic Surgery (Bone/Spine)</i>	Ministry	21	3	12	6	0
	<i>Otolaryngic Surgery</i>	Ministry	12	0	10	2	0
	<i>Plastic and Reconstructive Surgery</i>	Ministry	14	1	11	2	0
	<i>Thoracic Surgery</i>	Ministry	8	0	8	0	0
	<i>Urologic Surgery</i>	Ministry	15	1	11	3	0
	<i>Vascular Surgery</i>	Ministry	10	2	8	0	0
	<i>Diagnostic Imaging</i>	Ministry	2	2	0	0	0
	<i>Pediatric Surgery</i>	Ministry	10	0	6	4	0
	<i>Cancer Surgery Wait Times</i>	CCO	3	3	0	0	0
Equitable (N = 0)	N/A		0				
	TOTALS		262	77	138	39	8

From the researcher's re-categorization of 262 publicly reported measures according to HQO's dimensions of quality, the researcher found the following results:

- 70% (184 of 262) of publicly-reported measures relate to timely access to care, primarily wait times for surgeries.

- 20% (53 of 262) of publicly-reported measures relate to the effectiveness of care
- 9% (23 of 262) of publicly-reported measures relate to patient-safety
- There are only two publicly-reported measures (less than 1%) that related to patient-centered care. This does not including public reports for home care patient experience by HQO, which were excluded from this analysis because there was insufficient data to determine a trend.
- There are no publicly-reported measures for efficiency or equity.

The results of this analysis indicate that there is a substantial focus on publicly-reported measures related to access as related to the MOHLTC's wait times strategy. There is significant opportunity and need to report a more balanced perspective of quality of care in Ontario by increasing the proportion of measures reflected by other dimensions of quality.

Impact of External Factors

As highlighted in the draft logic model in Figure 5, public reporting is one input to quality improvement. There are other contextual factors that contribute to building a systemic culture of quality improvement, as well as external forces that impact the outcome of performance measures. The effect of some of these factors is easier to assess than others. For example, improvements in data quality over time may have no impact, positive impact, or negative impact on performance results; however, in the absence of information about how data quality has improved, in what areas, and during what time frame, an assessment of the degree to which improvements in data quality impact public report results is beyond the scope of this dissertation. However, it was feasible within this dissertation to evaluate the potential impact from two contextual factors – the implementation of the provincial wait times strategy and the introduction of QIPs for hospitals. Both of these factors were described in the Background section with details about the findings below.

Wait times – In 2004, the government of Ontario committed to improving access to designated priority health services by reducing wait times for cancer surgery, cardiac procedures, cataract surgery, hip replacement, knee replacement, and MRI and CT scans. The strategy subsequently added time spent in emergency rooms (ER)¹⁸ for a total of eight priority areas. The provincial strategy included a policy framework with additional designated funding, performance-based targets, hospital accountability agreements, and public reporting. Cancer surgery wait times are also included in the Cancer System Quality Index, which has a related set of hospital accountability agreements and designated funding. At a later point, the wait times strategy was expanded to include all types of surgeries.

Based on the review of the publicly reported data, results have improved over time in six of the eight priority wait time areas, i.e., cancer surgery, hip replacement, knee replacement, MRI and CT scans and ER wait times. In contrast, cardiac surgery¹⁹ and cataract surgery²⁰ wait times have not improved and, of the wait times for 159 other types of surgeries publicly reported by the Ministry of Health and Long-Term Care, only 22 (14%) show a positive trend. Based on these results, there appears to be a positive correlation between the priority wait times strategy and publicly reported results for these measures as compared to other wait times that are publicly reported, but were not part of the initial priority wait times strategy. However, it was not possible to ascertain a specific timeline for the potential impact of the wait times strategy on performance for the priority wait times measures because publicly-available data are not available prior to 2005 when the wait times strategy was implemented. Nevertheless, the researcher was able to confirm that improvements in priority wait times have been sustained over time, with the exception of cardiac and cataract surgeries, as noted above.

¹⁸<http://www.health.gov.on.ca/en/public/programs/waittimes/strategy.aspx>

¹⁹CIHI reports show an improvement in CABG rates for Ontario for the period 1999-2011, whereas the Ministry of Health reports no change in CABG performance for the period 2005-2014. In addition, the Ministry reports show no change in performance for angiography or angioplasty during 2007-2014.

²⁰An initial drop in wait times for cataract surgery in the first two years has been followed by a gradual increase in wait times.

Hospital Quality Improvement Plans – The first hospital QIPs were released in 2011/2012. At that time, they included the following measures, some of which, as noted below, are also publicly reported:

- Rates of infection for *Clostridium difficile* - publicly reported by HQO
- Ventilator-associated pneumonia - publicly reported by HQO
- Hand hygiene before patient contact - publicly reported by HQO
- Central line blood stream infection - publicly reported by HQO
- Pressure ulcers
- Falls
- HSMR - Hospital Standardized Mortality Ratios - publicly reported by CIHI
- Total margin
- ER wait times - admitted patients - publicly reported by Ministry of Health
- ER wait times - complex patients - publicly reported by Ministry of Health
- Patient satisfaction
- % alternate level of care days (i.e., days spent in hospital by patients who no longer require acute levels of care and who are waiting for an 'alternate' care setting)
- Readmissions within 30 days for select Case Mix Groups

Between 2011/2012 and 2015/16, the following measures were added:

- Use of surgical safety checklists - publicly reported by HQO
- Use of physical restraints
- In-hospital mortality following major surgery
- Medication reconciliation at admission

Of the 17 measures included in the hospital QIPs, eight are publicly reported by HQO, the MOHLTC, or CIHI, and these eight measures have shown improvement over time. All eight of these measures were also publicly-reported prior to the introduction of the hospital QIPs. See Table 8 (excerpted from Appendix C) below which shows the hospital measures in the QIPs, comparing the timing for the public reporting and introduction of the measure into the QIPs. For the two QIPs

measures reported by the Ministry, both are related to ER wait times and were thus also part of the priority wait times strategy identified in the previous section.

Results of the analysis show that i) all of the QIP measures are showing improvement, ii) all of the hospital safety measures publicly reported by HQO, even those that are not part of the QIPs (with one exception), are showing improvement, iii) where hospital QIP measures are publicly reported, improved performance started prior to the implementation of hospital QIPs except for *Clostridium difficile* rates. Results for *C. difficile* rates showed improvement in 2008/09, then worsened, then started improving again in 2012/13, the year after the introduction of QIPs. The researcher additionally notes that reported use of surgical safety checklists improved significantly in 2010/11, the year prior to the introduction of QIPs. Although improved performance on both *C. difficile* rates and use of surgical safety checklists may be related to the introduction of QIPs, given the performance of the QIP metrics over time, it was not possible for the researcher to draw any general conclusions about the potential impact of the hospital QIPs on publicly-reported performance results for hospitals. However, the researcher was able to confirm that improvements in all the QIP measures have been sustained over time.

Table 8: Data Set: Comparison of Hospital Patient Safety Measures Reported by HQO and QIP Measures (excerpt from Appendix C)

Notes:

- Arrows under 'Preferred Trend' column indicate direction of trend line required to achieve improved results.
- Arrows under 'Actual Trend' column indicate actual direction of trend line.
 - Black arrows indicate that the actual trend is the same as the preferred trend and therefore results have improved.
 - Red arrows indicate that the actual trend is opposite to the preferred trend and therefore results are worsening
- Reporting period is for public reported data and as applicable, reporting period for QIP and Priority Wait Times measures (in green)

Measure	Preferred Trend	Actual Trend	Reporting Period
<i>Clostridium difficile</i> infection rates	↓	↓	Reported 2008-2014 Hospital QIP measure starting 2011/12
Methicillin resistant <i>Staphylococcus aureus</i> (MRSA) infection rates	↓	↓	Reported 2008-2014 No change 2008-2011
Vancomycin resistant <i>Enterococcus</i> infection rates	↓	↑	Reported 2008-2014
Central line-associated primary bloodstream infection	↓	↓	Reported 2009-2014 Hospital QIP measure starting 2011/12
Ventilator-associated pneumonia	↓	↓	Reported 2009-2014 Hospital QIP measure starting 2011/12
Surgical site infection prevention	↑	↑	Reported 2009-2014 Plateaued in 2012
Hand hygiene compliance	↑	↑	Reported 2009-2014 Hospital QIP measure starting 2011/12
Surgical safety checklist compliance	↑	↑	Reported 2010-2014 Plateaued in 2011 Hospital QIP measure starting 2012/13
Hospital Standardized Mortality Ratios (reported by HQO, data source CIHI)	↓	↓	Reported 2009-2014 Hospital QIP measure starting 2011/12
Emergency Department wait high acuity – target 8 hours (reported by Ministry)	↓	↓	Reported 2008-2014 Decreasing, but above target Hospital QIP measure starting 2011/12 Ministry Priority Wait Times Measure starting 2005
Emergency Department wait low acuity – target 4 hours (reported by Ministry)	↓	↓	Reported 2008-2014 Hospital QIP measure starting 2011/12 Ministry Priority Wait times measure starting 2005

Impact of Organizational-Level Reporting

Evidence from the literature from other jurisdictions indicates that there is greater likelihood of impact from third-party public reporting of quality measures at an individual institution-level or physician-level because of the greater potential to inflict reputational damage (Bevan, 2010). Thus, as part of the quantitative analysis, the researcher initiated a comparison of third-party reporting that is presented at an individual organization-level versus at an aggregate level to determine if the level of reporting increases the likelihood of improvement.

- CIHI, HQO and MOHLTC provide publicly reported data at both the organization-level and aggregate level. Of the eight hospital patient safety measures that are included in HQO's public reports, only one is not showing improvement. Four of these measures are also included in hospital QIPs. CIHI provides comparative reporting for hospitals on approximately a dozen measures related to quality access/wait times, hospital patient safety, and hospital readmission rates. Several of these measures, including Emergency Department wait times, hospital readmissions, and hospital standardized mortality ratios, are also included in hospital QIPs.
- CCO provides publicly reports for some hospitals, where applicable in the Cancer System Quality Index; however only some of the measures are reported at an individual regional cancer center level. In addition, as reported previously, CCO has an extensive accountability system that includes targeted funding, accountability agreements, private reporting, and other activities that would likely impact performance by individual hospitals. It appears that CCO uses public reporting in combination with other accountability activities as a means to drive performance improvement, but does not appear to rely on public reporting alone as a quality improvement tool.
- For the Ministry wait times measures, as shown in Table 6, most of the publicly reported wait times measures are showing no improvement or worsening performance over time.

Given the above analysis, combined with the impact of external forces such as QIPs and the priority wait times strategy, the researcher found that it was difficult to form any conclusions about a possible correlation between organization-level reporting and publicly reported performance results at a provincial level, except to note that where data were publicly reported and were also combined with other accountability strategies, they showed a greater likelihood of sustained improvement.

International Comparison

The researcher completed one final analysis with the goal of providing context to Ontario's performance. While most international reports are intended to compare results across countries, CIHI has started reporting comparative results at both national and provincial levels thus allowing the researcher to compare Ontario's results to both the Canadian average and with international results. The purpose of this comparative analysis was not to provide an in-depth comparison of Ontario's performance relative to other jurisdictions, but simply to provide some additional context to the quantitative results. Using CIHI's interactive, publicly-reported tool for comparing health system performance across OECD countries²¹, the researcher was able to compare Ontario's performance with an average of OECD countries. In addition to measures of population health, primary care, and social determinants of health, the CIHI website included 20 OECD measures for hospitals across three relevant domains – patient safety, quality of care, and access to care. The comparative results are summarized in Table 9.

²¹ <https://www.cihi.ca/en/health-system-performance/performance-reporting/international/oecd-interactive-tool-access-to-care> (accessed January 31, 2016)

Table 9: Comparative Results - Ontario vs OECD Average

Category	Measure	Ontario's Performance Compared to OECD Average (+ = better than average, - = worse than average)
Patient Safety	Foreign object left in (after surgery)	-
	Post-Operative Pulmonary Embolism – Hip and Knee Surgery	-
	Post-Operative Deep Vein Thrombosis - Hip and Knee Surgery	+
	Post-Operative Sepsis – Abdominal Surgery	+
	Obstetrical Trauma (related to an instrument)	-
	Obstetrical Trauma (not-related to an instrument)	-
Quality of Care	Breast Cancer Screening	+
	Breast Cancer Survival	+
	Breast Cancer Mortality	-
	Cervical Cancer Screening	+
	Cervical Cancer Survival	+
	Cervical Cancer Mortality	+
	Colorectal Cancer Survival	+
	Colorectal Cancer Mortality	+
	30-day In-Hospital Mortality – Acute Myocardial Infarct	+
	30-day In-Hospital Mortality – Ischemic Stroke	-
Access to Care	Wait Time: Cataract Surgery	+
	Wait Time: Hip Replacement Surgery	+
	Wait Time: Knee Replacement Surgery	+
	Wait Time: Specialist	-

It is important to note that the number of countries included in the international OECD average varied by indicator, ranging from as few as nine countries, to as many as 27. In addition, the countries include both developed and developing nations, with significant variation in their overall health system performance. This means that Ontario's performance relative to the OECD average could vary depending on which countries were included in the measurement. Despite this variable factor, the researcher felt that the comparison provided useful context for Ontario's performance on these three domains of quality.

From the review of the results, the researcher found that Ontario:

- Performs above the OECD average on 13 (65%) of the 20 measures;
- Performs proportionately better on measures related to quality of care and access, as compared to patient safety;
- Performs well in measures related to cancer treatment, with seven of eight measures showing results better than the OECD average; and,
- Performs better than the OECD average in measures that are aligned with its cancer strategy and wait times strategy (cataract, hip replacement, and knee replacement).

Summary of Qualitative Results

The purpose of the qualitative research was to learn more about the objectives and impact of Ontario's third-party public reporting on health performance and to identify factors that would assist in evaluating its effectiveness. The researcher conducted key informant interviews with 17 individuals representing different perspectives on public reporting. The researcher found that 17 interviews provided a sufficient response population to achieve data saturation.

Responses were coded according to the themes used in the qualitative interview tool, per the methodology described previously. Reports were then generated for each code using NVivo's 'node' functionality. This enabled the researcher to systematically analyze and report on the information collected from the key informant interviews. Analysis was conducted using the codes identified in Table 4. In order to be identified as a research finding, a response had to be mentioned by two or more individuals or, if mentioned only once, had to have strong face validity.

Findings were prioritized based on the strength of evidence (for instance, mentioned by multiple interviewees or issues having strong face validity) and were categorized and sequenced according to the codes developed from the topics discussed in the interview tool. Potentially identifiable information within the comments from interviewees was blanked out when included in the analysis, for example, where an individual referenced his or her workplace.

The following is a high level summary of the more detailed findings found in the subsequent sections:

- The audience for public reports in Ontario is primarily health care delivery organizations, rather than the public, physicians or funders;
- There are no stated objectives for public reporting, although most respondents indicated that accountability and transparency, rather than quality improvement, are the primary goals for public reporting;

- Public reporting on its own does not currently drive quality improvement;
- There are ways to make public reporting more effective;
- Publicly reported measures are primarily selected by panels of experts or political/government interests. Key informants indicated that greater transparency is needed in this process and patients and the public need to be more engaged in identifying measures that are important to them;
- There are no significant adverse consequences to public reporting, but there are concerns and criticisms;
- Data quality is important, yet there are ongoing data quality issues for information that is publicly reported;
- A more coordinated and systematic approach to public reporting is required, including alignment with health system priorities;
- Public reporting should be centralized and HQO is ideally positioned to assume this responsibility;
- Target setting is important, and there are both opportunities and challenges to setting appropriate targets;
- Comparison of results to other jurisdictions is valuable, but there are challenges to doing this effectively;
- There should be more public engagement in public reporting; and,
- Public reporting efforts should be evaluated.

The following sections summarize the findings from the interviews and also identify any differences in responses between the groups of key informants: producers of publicly reported data/funders, health system providers, and other stakeholders (patient advocates, media, researchers,

etc.) who are engaged with public reporting. A summary table of the key sub-themes from the responses is provided at the end of each section. The summary tables are used to show alignment between the sub-themes and the different groups of interviewees. Within the summary tables, 'x's are used to denote where at least two individuals from the same interview group commented on a particular sub-theme.

1. Audiences

Overall, the key informants identified that understanding the audience for public reporting is a significant issue. Interviewees either identified a lack of clarity about who the audience is for current public reporting or indicated that the intended audience (i.e., the public) was not the actual audience; stakeholders categorized as "other", such as media or patient advocates, were more likely to indicate that the public is an intended audience. One interviewee, who works for an organization that produces public reports, summed up this perspective by stating:

"So, in my experience, that is always the issue, that is always the root issue of every report that we have ever done...I think the audience we are accountable to is the public but who actually uses it is the field...when I worked at (name of organization), I didn't actually know who the audience was...I was just doing a report." (comment from reporting agency)

Audiences were variously identified as system-users, providers, boards of directors, and policy-makers, but it was noted that there is a variation in uptake of public reports by these different audiences, and that there are also overlaps and sub-groups within these audiences, for example, patients can be viewed as a sub-group of the public. In almost all cases, reporting agencies and providers stated that while reporting agencies are accountable to the public as their audience, it is the field/providers who are the true audience and who actually use the data. Additional sub-themes that arose around the topic of 'audience' included lack of public interest, the media as an audience, and general cynicism about the true audience and purpose of public reports. These additional themes are described further below.

Representatives from all of the interviewed groups commented that the public is generally not interested, but many offered further explanations that this apparent disinterest may result from a lack of engagement of the public in the process and because reports are not presented in a way that is meaningful to them.

“The cynical side of me would say that that for the most part, they (the public) are not interested and probably they are not going to understand the detail of the data and that’s for the most part if we’re not doing a good job of presenting it in a way they can understand it.” (comment from reporting agency)

In addition, it is difficult for the public to find the information or to even become aware that it exists. One health system provider raised the issue that even when the public does access public reports, that access is not equitable to all members of the public.

“It’s also out there for a few advocates or the privileged, in terms of those who know enough to go and look it up. So, as to my notion of public reporting is that we should aim at (getting) it to the public, which means that we need a number of vehicles so ... that people don’t have to work as hard to get it.” (comment from provider)

Producers of public reports and providers commented on the media as an audience, primarily with the perspective that the media look to use the data for negative stories. Both of these interview groups further noted that the media plays an important role as an interpreter for the public.

“We’re always worried about “okay, what is the media going to say once these things come out?”....They’re the ones who then take that...accountability type of data that the average person can’t understand and tries to turn it into usually a negative story. Not always, but they’re trying to be that interpreter for the public, and so that’s a good role for them to play.” (comment from a provider)

and

“They (the public) will take a hook when somebody like the CBC writes a report and puts it on the front page and tells them why it matters to them, but I think that sort of general (reporting), like the mandatory government-initiated reporting is really for system managers.” (comment from reporting agency)

All interviewed groups indicated cynicism about the audiences and the intentions of public reporting. Producers of the data were more likely to express concern that the government’s intention

was to be able to say they are increasing accountability and transparency to the public while knowing that the public does not actually view the reports.

“I think public reporting has different intentions depending on how you are trying to do it. I think there is an accountability aspect, so where governments and/or agencies feel this information has to be available, that quite often it’s not in a usable form in any stretch of the imagination.”
(comment from reporting agency)

and

“I suspect it’s probably a lot of ‘I need to cover my (expletive)’ from the government point of view.” (comment from reporting agency)

At least one provider expressed the view that the government used providers’ concerns about reputational damage as a means to prompt improvement.

“The audience is health service providers. Mostly it is put out there to embarrass them or to provide some information that the public will react or respond to.” (comment from provider)

Table 10 summarizes the sub-themes that emerged under the topic of audience. The strongest area of congruence across all groups was related to cynicism about public reporting, including the audience and related purpose for public reporting. Reporting agencies and health system users were more likely to indicate that providers are the “real” audience for public reports and that the public is not interested.

Table 10: Summary Analysis of Audience Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Lack of clarity of who audience is	x	x	-
Lack of public interest	x	x	-
Role of media	x	x	-
Cynicism about true purpose/audience for public reporting	x	x	x

Grey shading indicates highest degree of accord across the different key informant groups.

2. Objectives of Public Reporting

Several interviewees indicated that the primary challenge related to the topic of objectives was the lack of articulated goals for public reporting. It was further indicated that it would be important to decide on the objectives and purpose, because the multiple audiences and objectives make it difficult to effectively design and present public reports.

“I think that the premise that public reporting had a specific goal, I don't think is true”.
(comment from reporting agency)

Overall, the research participants indicated that they believe that the key objectives for public reporting are to increase accountability and transparency, although one individual argued that it is primarily accountability because having transparency would mean that the public actually understands the information. Three individuals identified a trend towards a quality improvement focus, while others explicitly stated that quality improvement was not a current objective. Additional sub-themes were that public reporting could add more value if it was better aligned with health system priorities and/or if there was a strategy or conceptual framework for public reporting in Ontario, and that there are challenges in differentiating objectives for improvement and accountability.

