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## **An exploratory case study of a high-performing interprofessional primary Lung Health Team**

Karen R. Schouten, *The University of Western Ontario*

Supervisor: Sibbald, Shannon, *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Master of Science degree in Health and Rehabilitation Sciences

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# An exploratory case study of a high-performing interprofessional primary Lung Health Team

Karen R. Schouten

Graduate Program in Health and Rehabilitation Sciences

A thesis submitted in partial fulfillment of the requirements for the degree in Master of Science

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## Abstract

Interprofessional team-based care is essential to primary healthcare in Ontario, but care provided by teams is often disjointed. A Lung Health Team working within Family Health Teams (FHTs) in Ontario developed a successful team model and Lung Health Program that improved patients' quality of life and reduces healthcare utilization.

A qualitative exploratory case study was conducted to explore components of the team and program that contribute to improved performance, facilitators and barriers to success, the perceived benefit to patients and providers, and the team's and program's sustainability and spread. Focus groups and interviews with the team and their patients, environmental scan, and document analysis were conducted. Iterative and inductive data analysis using content analysis took place.

The team's success comes from a shared team identity, a strength-based approach to teaming, a team structure that drives the product, which is the Lung Health Program, and a strong product.

### Keywords

COPD; teams; interprofessional teams; primary healthcare; Lung Health Program; high-performing teams

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# Chapter 1 - Introduction

## 1.1 Team Based Primary Healthcare in Ontario

Primary healthcare is the gateway into the healthcare system (Dinh et al., 2014). It provides first point of contact services for patients, coordinates patient's health as they move through the healthcare system (Government of Canada, 2012), and ensures continuity of care (Health Council of Canada, 2005). Interprofessional teams have become widely integrated in many healthcare systems, especially the primary healthcare system. Researchers have demonstrated that interprofessional teams have the potential to enhance the quality of care (Supper et al., 2015), reduce the number of medical errors and increase patient safety (Morey et al., 2002; Baker et al., 2005), and improve patients' satisfaction with their care (Virani, 2012).

Over the last 20 years, the Ministry of Health and Long-Term Care (MOHLTC) has sought to reform Ontario's healthcare system from a system that is hospital-centric (Snowdon et al., 2011), to a system that provides "the right care, at the right place, at the right time" (Government of Ontario, 2012). To aid in this shift, Ontario has expanded the delivery of primary healthcare, which was primarily made up of solo-practice physicians, to include group-based and team-based models (Ontario Medical Association, 2015). While, solo-practice delivery models are still used, group-based delivery models bring three or more physicians together to provide care, and team-based delivery models have physicians work as part of an interprofessional team with allied health professionals.

The key reform to Ontario's primary healthcare system was the adoption of primary healthcare teams through the Family Health Team model. Team based care as defined by Naylor et al. (2010) is:

the provision of health services to individuals, families, and/or their communities by at least two health providers who work collaboratively with patients and their caregivers—to the extent preferred by each patient—to accomplish shared goals within and across settings to achieve coordinated, high-quality care.

Healthcare teams can have different functions, take many forms, can be large or small, virtual or co-located (Mitchell et al., 2012), and involve many different types of healthcare

providers. Teams that are made up of different types of healthcare providers are often called interprofessional teams. Interprofessional teams are “different health and/or social professions who share a team identity and work closely together in an integrated and interdependent manner to solve problems and deliver services” (Reeves et al., 2010, xiv).

When healthcare teams work well they improve patient outcomes (Tracy et al., 2013), patient empowerment (Grant & Finocchio, 1995), increase patient-centeredness and quality of life scores (Yohannes et al., 2010), and improve service coordination and integration (Bookey-Bassett et al., 2016; Casimiro et al., 2015). Interprofessional healthcare teams that work well have additional benefits: (1) less reliance on individual physicians to cover complex demands of patients; (2) a cost benefit of having lower paid allied health professional providing more care to patients; and (3) allied health professionals possess skills and knowledge in areas that physicians might not be as familiar with (Grumbach & Bodenheimer, 2004). However, healthcare team performance can be hindered by a lack of communication and information sharing (Weller & Cumin, 2012), heterogeneity of the team can cause tension between health professions and a hierarchical culture (Brindley et al., 2011), a lack of role clarity and underutilization of skills understanding of the roles, and compensation differences amongst the team (Grant & Finocchio, 1995).