The researcher notes that there is some alignment and overlap in the discussions of “audiences” in the previous section and “objectives” for public reporting in this section. Comments from two interviewees underscore the link between understanding the audiences and the objectives.

“The audience could be everybody, but it's not often clear when it's a government-run public reporting system, whether it's done for the generic goal of creating trust through transparency or whether it's also done to optimize the possibility for choice.” (comment from ‘other’ stakeholder)

and

“What are the ways in which you assess? Researchers would say we need as much info as possible. Politicians would say we need to be as transparent as possible. Patients would say I need to know what's going on. What's the right information and what's the right reason behind this?” (comment from provider)

Across different jurisdictions, public reporting is often done with the intention of driving improved quality. As was discussed in the literature review, evidence supporting public reporting as a driver of improved quality is mixed. Similarly, from the interviews, perspectives on whether or not the purpose of public reporting is to improve quality were also mixed. Producers of the data were much more likely than other groups to indicate that one of the objectives for public reporting is to improve quality, but even among the producers of the data, there was disagreement on this as an objective. Several interviewees indicated that we do not have the circumstances in place for public reporting to drive improved quality.

“If you want to have improvement as a goal there, that kind of assumes you have a notion of a pathway that through mobilizing public opinion you could change behavior of leadership in hospitals and because of the public pressure they start changing something. And of course, we have the literature from the UK about reputation damage and how it influences performance. That is a different strategy than providing regular feedback to hospitals on a broader set of indicators, because for public reporting you’re usually interested in outcomes and high level notions and for your improvements, they are less actionable”. (comment from ‘other’ stakeholder)

and

“Now, the interesting discussion is how do you link performance, public reporting for transparency and accountability to a performance improvement agenda and, more broadly, to a performance management agenda?” (comment from reporting agency)

Only one person cited a specific example of where public reporting was established with an objective to change provider behavior, but not necessarily performance. This reference was to the establishment of ICES in the 1990s (described earlier in Table 1: Organizations Responsible for Third-Party Reporting of Health Information in Ontario). This interviewee made reference to the lack of levers for public reporting to drive improved quality that was also referenced by others.

“Back then, the idea was that just knowing the information would inform behavior change. (In reference to ICES’ reporting of hysterectomy and Caesarean rates) The further you were from a hospital, the more likely you were to have an extreme procedure. (Did) having those rates public change behavior? Well it changed the public’s information and understanding of it...So it did start to inform behavior change. Then, like now, the ability to force behavior change, the levers didn’t exist and they still don’t exist. We still use the tools to manage performance and to persuade, to encourage; transparency has a shaming quality as well. So I think the intent back

then was more about using the information on both sides. Inform the public so they can make more informed choices and also inform physicians that what you're doing is different."
(comment from provider)

Despite the lack of consensus about using public reporting to drive improved quality, at least three of the interviewees spoke about shifting to a quality improvement focus, using comparative data (although not necessarily publicly-reported data) to assist with this.

"that's where I see things going in the next five years having more... either not directed or self-organized networks of organizations and regional health authorities working together on similar performance issues, trying to understand what are the drivers of performance and what they can do to improve and building that on best evidence and data and really trying to compare one another, with lots of rich contextual information." (comment from reporting agency)

One interviewee, who works for an agency that produces public reports, referenced seeing greater clarity in direction for quality improvement through the Ontario Minister of Health and Long-Term Care's recent Action Plan²² and mandate letters²³ to the Ministry staff and agencies. This linked to the sub-theme of having a strategy or conceptual framework for public reporting, in particular to help define the purpose of public reporting. This sub-theme was particularly mentioned by individuals with experience working with public reports.

"So you start with a conceptual framework to see if what I'm measuring is what I really want to measure." (comment from an 'other stakeholder')

and

"In designing this, for me it would be key to have a clear understanding up front about what is it we are trying to accomplish, and who do we need to have the conversation with to make sure that we have the information there. I think the weakness of some of the public reports has always been that we just dump (in) indicators based on availability just because you have the data available." (comment from reporting agency)

²² In February 2015, the Ontario Minister of Health and Long-Term Care launched a 'Patients First: Action Plan for Health Care', a blueprint for health system reform and priorities for Ontario.

²³ Mandate letters are documents provided by a head of government, in this case the Premier of Ontario, to Ministers outlining the key priorities for their respective Ministries.

The sub-theme on a strategy for public reporting also emerged in other topic areas, such as “opportunities for improvement” and “alignment with priorities”. These are discussed in subsequent sections.

Finally, both producers of public reports and providers spoke about confusion in the objectives for public reporting related to improvement versus accountability; there were differing opinions as to whether these should be separate objectives or not. This discussion was particularly important with respect to circumstances in which measures and targets chosen by providers for their QIPs were then placed by funders into accountability agreements. This was cited by both providers and producers of public reports as a disincentive for providers to use stretch targets in their local reporting. One producer of public reports felt that the solution to this was to make the objectives of public reporting clearer.

Table 11 summarizes the sub-themes that emerged under the topic of objectives. The strongest area of congruence across all groups was related to accountability and transparency as the primary, although not formally articulated, goals for public reporting.

Table 11: Summary Analysis of Objective Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Lack of articulated goals for public reporting	x	x	-
Accountability and transparency as goals	x	x	X
Quality improvement goal	x	-	-
Need for public reporting strategy/alignment with priorities	x	-	X
There is confusion between improvement and accountability as objectives for public reporting	x	x	-

Grey shading indicates highest degree of accord across the different key informant groups.

3. Effectiveness of Public Reporting

Given that the key informants were interested in participating in this study because of its topic on the effectiveness of public reporting, it is not surprising that all of the participating individuals had extensive comments on the issue of effectiveness. Key informants had mixed perspectives on the value and effectiveness of public reporting. For example, when asked about overall impressions on the effectiveness of current public reporting efforts, one interviewee who works for an agency that produces public reports indicated that, *“I think we don’t really know is the first answer”*.

The most common sub-themes that emerged were: public reporting on its own does not drive improvement; public reporting is only effective if providers are held to account for their performance; and that there are many ways to make public reporting more effective, with several interviewees highlighting evaluation as a means to improve effectiveness.

During the interviews, after the key informants provided their initial perspectives on the effectiveness of public reporting, the researcher shared the quantitative results of the trending analysis and used that information to draw deeper commentary on where there had been improvement or lack of improvement in public reporting, and to obtain feedback from interviewees on why they thought some indicators showed improvement and others not.

The two most common sub-themes on the topic of effectiveness are related. The first is the sub-theme that public reporting on its own is not sufficient to drive improvement. The second is that public reporting can only be effective if there is an accountability mechanism that drives providers to improve their performance. All of the interviewees spoke about one or both of these sub-themes, and both producers of public reports and health system providers shared specific examples of where public reporting performance had improved:

“The focus on hip and knees in QBPs (reference to provincial payment for quality-based procedures for hip and knee replacement surgery)...two years ago we were going to set the average length of stay in acute care at best practice of 4.4 days. Well, because we’ve been

focused on it already for the past few years, by December 2013, it was already down to 3.6, so if we had actually set a price based on 4.4, we would have been way overpaying everybody.”
(comment from reporting agency)

or had not improved:

“I think ALC (alternate level of care) is a perfect example of that. ALC has not improved...it never moves and as a system, I think these things all come back to accountability and leadership in terms of where they go.” (comment from reporting agency)

Producers of public reports were much more likely than other groups to be critical of the lack of accountability in the system for changing behaviors and driving providers to make improvements.

“The...problem is that we draw the line at performance reporting and we don’t go into the most important element, which is performance management.” (comment from reporting agency)

The common point in the discussions was that there appears to be a positive correlation between public reporting and the use of accountability mechanisms. At least four individuals, both producers of public reports and other stakeholders, cited emergency department wait times as a successful example of the combined impact of public reporting and providers being held accountable for improvement.

“So that’s just what that focus can do and to me, that’s the value of the public reporting. If we can get focused in the government to say again like they did with ER (emergency room), “Here’s what we’re going to focus on. Here’s what we want people to put their time and effort into and here’s what we’re going to fund as a government”, you can move things.” (comment from reporting agency)

Two interviewees, both from agencies that produce public reports, indicated that there is too much information that is publicly reported, making it hard for providers to understand what measures they should pay attention to.

“Why would anybody do an initiative just because it’s on page 163 of (name of public report)?”.
(comment from reporting agency)

and

“There’s more and more stuff out there, but it’s not organized, it’s not centralized, and it’s inconsistent.” (comment from reporting agency)

One individual commented that it's not the public reports that drive improvement or motivate providers that are truly interested in quality:

"I think no providers would be using these publicly reported, public domain kind of reports for any kind of action. That said, I think many, many good providers are using lots of indicators to monitor and improve their own organizational performance and many of those happen to be the same, for obvious and non-obvious reasons, as the publicly reported indicators." (comment from reporting agency)

In addition, this same individual cited several examples of hospitals, long-term care homes, and home care providers that are very sophisticated in their use of data to drive improvement. He further noted that he did not believe there was a link between public reporting and improvement in these high-performing organizations.

Two interviewees, one from an agency that produces public reports and one from the "other stakeholder" group, spoke about the lack of effectiveness in reaching public audiences, noting the lack of value for the public and the fact that it is unlikely to impact patient behavior. Both individuals attributed this to the fact that what is publicly reported is not what is useful or meaningful for patients.

"It depends what's being measured. You know, readmissions, that's something that is meaningful, wait times are meaningful, but is that conveyed to them and really does it impact their care? It won't be meaningful unless it impacts them on a personal level or their family members". (comment from "other stakeholder")

and

"If it is different audiences then you need to design differently and I think that the most beautiful example is (the) wait times website. It's a horrible website for patients. Like, if I'm a patient it doesn't tell me at all how long and where do I have to wait and which hospital should I go to. The same with the patient safety one, it doesn't really help me as a patient and say, 'Oh God, this is a terrible hospital. If I go in that hospital, I have a risk of about 90% of being killed.'" (comment from reporting agency)

All interviewees shared their perspectives on how public reporting can be made more effective, suggesting the following changes: increase focus on critical areas of health system performance (primary care was given as an example); ensure that measures are actionable for providers; add context to reports; engage the media; align public reports with health system priorities; build a quality

improvement culture; and, ensure that providers are held accountable for improvement. Several interviewees indicated the need to evaluate public reporting in order to better understand the degree to which it is effective.

“This is the most un-research-informed comment to make, but I do feel that it is the right thing to do. It’s just that we have to know how to do it most effectively and efficiently so that we are getting the most bang for what we do.” (comment from reporting agency)

Table 12 summarizes the sub-themes that emerged under the topic of effectiveness. The strongest areas of congruence across all groups were for the sub-themes ‘public reporting on its own does not drive improvement’ and that ‘there are ways to make public reporting more effective’.

Table 12: Summary Analysis of Effectiveness Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Public reporting on its own does not drive improvement	x	x	x
Need to hold providers accountable	x	x	-
There are ways to make public reporting more effective	x	x	x

Grey shading indicates highest degree of accord across the different key informant groups.

4. Determining what gets reported

Key informants generally agreed that the theme of how publicly reported measures get selected and by whom was important. The most consistent responses to the question related to how we determine what gets public reported were “panels of experts” or “political/government interests”. The government’s wait times strategy was cited as an example of how the government drives public reporting. Respondents from all of the interview groups indicated that greater transparency in the selection of measures is required and that the system needs to involve patients and/or the public because much of what is currently public reported does not matter to them. Providers additionally

commented that the system is more likely to report on measures that are readily available versus measures that are actually important.

"I think you bring patients and caregivers around the table and have that discussion. What is meaningful, what would make a difference, what do you want to see measured? You are the consumers of the care, of the services---with providers, because it's important, it's got to work for both. I'm not just all about the patient or all about the provider. I think there has to be a balance to make it a partnership and see what resonates with both". (comment from "other stakeholder")

All respondents from reporting agencies indicated that they have used expert panels to determine what they should report; however, one interviewee from a reporting agency commented that this did not necessarily indicate that there was scientific evidence underlying the selection process.

Providers were more likely to offer criticism about the selection of measures.

"Right now, measures get selected from what exists, just what happens to be there. They are not necessarily relevant, not necessarily the best measure. They start with what's available and what's available was first collected for a different purpose." (comment from provider)

Providers were also more likely to comment on the role of government in selecting measures.

"So my recollection of the (name of indicator), there were a couple of factors that drove the public reporting. I would say incenting the right behavior or improving performance and informing patients were not at the top of the list. At the top of the list was 'the public needs to know how bad it is', and that was a political pressure that was happening...But on the political side there's a lot of debate about it and a lack of understanding of the value of it." (comment from a provider)

Producers of public reports were more likely than other interview groups to indicate that processes are changing and there is a trend towards greater transparency in the process for selecting measures, as well as involvement by broader groups of stakeholders, including patients and the public. It was recognized that more work needs to be done in this area. Where producers of public reports had engaged patients or the broader community, they indicated that it had an impact on how they thought about public reporting, but did not actually state that the reporting had changed as a result.

"(I) do think of that citizens' panel thing that I had when they sat and talked about the patient experience ... It actually did affect the way I think about it and think that it's not just what percentage of people die, what percentage of people get an infection, what percentage of people...but it should also be what kind of experience do patients get? Do they feel like they're

treated with dignity? And I think that should be part of public reporting and I think a lot of people in the system don't think that that's that important.” (comment from reporting agency)

Providers and other stakeholders were more likely to indicate that what is publicly reported is not necessarily what matters most to people. In addition, providers and other stakeholders were more likely to offer criticism about the utility of the measures that are reported, citing hospital-standardized mortality ratios, hand-washing rates, ventilator-assisted pneumonia rates, and surgical-safety checklists as specific examples of measures that are either not actionable, not reliable, or should no longer be publicly reported because the performance is consistently high. It was noted that there needs to be a process to stop reporting things that do not add value.

Table 13 summarizes the sub-themes that emerged under the topic of determining what gets reported. The strongest areas of congruence across all groups were that expert panels and government interests/priorities drive current public reporting measures, that there is a need for greater transparency in how measures are chosen, and that patients and the public should be involved in the selection of measures for public reporting.

Table 13: Summary Analysis of Determining-what-gets-reported Theme

Sub-Themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Panels of experts or political/government interests primarily determine what gets reported	x	x	x
Greater transparency is needed	x	x	x
Increasing transparency and involvement of broader stakeholders is starting	x	-	-
Patients and the public need to be involved in identifying measures that are important to them	x	x	x
Data that are readily available are most often what gets reported	-	x	-

Grey shading indicates highest degree of accord across the different key informant groups.

5. Adverse Consequences and Criticisms

No significant adverse consequences were identified by any interviewee; however all groups of interviewees identified potential areas of criticism or concern related to public reporting. There was limited overlap in concerns expressed by the different interview groups. Interestingly, the largest number of criticisms and concerns were voiced by organizations that produce public reports, and included: gaming of measures, particularly where they are tied to compensation or funding (for example, QIPs and Quality-Based Procedures); that the large number of measures results in a lack of focus; lack of appropriate case mix adjustments; questions about the return on investment for the significant effort associated with public reporting; negative attention from media and politicians, including providers being penalized for honesty and transparency; lack of political will and/or holding to account; and poor data quality. The following are sample comments that reflect how producers of public reports view these issues:

“Physicians will always say that my patient is sicker etc., and you can't adequately adjust. They're very afraid, I think if they are not looking good and doctors still are a pretty powerful group in the system.”(comment from reporting agency)

and

“You know every government says they want to measure and report until they look at what's going to be measured and reported and then they go like “Oh, my God, it's not the greatest system in the world and the (political) opposition is just going to go nuts on this one”. So I don't think again it's a reason not to report.” (comment from reporting agency)

Other stakeholders cited a few additional concerns, including lack of completeness of public reporting, i.e., the inability to provide reports on important areas for which no data are available; presentation of reports and lack of context; the health system's fear of having to change practice (hospitals and physicians); and lack of organization and centralization of public reporting. Similar to agencies that produce public reports, the other stakeholders also indicated concerns about data quality and gaming by providers, as shown by the following comments:

“To be clear, I’m in favor of public reporting and nothing should be hidden. But my main worry lies in the correct interpretation of the data---and that is a challenge in how you present them---but also having sufficient context knowledge to make sense of it. If I just aggregate all the information in a compound and I produce a list of surgeons and say these ones are red, yellow and green (quality rating), then I think you do them an injustice. Because then the inference is this is a good surgeon, this is a bad surgeon. Well, that’s a very big thing to say. Is that really true?” (comment from ‘other stakeholder’)

and

“I’m sure you can identify certain data elements where there’s a potential for gaming and that’s why you’ve got to select your indicators in a way that suggests that you don’t include those kind of indicators in public reporting, like, for example, the handwashing. (The) hospital is doing an audit of an area and tells people in advance “we’re going to be auditing you tomorrow about your handwashing” and then why would you accept handwashing as a good indicator? And that’s exactly what’s going on in this province.” (comment from ‘other stakeholder’)

Providers were less likely to voice concerns, but two potential risks that providers specifically mentioned were that public reporting may drive negative behaviors and fear of negative media attention.

“Public reporting on hip and knee has been a fascinating kind of journey driving all kinds of bizarre performance behaviors---very little of it improving wait times. And nobody really understanding what’s behind it. The majority of delays in hip and knee have to do with physician preference and (patients preferring to spend) winters in Florida.” (comment from provider)

Several producers of public reports commented that the potential for adverse consequences should not be a reason for not doing public reporting and cited examples of how to mitigate risks, including close monitoring of performance, using coding standards, and removing measures that can be more easily gamed. Handwashing rates were cited by several interviewees as a specific example of measures that are gamed as they are self-reported by providers and cannot be validated by reporting agencies. Table 14 summarizes the sub-themes that emerged under the topic of adverse consequences. The strongest areas of congruence across all groups were that there are no significant adverse consequences related to public reporting, but there are multiple concerns and criticisms. In general, the concerns and criticisms varied by interview group.

Table 14: Summary Analysis of Adverse Consequences Theme

Sub-Themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
There are no significant adverse consequences to public reporting	x	x	x
There are potential areas of concern or criticism (multiple examples cited)	x	x	x
It is possible to mitigate the risks	x	-	-

Grey shading indicates highest degree of accord across the different key informant groups.

6. Data Quality

On the theme of data quality, there was general consensus by all interview groups that stakeholders must be able to trust the information. One interviewee from an agency responsible for public reporting stated that he believes there is a correlation between trust in the data and the desirability of the outcome; in other words, providers were more likely to criticize the data quality and methods when the results were not favorable to them, particularly in situations where it impacts their funding. Several producers of public reports also expressed frustration about the ongoing dialogue on data quality, for example:

So I've been now for 10 years in (place name) and I still have the same discussions about the same type of indicators and the same data, and every time the discussion ends with “we need better data”. YES, WE NEED BETTER DATA!” (comment from reporting agency)

Similar to the discussions on the theme of adverse consequences, data quality was acknowledged as an issue, but it was also noted that poor data quality should not be a barrier to public reporting. Examples of data quality issues that were specifically mentioned included: incomplete data sets and lack of available data in critical areas; quality of the underlying databases and variability in data integrity; gaming of results, particularly with respect to self-reported measures, such as hand-washing; delays in availability of data; variation in data rigour across different reporting agencies; inconsistency in definitions across reporting agencies; and lack of appropriate risk adjustments.

Producers of public reports were more likely to provide specific examples of data integrity issues based on their own experiences with the data. The following comments were provided from individuals working for different reporting agencies:

"I think it depends on the data source, so obviously I think Ontario has very disconnected data sources, very siloed, very sector-based data sources, and I think that's just the legacy of the system we have. But each data source, depending on its owner, has different data integrity and data quality and I think certainly the more we use it for funding, the more important data quality becomes." (comment from reporting agency)

and

"So the data is poor, it's totally scattered; we're mixing indicators for QI (quality improvement) (with) indicators for public reporting. We have inconsistent use of definitions. So, readmission 28 days, readmission 30 days, readmission all cause, readmission for select CMGs (case mix groups) so we are inconsistent in the definitions." (comment from reporting agency)

Other stakeholders, such as media or patient advocates, were more likely to express cynicism about the integrity of the reports for the public.

"I think, in Ontario, they report in such a way, they put the best spin on it they can. They are putting numbers out there, but they are putting out the best possible numbers because there are many different ways to report emergency room wait times, and many different ways to report hospital infection rates and so they are making it look as good as they can..." (comment from "other stakeholder")

Among providers, it was particularly noted that physicians tend to be the most skeptical about data integrity, particularly with respect to case mix adjustments.

All interviewees from agencies responsible for public reporting commented on mitigation strategies to address data quality issues and how potential data integrity issues were dealt with by their respective organizations. Two of these interviewees specifically commented that trends and variations are the most critical aspect, as opposed to specific performance results; one of these individuals stated, *"I pay a lot of attention to something very specific that I call signal versus noise."*

Examples of mitigation strategies used by reporting agencies include:

- having dedicated analysts who work with providers, for example, to understand and apply coding standards;

- using validity checks; and
- paying increased attention to variation in data and trends over time.

One provider mentioned extending the use of electronic health records and electronic medical records, as well as increasing linkages between data sets as opportunities to further improve data quality in the future.

Table 15 summarizes the sub-themes that emerged under the topic of data quality. The strongest areas of congruence across all groups were that data quality is important---and increasingly important where funding is at risk---and that there are data quality issues. Producers of public reports were more likely both to offer examples of data quality issues and to identify opportunities to mitigate or improve data quality.

Table 15: Summary Analysis of Data Quality Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Data quality is important	x	x	X
There are data quality issues for information that is publicly reported	x	x	X
It is possible to mitigate/improve data quality	x	-	-

Grey shading indicates highest degree of accord across the different key informant groups.

7. Alignment with Priorities

Under this theme, the researcher asked interviewees about the degree to which they believe that public reporting is aligned with health system priorities. Responses on this topic were more likely to come from producers of public reports and providers than other stakeholders, a group from which only one individual commented. Key informants generally responded with feedback about the lack of alignment between health system priorities and public reporting. Several interviewees spoke about the

significant number of measures that are publicly reported and one referred to the situation as “indicator chaos”. There was further consensus on the need for a conceptual framework and/or a more coordinated performance measurement approach for the province that would help providers understand where to focus. One interviewee from an agency that produces public reports made the following remark:

“We have too much, we’re not using it. It’s asking too much of the system and as you know when you ask them to focus on 40 different things, you can’t. It’s not possible.” (comment from reporting agency)

One individual from a provider organization added that it is not just public reporting that should be aligned to the system priorities, but all of the accountability mechanisms, including quality-based procedures, quality improvement plans, and accountability agreements between providers and the LHINs.

Two individuals, both of whom have significant health leadership experience, spoke extensively about the fact that if something is clearly a government priority and there is clear organizational accountability for improvement, then there will be improvement in performance results. One of these interviewees provided examples of indicators that are reported, but for which there is no clear accountability for improvement, including diabetes, infant mortality, and smoking cessation.

“I mean there are some things organizations can do on their own, but there are other things that are beyond individual organizations’ capability to do on their own and therefore those kind of indicators tend to just lie fallow...I’ll give you a couple of examples. The indicators around diabetes...weren’t really improving all that much in this province because there was no organization that had direct accountability for doing anything about it.”

Table 16 summarizes the sub-themes that emerged under the topic of alignment with priorities. The strongest area of congruence across all groups (noting that only one person in the other stakeholder group commented on this section) was that current public reporting efforts are not aligned with health system priorities. Among the producers of public reports and providers, there was consensus that the large number of measures makes it difficult to understand where the health system should be focused

and that a more coordinated approach is needed. The Minister's Action Plan, a recently announced set of priorities for Ontario's health system, was recommended as a place to start for the system to align priorities and public reporting on health system performance.

Table 16: Summary Analysis of Alignment with Priorities Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Public reporting is not aligned with health system priorities	x	x	x
There are too many reported measures, resulting in a lack of focus	x	x	-
A more coordinated approach is required	x	x	-

Grey shading indicates highest degree of accord across the different key informant groups.

8. Alignment of Incentives

Under this theme, the researcher asked key informants about the degree to which they believe there is alignment of incentives, such as salary compensation and organizational funding, with performance on publicly-reported measures. Feedback from interviewees generally centered around three viewpoints; incentives are not aligned, there are challenges to aligning incentives appropriately, and there is a lack of accountability in the system.

Both reporting agencies and providers gave feedback as to why they felt that the current pay-for-performance²⁴ approach for executives does not work. This was discussed in reference to Ontario's *Excellent Care for All Act* (2010), which, among other quality improvement strategies, links hospital executive compensation to performance on quality measures. Reasons given as to why the current incentive system does not work included: lack of control by hospital executives over physician

²⁴ Pay-for-performance is a compensation strategy in which total salary is commensurate with achievement of performance targets.

performance on quality; legislated public sector salary freezes, including a comment from one individual that the public sector compensation framework in Ontario needs to be over-hauled; and the potential for gaming or choosing targets that are easier to meet when the targets are tied to salary compensation in hospitals.

“It’s a little bit naïve impression that the hospital executive runs the hospital...they (are) only one part of the hospital. Still think about getting the clinician on board...It’s great as a first step, but I think ultimately we have to have (an) all physician-wide approach or system that says everybody has skin in the game. I think that is where you get more effects than just picking one group or one part of the chain. No matter how helpful hospital CEOs are, there is a limitation of power also because physicians...are independent.” (comment from reporting agency)

Also on the topic of individual pay-for-performance, one interviewee gave an additional example of how incentives were misjudged when the province invested in primary care doctors to increase enrollment, but there was no improvement in the percentage of patients who can see their primary care doctor in 24 hours, which was one of the MOHLTC’s intended outcomes for the additional investment in physician compensation over the last five years.

Producers of public reports spoke about other types of incentives, giving examples such as organizational funding tied to quality-based procedures and the work by CCO on funding agreements tied to performance on the cancer system quality index. The cancer system quality index was established in 2010 by the Cancer Quality Council of Ontario, an arm’s length advisory council to CCO that provides advice to both CCO and the MOHLTC to support their efforts to improve the quality of cancer care in Ontario. The success of CCO’s accountability initiatives were offered by several interviewees as an example of where incentives have resulted in improved performance at an organizational and system level.

Three interviewees gave examples from other countries, including the US and the UK, and the circumstances in which incentives and penalties have been successful in improving performance in those jurisdictions. The impact of poor performance in a competitive market was cited as a powerful motive to improve, primarily due to loss of patient volumes due to reputational damage. The implication of this

discussion was that competition is not a strong incentive for performance improvement in the Ontario system as there is little competition for patient volumes.

Other stakeholders provided a greater degree of feedback about the current lack of accountability to funders, i.e., in terms of penalties or incentives, in the system for performance.

“How do you hold them accountable? How do you say that they're accountable? Punishment? How do you do that? It's got to be a positive reinforcement so that they're going to be encouraged to do it, but who is out there monitoring it?” (comment from ‘other stakeholder’)

Additional comments on this theme, primarily from reporting agencies, included: the system needs to also reward “good failures” and good attempts that are not successful; there needs to be good policy work that removes barriers to progress and that does not add incentives without first knowing how they would work in a complex environment; and the government already has the right mechanisms/levers, but is just not using them properly.

Table 17 summarizes the sub-themes that emerged under the topic of alignment with incentives. There was not congruence across all groups on the sub-themes for this topic.

Table 17: Summary Analysis of Alignment with Incentives Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
There is not alignment between incentives and performance	x	x	-
Appropriate alignment of incentives is challenging	x	x	-
Providers are not held to account for poor performance	-	x	x

9. Determining who should be responsible for public reporting

As the researcher identified in the Background section, several organizations in Ontario have a government mandate for producing third-party public reports. As part of the interview, the researcher asked interviewees who should be responsible for public reporting. There was general agreement across all interview groups that centralizing accountability and responsibility within one organization would be advantageous, by providing the potential to increase alignment of reporting, promote best practice standards, and improve access to publicly available data. There was further agreement that public reporting should be the responsibility of a third-party organization, i.e., independent of both government and providers.

HQO was identified by interviewees from all groups as the organization that is best-positioned to lead public reporting efforts in the province because of its ability to support the health system in driving improvement, including creating an inventory of best practices, benchmarking, analytics, and capacity building.

“It should be Health Quality Ontario. I mean that's why they were created. And also listening to the current deputy (minister), he really sees that as a legitimate role for Health Quality Ontario. And it gets confusing because the role of Cancer Care Ontario---and certainly they've played a very strong role in cancer---but then they got asked to do the broader role. But I think it doesn't really matter who does the operations, the stuff behind the scenes. The important thing is the public understanding where to go to get the information that they need and also who is providing the leadership here. And I think that should be Health Quality Ontario.” (comment from “other stakeholder”)

At least two of the interviewees commented on the role of CCO, noting that CCO has an additional advantage of having the ability to exert greater pressure for performance improvement through accountability agreements and funding arrangements, which HQO does not have. This relates to the evidence from the literature, as well as previously described feedback from interviewees, that public reporting on its own is not sufficient to drive improvement. These findings suggest that HQO will need to have mechanisms in place to hold the government and providers accountable for quality improvement.

Table 18 summarizes the sub-themes that emerged under the topic of determining who should be responsible for public reporting. There was strong congruence across all groups that public reporting should be centralized with a third-party reporting agency and that agency should be HQO.

Table 18: Summary Analysis of Determining Who Should be Responsible for Public Reporting Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Public reporting in Ontario should be centralized	x	x	x
Health Quality Ontario is ideally positioned to play that role	x	x	x

Grey shading indicates highest degree of accord across the different key informant groups.

10. Target Setting

The researcher questioned key informants regarding their perspectives on setting targets for publicly reported measures, including: whether Ontario should set performance improvement targets; who should set targets; how targets should be set; and how providers should be compared, i.e., to each other, to standards, to an average/mean, or to their previous performance. Feedback from interviewees was very similar to the feedback on incentives for improvement and centred on the following sub-themes: targets are important, there are challenges to setting targets appropriately, and there is a lack of accountability in the system for achieving targets. Additionally, several interviewees provided recommendations for more effective ways to develop and use targets.

No key informant commented that targets are not appropriate for public reporting. While generally interviewees commented on the value of targets, at least one third of the interviewees shared the perspective that setting targets is, in fact, essential to driving improvement. All interviewees

commented on the challenges of setting targets, with the cited challenges including: caution on the potential for interrelationships in measures, in which setting a target in one area could have an unintended negative impact in another area; setting targets only where they add value; setting targets based on evidence; differentiating “stretch” targets from “hard” targets; and communicating the rationale for chosen targets. This latter comment was made in reference to the difficulty for governments in communicating the difference between realistic short-term targets and longer-term aspirational targets to a public audience.

The following are sample comments on the challenges of setting targets and were provided by two interviewees from agencies that produce public reports.

“One of the things that has driven me absolutely bananas is people suggesting standard 5%, 10% improvement on indicators, and obviously, depending on the indicator sensitivity, that may or may not be possible, so one of the things that we were talking about was, sure for hand-hygiene, if you’re at 78% you can move it, but one of the things we know that for patient experience, if you moved it 1% or 2%, that’s amazing, that’s a lot. You’re not going to see a 5% improvement in patient experience.” (comment from reporting agency)

and

“...to think about what are the unintended consequences of setting targets and there’s noise about that---and the wait times literature about when we did all the hips and knees---maybe we cannibalized all the ankles (negatively impacted wait times for ankle surgery). ” (comment from reporting agency)

Two providers specifically commented on the cost and resource implications of trying to reach targets.

“If there is a value that something happens at the 10 day mark versus the 30 day mark, then a target to improve performance is a valuable thing. But if it doesn’t matter, should we be thinking sometimes the other way, such as how much is it costing you to get services on day four and is that reasonable? And could we redistribute these funds to where there are more challenges?” (comment from provider)

Interviewees from all groups provided recommendations for improving the target setting process, including: engaging patients in setting targets; having a transparent process; balancing stretch and realistic targets; acknowledging providers that show improvement, rather than focusing only on

achieving targets; using evidence, benchmarking, and international comparators; and understanding variation and the impact of regional issues on performance before setting targets.

“The best, of course, is when you use empirical evidence to see what the benchmark situation is... So a target should be realistic; it should be empirically evident. There should be a benchmark evident that it’s already been reached. If that’s not the case, you don’t really know.” (comment from an “other stakeholder”)

and

“To go back to the example of access to primary care to GP (general practitioner) within 48 hours, you know we are the worst in the world and we don't have any jurisdiction that is doing better. If I use this criteria of top 25%, I'm going to have a couple of jurisdictions that would be looking good and would be considered as good performers when really there is no good performer in this country. So I think the more sound targets we can develop based on clinical benchmarks and clear expectations derived from engagement with, frankly, the public and patients, I think we would be better off.” (comment from reporting agency)

Finally, interviewees from the other stakeholder group were more likely to comment on the need for greater accountability for providers to achieve, or at least move towards, targets.

“I think they're a good thing because that's something to aspire towards, so it's a positive and if you are looking at your own figures, and you are like 'Oh, wow!'. I would hope every provider internally would reflect at some point on 'where do I measure up, and hopefully I'm above the norm'. I think everyone would want to aspire to that, but honestly they're so busy and who is going to hold them accountable?” (comment from ‘other stakeholder’)

Table 19 summarizes the sub-themes that emerged under the topic of target-setting. The strongest areas of congruence across all groups were that targets are important, that there are challenges to setting appropriate targets, and that there are opportunities to improve how targets are set in Ontario.

Table 19: Summary Analysis of Setting Targets Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Targets are important	X	X	X
There are challenges to setting appropriate targets	X	X	X
Lack of accountability for achieving targets	-	-	X
There are opportunities to improve target setting	X	X	X

Grey shading indicates highest degree of accord across the different key informant groups.

11. Using Comparative Data in Public Reporting

Evidence from the literature review indicates that benchmarking and using appropriate comparisons can help make public reporting more effective. Interviewees were asked for their perspectives on how well Ontario uses comparative information for its public reporting. All interviewees indicated that using comparative information is helpful to understand how Ontario’s health system is performing. Interviewees cited examples of how comparisons are used both within Ontario and in comparing Ontario with other jurisdictions.

Producers of public reports were more likely than other interviewees to discuss the use of international comparisons. Their perspectives on the value of international comparisons were mixed, with several citing the challenges of “apples to apples” situations in these types of comparisons.

“We know what the challenges are with the data itself...there’s small sample sizes in a lot of the countries, low response rates, and we’re measuring statistical significance and we’re not trying to do this, but we’re trying to be completely methodologically sound, but at the same time, you put some of these labels around statistical significance. I don’t know if the public will understand that or not, but some of the sector will and they may attach greater portents to those findings than maybe they deserve.” (comment from reporting agency)

Two key informants spoke about the utility of using international benchmarks in situations in which Ontario is already a high performer among the Canadian provinces. These comments suggest that

looking at different comparative data can help identify stretch targets or opportunities for improvement.

“Ontario stacks up pretty well compared to the rest of the country. Maybe British Columbia would be the only other province that I can think of that might look a bit better than we do on certain indicators, but most of the provinces look worse than we do on most indicators. So that's why I say you should look internationally to give yourself something to strive towards.” (comment from “other stakeholder”)

The use of comparative data within Ontario was cited as a challenge by key informants across all groups. In particular, lack of appropriate case-mix adjustments, differential application of indicator definitions by providers, and difficulties with establishing peer-groupings were given as examples of difficulties. Two interviewees provided examples of situations in which specific hospitals had been negatively impacted by funding decisions based on comparative use of data among peer groupings, which may indicate the need to review peer-grouping methodology.

Table 20 summarizes the sub-themes that emerged under the topic of using comparative data in public reporting. Both comparisons within Ontario and beyond Ontario were discussed by interviewees. The strongest areas of congruence across all groups were that comparative data is helpful for public reporting and, in particular, comparisons across Ontario, but the methodology for comparison needs improvement.

Table 20: Summary Analysis of Using Comparative Data in Public Reporting Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Comparative information is helpful for public reporting	x	x	X
International comparisons are helpful, but should be used with caution	x	-	-
Comparisons within Ontario are helpful, but there are challenges with the methodology	x	x	X

Grey shading indicates highest degree of accord across the different key informant groups.

12. Stakeholder Engagement

Interviewees were asked about the importance of engaging stakeholders in the public reporting process. This topic was aligned to evidence from the literature indicating that involvement of both providers and the public can make public reporting efforts more effective. There was consensus across all interviewees that both of these stakeholder groups need to be engaged more than they currently are in Ontario; however, there was much more focus on the need to involve patients and the public.

Producers of public reports and providers were more likely to comment on the role of providers in public reporting. Whereas providers felt more strongly about the engagement of providers, producers of public reports had more mixed perspectives.

“Why I think it is so important to have, to develop these kind of things collaboratively with the key stakeholders because you don't want to have, to be in a position where you put indicators out there and a physician tells you the data is wrong.” (comment from reporting agency)

and

“(Providers are) not going to pick tough areas, and so I don't think they should play a big role because you will end up also with what happened on the early hospital report is you had lots of clinicians in there narrowing down to areas of performance where the incident rate was like .01%. It almost never happened and they will pick things like that, right, where they know they are going to look good.” (comment from reporting agency)

There were no key informants who expressed the opinion that higher engagement of the public and patients was not important. Patients and the public as stakeholders were used interchangeably by interviewees. Key informants spoke about the opportunities and challenges to public and patient engagement in developing public reports, with comments including: patients/public do not access public reports; the public needs to inform government what is important to them in public reporting and identify areas for improvement; patients need to provide input into targets, such as wait times, in order to make the reports meaningful to the people who are impacted by the measures; there is no single entity that speaks on behalf of patients; and engagement has to be “real” not tokenism. Citizen panels and family advisory committees were identified as current methods of engagement by providers and

producers of public reports. One provider mentioned the potential for disparities related to equity and access to information, noting that the way the system currently engages patients/public does not go far enough:

“I think it’s ok to always start with the engaged and educated setting the first of the indicators, because that’s a place to start. The mistake we make, though, is once we have done that, we say we have engaged, but what we have missed is all the people (for whom) English is not their first language. They are not educated enough to come to those meetings, but they’re still part of the public, so they still need to be engaged.” (comment from provider)

Additional comments on this sub-theme included opportunities to expand engagement. Two individuals commented that the system should be paying more attention to the rising relevance of social media for public reporting. One of these interviewees commented that much of the current literature evidence on public engagement and patient behavior pre-dates social media sites such as ‘Yelp’, noting that researchers and producers of public reports have the opportunity to explore social media as a way to both engage and inform the public. Another interviewee commented on the potential value of public polling to systematically obtain public input, as well as to evaluate the effectiveness of public reporting in raising public awareness.

Table 21 summarizes the sub-themes that emerged under the topic of stakeholder engagement. The strongest areas of congruence across all groups were that public/patient engagement is important for a number of different reasons, but that there are challenges to effective engagement.

Table 21: Summary Analysis of Stakeholder Engagement Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Providers need to be engaged in developing public reports	X	X	-
Patients/public need to be engaged in developing public reports	X	X	X
There are both opportunities and challenges to engaging the public/providers	X	X	X

Grey shading indicates highest degree of accord across the different key informant groups.

13. Evaluating Public Reporting

The researcher asked key informants two questions related to evaluation: the first was about the degree to which Ontario’s public reporting efforts have been evaluated and the second was about interviewees’ advice for how Ontario’s public reporting efforts should be evaluated. Generally, producers of public reports were more likely than other interviewees to respond to the first question, whereas all interviewee groups responded to the second question.

Several producers of public reports provided examples of public reporting evaluations. These examples were all in reference to evaluations of specific public reporting projects that had been or were undergoing evaluation, as opposed to evaluations by the government of its overall public reporting efforts. Examples of named evaluations included: the Access to Care project led by CCO to support the government’s wait time and emergency room/alternate level of care strategies; an ongoing research study on the impact of public reporting in long-term care; two research studies, one on the use of cardiac scorecards (Tu and Cameron, 2003), and the other on public reporting related to hospital-acquired infections (Daneman et al., 2012), both of which were previously referenced in this dissertation’s Background section; and a conceptual framework for evaluating the impact of CIHI’s public

reporting. Overall, interviewees agreed that more evaluation is needed.

"I like that idea (of evaluation) because I don't think we do (it). We put them out and then we put out more and more measures, and more and more measures, so one of the things that I'm actually doing in (name of role) is a measurement strategy that ties to our strategy and our reporting means, but actually evaluates what are we measuring and why are we measuring it, and what are we putting out to actually potentially, not only reduce the number of measures we're creating, but actually looking at reducing the number of data we collect." (comment from reporting agency)

Interviewees across different groups provided recommendations for evaluation, including how public reporting should be evaluated and what should be addressed in the evaluation process. One interviewee from a reporting agency summed up her perspective on evaluation as follows:

"What we are looking for here is more meaningful reporting, using better quality data with better ties to accountability." (comment from reporting agency)

Interviewees made the following recommendations for conducting evaluations: identify ways to make public reporting more effective and efficient; ask providers, physicians, and the public about the effectiveness of public reporting; evaluate it in a 'practical' way, understanding that no evaluation may meet the needs of all stakeholders; and ask how people access and use the public reports, and whether they impacted decision-making or behavior. The following is a sample comment from an interviewee from the "other stakeholder" group.