## 1.2 COPD and the Need for a Strong Primary Healthcare Focus

It is widely recognized that the health challenges from an aging population, the increase in chronic diseases and co-morbidity requires a strong primary healthcare system (Barrett et al., 2007). Chronic disease has become one of the most significant health challenges facing society. Chronic obstructive pulmonary disease (COPD) is one of more common chronic diseases; however, it is still relatively unknown or ignored by the public, public health, and government officials (Vestbo et al., 2013).

COPD is a common, preventable, and treatable disease that causes persistent, and usually progressive, respiratory symptoms and airflow limitation due to damage in lung tissues (Agusti et al., 2017). The major risk factors include tobacco smoking, outdoor and indoor air pollution – often resulting from burning of wood or biomass fuels (Vestbo et al. 2013). COPD is the third leading cause of death worldwide and is the only chronic disease with worldwide increasing

mortality (Pauwels et al., 2001). COPD is a treatable chronic disease, but acute exacerbations, or ‘lung attacks,’ can progress the disease if symptoms are not managed. The treatment of COPD is complex and requires the care from multiple care providers working closely together (Agusti et al., 2017).

Most COPD management strategies focus on reactionary care for acute exacerbations (Fromer, 2011), which is insufficient and expensive for treating the progression of COPD. A redesign of the management of chronic long-term care for patients with COPD towards proactive maintenance, utilizing primary healthcare will help with prevention of exacerbations, slowing lung dysfunction and reduce the financial burden of COPD. Proactive, integrated COPD care initiatives include smoking cessation, vaccinations, self-management, and maintenance pharmacotherapy (Fromer, 2011, Agusti et al., 2017). Many COPD guidelines have been published for use in primary care settings, such as the *Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Diseases* (GOLD) (Agusti et al., 2017), to improve the uptake of best practices by primary care providers, yet the rates of hospitalization for acute exacerbation and 30-day readmission (almost one in five patients) have yet to decrease (CIHI, 2012).

### 1.3 Research Purpose and Questions

The implementation of interdisciplinary teams in primary healthcare and the lack of improved care for patients with COPD demands that lessons are learned from primary interdisciplinary teams that have proven results for their patients with COPD. A primary healthcare team, recognized for its success in patient outcomes from their Lung Health Program, provides maintenance and acute care to patients with chronic respiratory diseases (Liciskai et al., 2016). The program focuses on collaborative self-management care provided by an interprofessional team of physicians and certified respiratory educators. Through the adherence to a guideline-based Lung Health Program, the primary healthcare team was able to significantly improve patient quality of life, significantly reduce outpatient visits (32.7%) and emergency room visits (26.2%), and reduce hospitalizations (7.2%) (Liciskai et al., 2016). For their work, the team was recognized by the Ontario MOHLTC for their success by winning a Minister’s Medal Honoring Excellence in Health Quality and Safety: Team-based Initiative and the team won the best abstract at the European Respiratory Society Conference.

Because of this team's demonstrated success, the study aimed to explore and learn lessons from this primary healthcare team and the Lung Health Program. The study sought to answer the following research questions:

- (1) What are the components of the primary healthcare team and the Lung Health Program that contributes to improved performance?
- (2) What are the facilitators and barriers that affect this team?
- (3) What is the perceived benefit of this Lung Health Programs to patients and providers?
- (4) What would support the sustainability and spread of this Lung Health model?

## 1.4 Significance of Research

Research that seeks to improve the care for patients with COPD will greatly work to reduce the financial burden and of COPD healthcare utilization rates. In 2011, COPD care cost the Ontario healthcare system \$3.3 billion dollars (Smetanin et al., 2011) and was one of the most frequent causes for hospitalization and readmission after inpatient stay (CIHI, 2012). The lessons learned from the Lung Health Program and its positive outcomes can have policy implications around the design, implementation, and structuring of similar primary healthcare team design. This research also demonstrates the expanded scope of practice that certified respiratory educators can hold in primary healthcare teams. Their role in the care for patients with COPD validates the need for certified respiratory educators, working in a similar role to diabetes educators that is already prevalent in primary healthcare, in the care for all patients with COPD and other chronic respiratory diseases.