"I know the numbers are being tallied, but what's being done with them to effect change? That's the only way to know if they're effective. It's great to collect numbers, but they're useless unless they're being used to impact the system and transform it. And what's being done to use these numbers and then to measure it again, and what we put in the measures and put in place, is that actually impacting that number and the trend, the trend line?" (comment from 'other stakeholder')

Finally, one interviewee questioned the value of conducting an evaluation of public reporting, challenging the notion that the government would make changes to public reporting based on the findings.

"What if we did? What if we evaluated the wait times and we found there was no value in a specific time, but instead it's person-specific, and took this to government and we found there was actually harm? Would the government back down? I don't think so. Unless we proved it was

killing people. No government is going to be less inclined, to be less transparent, than they already are.” (comment from provider)

Table 22 summarizes the sub-themes that emerged under the topic of evaluating public reporting. The strongest area of congruence across all groups was that public reporting in Ontario needs to be evaluated. Interviewees across all groups provided recommendations for how to approach an evaluation process.

Table 22: Summary Analysis of Evaluating Public Reporting Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
Some aspects of public reporting have been evaluated	x	-	-
More evaluation is needed	x	x	x

Grey shading indicates highest degree of accord across the different key informant groups.

14. Improving Public Reporting

The theme of improvement was the final topic for the interviews and resulted in responses that both reflected and summarized earlier discussions related to other themes, such as objectives, effectiveness, and concerns about/adverse consequences of public reporting. In general, whereas key informants expressed concerns about current public reporting efforts, the consensus was that it was valuable and that there are many opportunities to make public reporting more effective.

All interviewees provided recommendations for improving public reporting efforts and, as stated above, these tended to reflect and summarize earlier discussions. The following recommendations were made: increase patient/public engagement; evaluate current public reporting efforts; improve data quality; reduce time lags for reporting; identify gaps in reporting and developing new measures; engage providers and physicians; centralize access to public reporting; reduce the number of indicators and align them with priorities, such as primary care; add context and present the

data in an understandable way; determine what levels of variation in performance are reasonable across regions and providers; engage the media; set stretch targets; increase accountability for performance results; increase reporting on health outcomes; and create an overarching framework for public reporting.

“So, whatever we are saying about the abilities or the value of public reporting today may not be the same five years from now, or 10 years from now, so it's a bit of a moving target, but it needs to be examined and evaluated, just like the actual services and activities that we are actually trying to monitor.” (comment from reporting agency)

Key informants from across the stakeholder groups raised the following recommendations for improving the effectiveness of public reporting, which were not previously discussed: provide assistance to the field to increase their capacity for quality improvement and to help providers move closer to the targets; expand research into currently reported measures to better understand why some areas are improving, but not others; and, finally, consider ways to improve public reporting in an increasing area of “open data”. This last comment was made in reference to an emerging provincial government agenda to make a wider range of data more publicly available for purposes of transparency.

As shown in Table 23, there was strong congruence across all groups that there are many opportunities to improve public reporting. These opportunities primarily summarize discussions under previous themes in the research interviews.

Table 23: Summary Analysis of Improving Public Reporting Theme

Sub-themes derived from interviews	Interviewee grouping (‘x’s indicates theme identified by groups below)		
	Reporting agency/funder	Health system provider	Other stakeholders
There are many opportunities to improve public reporting	x	x	x

Grey shading indicates highest degree of accord across the different key informant groups.

CHAPTER 5: SUMMARY OF FINDINGS AND DISCUSSION

In order to address the research question “How can we evaluate and enhance the effectiveness of third-party reporting on quality improvement for health care in the province of Ontario, Canada”, this study used an explanatory sequential mixed-methods design based on the following two sub-questions:

1. What do we know about the value of public reporting?
2. What do we know about how to improve the effectiveness of public reporting?

Question 1 formed the basis of the quantitative portion of the study, which focused on assessing the results of existing public reporting efforts. This included reviewing a sample set of publicly reported measures for hospitals and CCACs to determine the degree to which there may, or may not be, a positive association between public reporting of results and improved quality. Question 2 formed the basis of the qualitative portion of the study, which used key informant interviews to learn more about the objectives and effectiveness of third-party public reporting on health system performance and to identify opportunities to improve it.

The quantitative and qualitative portions of the research were conducted sequentially; the quantitative analysis was conducted first. The researcher found that the quantitative analysis informed the development of specific questions in the qualitative research, and the qualitative portion of the research was helpful in interpreting the earlier quantitative results; in particular, by helping the researcher to understand why publicly reported measures are or are not improving over time. Furthermore, the researcher was able to use evidence from the qualitative interviews to draw conclusions about how to make public reporting more effective. The following sections summarize the research findings and provide recommendations for improving Ontario’s public reporting efforts.

Quantitative findings

In Chapter 3: Research Methodology, the researcher created a predictive framework based on the literature evidence to attempt to anticipate the results of an analysis of publicly reported performance measures. The following key points summarize the framework:

1. If the literature on causal pathways (Berwick et al., 2003; Contrandriopolous et al., 2014) holds true, one would predict that generally, publicly reported performance of health care organizations should improve over time in response to the reputational threat posed by public reporting. The degree to which there is improvement across all measures may be limited by improvement capacity and span of control.
2. In contrast, if the general literature on public reporting holds true, then one would predict that publicly reported measures would show more mixed results over time (see Figure 4). Some measures will improve; others will show no change in performance or show declining performance. The degree to which we see change in performance results may be due to other factors, rather than due to public reporting alone.

By conducting a linear trend analysis of 262 publicly reported measures for hospitals and CCACs from five datasets, the researcher found that slightly less than one-third of these publicly reported measures are showing improvement, while the remaining measures are showing no change (53%) or worsening performance (15%) over time.

When measures were analyzed by category, the researcher found the following results:

- 1) Nine categories of measures are showing improvement. These include measures related to: mortality rates, potentially avoidable hospital days, hospital wait times for hip fracture treatment (reported by CIHI), hospital patient safety, wait times for emergency departments,

wait times for cancer surgery (reported by MOHLTC), wait times for cancer surgery (reported by CCO), wait times for diagnostic imaging, and appropriate cancer treatment.

- 2) Twenty-three categories of measures showed no change or worsening performance. In other words, the majority of categories of measures showed no improvement in performance over time.
- 3) When analyzing publicly reported measures in accordance with HQO's six dimensions of quality, the researcher found that Ontario's publicly reported measures are significantly weighted (70%) to measures of timely access, primarily surgical wait times. Measures related to effectiveness of care and patient safety represent 20% and 9% of public reported measures respectively. There are only two publicly-reported measures related to patient-centered care, and no measures for efficiency or equity.
- 4) The categories of measures are not weighted by relative importance or priority. This is related to the findings in the qualitative research that there is no existing strategic framework for health care quality improvement and there is a lack of alignment between health system priorities and public reporting, which could otherwise be useful in identifying whether some categories of measures should be more heavily weighted than others in this type of analysis of results.

The researcher considered the impact of other factors in combination with public reporting, including external factors such as policy priorities that utilize public reporting as one component of an improvement strategy. The researcher analyzed the Government of Ontario's wait times strategy and the introduction of mandatory hospital QIPs to explore the impact of these factors. The results showed that, while less than one-third of the measures that are publicly reported for hospitals and CCACs showed improvement over time, by contrast there was improvement in all eight measures that were reported in both hospital QIPs and publicly-reported by HQO, and improvement in six of the eight

measures that were both part of the original wait times strategy and publicly-reported by the MOHLTC. Thus, there appears to be a positive correlation between the Government of Ontario's priority wait times strategy and the performance of these measures in public reporting, as compared to other wait times that are publicly reported, but that were not part of the initial priority measures. Furthermore, by analyzing the performance trends, the researcher confirmed that improvements in priority wait times have been sustained over time, except in two areas, namely, the wait times for cardiac surgery and cataract surgery.

It was not possible to draw any specific conclusions about the potential impact of hospital QIPs on publicly-reported performance results for hospitals, primarily because these measures were already publicly reported and showing improvement prior to the introduction of QIPs. Two of the QIP measures were also part of the priority wait times strategy. There were, however, two QIP measures that showed improvement in the years proximal to the introduction of QIPs, including the use of surgical safety and *C. difficile* rates. The researcher notes that it is possible that there is a correlation between the introduction of QIPs and performance on these two measures, but further research is required to confirm the correlation and causation. Similar to the priority wait times measures, the researcher was able to determine that improvements in the QIP measures have been sustained over time.

Finally, through a simple comparative analysis for a limited number (20) of health care quality measures for OECD countries, the researcher found that Ontario performs better than the OECD average in areas related to quality of care and access. In particular, Ontario performs better than the OECD average in measures that are linked to accountability mechanisms for CCO's cancer care strategy and the MOHLTC's wait times strategy. However, the researcher is cautious about these results as there was significant variation in the number and type of OECD countries included in calculating the average for each of the measures.

From the quantitative research findings the researcher concluded that public reporting on its own may or may not contribute to improved performance, but that when it is combined with other accountability strategies there is a greater likelihood of improvement and/or sustained improvement over time. In other words, there is insufficient evidence that public reporting improves health care quality; however, public reporting can be effective when bundled with other improvement mechanisms.

Given the predictive framework outlined at the beginning of this section, and earlier introduced in Chapter 3, the researcher found no evidence to support the causal link between fear of reputational damage and improved performance on publicly-reported measures in the Ontario context. The researcher did find support for the evidence from the general literature indicating limited, mixed, or inconclusive impact of public reporting on improving quality of care (Ketelaar et al., 2011; Berger et al., 2013; Shekelle et al. 2008; Fung et al., 2008; Totten et al., 2011). The quantitative findings suggest that the link between public reporting and performance improvement is more complex than the causal pathways indicate and that there are additional factors at play. The researcher notes that further research is required to understand the relationship between public reporting and other accountability mechanisms, and their combined impact on performance results.

Qualitative findings

For the qualitative component of the study, the researcher analyzed responses from 17 key informants to a semi-structured interview that used 14 topics or themes related to public reporting. The major findings from the interviews are summarized as follows:

1. Audiences – There is a lack of clarity on the audience(s) for publicly reported information. Although the public is intended as an audience for public reporting, health care institutions are, in fact, the primary users of publicly reported information. This reflects findings from the literature review that:

- a. the public generally does not access or use public reporting.
- b. the strongest evidence for the impact of public reporting is on individual health care organizations, in particular demonstrating increased focus on quality improvement, improved processes of care and positive changes in behaviors.

While both the government and agencies responsible for third-party public-reporting in Ontario continue in their attempts to reach public audiences, changes are required in reporting approaches to increase public interest. There is evidence from the literature that shows consumer usage improves with better report design and engagement of consumers.

2. Objectives – There are no articulated goals for public reporting in Ontario; however, the research findings indicate that accountability and transparency are seen as the primary, although unstated, objectives. While some key informants indicated that quality improvement could be a goal for public reporting, there needs to be additional factors in place to make this possible. There is some debate regarding the use of publicly reported measures for the dual purposes of accountability and quality improvement, however there was agreement that this could be resolved with greater clarity about the objectives for public reporting.
3. Effectiveness – The effectiveness of current public reporting efforts is unknown. One of the key reasons cited for lack of effectiveness is that too many indicators are currently publicly reported, making it difficult to understand where the health system should focus its improvement efforts. In addition, key informants observed that although current public reporting efforts on their own are insufficient to drive improvement, there are many ways to make them more effective. Increasing the alignment of public reporting with health system priorities, holding providers accountable for performance, improving the utility of reports, and evaluation of public reporting efforts were cited as opportunities to improve effectiveness of public reporting.

4. Determining what gets reported – Key informants noted that how publicly reported measures get selected and by whom is important. Currently, “panels of experts” and “political/government interests” are seen as the primary means by which measures are chosen for public reporting, and it was indicated that there is a need for greater transparency in the process. In particular, key informants recommended that patients and the public be engaged in the selection of measures and design of reports. Finally, there needs to be a process to stop reporting things that do not add value.
5. Adverse consequences and criticisms – There are no significant adverse consequences related to public reporting in Ontario, although there are many criticisms about how public reporting is currently performed. However, these criticisms were not considered to be a significant enough reason to not conduct public reporting. The overall feedback on areas of criticism or concern from the interviewees mirrored the findings from the overview of the literature on the topic of adverse consequences and criticisms. Criticisms and concerns included, but were not limited to: gaming of measures, particularly where they are tied to compensation or funding (for example QIPs and Quality-Based Procedures); too many reported measures; negative media attention; lack of political will and/or accountability for performance; and, poor data quality.
6. Data Quality – The quality of the data is an important contributor to trust in publicly reported performance results. Similar to the discussions on the theme of adverse consequences, data quality was acknowledged as an issue, but it was also noted that poor quality data should not be a barrier to public reporting, as there are ways to mitigate the issues. Examples of data quality issues that were cited included: incomplete data sets and lack of available data in critical areas; quality of the underlying databases and variability in data integrity; reliability of self-reported measures such as hand-washing; timeliness of data; and, lack of appropriate risk adjustments.

7. Alignment with priorities – There is a lack of alignment between health system priorities and public reporting. This appears to be a critical gap because the findings of this study point to a correlation between initiatives that are government priorities, with clear organizational accountability for improvement, and improvement in performance results. Given the significant number of measures that are publicly reported, the research findings indicate that the province needs a strategy or conceptual framework that would lead to more coordinated performance measurement approach for the province, and that would help providers understand where to focus their efforts.
8. Alignment of Incentives – There is currently a lack of alignment of incentives, such as salary compensation and organizational funding, with performance on publicly-reported measures. This is also a reflection of the overall lack of accountability for performance in the Ontario system. The current pay-for-performance approach for executives in Ontario is generally seen as not working, in part because factors, such as public sector salary freezes, have diminished the effectiveness of pay-for-performance incentives. The research findings indicate that the provincial government should re-evaluate its incentive-based strategy, including pay-for-performance. Additional areas for further review included: rewarding “good failures and attempts” that may not be successful; better policy that removes barriers to progress and does not add incentives without knowing how they would work in a complex environment; and for the government to make better use of the mechanisms/levers that are already in place, but that are under-utilized.
9. Determining who should be responsible for public reporting – There are significant advantages to centralizing accountability and responsibility within one organization, versus across multiple organizations. The centralized organization should be independent of both government and providers. HQO was identified by most key informants as the third-party organization that is best-positioned to lead public reporting efforts in the province; however, additional mechanisms will be required to hold the government and providers accountable for improving performance.

10. Target setting - Targets are essential for driving quality improvement, but there are challenges to setting targets appropriately and there must be accountability in the system for achieving targets. Challenges related to setting targets include: caution on the potential for interrelationships in measures, in which setting a target in one area has an unintended negative impact in another area; setting targets only where they add value; differentiating “stretch” targets from “hard” targets; and communicating the rationale for targets. There are more effective ways to develop and use targets than are currently being used in Ontario including, but not limited to: engaging patients in setting targets; having a transparent process; acknowledging improved performance, not just achievement of targets; using evidence, benchmarking and international comparators; and understanding contributors to regional variation in performance before setting targets.
11. Using comparative data – The use of comparative data, both comparisons within Ontario and between Ontario and other jurisdictions, is helpful for understanding how Ontario’s health system is performing. Using international comparisons can help Ontario set higher benchmarks, as opposed to limiting comparisons to other provinces. Using OECD reports on primary care access was given as a specific example of where higher benchmarks have illustrated the potential for much more significant improvement, as compared to provincial benchmarking. Both types of comparators, within Ontario and outside Ontario, can be challenging, with lack of appropriate case-mix adjustments, differential application of indicator definitions by providers, and difficulties with establishing peer-groupings given as examples.
12. Stakeholder engagement – The research findings validate evidence from the literature that the public does not access or use publicly reported data on health care quality and that public reporting agencies need to engage the public in designing reports and selecting measures that are meaningful to them. Citizen panels and family advisory committees were identified as common methods of engagement employed by reporting agencies. Social media was cited as an opportunity to raise

awareness and engagement of stakeholders.

13. Evaluating public reporting – Although there have been some instances where specific public reporting strategies have been evaluated, overall it was indicated that more evaluation is needed to improve the effectiveness of public reporting. Recommendations for conducting evaluation included: engaging stakeholders in the evaluation process; asking how people access and use the information that is publicly reported, and assessing whether it impacted decision-making or behavior.
14. Improving public reporting – Recommended improvements to public reporting reflected and summarized earlier discussions related to themes, such as objectives, effectiveness, and concerns about public reporting. Areas for improvement reflect evidence from the literature review, including: increasing patient/public engagement; evaluating current public reporting efforts; improving data quality; reducing time lags for reporting; identifying gaps in reporting and developing new measures; engaging providers and physicians; centralizing access to public reporting; reducing the number of indicators and aligning them with priorities; adding context and presenting the data in an understandable way; understanding reasonable variations in performance across regions and providers; engaging the media; setting stretch targets; increasing accountability for performance results; increasing reporting on health outcomes; and, creating an overarching strategy or framework for public reporting. Also, there were suggestions made for the Ontario context, which may or may not have applicability to other jurisdictions, including: having an organization, such as HQO, provide assistance to the field to increase their capacity for quality improvement to help providers move closer to the targets; expanding research into currently reported measures to better understand why some areas are improving and not others; and, finally, considering ways to improve public reporting in an increasing era of “open data”. This last point is important since it appears that improvements to public reporting require focusing on fewer, more critical measures,

therefore the government must consider how this approach to public reporting fits in the context of a provincial agenda for increased data transparency.

As expected, the qualitative findings assisted the researcher to interpret the earlier quantitative results; in particular, by helping explain why publicly reported measures are or are not improving over time. Reasons for the overall lack of performance improvement cited in the qualitative analysis included factors such as the lack of focus (too many measures), lack of alignment to system priorities (lack of a conceptual or strategic framework), lack of ability to use publicly reported data for improvement purposes (not timely, not sufficiently detailed), and lack of accountability mechanisms and appropriate performance incentives. The findings also validated the earlier quantitative findings that there is not sufficient evidence that public reporting improves health care quality; however, public reporting can be effective when bundled with policy or accountability mechanisms.

The combined findings from this mixed-methods study led to a final conclusion by the researcher that, although there are many concerns about current public reporting efforts in Ontario, public reporting has value, and there are many opportunities to make it more effective as a quality improvement tool. While public reporting may not directly result in improved health system performance, it can work successfully when combined with other extrinsic motivators to create a culture of systemic improvement. This further suggests that, at least in the Ontario context, health care organizations need a reason to pay attention to publicly reported performance measures.

Based on a consolidation of the evidence from the literature review, quantitative research, and qualitative research, the researcher has developed a set of recommendations for improving public reporting efforts in Ontario as described in Chapter 6: Recommendations, Policy Implications and Plan for Change. In the next two sections, the researcher provides the finalized conceptual model, including logic model and evaluation framework, which has been updated based on the research.

Revised Conceptual Model

The research informed the further development of the conceptual framework, including both the logic model and evaluation framework, which have been updated to reflect the findings from the research. The researcher proposes this conceptual framework for use in a summative evaluation of Ontario's public reporting efforts, with the logic model representing the theory of change for how public reporting could lead to improved quality of care and the evaluation framework representing the basis for a tool to assess Ontario's public reporting efforts and identify areas for improvement.

In addition to using the research findings to update the conceptual framework, after the researcher had drafted the original logic model and completed the research, the researcher became aware of the existence of another published logic model and framework for public reporting available on the website of the Office of the Assistant Secretary for Planning and Evaluation at the US Department of Health and Human Services (Tu and Lauer, 2008). The Tu and Lauer Logic Model was designed to provide a comprehensive list of the activities necessary to achieve two goals: i) increased accountability by health care providers and ii) maintain or stimulate improvements in quality of care. It focuses on two primary target audiences: consumers and providers. Table 24 outlines the similarities and differences between the researcher's own (Wojtak) Logic Model as presented earlier in Figure 5 and the Tu and Lauer Logic Model. Underlined statements represent concepts that are unique to either the Tu and Lauer Logic Model or the researcher's own Logic Model. Analysis of these unique concepts was helpful in identifying potential gaps across the two Logic Models.