## 1.5 Structure of Thesis

This chapter provided a brief overview of the topic of which this thesis explores. The following chapter will explore these topics in more detail to provide a foundational understanding and to review the literature that is relevant to this study. Chapter 2 will also explore the state of primary healthcare teams in Ontario, the characteristics of high performing healthcare teams, and the best practices of treating COPD in primary healthcare. Next, the methodology and methods used throughout this research will be described in Chapter 3. Chapter

4 presents the findings including a case description, context surround the team, and emerging themes. The findings are discussed in Chapter 5, including the studies' strengths and limitations, recommendations for future research, and conclusion.



## Chapter 2 - Literature Review

This literature review aims to find areas that have been thoroughly researched, uncover gaps where research is needed, and locate previous literature into which this research can be situated (Webster & Watson, 2002). To help in answering this study's research questions it is important to understand the literature surrounding the characteristics of successful interprofessional primary healthcare teams. This literature review sought to explore literature related to primary healthcare, interprofessional teams, and the management of COPD in primary care settings. The collection of literature will ensure an understanding of successful primary care, successful interprofessional teams, and successful management of COPD to help determine the lessons learned from the primary healthcare team and Lung Health Program under examination.

### 2.1 Primary Healthcare

What is primary healthcare?

Canada provides a publicly funded healthcare system, referred to as Medicare. Medicare ensures that Canadian residents have access to hospital and physician care without paying upfront fees. Each provincial and territorial government is responsible for the management, organization, and delivery of healthcare services to their residents under the Canada Health Act, 1984 (Canada Health Act, 1984, c.6, s.1). Primary healthcare is located within Medicare and acts as a gateway into the larger healthcare system (Dinh et al., 2014).

Primary healthcare is essential to a person's health. Starfield (2010) explained that "Good primary care is associated with better health outcomes (on average), lower costs (robustly and consistently), and greater equity in health" (PowerPoint Slide #2). Primary healthcare has four main features: provides first contact services for patients; is long-term person-focused care rather than disease-focused care; offers comprehensive care for most health needs; and coordinates patients' movement through the healthcare system (Starfield et al., 2005) ensuring continuity of care across the system (Health Council of Canada, 2005). Starfield et al. (2005) contended that primary healthcare improves health because it:

- (1) Increases access to care;

- (2) Provides care equal in quality to care from specialists for common diseases;
- (3) Offers more preventative care;
- (4) Impacts the early management of health problems;
- (5) Focuses on the overall health of the person, rather than disease-specific health; and
- (6) Reduces the amount of specialist care, diagnostic testing, and therapeutic modalities used.

The literature explains that “primary care practices that provide comprehensive and coordinated quality primary healthcare tend to confer the most benefit to their patients” (McMurchy et al., 2009, p.1). These practices generally have knowledge about their patients and community, use clinical pathways and guidelines, provide collaborative team-based care, use electronic medical records, and have effective patient flow (McMurchy et al., 2009).

The terms primary care and primary healthcare are often used interchangeably, but this is misleading. Muldoon et al. (2006) defined primary healthcare as “the approach to health policy and service provision which includes both services delivered to individuals and population-level ‘public health-type’ functions and which derives from core principles articulated by the World Health Organization” (p. 411), which are “the main health problems of the community, providing promotive, preventative, curative, supportive and rehabilitative service accordingly” (p. 410). The term “primary care” refers more specifically to the medical care offered to individuals by a primary health provider (Muldoon et al., 2006); however, as Ontario looks to reform primary healthcare by adopting more health promotion philosophies and community health programs, the two definitions are becoming more aligned in policy documents. Noticeably, the term “primary healthcare” is a broader concept than “primary care” and extends beyond the individual and health provider more than the term “primary care” conventionally does. This thesis will use the phrase “primary healthcare” to refer to the medical care offered by the primary healthcare team being studied, as it seeks to provide health promotion, prevention, and curative, supportive, and rehabilitative care in its Lung Health Program.

Reform to Ontario's primary healthcare system was jumpstarted by the federal government's primary healthcare reform and funding initiative. The federal government wanted to: increase access to primary healthcare organizations; emphasize health promotion, disease and injury prevention, and chronic disease management; expand after hours access to services; establish interprofessional primary care teams; and facilitate coordination and integration with other health services (Hutchison & Glazer, 2013).