Table 24: Comparative Analysis of Two Logic Models for Public Reporting

Logic Model Components	Wojtak Draft Logic Model (Figure 5)	Tu and Lauer Logic Model
Inputs	<ul style="list-style-type: none"> • <u>Strategy and accountability for health system quality improvement</u> • <u>Coordinated infrastructure for reporting</u> • <u>Engagement of key audiences in public reporting</u> • Criteria to evaluate public reporting 	<ul style="list-style-type: none"> • <u>Raw quality data</u> • <u>Funds for planning, implementation, maintenance and monitoring of quality reporting</u> • Formative evaluation, defining objectives of quality transparency initiative
Activities	<ul style="list-style-type: none"> • Selection of measures and incentives aligned with strategy • <u>Clarity of roles, responsibilities and plan for public reporting across lead organizations</u> • Needs assessment for audiences and inclusion of measures that are useful to them • Evaluation process for publicly reported measures 	<ul style="list-style-type: none"> • Develop or select measures that accurately and appropriately measure quality of care • Institute practices to ensure data are collected and reported accurately and allow comparison across providers • Present quality data that are credible, meaningful and easy to access, understand and navigate
Outputs/ Outcomes	<ul style="list-style-type: none"> • <u>Expected standards for performance are established</u> • <u>Measures and accountabilities are rationalized</u> • Increased attention on publicly reported measures • Understanding of effectiveness of each measure 	<ul style="list-style-type: none"> • Target audiences are made aware of quality transparency initiative • Target audiences visit quality transparency web site; <u>providers view more detailed quality data</u> • Providers become more aware of their own quality ratings relative to their peers • Providers become more aware of quality ratings for other providers with whom they interact • Consumers become more aware of quality differences across providers
	<ul style="list-style-type: none"> • Demonstrated change in performance • <u>System is focused on a core set of priority measures</u> • Local providers invest in capacity to improve quality and performance • <u>Measurement strategy evolves in line with strategy</u> 	<ul style="list-style-type: none"> • <u>Referral patterns shift to higher-performing providers; hospitals align with higher quality physicians</u> • <u>Consumers choose higher-performing providers, shifting market share of providers</u> • In response to the effect of the ratings on their public and professional reputations and shifts in market share, providers develop quality improvement initiatives

Logic Model Components	Wojtak Draft Logic Model (Figure 5)	Tu and Lauer Logic Model
	<ul style="list-style-type: none"> • Evidence of improved quality of care through public reporting of health system performance measures 	<ul style="list-style-type: none"> • Improved patient care and ultimately, better clinical outcomes
Environmental Factors	<ul style="list-style-type: none"> • <u>Policy levers</u> • <u>Pay-for-Performance</u> • <u>Accreditation</u> • <u>Improvements in Data Quality</u> • <u>Provider-based QIPs</u> 	<ul style="list-style-type: none"> • <u>Market characteristics</u> • <u>Characteristics of the health care system and providers</u> • <u>Factors affecting consumers' ability and incentive/willingness to shop</u>
Barriers	N/A	<ul style="list-style-type: none"> • <u>It is difficult to measure quality of care</u> • <u>It is difficult to collect and report data quality that are accurate, complete and comparable across providers</u> • <u>Consumers/providers unlikely to use quality data unless data are credible, meaningful, easy to access, navigate and understand</u>

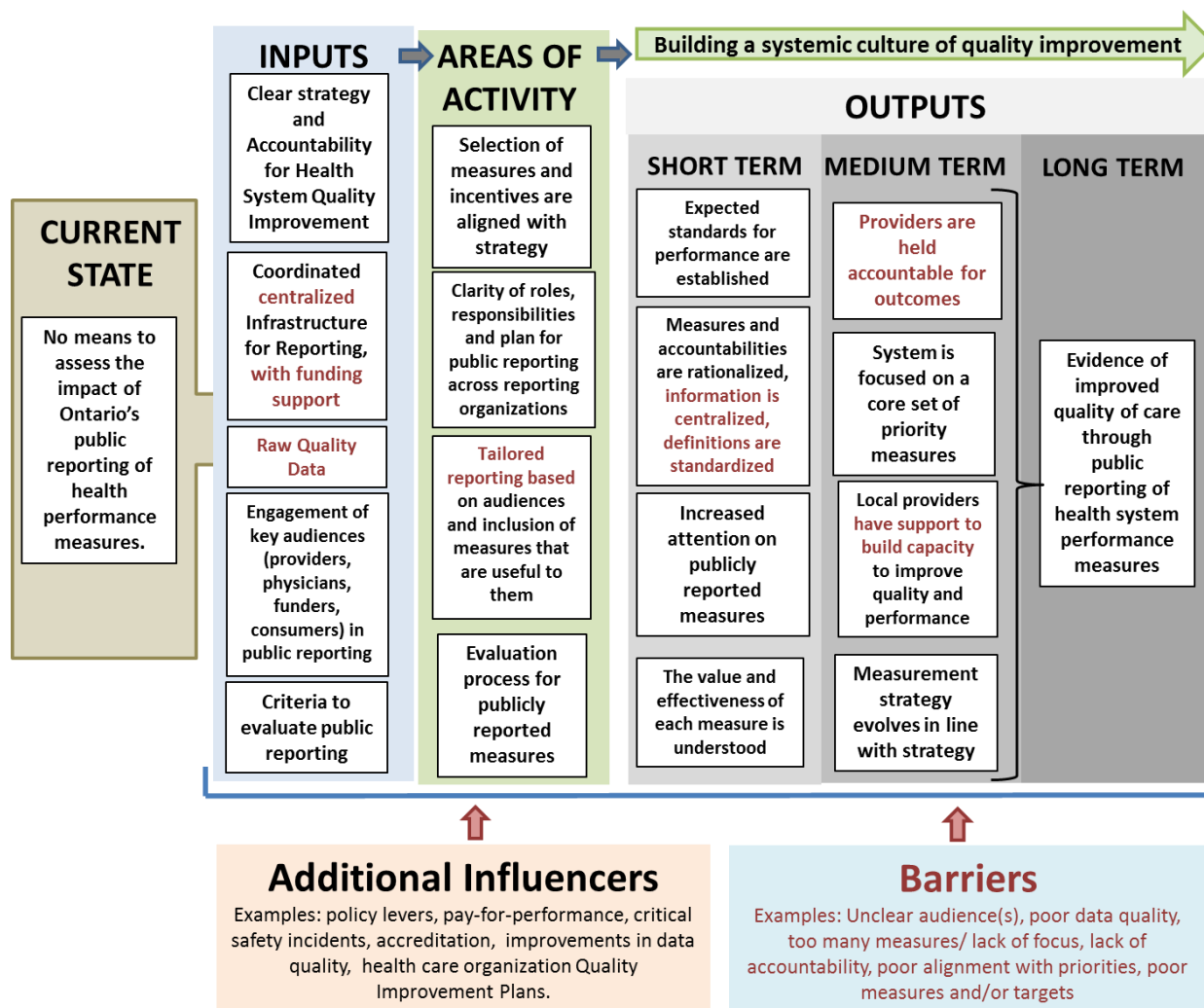
There are many similarities across the two logic models, including concepts related to the need for evaluation, process for selection and reporting of measures, the impact of attention on the results, and a longer term outcome or output of better quality care. One of the key differences in the Tu and Lauer model relates to the impact of market forces on market share, including consumers' awareness of results and factors affecting their ability to choose higher quality providers. This is an important difference in the two models in that the literature evidence indicates that the potential impact of reputational damage is higher in competitive markets, like the US (Totten et al., 2012) and, as confirmed in the researcher's mixed-methods findings, has almost no impact in a market like Ontario. The Tu and Lauer model also includes a section on 'barriers', which was not present in the researcher's draft logic model. In comparison, the researcher's own model has elements that are more aligned to the Ontario context including references to the need to align public reporting with a provincial strategy for quality improvement, rationalizing measures, creating a centralized/coordinated infrastructure for reporting, and identifying more specific environmental factors. In the end, the researcher found more similarities

than differences in the two models and was able to use the Tu and Lauer model to help finalize a logic model for Ontario's public reporting as described in the following paragraphs.

The researcher's final version of the logic model is presented in Figure 9. Changes to the logic model included adding a new section on barriers to public reporting in Ontario, adapted from the Tu and Lauer Logic Model, and adding two inputs (raw quality data and funding for a public reporting infrastructure) from the Tu and Lauer Logic Model that the researcher found to be relevant to the Ontario context. Other components of the Tu and Lauer Logic Model, including the concepts related to market forces, were found to be less relevant to the Ontario context in the researcher's findings and were thus not added to the final version. Based on the qualitative research findings, the researcher made the following additional changes to the Logic Model (all changes appear in 'red' font in Figure 9):

- 'Tailored reporting for different audiences' was added as an area of activity based on the research findings indicating that, while the public is identified as an audience, the public does not access current public reports because information is not presented in a way that is useful to them. This was seen as an area of opportunity.
- 'Centralized coordination of public reporting' was added as an area of activity based on the research findings indicating that lack of coordination of across multiple reporting bodies is a concern in Ontario. The concept of coordination was further expanded to the short-term outputs, including the opportunity to rationalize reporting, centralize efforts and standardize the definition of measures.
- The qualitative results included a strong theme related to lack of accountability for performance results in Ontario; therefore this was added as an output.
- Finally, a section on capacity building for quality improvement, which was identified by key informants as a supportive role for HQO, was also added to the outputs.

Figure 9: Final Proposed Logic Model for Public Reporting in Ontario to Drive Improved Quality of Care



(Note, additions or revisions to the original Logic Model appear in red font in Figure 9)

Similar to the process for finalizing the Logic Model, the researcher made revisions to the evaluation framework based on the research findings. Additions to the evaluation framework underlined in Figure 10 include: support for health care organizations and providers to establish stretch targets for measures aimed at quality improvement; a transparent process for determining measures and targets; adding physicians as a key stakeholder group to be engaged in the development of measures and

reports that are meaningful to them; and, finally, that the costs associated with public reporting are determined to be reasonable. These revisions were made primarily based on feedback from the key informant interviews, and with input from the researcher's advisory committee.

Figure 10: Final Proposed Evaluation Framework for Public Reporting

Evaluation Framework for Third-Party Public Reporting of Health Care Performance (in Ontario)	
<i>What do we know about how (what conditions are needed) to improve the effectiveness of public reporting in Ontario?</i>	
A core set of metrics are aligned with strategic goals for health system quality improvement and additional influencing factors	<ul style="list-style-type: none"> • Strategic goals for health system quality improvement are established. • Objectives for public reporting and intended audiences for reports are established • Measures are aligned with strategic goals for health system quality improvement, as well as with additional influencing factors, such as policy levers, accreditation, pay-for-performance, and other incentives. • There are consequences for poor performance and/or incentives for high performance, or, at a minimum, it should be evident that incentives are not 'misaligned' with quality. • Indicators measure what they are intended to measure. • Measures are focused and relevant to providers, with the same indicator definitions used across the system. • Measures are perceived as fair for comparisons. • Measures can be reasonably attributed. • Quality improvement measures and accountability measures are categorized separately – <u>health care organizations and providers are supported to establish stretch targets for measures that are primarily for quality improvement, rather than accountability.</u> • Measures reflect a balance of structural, outcome, and process measures. • Data are verifiable, have integrity, are adjusted for case mix, and opportunities for inaccurate reporting ("gaming") are minimized. • There are targets for improving performance, but targets are also used sparingly in order to minimize the adverse impacts of too much focus on targets. • Decisions are made as to the appropriate approach for creating targets or benchmarking based on evidence and strategic goals – i.e., determining whether providers are compared against expected standards of performance, against each other, or against an average or target performance. • <u>The process for determining measures and targets is transparent to providers and the public.</u> • There is clarity about which measures providers will be held accountable for improving, and providers are held accountable for the results by funders and/or policy-makers. • System and provider performance are taken into account in developing and evaluating strategy and policy. • The potential for adverse consequences is minimized through the use of balancing measures and other strategies.
There is a coordinated system-level infrastructure for reporting	<ul style="list-style-type: none"> • There is clarity of roles for public reporting, including differentiating measures for the purposes of accountability and quality measures. • A system-level strategy for public reporting is implemented that coordinates across the different organizations responsible for public reporting. • Results are regularly reported. • Public reporting efforts are evaluated regularly to ensure that measures continue to add value.

Evaluation Framework for Third-Party Public Reporting of Health Care Performance (in Ontario)	
<i>What do we know about how (what conditions are needed) to improve the effectiveness of public reporting in Ontario?</i>	
	<ul style="list-style-type: none"> • A process to develop new measures is implemented so that there is the capacity to measure quality as the system evolves • How performance is measured changes as the health care system evolves. • Reporting includes a combination of public and private reporting to encourage a culture of improvement and a “safe” place to test the development of new measures, as well as a testing period.
Key stakeholders (providers, public) are engaged in public reporting efforts	<ul style="list-style-type: none"> • Measures are useful to providers and the public in assessing the quality of health care and the performance of the system. • Providers are engaged in the development of public reporting measures and of reports to ensure that they can use the measures to improve their quality. • The public is engaged in the development of measures and reports that are meaningful to them. Physicians are engaged in the development of measures and reports that are meaningful to them. • The measures are sensitive to improvement actions taken by providers. • Results are timely and available regularly to providers to support quality improvement activities. • Providers have the internal culture, resources, leadership, and capacity to support quality improvement. • Where providers do not have the capacity for quality improvement, there is external support available (e.g., by funders or organizations mandated to do so, such as Health Quality Ontario).
There are ongoing processes to evaluate the impact and effectiveness of public reporting	<ul style="list-style-type: none"> • Key stakeholders are engaged to establish criteria by which to evaluate the impact and effectiveness of public reporting efforts. • An evaluation framework is established and applied for all public reporting. • The results of all publicly reported measures are trended over time to identify whether there is movement in the appropriate direction. If no change is evident, there is an assessment process to understand why and what actions need to be taken as a result. • The evaluation framework supports recommendations for changes to metrics over time – i.e., measurement evolves in line with the strategy for health system improvement. • The evaluation process is transparent to health care providers and the public. • <u>The costs associated with public reporting are determined to be reasonable – both the costs to the reporting agencies and the costs to the health care organizations and providers who collect the data.</u>

The researcher recommends the use of this evaluation framework as a potential checklist, maturity model, or scorecard, which public reporting agencies can use to assess their current public reporting efforts against best practices from the literature. Testing of this framework was beyond the scope of this dissertation, but is recommended as an area for further research.

CHAPTER 6: RECOMMENDATIONS, POLICY IMPLICATIONS AND PLAN FOR CHANGE

This research has implications for the roles of health care organizations, agencies responsible for public reporting, and the government/funders of health care in Ontario. In particular, given that third-party public reporting is driven by government/funders of health care and by the agencies responsible for public reporting, the plan for change is intended to help them assess the current impact of public reporting efforts and to inform a strategy for public reporting going forward. Research findings and recommendations may be applicable to Canada as a whole and to other countries that have nationalized health care or any large-scale health system.

While there is ample evidence from the literature for best practices in public reporting, the ability to effect any change in Ontario's approach to public reporting is contingent upon understanding and appreciating the unique culture of Ontario's health system, as well as its governance and strategy. Given the importance of culture in successful change models, any approach to change in current practice must consider how to apply best practices for public reporting in a way that will enable the highest opportunity for success within the environment.

The researcher has used the reviews of the literature and findings from the quantitative and qualitative research to inform the following recommendations for improving public reporting. The Evaluation Framework (Figure 10) has been used to frame the areas of recommendation. In most cases, the recommendations are generalizable to other jurisdictions, where there are specific nuances for the Ontario context they are noted under each recommendation.

Recommendations

Evaluation Framework Theme	A core set of metrics for public reporting are aligned with strategic goals for health system quality improvement
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Related Recommendations:

1. **The MOHLTC and HQO should align efforts to create a strategic framework for health care quality improvement, with clear objectives for public reporting aligned with priority areas for improvement.** In the Ontario context, the researcher recommends that the MOHLTC and HQO establish an overarching strategy for health care quality improvement, clarify objectives for public reporting, and ensure alignment of reporting to those objectives. The purpose of such a strategic framework would be to focus providers and align improvement efforts across the health system to the areas of highest priority. The Minister's Patients First: Action Plan for Ontario is identified as a practical starting point for creating a government strategy for quality improvement and aligning public reporting efforts with the Action Plan's priorities. In addition in fall 2015, HQO published a proposed framework for quality improvement called 'Quality Matters: Realizing Excellent Care for All'²⁵, which recommends a provincial framework for health care quality and includes six dimensions of quality aligned with those of the Institute of Medicine in the United States. HQO has established a System Quality Advisory Committee to assist with developing a provincial action plan for quality improvement. The researcher acknowledges these efforts by the MOHLTC and HQO as important steps towards focusing Ontario's quality efforts, including public reporting (and other quality improvement activities such as QIPs and quality-based procedures), and recommends that the MOHLTC and HQO

²⁵ <http://www.hqontario.ca/portals/0/Documents/pr/realizing-excellent-care-for-all-en.pdf>

identify ways to align or achieve congruence in the quality priorities, noting that HQO's quality priorities will likely take a much longer term view. In keeping with recommendation 7, the MOHLTC and HQO should also rationalize the number of publicly reported measures to focus improve efforts, and align a smaller number of priority measures with accountability mechanisms in order to achieve improved health system performance.

- 2. The MOHLTC should combine public reporting with other evidence-informed accountability mechanisms to drive improved health system performance.** Evidence from the literature review validated with findings from this research study indicates that public reporting on its own is not sufficient to improve health system performance; however, where public reporting is combined with other accountability mechanisms, such as policy, funding and accountability arrangements, there is greater likelihood for improved performance results and/or sustained improvement over time. In the Ontario context, the researcher recommends analyzing the success of the wait times strategy and the cancer care strategy to understand the nature of the causal pathways linking accountability with performance improvement and using those learnings to drive greater performance in other health system priority areas.
- 3. The MOHLTC and HQO should review alignment of accountability mechanisms with quality improvement priorities and clarify their roles in the process.** While the review of Quality Improvement Plans (QIPs), quality-based procedures, the wait times strategy and other performance improvement activities was not the primary focus of this research, the researcher determined that a lack of alignment across multiple improvement strategies, including public reporting, is contributing to a lack of understanding by health care organizations about improvement priorities. The research findings also indicate confusion between the uses of

measures for quality improvement versus accountability, which is attributed to unclear objectives and responsibilities for the different reporting frameworks.

The researcher recommends that the MOHLTC clarify roles and responsibilities between itself and HQO. HQO should have responsibility for leading the quality improvement strategy, including public reporting, identifying gaps in performance, establishing an approach to target setting, and building improvement capacity. The MOHLTC should take responsibility for ensuring that the policy framework and accountability mechanisms are in place to deliver on a quality improvement agenda. As part of its role, the MOHLTC must consider how to use its levers, such as CCO and LHINs, to strengthen accountability for building a systemic culture of quality improvement as identified in the logic model for public reporting in Figure 9.

4. The Ministry and HQO should include an evidence-informed approach to establishing benchmarks and targets; and the MOHLTC should establish mechanisms to hold health care organizations and providers accountable for improving performance.

Evidence from the literature validated by findings from this research study indicates that cross-jurisdictional comparisons and targets can be valuable but should be applied with caution. The researcher recommends that the MOHLTC and LHINs use external advisors, including from HQO and CCO, in establishing benchmarks and targets for quality improvement and engaging public stakeholders in this process. As an example, the researcher recommends that the standard target of 182 days for all surgical wait times be revisited by the MOHLTC as in many cases current performance is either well above or well below the target. It appears the standard target has not been adjusted since the wait times strategy was launched.

Holding health care organizations accountable for their performance was one of the most commonly cited opportunities to improve the effectiveness of public reporting; i.e. where there is an accountability mechanism (such as for quality-based procedures or in the CCO accountability framework) there is greater likelihood of improved performance. This was supported by the evidence from the quantitative results, which showed a correlation between publicly reported measures supported by accountability mechanisms, and improved performance and/or sustained improvement over time. In fall 2015, the MOHLTC announced plans to enhance the role that LHINs play provincially in accountability and performance of the health system at a local level. The findings from this research support the government's move to increase oversight and accountability for performance improvement.

5. **The MOHLTC should revisit its approach for setting incentives for performance.** Evidence from the literature validated by findings from this research study indicates that performance incentives can be valuable but should be applied with caution. In the Ontario context, a review of executive pay-for-performance incentives is recommended. This is based on the research findings which indicate that the current individual-based pay-for-performance system, which includes hospital executive team pay tied to performance and investments in primary care doctors to increase patient enrollments and timely access, has not been effective in achieving results. Examples of concerns with current individualized incentives include legislated public sector salary freezes, the need for a new public sector compensation framework, and the potential for gaming or choosing targets that are easier to meet. The researcher recommends that the MOHLTC revisit its incentive strategy to identify better opportunities to drive health system performance.

6. **Shift the proportionate focus of publicly-reported quality measures from measures of access to other dimensions of quality.** Through the researcher’s assessment of trends in results for 262 publicly reported measures, it was determined that 70% of the measures relate to access, primarily wait times for surgeries. In order to provide a more comprehensive picture of Ontario’s performance on health care quality, the MOHLTC and HQO should expand their efforts to develop and report on measures in other dimensions of quality, in particular patient experience, equity and efficiency.

Evaluation Framework Theme	There is a coordinated system-level infrastructure for reporting
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Related Recommendations:

7. **Focus and centralize provincial public reporting efforts with HQO.** Evidence from the research study indicates that a proliferation of measures and lack of coordination across public reporting efforts is creating confusion among providers as to where to focus their quality improvement efforts. In the Ontario context, the provincial strategic framework for quality improvement identified in recommendation 1 should have an explicit objective to reduce or rationalize the number of publicly reported measures, identify priority measures, harmonize measures and definitions across competing data sets, as well as modify or eliminate specific publicly-reported performance measures that are found to have lower value or that may be having negative impacts. The government should designate HQO as the lead agency for public reporting on health system performance in Ontario, utilizing its expertise in quality improvement to advance the capacity of health system providers to use performance data for improvement purposes. Other reporting agencies, including CCO, should work with the MOHLTC to revisit their

mandates for public reporting. CIHI is excluded from this recommendation as it has a national versus provincial reporting mandate, which is useful for provincial comparisons. Centralizing responsibility for public reporting with a 'most responsible lead agency' such as HQO, has the potential to reach more audiences by simplifying access and advancing opportunities to engage the public, design more accessible reporting, harmonize measures and definitions, and align support for quality improvement. In addition to public reporting, HQO should work with CIHI, ICES, and CCO to expand private reporting to support access to more sophisticated reporting that can be used by providers for improvement and benchmarking. This latter point is in keeping with comments from key informants that there are limitations to public reports, including lack of detail that makes it difficult for providers to use the data for improvement purposes.

8. **Evaluate and update the wait times strategy and review the purpose and utility of the MOHLTC wait times website.** As related to the recommendation above, there has been a proliferation of publicly reported measures for wait times, particularly surgical wait times, related to the MOHLTC wait times strategy. The researcher recommends that the wait times strategy be reviewed to determine whether continuing the current approach is still appropriate and relevant given more recent MOHLTC priorities. This includes reviewing the MOHLTC website to determine its purpose, audience(s) and utility. Potential purposes for public reporting of wait times include transparency, accountability, promoting patient choice, demonstrating progress toward MOHLTC priorities, and quality improvement. As with other publicly reported information, how the wait times information is presented should be determined based on its identified purpose and audience(s). For example, whereas there is some indication from key informants in the research that the MOHLTC wait times website was intended for, and could be helpful in directing a patient to choose providers with shorter wait times, the website is not set

up in a user-friendly format and an evaluation process is needed to determine the degree to which it is used (and could be used) by patients for this purpose. Furthermore, an evaluation would be helpful in determining whether the wait times website should continue to be hosted by the MOHLTC. If HQO is identified as having centralized responsibility for public reporting, one option may include transitioning a scaled down version of wait times reporting to HQO for public reporting, aligned with accountability mechanisms such as QIPs.

Evaluation Framework Theme	Key stakeholders (providers, public) are engaged in public reporting efforts
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9. The government should require that all reporting agencies engage stakeholders in public reporting efforts. All public reporting efforts should include public engagement as an explicit component of the work. The review of the literature provided many examples for improving public reports to increase their accessibility and utility to a public audience. The MOHLTC and reporting agencies should use transparent processes for selecting and developing measures and targets, including engaging the public and/or patients in designing reports and reporting sites as well as establishing measures and targets for public reporting. In fall 2015, Ontario took a first step in this direction by mandating that hospitals engage patients in the development of their QIPs, including selection of measures and quality improvement targets.

10. The government and reporting agencies must build capacity in the system for quality improvement. Evidence from the literature indicates that the strongest evidence for the impact of public reporting is on providers, including increased focus on quality improvement efforts, improved processes of care and positive changes in behaviors (see Figure 4). However, not all providers have the same internal capacity for improvement. Where there is evidence for lack of

capacity, reporting agencies should provide assistance to providers including interpretation of performance results, establishing benchmarks and targets, delivery of quality improvement training, and application of process improvement methodology. In the Ontario context, HQO is ideally positioned and has the expertise to support providers to build internal capacity for quality improvement. The researcher also acknowledges that the MOHLTC's recently launched a data quality strategy, including provider education and assessment tools, as a means to raise awareness and improve the quality of reported data. The researcher recommends that the data quality strategy be reviewed within the context of recommendation 1; the data quality work should be included in an overarching strategy for health care quality improvement and responsibility for the activity should be revisited.

Evaluation Framework Theme	There are ongoing processes to evaluate the impact and effectiveness of public reporting
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11. Evaluate public reporting efforts to determine the impact and effectiveness of public

reporting. Using the output of recommendation 1, a strategic framework for health care quality improvement, the researcher recommends that all public reporting agencies conduct ongoing evaluation of public reporting efforts to determine if they are meeting stated objectives and to support the evolution of public reporting as priorities change and new measures are developed. The researcher recommends the use of the evaluation framework presented in Figure 10 adapted as a checklist, maturity model, or scorecard which public reporting agencies can use to assess their current public reporting efforts against evidence-based best practices.

12. Conduct further research to increase the effectiveness of public reporting. During the implementation of this study, the researcher identified several areas for further research

including exploration of the following areas:

- Assessment of accountability mechanisms and the causal pathways in which publicly reported measures are showing improvement, such as through the cancer care strategy or priority wait times strategy.
- Development of stronger accountability mechanisms in the system to help drive performance improvement. This should include an assessment of where current accountability structures, such as pay-for-performance, have and have not been successful in Ontario, learn from other jurisdictions that have been successful with accountability mechanisms, and apply best practices through LHINs and the MOHLTC. The Government of Ontario has an emerging strategy for health system transformation that could strengthen the role of the LHINs in assuming a greater role in accountability for health system performance at a regional level based on this additional research.
- Adapt and test the implementation of the evaluation framework presented in Figure 10 for public reporting agencies to assess their current public reporting efforts against evidence-based best practices.

Plan for Change

In revisiting the research question for this study ‘How can we evaluate and enhance the impact of third-party public reporting on quality improvement for health care in the province of Ontario?’ the researcher has used an adapted version of Kotter’s Change Model (Kotter and Cohen, 2002) to create a plan for change. The researcher recognizes that there are complex factors at play in a policy environment, including institutions and interests, which impact the timing and circumstances in which change can occur. A recent series of articles in a Canadian health care policy journal also highlighted the challenges of accountability in health care systems, in particular noting that in the Ontario landscape “accountability is still in its infancy – not because providers or organizations do not want to be accountable or that governing bodies do not want to make them accountable, but because identifying the right targets and establishing the right mechanisms to account for the utilization of healthcare resources is a complex task” (Denis, 2014). Given the findings from the research, the researcher acknowledges that creating a new approach to public reporting in Ontario is not a simple or easy task. The situation is complicated by the fact that the MOHLTC is currently embroiled in significant health system restructuring efforts in which public reporting may not be its priority. Despite the Ministry’s current focus, the agencies responsible for public reporting are actively engaged in improvement strategies for reporting. The researcher’s *plan for change* centers on a knowledge translation approach that capitalizes on an environment that is ripe for improvement. The researcher will primarily work with the public reporting agencies to promote the use of the study findings for informing new approaches to public reporting, while ensuring that the MOHLTC is informed of the study results and implications.

The following are the key components of the researcher's approach to informing change:

- 1) *Creating the climate for change* –Catalyzing existing opportunities is a key leadership approach that helps propel change. The researcher has already engaged in discussions with a range of health care leaders who have reacted positively to the dissertation topic and expressed interest in this work. There is already recognition in the system that current public reporting efforts have not been evaluated and therefore it is not known to what degree they are effective in achieving their (unstated) objectives related to increasing transparency, accountability, and potentially quality improvement; yet there is a growing pressure to expand public reporting. The researcher will capitalize on the current climate for change through discussions with health system leaders and policy-makers on using this research to make improvements in public reporting. The researcher will submit the results for publication to relevant health policy journals in Canada, as well as submit abstracts for key conferences, including the Ontario Hospital Association Annual Conference. In addition, the researcher will start posting discussions to relevant health care blogs and discussion boards to generate further interest in the topic.
- 2) *Engaging and enabling the whole system* – Optimizing stakeholder relationships is a key leadership approach that helps in building a coalition. The researcher is making use of connections with leaders across the health system to build momentum for change efforts. Results of this study will be shared with representatives of the Ontario MOHLTC, LHINs (regional health networks responsible for local planning and funding of health services), leaders of HQO, CIHI, CCO and other organizations responsible for third-party public reporting of health care performance data, as well as with key informants and organizations that are involved in public reporting. The researcher is already engaged with several leaders across these various organizations related to improvement efforts for public reporting. Many of these leaders participated as key informants or advisors in this study, and the researcher plans to engage

them further in testing and applying the evaluation framework for public reporting within their organizations. As a next step in this process, the researcher will develop a two-page briefing note that summarizes the findings and recommendations from the research to share broadly across health system leadership.

- 3) *Implementing and sustaining change* – Having a compelling vision for change and building momentum are key leadership approaches that help in sustaining change efforts. The MOHLTC recently released an Action Plan for Ontario’s Health System. This is a first step in clarifying health system priorities and aligning public reporting efforts to help providers and other stakeholders focus on the most critical measures for driving achievement of the health system priorities. In addition, HQO has published a strategic plan for public reporting and performance measurement that identifies evaluation of performance reporting as a component of the strategy. HQO has also proposed a provincial framework for quality improvement and has established a System Quality Advisory Committee to assist with developing a provincial action plan for quality improvement. The current environment is poised for further improvements to public reporting efforts. The researcher will continue to play a leadership role in advancing efforts to improve public reporting in the health care system, including advocating for further refinement to the reporting agenda, as well as continuing to conduct research and publish in the area of public reporting.

APPENDIX A: DEFINITIONS USED IN THIS DOCUMENT

For the purposes of this dissertation proposal, the following definitions apply:

Aggregate-level reporting – Consolidated reports sourced from multiple providers in a given jurisdiction.

These type of reports may allow for comparison between jurisdictions, but do not allow for comparison between individual entities or providers (such as physicians).

Case Mix - The type or mix of patients treated by a hospital, physician, or other health care provider or agency.

Consumers – Patients, patient representatives, or other users of health care services.

Effective/Effectiveness - In the context of “how do we improve the effectiveness of public reporting?”, effectiveness is defined in terms of whether we can increase the positive influence that public reporting has on improving quality of care.

Excellent Care for All Act (2010) – An Act of Ontario’s provincial parliament passed in 2010 that provides a legislative framework for quality improvement in Ontario’s health care system. Starting with hospitals, the Act requires that health care organizations to establish quality improvement plans and quality committees to monitor and report on the quality of their services. They must also report on patient safety indicators at the organizational and board levels, along with other quality initiatives. The Act gives the government the ability to extend these obligations to other publicly funded provider organizations (beyond hospitals) through regulations (The Change Foundation, 2013).

Funders– Organizations that provide funding to support or purchase health care delivery, including government, government agencies, and health insurance plans.

Gaming – The ability of providers to influence or change the accuracy of performance data or reporting rates in order to improve their standing in public reports.

Government – Refers to different levels of government, including national/federal levels and/or local/regional (such as for a province, state or county).

Institution-level reporting – Reporting that shows results at the level of individual organizations, entities or groups of providers, such as an individual hospital, health care provider agency, or clinic.

Local Health Integration Networks (LHINs) – Regional planning and funding bodies of the Ontario Ministry of Health and Long-Term Care. The 14 LHINs in Ontario, covering every region of the province, are responsible for local planning and funding decisions related to hospitals, home care, long-term care, community health centres, community support services, mental health and addictions services, and some primary health care groups.

Physician(s) – The literature on public reporting makes a distinction between ‘providers’ and ‘physicians’. Although physicians are often included as health care providers in other circumstances, for the purposes of this paper, the researcher uses the same differentiation as the literature evidence and identifies physicians as being solo-practice, specialists, group practices, including clinics, responsible for the provision of direct care to a group of patients. Providers are defined separately below.

Plan for change – Refers to the section of the dissertation that outlines how the research will be used to inform and influence policy and decision-making at a system level.

Policy-makers – Defined as those legislatively responsible for determining government policy, including political or government bureaucracy leadership. Note that, in some jurisdictions, funders and policy-makers may represent the same entity.

Private Reporting – Private reporting is information that is not accessible to the public and may only be available to contributing providers, researchers, government/policy-makers, funders, or other parties on a limited-access basis.

Provider(s) – The literature on public reporting makes a distinction between ‘providers’ and ‘physicians’. Although the term provider(s) is generally used in the broadest sense to encompass all health care providers, for the purposes of this paper, the researcher uses the same differentiation as the literature evidence and identifies providers as institutional or organizational entities, including hospitals, long-

term care homes, and home care agencies that are responsible for the provision of direct care to a group of patients. Physicians are excluded from this definition and are defined separately above.

Public Reporting/Reports – “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, or organizations [e.g., hospitals, nursing facilities]) or at the health plan level” (Totten et al., 2012). Public reports are standardized ways to present measures of quality of care and facilitate comparison of performance over time, among providers, and against defined standards of good practice (Marshall et al., 2000). Public reports are often produced in the form of “report cards,” “provider profiles,” “consumer reports,” “league tables,” “dashboards,” or “quality reports” (among other titles) and generally include a combination of structural quality measures (such as number of specialists, qualifications), process measures (such as preventative screening rates), and outcome measures (such as in-patient mortality, patient satisfaction) (Marshall et al., 2000). For the purposes of this paper, other types of measures, such as financial, are excluded from this research on public reporting. Public reporting can be either in the form of reports that are made publicly available or reporting specifically designed with the public in mind; however, for the purposes of this research, the researcher has focused on reports that are made publicly available.

Purchasers/funders – The bodies that purchase health care services on behalf of patients and generally drive public reporting efforts. In jurisdictions with private health care funding, these bodies may be employer health plans or insurance companies. In jurisdictions with publicly-funded or universal health coverage, these bodies are generally associated with government.

Quality – Throughout this paper the term quality, as used in the phrase “public reporting on quality”, references measures that are used to assess or quantify health care outcomes, access to care, patient safety, patient experience, and other processes or systems associated with the capacity or ability to provide quality health care. Quality measures generally include a combination of structural quality

measures (such as number of specialists, number of beds), process measures (such as preventative screening rates), and outcome measures (such as in-patient mortality, patient satisfaction). Other types of performance measures, such as financial measures, are excluded from this research.

Quality Improvement Plans (QIPs) – Annual planning documents that are publicly reported by providers as a requirement under Ontario’s Excellent Care for All Act (2010). The plans include annual quality improvement goals and performance measures with improvement targets. The performance measures are chosen by each provider organization from a set list of approved measures, and targets are set locally by each provider. For hospitals, executive compensation is tied to the achievement of annual performance targets.

Self-reported information – Performance information that individual providers or organizations report to the public via websites or written materials, including, but not limited to, balanced scorecards, dashboards, survey results, annual reports, and/or Quality Improvement Plans.

Team-based primary care models – Groups of primary care practitioners in Ontario who work cooperatively, including family health teams, community health centres, nurse-practitioner-led clinics, and aboriginal health centers. Differentiated from solo-practice family physicians or solo primary care practitioners.

Third-party reporting – Reporting presented by organizations that are independent of the source of the data collection, including being independent from delivery and funding of health care services. In this case, organizations such as the CIHI, HQO, the Institute for Clinical Evaluative Sciences, and the Ontario Ministry of Health and Long-Term Care publicly report on information produced by health care providers, such as hospitals, but do not themselves collect the data that are reported in various measures.

Value – In the context of “what do we know about the value of public reporting?”, value is defined in terms of whether public reporting produces desirable effects in the form of higher quality of care

Voluntary public reporting – Reporting that is voluntarily presented by providers to the public or presented by third-party reporting agencies, in which providers voluntarily participate. Reports may be accessible to the public in different forms, including, but not limited to, report cards posted on websites or paper-based reports that are printed and released publicly.

APPENDIX B: TIMELINE OF KEY PUBLIC REPORTING MILESTONES IN ONTARIO – 1994-2015

1994 – First edition of Institute for Clinical and Evaluative Sciences (ICES) practice atlas, a compilation of health indicators, processes of care, utilization patterns and resource consequences to enable improvements in health care delivery.

1998 – First Maclean's Health Report published in collaboration with Canadian Institute for Health Information (CIHI) and Statistics Canada.

1998 – First aggregated report on acute hospital performance by Hospital Report Research Collaborative (HRRC) at the University of Toronto, in partnership with the Ontario Hospital Association (OHA).

1999 – First public report on performance of individual acute care hospitals in Ontario, as well as at an aggregated level by the Hospital Report Research Collaborative.

2000 – Ministry of Health begins to co-sponsor Hospital Reports with OHA.

2001 – Hospital Report adds complex continuing care and emergency department care to its reports on acute care.

2002 – Cancer Quality Council of Ontario established; mandate includes public reporting on performance of the cancer care system. The Council establishes a publicly reported cancer services quality index.

2002 (to 2007) Hospital Report (acute care) developed by the HRRC and produced by CIHI.

2003 – Hospital Report adds hospital-based rehabilitation to its roster of reports, which now include acute care, complex continuing care, and emergency department care.

2004 – Hospital Report adds hospital-based mental health as an area of reporting.

2004 – Ministry of Health introduces wait times strategy, establishes the Ontario Health Quality Council (OHQC) as a vehicle for public reporting of performance, and creates several health results teams with mandates to drive performance improvement.²⁶

2005 – Ministry of Health launches its Wait Time Strategy website and begins publicly reporting wait times for five key services.

2006 – OHQC launches its First Yearly Report on health care performance.

2007 – Funding for production of Hospital Report is ended by the Ministry of Health, although funding for related research continues until 2012. Responsibility for public reporting of hospital performance is transferred to OHQC. Hospital Report in its previous format is discontinued.

²⁶<http://news.ontario.ca/mohltc/en/2010/06/ontarios-wait-time-strategy.html>

2007 – OHQC launches the first Q-Monitor report on the quality and performance of Ontario’s health system.

2007 – Ontario becomes the first province in Canada to publicly report paediatric wait times.

2008 – Ministry of Health begins reporting hospital patient safety measures, including hospital infection rates and hospital-standardized mortality. Hand hygiene compliance was added in 2009 and use of surgical-safety checklists in 2010.

2008 – Ministry of Health expands public reporting on wait times to include general surgeries and additional orthopaedic and ophthalmologic surgeries.

2009 –HQO launches public reporting on long-term care with comparative information about long-term care homes. Participation by long-term care homes is voluntary.

2009 – Ministry of Health expands public reporting on wait times to include emergency departments.

2009 – The Fraser Institute launches its own report on Ontario’s hospitals.

2009 – The OHA launches ‘myhospitalcare.ca’, a public reporting site on Ontario’s hospitals (responsibility is eventually transitioned to HQO).

2010 – Excellent Care for All Act passed requiring health care providers, hospitals, and primary care groups to publish Quality Improvement Plans with performance metrics and targets.

2010 – HQO launches public reporting on home care with comparative information about home care services provided by Ontario’s 14 CCACs.

2011 – CIHI launches its first pan-Canadian Hospital Performance Report.

2012 – The Ministry of Health and Long-Term Care transfers responsibility for reporting on hospital patient safety measures to HQO.

2012 – Release of first hospital QIPs.

2012 – CIHI launches its on-line hospital reporting project (CHRP).

2013 – Release of first primary care QIPs.

2013 – Canadian Broadcasting Corporation (CBC) episode of “the fifth estate” launches a national report on hospital performance based on data collected from hospitals by CIHI.

2014 – Release of first CCAC QIPs.

2014 – HQO launches reporting of home care wait times.

2014 – HQO launches a new annual report called “Measuring Up”, which provides an overview of health system performance in Ontario based on measures that HQO publicly reports.