To begin reform in Ontario, the MOHLTC sought to implement changes to the service delivery models and compensation models for physicians, increase patient enrollment, and create more primary healthcare teams (Hutchison & Glazer, 2013). Currently, there are five main types of compensation models for physicians: fee-for-service (FFS), enhanced FFS, blended capitation, blended salary, and salary. FFS compensation occurs when physicians bill for the services that they provide. These physicians do not have a panel of patients and have no obligation of afterhours work or practicing as part of a group. Enhanced FFS compensation offers eligible physicians both FFS and extra compensation in the form of incentives and bonuses for providing a defined set of services. The blended capitation model enables physicians to receive the majority of their compensation from capitation, with additional compensation for providing a defined basket of healthcare services, such as chronic disease management, vaccinations and cancer screening. Additionally, this compensation model offers FFS for services that are not included in the capitation. The blended salary compensation model is primarily based on salary and is reflective of the number of patients enrolled on the physician's panel. And lastly, the salary compensation is purely based on salary.

In addition to compensation models are practice or service delivery models. Physicians in Ontario sign a contract with the MOHLTC to provide care in one of the following service delivery models: Solo Physicians, Comprehensive Care Models, Family Health Groups, Family Health Networks, Family Health Organizations, Family Health Teams, Community Health Centers, and Rural and Northern Physician Group Agreements. Compensation models match with service delivery models. Solo Physicians receive FFS and are not required to have a patient panel. Solo Physicians can also work in Comprehensive Care Models to receive enhanced FFS. This means that physicians have a panel of patients and are required to provide extended hours of care to their panel. Family Health Groups are similar to the Comprehensive Care Models, but

there is an additional requirement for three or more physicians to work together, each with their own panel, and to offer extended hours. Family Health Organizations offer a blended capitation model to three or more physicians working together that offer extended hours for care. Family Health Networks are very similar to Family Health Organizations but offer different capitation rates for services. Family Health Organizations involve three or more physicians that work together, each with their own panel, and provides extended care hours. Family Health Teams (FHTs) are a team-based delivery model. Family Health Networks and Family Health Organizations can apply for and receive extra funding for allied health professional staff to become an FHT. The additional funding FHTs receive is for allied health professionals and administrative staff, called executive directors, and does not provide compensation for physicians (Wooder, 2011). The MOHLTC has currently limited the number of FHTs to 184, so not all Family Health Networks and Organizations are FHTs. Physicians working in FHTs are still working under contract as Family Health Organizations and Family Health Networks and therefore receive compensation as such. FHTs can have different governance structures and can be physician-led, community-led, or have a mixed governance from physicians and the community. Physicians working in community-governed FHTs receive blended salary compensation. Lastly, Community Health Centers are a team-based delivery model that are community-governed, and physicians receive salary compensation. See Table 2.1 for more information regarding the different primary healthcare service delivery models, compensation models, and sources.

## 2.2 Family Health Teams

In 2005, the Ontario MOHLTC developed the FHT model. This interprofessional primary healthcare model was described as “the provincial government’s flagship initiative in primary care renewal” (Marchildon & Hutchinson, 2016, p.735). FHTs were created to bring family physicians, nurses, and other allied health professionals together to provide team-based primary healthcare, reduce specialist referrals, and enhance patient-centered care (Rosser et al., 2011). Currently there are 184 FHTs in Ontario, which focus on patient and family-centered care, health promotion, disease prevention programs, and offer guidance for patients navigating

Table 2.1 A comparison of current primary healthcare models in Ontario, Canada. Information compiled from Muldoon et al. (2006); (Ontario MOHLTC, 2017); (Health Force Ontario, 2017). <sup>1</sup>Ministry of Health and Long-Term Care. <sup>2</sup> Fee-For-Service