APPENDIX C: ANALYSIS OF PUBLICLY REPORTED MEASURES

Notes:

- Arrows under 'Preferred Trend' column indicate direction of trend line required to achieve improved results. A '?' in this column denotes where the purpose of the measure or preferred directionality of the trend is unclear.
- Arrows under 'Actual Trend' column indicate actual direction of trend line.
 - Black arrows indicate that the actual trend is the same as the preferred trend and therefore results are improved.
 - Red arrows indicate that the actual trend is opposite to the preferred trend and therefore results are worsening
 - A red '0' indicates that performance is not changing

Data Set: CIHI Hospital Reporting

Measure	Preferred Trend	Actual Trend	Notes
Mortality Rates			
30-Day Acute Myocardial Infarction In-hospital Mortality	↓	↓	Reported 1998-2011
30-Day Stroke In-hospital Mortality	↓	↓	Reported 1998-2012
Mortality From Preventable Causes	↓	↓	Reported 2007-2010
Mortality From Preventable Causes – Potential Years of Life Lost (PYLL)	↓	↓	Reported 2007-2010
Mortality From Treatable Causes	↓	↓	Reported 2007-2010
Mortality From Treatable Causes PYLL	↓	↓	Reported 2007-2010
Potentially Avoidable Mortality	↓	↓	Reported 2007-2010
Potentially Avoidable Mortality PYLL	↓	↓	Reported 2007-2010
Premature Mortality	↓	↓	Reported 2007-2010
Premature Mortality PYLL	↓	↓	Reported 2007-2010
Hospital Standardized Mortality Ratio (HSMR)	↓	↓	Reported 2007-2012 Hospital QIP measure 2011/12 – present

Measure	Preferred Trend	Actual Trend	Notes
Hospital Readmission Rates			
30-Day Acute Myocardial Infarction Readmission	↓	↓	Reported 2007-2011
30-Day Readmission for Medical	↓	↑	Reported 2010-2012
30-Day Readmission for Mental illness	↓	0	Reported 2009-2012
30-Day Readmission for Surgical	↓	↑	Reported 2010-2012
30-Day Readmission—Patients Age 19 and Younger	↓	0	Reported 2010-2012
Acute Myocardial Infarction Readmission	↓	↓	Reported 1998-2009
Asthma Readmission	↓	↓	Reported 1998-2008
Potentially Avoidable Hospital Days			
Ambulatory Care Sensitive Conditions (2006 Revision)	↓	↓	Reported 2001-2012 Starting to plateau 2010-2012
Ambulatory Care Sensitive Conditions Hospitalization	↓	↓	Reported 2001-2012
Mental Illness Patient Days	↓	↑	Reported 2009-2011
Mental Illness Hospitalization	↓	↑	Reported 2009-2011
Hip Fracture Hospitalization	↓	↓	Reported 1999-2006
Hospitalized Acute Myocardial Infarction Event	↓	↓	Reported 2007-2012
Hospitalized Hip Fracture Event	↓	↓	Reported 2007-2012 Plateaued 2011-2012
Hospitalized Stroke Event	↓	↓	Reported 2007-2012
Injury Hospitalization	↓	↓	Reported 1999-2012 Plateaued 2009-2012
Pneumonia and Influenza Hospitalization	↓	↓	Reported 1999-2001
Self-injury Hospitalization	↓	0	Reported 2009-2012

Measure	Preferred Trend	Actual Trend	Notes
Evidence-Based Practice			
Low-risk Caesarean Section	↓	↑	Reported 2010-2012
Cardiac Revascularization	?	0	Reported 2006-2011 Increase 2007-2009 Decrease 2009-2011
Coronary Artery Bypass Graft (CABG)	↓	↓	Reported 1999-2011
Total Hip Replacement	?	↑	
Breastfeeding Initiation	↑	0	Reported 2006-2012
Hip Replacement - Patients Age 20 and Older	?	↑	Reported 2001-2011 Plateaued 2009-2012
Immunization (Flu) Seniors	↑	↓	Reported 2006-2013
Percutaneous Coronary Intervention	?	0	Reported 2003-2011
Knee Replacement - Patients age 20 and older	?	↑	Reported 2001-2011 Plateaued 2007-2011
Patient Safety			
In-hospital Hip Fracture	↓	0	Reported 2001-2008 No change 2001-2008
Appropriate Access to Care			
Specialist Physicians	?	↑	Reported 1999-2011 Decreased 2000-2006 Increased 2006-2011
General/Family Physicians	?	↑	Reported 1999-2011 Increased since 2006
Wait times			
Wait Time for Hip Fracture Surgery (Proportion with Surgery Within 48 hours)	↑	↑	Reported 2009-2012
Wait time for hip fracture surgery - same/next day	↓	↓	Reported 2005-2010 Proportioned served in given time?
Wait time for hip fracture surgery - same/next day/day after	?	↑	Reported 2005-2010

Data set: Health Quality Ontario (HQQ)

Home Care Measures:

Measure	Preferred Trend	Actual Trend	Notes
Wait times			
Wait times for first home care visit following referral from hospital (90 th percentile)	↓	0	Reported 2007-2012
Wait times for first home care visit following referral from community (90 th percentile)	↓	↓	Reported 2007-2012
Quality of Care			
New incidence of bladder incontinence	↓	↑	Reported 2010-2012
Percentage of clients with a new or existing communication problem that did not improve since their previous assessment	↓	↑	Reported 2010-2012
Unplanned emergency department visits within 30 days post discharge from hospital to home	↓	0	Reported 2007-2012
Hospital readmissions within 30 days post discharge from hospital to home	↓	0	Reported 2007-2012
Percentage of clients placed in long-term care 'prematurely'	↓	↓	Reported 2010-2012
Percentage of home care clients who have not received influenza vaccination in the past two years	↓	↑	Reported 2010-2012
Patient Safety			
Percentage of clients reporting a fall within the previous 90 days	↓	↑	Reported 2010-2012
New incidence of pressure ulcers	↓	0	Reported 2010-2012

Data Set: HQO Hospital Patient Safety Measures

Measure	Preferred Trend	Actual Trend	Notes
<i>Clostridium difficile</i> infection rates	↓	↓	Reported 2008-2014 Hospital QIP measures 2011/12 - present
Methicillin Resistant <i>Staphylococcus aureus</i> infection rates	↓	↓	Reported 2008-2014
Vancomycin Resistant <i>Enterococcus</i> infection rates	↓	↑	Reported 2008-2014
Central Line-Associated Primary Bloodstream Infection	↓	↓	Reported 2009-2014 Hospital QIP measure 2011/12 - present
Ventilator-Associated Pneumonia	↓	↓	Reported 2009-2014 Hospital QIP measure 2011/12 - present
Surgical Site Infection Prevention	↑	↑	Reported 2009-2014
Hand Hygiene Compliance	↑	↑	Reported 2009-2014 Hospital QIP measure 2011/12 - present
Surgical Safety Checklist Compliance	↑	↑	Reported 2010-2014 Plateaued in 2011 Hospital QIP measure 2012/13 - present
Hospital Standardized Mortality Ratio			Reported by CIHI

Ontario Hospital Wait times

The Ontario Ministry of Health and Long-Term Care publicly reports the following twenty-five performance measures on wait times for emergency rooms, adult surgeries, paediatric surgeries, and diagnostic scans:

Emergency Room Wait Times (hours)

Measure	Preferred Trend	Actual Trend	Notes
Emergency Room Wait High Acuity – Target 8 hours	↓	↓	Reported 2008-2014 Decreasing, but above target Hospital QIP measure 2011/12 – present Ministry Priority Wait Times Measure
Emergency Room Wait Low Acuity – Target 4 hours	↓	↓	Reported 2008-2014 Hospital QIP measure 2011/12 – present Ministry Priority Wait times measure

Cancer Surgery Wait Times (90th Percentile – Target 82 Days)

Measure	Preferred Trend	Actual Trend	Notes
Bone, Muscle and Joint Cancer	↓	0	Reported 2007-2014 Reporting avg waits at about half of the target of 82 since the beginning Ministry Priority Wait Times Measure
Breast Cancer	↓	0	Reported 2007-2014 Reporting avg waits at about half of the target of 82 since the beginning Ministry Priority Wait Times Measure
Gynaecological Cancers	↓	↓	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Eye Cancer	↓	0	Reported 2007-2014 Ministry Priority Wait Times Measure

Measure	Preferred Trend	Actual Trend	Notes
Gastrointestinal Cancers	↓	↓	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Genitourinary Cancers	↓	↓	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Head and Neck Cancers	↓	↓	Reported 2007-2014 Ministry Priority Wait Times Measure
Liver and Pancreatic Cancers	↓	↓	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Lung Cancers	↓	↓ (slight)	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Neurological Cancers	↓	↓	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure
Prostate Cancers	↓	0	Reported 2007-2014 Generally worse than target since the beginning Ministry Priority Wait Times Measure
Thyroid and Endocrine Cancers	↓	↓	Reported 2007-2014 Ministry Priority Wait Times Measure

Cardiac Wait Times (90th Percentile)

Measure	Preferred Trend	Actual Trend	Notes
Angiography (No target)	↓	0	Reported 2007-2014 Initial decrease, then plateau Ministry Priority Wait Times Measure
Angioplasty (No target)	↓	0	Reported 2007-2014 Initial decrease, then plateau Ministry Priority Wait Times Measure
CABG (Target 182 Days)	↓	0	Reported 2007-2014 Below target since the beginning Ministry Priority Wait Times Measure

General Surgery Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Anorectal Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Appendix Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Bariatric Surgery	↓	0	Reported 2008-2014 Decrease in first 2 years, plateau in year 3, then increase and plateau again last 2 years
Benign Breast Disease Surgery	↓	↓	Reported 2008-2014 Decrease in first year, then plateau
Gallbladder Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Digestive System Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Endocrine Disease Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Esophageal Disease Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Gastrophageal Reflux Disease Surgery	↓	0	Reported 2008-2014 Decrease in first year, then plateau
Genitourinary Surgery	↓	↑	Reported 2013-2014
Hernia – Abdominal Wall Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Hernia – Groin Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Hernia Surgery	↓	0	Reported 2013-2014 Below target since the beginning
Lymphatic System Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Peritoneal Disease Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Skin and Structures Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Spleen Surgery	↓	0	Reported 2008-2014 Below target since the beginning
Varicose Vein Surgery	↓	↓	Reported 2008-2014 Below target only in last 2 years

Gynaecologic Surgery Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Benign Cervical Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Ovarian Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Uterine Surgery (excluding prolapse) Hysterectomy (laparoscopic or vaginal)	↓	0	Reported 2013-2014
Benign Uterine Surgery (excluding prolapse)	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Uterine Surgery (excluding prolapse) Hysterectomy (laparotomy)	↓	0	Reported 2009-2014 Below target since the beginning
Benign Uterine Surgery (excluding prolapse) Hysterectomy Endometrial Ablation	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Vulva/Vaginal Surgery (excluding prolapse)	↓	0	Reported 2009-2014 Below target since the beginning
Bladder Surgery	↓	↓	Reported 2009-2014
Bladder Surgery for Urinary Incontinence	↓	↓	Reported 2009-2014
Combination Prolapse and Urinary Incontinence Surgery	↓	0	Reported 2013-2014
Fallopian Tube Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Prolapse Surgery including hysterectomy/repairs	↓	↓	Reported 2008-2014

Neurosurgery Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Benign Tumour Removal	↓	↑	Reported 2009-2014 Below target since the beginning
Cerebrovascular Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Cerebrovascular Surgery – Carotid Endarterectomy	↓	0	Reported 2009-2014
Congenital Disease Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Congenital Disease Surgery – CSF Diversionary Procedures for Hydrocephalus	↓	0	Reported 2009-2014 Below target since the beginning

Measure	Preferred Trend	Actual Trend	Notes
Cranial Nerve Surgery - Carotid Endarterectomy	↓	0	Reported 2009-2014 Below target since the beginning
Cranioplasty	↓	0	Reported 2009-2014
Epilepsy/Functional Surgery	↓	↓	Reported 2009-2014
Head Trauma Surgery	↓	↓	Reported 2009-2014
Peripheral Nerve Surgery	↓	↑	Reported 2009-2014
Spinal Surgery	↓	↑	Reported 2009-2014
Spinal Surgery – Anterior Cervical Discectomy	↓	0	Reported 2009-2014
Spinal Surgery – Lumbar Laminectomy/Discectomy	↓	↑	Reported 2009-2014

Ophthalmic Surgery (Eye Surgery) Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Cataract Surgery	↓	0	Reported 2005-2014 Significant decrease in first 2 years, then gradual increase Ministry Priority Wait Times Measure
Combination Cataract and Other Procedures	↓	0	Reported 2009-2014
Cornea Transplant	↓	↓	Reported 2009-2014
Cornea Other Surgery	↓	0	Reported 2009-2014
Glaucoma – Filter/Seton Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Glaucoma – Other Surgery	↓	↓	Reported 2009-2014 Decrease at start then plateau Below target since the beginning
Ocular Trauma Surgery	↓	0	Reported 2009-2014
Ophthalmic Plastics Surgery	↓	↑	Reported 2009-2014
Orbital Surgery	↓	0	Reported 2009-2014
Retina Other Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Retina Vitrectomy Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Strabismus Surgery	↓	↑	Reported 2009-2014

Oral and Maxillofacial Surgery and Dentistry Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Congenital/Developmental/Acquired Disorders Surgery	↓	0	Reported 2009-2014
Dental/Periodontal/Dento-Alveolar Procedures Surgery	↓	0	Reported 2009-2014
Dental/Periodontal/Dento-Alveolar Procedures - Dentistry for Persons with Disabilities Surgery	↓	↓	Reported 2009-2014
Fractures/Trauma Surgery	↓	0	Reported 2009-2014
Fractures/Trauma - Mandibular Fracture Repair Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Implants Surgery	↓	0	Reported 2009-2014
Malocclusion Surgery	↓	↓	Reported 2009-2014
Management of Infections Surgery	↓	↓	Reported 2009-2014
Non-malignant Lesion Removal	↓	↓	Reported 2009-2014
Reconstructive Surgery	↓	0	Reported 2009-2014
Temporomandibular Joint Surgery	↓	0	Reported 2009-2014 Worse than target since the beginning
Temporomandibular Joint Surgery - TMJ Prosthetic Reconstruction	↓	0	Reported 2009-2014

Orthopaedic Surgery (Bone/Spine) Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Ankle Surgery	↓	0	Reported 2009-2014
Arm (Humerus) Surgery	↓	0	Reported 2009-2014
Elbow Surgery	↓	0	Reported 2009-2014 Worse than target since the beginning
Femur Surgery	↓	0	Reported 2009-2014
Foot Surgery	↓	0	Reported 2009-2014 Worse than target since the beginning
Foot (Forefoot) Surgery	↓	0	Reported 2009-2014
Forearm (Radius) Surgery	↓	0	Reported 2009-2014
Forearm (Ulna) Surgery	↓	0	Reported 2009-2014
Hand Surgery	↓	0	Reported 2009-2014
Hip Surgery	↓	↑	Reported 2009-2014

Measure	Preferred Trend	Actual Trend	Notes
Hip Replacement Surgery	↓	↓	Reported 2005-2014 Decrease in first 2 years, then plateau Ministry Priority Wait Times Measure
Knee Surgery	↓	↑	Reported 2009-2014
Knee Arthroscopy	↓	0	Reported 2009-2014
Knee Replacement Surgery	↓	↓	Reported 2005-2014 Decrease in first 3 years, then plateau Ministry Priority Wait Times Measure
Pelvis Surgery	↓	↓	Reported 2009-2014
Shoulder Surgery	↓	0	Reported 2009-2014 Worse than target since the beginning
Spine Surgery	↓	↑	Reported 2009-2014
Spine – Anterior Cervical Discectomy +/- Fusion Surgery	↓	0	Reported 2009-2014
Spine - Lumbar Laminectomy/Discectomy Surgery	↓	↑	Reported 2009-2014
Tibia Surgery	↓	↑	Reported 2009-2014
Wrist Surgery	↓	↑	Reported 2009-2014 Better than target since the beginning

Otolaryngic Surgery Wait Times (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Benign Oral Cavity Surgery	↓	↑	Reported 2009-2014
Benign Salivary Gland Surgery	↓	0	Reported 2009-2014
Ear Surgery	↓	↑	Reported 2009-2014
Ear Tympanostomy Tube Surgery	↓	0	Reported 2009-2014
Esophageal Surgery	↓	0	Reported 2009-2014
Neck Surgery	↓	0	Reported 2009-2014
Parathyroid Surgery	↓	0	Reported 2009-2014
Sino-nasal Surgery	↓	0	Reported 2009-2014
Sino-nasal Sinus Surgery	↓	0	Reported 2009-2014
Thyroid Surgery	↓	0	Reported 2009-2014
Upper Airway Surgery	↓	0	Reported 2005-2014 Decrease in first 2 years, then plateau
Tracheobronchial Tree Surgery	↓	0	Reported 2009-2014

Plastic and Reconstructive Surgery (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Aesthetic Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Benign Tumour Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Breast Reconstructive Surgery	↓	0	Reported 2009-2014 Above target since the beginning
Breast Reconstructive Surgery – Delayed Breast Cancer Reconstruction	↓	↑	Reported 2009-2014 Generally above target since the beginning
Burn Surgery	↓	0	Reported 2009-2014 Generally below target since the beginning with some outlier spikes above
Chest/Trunk/Abdominal Surgery	↓	0	Reported 2013-2014
Craniofacial Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Head and Neck Reconstructive Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Lower Extremity Reconstructive Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Peripheral Nerve Surgery	↓	0	Reported 2009-2014 Decrease in last 2 years
Peripheral Nerve Surgery – Delayed Traumatic Peripheral Nerve	↓	↓	Reported 2009-2014 Below target since the beginning
Post-Bariatric Soft Tissue Reconstructive Surgery	↓	0	Reported 2013-2014
Upper Extremity Reconstructive Surgery – Delayed Traumatic Peripheral Nerve	↓	0	Reported 2009-2014
Upper Extremity Reconstructive Surgery – Palmar Fasciectomy	↓	0	Reported 2009-2014 Below target since the beginning

Thoracic Surgery (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Benign Chest Wall Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Benign Esophageal/Diaphragm Surgery	↓	0	Reported 2009-2014 Increase 2009-2011, Decrease 2012-2013
Benign Lung/Pleural Surgery	↓	0	Reported 2009-2014 Above target since the beginning
Benign Esophageal/Diaphragm Surgery- Gastroesophageal Reflux Disease	↓	0	Reported 2009-2014 Increase 2009-2012, Decrease 2012-2013
Benign Lung/Pleural Surgery – Pleural Procedures	↓	0	Reported 2009-2014 Below target since the beginning
Benign Mediastinal Surgery	↓	0	Reported 2009-2014
Benign Lung/Pleural Surgery – Wedge Resection	↓	0	Reported 2009-2014 Below target since the beginning
Benign Trachea/Bronchial Surgery	↓	0	Reported 2009-2014 Below target since the beginning

Urologic Surgery (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Benign Bladder Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Benign Bladder Surgery – Surgery for Urinary Incontinence	↓	0	Reported 2009-2014 Below target since the beginning
Benign Prostate Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Prostate Surgery – Partial Excision of Prostate	↓	↑	Reported 2009-2014 Below target since the beginning
Benign Testes Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Epididymis Surgery	↓	↓	Reported 2009-2014
Kidney/Renal/Pelvis Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Kidney/Renal/Pelvis Surgery – Removal/Destruction Calculi Surgery (Extracorporeal shock wave lithotripsy)	↓	↑	Reported 2013-2014 Below target since the beginning
Kidney/Renal/Pelvis Surgery – Removal/Destruction Calculi Surgery (non- Extracorporeal shock wave lithotripsy)	↓	0	Reported 2013-2014 Below target since the beginning

Measure	Preferred Trend	Actual Trend	Notes
Penile Surgery	↓	0	Reported 2009-2014
Seminal Vesicle Surgery	↓	0	Reported 2009-2014
Spermatic Cord Surgery	↓	0	Reported 2009-2014
Tunica Vaginalis Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Urethra Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Vas Deferens Surgery	↓	0	Reported 2009-2014 Below target since the beginning

Vascular Surgery (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Amputation Surgery	↓	0	Reported 2013-2014 Below target since the beginning
Aneurysm Repair Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Aneurysm Repair – Abdominal Aortic Aneurysm Surgery	↓	↓	Reported 2009-2014 Below target since the beginning
Arterial Bypass Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Arterial Bypass Surgery – Femoral Popliteal/Tibial Bypass Surgery	↓	↓	Reported 2009-2014 Below target since the beginning
Arterial Surgery (Non-Bypass)	↓	0	Reported 2009-2014
Arterial Surgery (non-bypass) Carotid Endarterectomy	↓	0	Reported 2009-2014
Arteriovenous Surgery for Dialysis	↓	0	Reported 2013-2014
Thoraco-Abdominal Surgery	↓	0	Reported 2009-2014
Venous Surgery	↓	0	Reported 2009-2014

Diagnostic Imaging (90th Percentile) – Target 28 Days

Measure	Preferred Trend	Actual Trend	Notes
CT Scan	↓	↓	Reported 2005-2014 Significant decline 2005-2010, plateaued slightly above target 2010 Ministry Priority Wait Times Measure
MRI	↓	↓	Reported 2005-2014 Significantly above target since the beginning Ministry Priority Wait Times Measure

Paediatric Surgery (90th Percentile) – Target 182 Days

Measure	Preferred Trend	Actual Trend	Notes
Cardiovascular Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Dental/Oral/Maxillofacial Surgery	↓	0	Reported 2009-2014
General Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Gynaecologic Surgery	↓	0	Reported 2009-2014 Below target since the beginning
Neurosurgery	↓	0	Reported 2009-2014 Below target since the beginning
Ophthalmic Surgery	↓	0	Reported 2009-2014 Generally above target since the beginning
Orthopaedic Surgery	↓	↑	Reported 2009-2014 Generally above target since the beginning
Otolaryngic Surgery	↓	↑	Reported 2009-2014 Below target since the beginning
Plastic and Reconstructive Surgery	↓	0	Reported 2009-2014 Slight decrease in last 2 years
Urologic Surgery	↓	↑	Reported 2009-2014 Generally above target since the beginning

Cancer Quality Council of Ontario – Cancer System Quality Index (note only hospital or CCAC-related measures included)

Safety

Measure	Preferred Trend	Actual Trend	Notes
Colonoscopy Perforation Rate	↓	0	Reported 2009-2012

Valid Reporting of Cancer Staging

Measure	Preferred Trend	Actual Trend	Notes
Reporting of Cancer Stage	↑	0	Reported 2009-2011 Below CCO Aim of 90%
Turnaround Time for Pathology	↑	0	Reported by month for 2013/14 At target
Point in Time Wait for PET/CT Scans	↓ (median)	0	Reported 2010-2013

Cancer Treatment

Measure	Preferred Trend	Actual Trend	Notes
Use of Best-Practice Drug Ordering Technology	↑	↑	Reported 2004-2012 Approaching CCO Target for 2015 of 90%
Turnaround Time for Pathology	↑	0	Reported by month for 2013/14 At target
Multidisciplinary Cancer Conferences	↑	↑	Reported 2011-2013 Achieved CCO target of 65%
Treating non-small cell lung cancer according to guidelines	↑	0	Reported 2010-2012
Radiation Utilization	↑	↑	Reported 2010-2013
Intensity Modulated Radiation Therapy	↑	↑	Reported 2011-2013

Cancer Surgery Wait times

Measure	Preferred Trend	Actual Trend	Notes
Wait times for cancer surgery seen within target	↑	↑	Reported 2011-2013 Approaching CCO Target of 90% Ministry Priority Wait Times Measure
Wait times for breast cancer surgery seen within target	↑	↑	Reported 2008-2013 Approaching CCO Target of 90% Ministry Priority Wait Times Measure
Wait times for gyne cancer surgery seen within target	↑	↑	Reported 2008-2013 Approaching CCO Target of 90% Ministry Priority Wait Times Measure

Patient Experience

Measure	Preferred Trend	Actual Trend	Notes
Patient Experience for outpatient	↑	0	Reported 2009-2013
Patient Experience for oncology provider	↑	0	Reported 2009-2013

Symptom Assessment and Management

Measure	Preferred Trend	Actual Trend	Notes
Screening Rates for Symptom Severity (at least once per month)	↑	↑	Reported 2011-2013 Below CCO target for 2014 of 70%
Screening Rates for Symptom Severity for Breast Cancer	↑	↑	Reported 2011-2013 Below CCO target for 2014 of 70%
Screening Rates for Symptom Severity for Cervical Cancer	↑	↑	Reported 2011-2013
Wait time between diagnosis and adjuvant chemo Breast Cancer	↑	0	Reported 2009-2011
Wait time between diagnosis and adjuvant chemo Colon Cancer	↑	0	Reported 2009-2011
Wait time between diagnosis and adjuvant chemo Lung Cancer	↑	↓	Reported 2009-2011
Wait time for surgery to chemo % within 60 days	↑	0	Reported 2009-2011
Radiation Equipment Utilization	↑	0	Reported 2011- 2013

APPENDIX D: SUMMARY OF EXCLUDED STUDIES

Study Citation	Rationale for Exclusion
Chien A, Chin M et al. Pay for Performance, public Reporting, and Racial Disparities in Health Care: How are Programs being Designed? <i>Med Care Res and Review Supplement</i> 2007; 64(5): 283S-304S	The study included two systematic reviews, only one of which was on the impact of public reporting. The systematic review on public reporting included only one article, which is included in other systematic reviews.
Emmert M, Hessemer S et al. Do German hospital report cards have the potential to improve the quality of care? <i>Health Policy</i> 2014;118: 386-395	Study was a systematic internet search of hospital report cards versus a systematic review of the literature.
Freeman T. Using performance indicators to improve health care quality in the public sector; a review of the literature. <i>Health Services Management Research</i> 2002; 15:126	Not a systematic review. Review focuses on variation in uses of performance reporting for accountability and quality improvement rather than on the value or impact of public reporting.
Marjoua Y, Butler C, Bozic K. Public Reporting of Cost and Quality Information in Orthopaedics. <i>Clin. Orthop. Relat Res</i> 2012; 470: 1017-1026	Review focused on breadth and limitations of public reporting in orthopaedic surgical care versus on the value or impact of public reporting.
McKibben L, Fowler G et al. Ensuring rational public reporting systems for health care-associated infections: Systematic literature review and evaluation recommendations. <i>Am J Infect Control</i> 2006; 34:142-9	Excluded due to poor quality rating for systematic review methodology using AMSTAR rating.
Parker C, Schwamm LH et al. Stroke Quality Metrics: Systematic Reviews of the Relationships to Patient-Centered outcomes and Impact of Public Reporting. <i>Stroke</i> 2012; 43:155-162.	The study included two systematic reviews, only one of which was on the impact of public reporting. The systematic review on public reporting was limited to two studies, one of which is included in other systematic reviews.
Sousa P, Bazeley M, et al. The use of national registries data in three European countries in order to improve health care quality. <i>International Journal of Quality Assurance</i> ; 19(7):551-560.	Not a systematic review of the literature.
Van der Veer SN. Systematic quality improvement in health care: clinical performance measurement and registry-based feedback. Dissertation 2012 ISBN 978-90-9026741-8	Not peer-reviewed published literature.
Van der Veer SN et al. Improving quality of care. A systematic review on how medical registries provide information feedback to health care providers. <i>Int J of Med Informatics</i> 2010(79): 305-323	Not specific to public reporting.

APPENDIX E: AMSTAR CHECKLIST

1. Was an 'a priori' design provided?

The research question and inclusion criteria should be established before the conduct of the review.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

2. Was there duplicate study selection and data extraction?

There should be at least two independent data extractors and a consensus procedure for disagreements should be in place.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

3. Was a comprehensive literature search performed?

At least two electronic sources should be searched. The report must include years and databases used (e.g. Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

4. Was the status of publication (i.e. grey literature) used as an inclusion criterion?

The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

5. Was a list of studies (included and excluded) provided?

A list of included and excluded studies should be provided.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

6. Were the characteristics of the included studies provided?

In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions and outcomes. The ranges of characteristics in all the studies analyzed e.g. age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be reported.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

7. Was the scientific quality of the included studies assessed and documented?

'A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or allocation concealment as inclusion criteria); for other types of studies alternative items will be relevant.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

8. Was the scientific quality of the included studies used appropriately in formulating conclusions?

The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

9. Were the methods used to combine the findings of studies appropriate?

For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e. Chi-squared test for homogeneity, I^2). If heterogeneity exists a random effects model should be used and/or the clinical appropriateness of combining should be taken into consideration (i.e. is it sensible to combine?).

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

10. Was the likelihood of publication bias assessed?

An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test).

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

11. Was the conflict of interest stated?

Potential sources of support should be clearly acknowledged in both the systematic review and the included studies.

- ☐ Yes
- ☐ No
- ☐ Can't answer
- ☐ Not applicable

APPENDIX F: LIST OF STUDIES INCLUDED IN EACH SYSTEMATIC REVIEW

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Vladeck 1988	X	X						X		Specific list of included studies not identified by authors
Gross 1989								X		
Hibbard 1989	X									
Berwick 1990	X							X		
Dzuiban 1994	X		X	X				X		
Hannan 1994a	X		X	X				X		
Hannan 1994b	X		X	X			X	X		
US GAO 1994	X									
Foreman 1995								X		
Hannan 1995	X		X	X						
Gibbs 1996		X						X		
Hibbard 1996		X			X		X	X		
Isaacs 1996		X								
Jewett 1996	X	X						X		
Luce 1996	X		X	X				X		
Omoigui 1996			X	X				X		
Sainfort 1996		X								
Schauffler 1996		X								

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Schneider 1996	X	X	X	X				X		
Wakefield 1996		X								
Evans 1997								X		
Gabel 1997	X									
Ghali 1997			X	X				X		
Hannan 1997	X	X						X		
Hibbard 1997a		X						X		
Hibbard 1997b	X	X						X		
Longo 1997	X	X	X	X				X		
Menemeyer 1997	X	X	X	X			X	X		
Robinson 1997	X	X								
Rosenthal 1997	X		X	X				X		
Tumlinson 1997		X								
Bentley 1998	X	X	X	X				X		
Chernew 1998		X						X		
Gabel 1998		X						X		
Hibbard 1998	X									
Knutson 1998		X			X		X	X		

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Maxwell 1998a		X								
Maxwell 1998b		X								
Mukamel 1998	X	X	X	X			X	X		
Peterson 1998	X		X	X				X		
Rainwater 1998	X	X	X	X				X		
Rosenthal 1998			X	X				X		
Scanlon 1998		X								
Schneider 1998	X	X						X		
Stange 1998		X								
Booske 1998		X								
Veroff 1998								X		
Vladeck 1998			X	X			X	X		
Burack 1999			X	X				X		
Caron 1999								X		
Pettijohn 1999								X		
Romano 1999	X							X		
Rosenthal 1999	X									
Scanlon 1999		X						X		
Schauffler 1999		X								

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Fowles 2000								X		
Guadagnoli 2000								X		
Hibbard 2000					X		X	X		
Mukamel 2000		X	X	X				X		
Sorokin 2000		X								
Spranca 2000			X	X	X		X	X		
Bost 2001			X	X				X		
Fox 2001								X		
Goldstein 2001								X		
Harris-Kojetin 2001a								X		
Harris-Kojetin 2001b								X		
Hibbard 2001					X			X		
Lied 2001								X		
Mannion 2001				X						
Marquis 2001								X		
McCormack 2001								X		
Scanlon 2001								X		
Schoenbaum 2001					X		X			

[illegible]

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Scanlon 2002			X	X			X	X		
Uhrig 2002					X		X	X		
Wedig 2002			X	X			X	X		
Baker 2003			X	X			X	X		
Dranove 2003			X	X				X	X	
Ginsburg 2003								X		
Hannan 2003								X		
Hibbard 2003			X	X				X		
Longo 2003								X		
Magee 2003								X		
Mannion 2003				X				X		
Mehotra 2003								X		
Rainwater 2003								X		
Tu 2003			X	X				X		
Bensimon 2004								X		
Caron 2004								X		
Cheng 2004								X		
Chernew 2004								X		
Cutler 2004				X			X	X		

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

	Systematic Review									
List of included studies (by first author)	Marshall et al. (2000)	Schauffler and Mordavsky (2001)	Fung et al. (2008)	Shekelle et al. (2008)	Faber et al. (2009)	Ketalaar et al. (2011)	Totten et al. (2011)	Totten et al. (2012)	Berger et al. (2013)	Lemire et al. (2013)
Clement 2012									X	
Feng Lu 2012									X	
Jha 2012									X	
Joynt 2012									X	
Konetzka 2012								X		
Renzi 2012									X	
Ryan 2012									X	
Snowden 2012									X	
Werner 2012								X	X	

APPENDIX G: METHODOLOGICAL QUALITY OF SYSTEMATIC REVIEWS USING AMSTAR RATINGS

Systematic Review	AMSTAR	Quality Score	Included in final review Y/N
Ketelaar et al. (2011)	1. Yes	11/11 (very good)	Y
	2. Yes		
	3. Yes		
	4. Yes		
	5. Yes		
	6. Yes		
	7. Yes		
	8. Yes		
	9. Yes		
	10. Yes		
	11. Yes		
Marshall et al. (2000)	1. No	3/11 (fair)	Y
	2. Can't answer		
	3. Yes		
	4. Yes		
	5. No		
	6. Yes		
	7. No		
	8. No		
	9. No		
	10. No		
	11. No		
Berger et al. (2013)	1. Yes	9/11 (very good)	Y
	2. Yes		
	3. Yes		
	4. Yes		
	5. No		
	6. Yes		
	7. Yes		

Systematic Review	AMSTAR	Quality Score	Included in final review Y/N
	8. Yes 9. Yes 10. No 11. Yes		
Schauffler and Mordavsky (2001)	1. Can't answer 2. Can't answer 3. Yes 4. Yes 5. No 6. Yes 7. No 8. No 9. No 10. No 11. No	3/11 (fair)	Y
Shekelle et al. (2008)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. No 8. No 9. Yes 10. No 11. No	6/11 (good)	Y
Lemire et al. (2013)	1. Can't answer 2. Yes 3. Yes 4. Yes 5. No 6. No 7. No	5/11 (fair)	Y

Systematic Review	AMSTAR	Quality Score	Included in final review Y/N
	8. Yes 9. Yes 10. No 11. No		
Fung et al. (2008)	1. Yes 2. Yes 3. Yes 4. Yes 5. Can't answer 6. Yes 7. Yes 8. Yes 9. Yes 10. Can't answer 11. Can't answer	8/11 (good)	Y
Totten et al. (2012)	1. Yes 2. Yes 3. Yes 4. Yes 5. Yes 6. Yes 7. Yes 8. Yes 9. Yes 10. Yes 11. Yes	11/11 (very good)	Y
Faber et al. (2009)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. Yes	8/11 (good)	Y

Systematic Review	AMSTAR	Quality Score	Included in final review Y/N
	8. Yes 9. Yes 10. No 11. No		
McKibben et al. (2006)	1. Yes 2. Can't answer 3. Can't answer 4. Can't answer 5. No 6. Can't answer 7. Can't answer 8. No 9. No 10. No 11. No	1/11 (poor)	N
Totten et al. (2011)	1. Yes 2. Yes 3. Yes 4. Yes 5. No 6. Yes 7. Yes 8. Yes 9. Yes 10. Can't answer 11. No	8/11 (good)	Y

APPENDIX H: RECRUITMENT LETTER FOR KEY INFORMANTS

[Date]

Dear [insert name],

I am writing to request your participation in a study I am undertaking on evaluating the effectiveness of Ontario's public reporting strategy for health performance measures. In addition to my role at the Toronto Central CCAC, I am also a doctoral candidate at the University of North Carolina in the Gillings School of Global Public Health. I will be interviewing key informants with expertise in public reporting as part of my doctoral research. Your participation in the study would involve discussing your opinions on the goals, effectiveness, challenges and opportunities to improve Ontario's public reporting efforts. The interview would take place at a time and location convenient for you and will last about 45-60 minutes.

Background

Over the last few years in Ontario, there has been a significant increase in public reporting of health information, including a growing body of reports on health system performance and a range of report cards for hospitals and other providers. The capacity to evaluate and report on quality is widely regarded as a critical foundation for system-wide improvement of health care delivery and patient outcomes.

Given that there is every indication that expectations for greater transparency and reporting of health information will continue to increase, it is important for us to understand how to make public reporting more effective. Evidence from the literature shows that evaluation of public reporting systems is insufficient and evaluation of the impact of public reports has not kept pace with the development of reporting systems.

The purpose of this study is to learn more about the objectives and impact of Ontario's third-party public reporting on health performance and to identify factors that will assist in evaluating its effectiveness. The goal is to produce information on improving the effectiveness of public reporting that will be helpful to policy-makers and organizations responsible for public reporting of health information.

Disclosure and Protection of Your Privacy

The interview will be completely confidential, and your name will not be connected to your responses in any way. Any information that you provide will be aggregated with that of other participants. Information from the interview will be stored in a secure location and destroyed upon completion of this study. In order to establish credibility of the study I would like to list the names of participants in the final report, however your decision to be listed is voluntary.

Thank you for considering participation in this study. Please confirm if you are willing to participate and I will follow up regarding your availability. Please contact me at anne.wojtak@toronto.ccac-ont.ca or 416-217-3810 if you have any questions.

Sincerely,

Anne Wojtak

APPENDIX I: CONSENT FORM

Consent to participate in a research study

University of North Carolina – Chapel Hill

IRB Study #

Consent Form Version Date: April 27, 2014

Title of study: Evaluation of Public Reporting in Ontario

Principal Investigator: Anne Wojtak

UNC-Chapel Hill Department: Department of Health Policy and Management

UNC-Chapel Hill Phone Number: 1-919-966-9756

Faculty Advisor: Suzanne Babich, DrPH

Funding Source and/or Sponsor: None

Study Contact Telephone Number: 416-778-9832

Study Contact email: wojtak@live.unc.edu

What are some general things you should know about research studies?

You are being asked to take part in a research study. To join the study is voluntary.

You may refuse to join, or you may withdraw your consent to be in the study, for any reason, at any time, without penalty.

Research studies are designed to obtain new knowledge. This new information may help people in the future. You may not receive any direct benefit from being in the research study. There also may be risks to being in research studies.

Details about this study are discussed below. It is important that you understand this information so that you can make an informed choice about being in this research study. You will be given a copy of this consent form. You should ask the researcher named above, or staff members, any questions you have about this study at any time.

What is the purpose of this study?

The purpose of this study is to learn more about the objectives and impact of Ontario's third-party public reporting on health performance and to identify factors that will assist in evaluating its effectiveness.

How many people will be interviewed for this study?

If you decide to be interviewed for this study, you will be one of 14 key informants who have been identified as playing a critical role in Ontario's public reporting of health information and have been invited to participate in an interview.

How long will your part in this study last?

If you decide to be interviewed for this study, you will be asked to meet in-person or by telephone for a 45-60 minute interview. If you agree, you may also be contacted by e-mail or telephone to address follow up questions or clarifications if needed.

What will happen if you take part in the study?

- You will participate in a 45-60 minute interview. This is a one-time event, although the researcher may contact you again for clarification of comments made during the interview.
- The interview will be conducted in-person or over the telephone at your convenience.
- The interview will be audio recorded with your permission. You may refuse to answer any question, and you may ask to have the audio recorder turned off at any time.

What are the possible benefits from being in this study?

You may benefit from this study by discovering options for evaluating Ontario's public reporting efforts and opportunities for improvement. The final report from the study will be shared with all participants. It is anticipated that the study will generate information that will be useful to policy-makers, organizations that lead public reporting efforts, and health care organizations whose information is publicly-reported.

What are the possible risks or discomforts involved from being in this study?

This study is of minimal risk to participants. You will not be pressured to disclose any information that you feel could potentially bring harm to yourself. As with any activity that involves collection of information from individuals, there is a risk of breach of privacy or confidentiality of information. This risk will be minimized by strict adherence to procedures for protecting privacy.

How will your privacy be protected?

The following measures are in place to protect your privacy:

- Your name will not be connected to your responses in any way. Any information that you provide will be released only as group summaries.
- The principal investigator listed on the first page of this form is the only person who will have access to information that links individual participants to the responses from their interviews. Identifying information will be securely stored in a separate location from the information that you provide during the interview.
- Audio recordings, transcripts, and notes will be encrypted and stored on a password-protected computer in a secure location. All data will be destroyed upon completion of the study.

Although every effort will be made to keep research records private, there may be times when federal or state law requires the disclosure of such records, including personal information. This is very unlikely, but if disclosure is ever required, UNC-Chapel Hill will take steps allowable by law to protect the privacy of personal information. In some cases, your information in this research study could be reviewed by representatives of the University, research sponsors, or government agencies for purposes such as quality control or safety.

To contribute to the credibility of this study, the researcher would like to list names and affiliations of participants in the final report. Your name will not be linked in any way to your responses. Consenting to having your name listed in the report is completely voluntary, and you may choose to remain anonymous.

Do you agree to have your name listed in the report?

_____ YES, it is OK to list my name in the report.

_____ NO, do not list my name in the report.

In order to ensure accurate recording of your responses, the researcher would like to audio record the interview.

Do you consent to have the researcher audio record the interview?

_____ YES, it is OK to audio record the interview.

_____ NO, it is not OK to audio record the interview.

Will you receive any compensation for being in this study?

You will not receive compensation for taking part in this study. However, all participants will receive a copy of the final report.

Will it cost you anything to be in this study?

Other than your time, there will be no costs for participating in the study.

What if you have questions about this study?

You have the right to ask, and have answered, any questions you may have about this study. If you have questions, or concerns, you should contact the researcher listed on the first page of this form.

What if you have questions about your rights as a research participant?

All research with human volunteers is reviewed by a committee that works to protect your rights and welfare. If you have questions or concerns about your rights as a research participant you may contact, anonymously if you wish, the Institutional Review Board at 001-919-966-3113 or by email to IRB_subjects@unc.edu.

Title of study: Evaluating the impact of third-party public reporting on quality improvement for health care in Ontario

Principal Investigator: Anne Wojtak

Participant's Agreement:

I have read the information provided above. I have asked all the questions I have at this time. I voluntarily agree to participate in this research study.

Signature of research participant

Print Name

Date

Signature of Researcher

Print Name

Date

APPENDIX J: LIST OF KEY INFORMANTS

Category	Individual	Agency
Producers of Public Reports	Rebecca Comrie Jeremy Veillard Walter Wodchis Mark Dobrow Joshua Tepper Andreas Laupacis Bob Bell Jillian Paul Thomas Custers	CCO CIHI ICES HQO HQO HQO/ICES Ministry Ministry Ministry
Providers	Lou Reidel Camille Orridge Catherine Brown	OHA LHINs Ontario Association of CCACs
Other Stakeholders Patient/consumer advocate Media International Expert International Expert Thought leader	Jill Adolphe Anita Elash Niek Klazinga Alex Bottle Tom Closson	Patient Advocate Fifth Estate – CBC OECD Dr. Foster (UK) Consultant (Past President of OHA, former Hospital CEO)

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