Service Delivery	Solo Practice	Comprehensive Care Model	Family Health Group	Family Health Network	Family Health Organization	Community Health Centre	Family Health Team
Year Introduced	Long Standing	2005	2003	2001	2006	1980s	2005
Number of Sites	Unknown	Unknown	238	20	483	74	184
Number of Physicians	Solo/Group	Solo	3+	3+	3+	Group	3+
Governance Structure	None	None	None	Provider Led & Contract with MOHLTC <sup>1</sup>	Provider Led & Contract with MOHLTC <sup>1</sup>	Community Board	Community and/or Provider Led
Billing Model	FFS <sup>2</sup>	Enhanced FFS <sup>2</sup> Model	Enhanced FFS <sup>2</sup> Model	Blended Capitation Model	Blended Capitation Model	Salary	Blended Salary Model or Blended Capitation Model Depending on Governance Structure
Team Structure	No	No	Minimal	Minimal	Minimal	Yes	Yes

the healthcare system (Rosser et al., 2011). Approximately three million people in Ontario are registered on an FHT panel, which represents a quarter of the province's population (The Conference Board of Canada, 2014).

Formal evaluations of the FHT's success as an improved primary healthcare delivery system over previous delivery systems have been minimal and have conflicting results. A recent report on FHTs gave an account of several benefits for patients and physicians such as improving patient access to care, broadening the scope of available health management activities, increasing the professional relationships between practitioners, and changing the method of governance of FHTs to incorporate community perspectives (The Conference Board of Canada, 2014). Glazer et al. (2015), in a report that compared FHTs to other primary healthcare models, reported that FHTs generally do not outperform other primary healthcare models. Also, it was noted that patients from FHTs had the second highest rates of emergency department (ED) visits, after Community Health Centers, with 45.8 per 100 population (Glazer et al., 2015).

## 2.3 Interprofessional Primary Healthcare Teams

The use of interprofessional primary healthcare teams has increased dramatically around the world over the last few years (Lemieux-Charles & McGuire, 2006). Studies over the past several decades have found that utilizing interprofessional teams in primary care has the potential to enhance quality of care (Supper et al., 2015). Wagner (2000) defines healthcare teams as "a group of diverse clinicians who communicate with each other regularly about the care of a defined group of patients and participate in that care" (p.569). The transition towards teams in primary healthcare is occurring due to the complexity and multifaceted nature of patients' needs (Reeves et al., 2017) and modern healthcare (Mitchell et al., 2012).

Using interprofessional teams in primary healthcare has many benefits: (1) less reliance on an individual physician to cover the complex demands of patients; (2) a cost benefit of lower-paid allied health professionals providing care; and (3) allied health professionals possess skills and knowledge in areas that physicians might not have (Grumbach & Bodenheimer, 2004). The benefits of interprofessional care have been studied in complex and chronic conditions such as HIV, cancer, geriatrics, diabetes, depression and end of life renal care.

## 2.4 Successful and High-Performing Interprofessional Teams

Several literature reviews and studies have been conducted that examine primary healthcare teams to determine the characteristics of successful and high-performing teams. This research has been conducted in various contexts and countries. The following is a short presentation of research that has been conducted on the characteristics of high-performing interprofessional primary healthcare teams. The characteristics have been outlined in Table 2.2. The characteristics presented in Table 2.2 have been organized according to like characteristics. It is interesting to note that not all researchers list the same characteristics for high-performing teams.

A literature review by Gocan et al. (2014) examined FHT team functioning by reviewing literature on FHTs since 2005, when FHTs were first initiated in Ontario. The majority of the 11 studies included in the review were case study methodology that incorporated data from 87 FHT organizations in Ontario. Gocan et al. (2014) determined that there were three levels of influence on team functioning in FHTs, including broader healthcare system determinants, the local context surrounding the FHT, and determinants present within the individual FHTs. The study also noted that the positive outcomes to FHT care included: enhanced access to primary care and extended health services, improved coordination, collaboration, patient-centredness, improved clinical outcomes, patient satisfaction, provider outcomes, increased healthcare access and efficiency, increased effectiveness, and reduced wait times.

Dinh (2012), for the Conference Board of Canada, conducted a broader literature search than Gocan et al. (2014) and reviewed literature on interprofessional collaboration in primary care that had been published since 2002 and included grey literature (Dinh, 2012). After conducting a literature review of relevant research, which included reports published by select Canadian organizations, barriers were identified at various levels of practice, similar to that of Gocan et al. (2014). Dinh (2012) noted that barriers could be categorized into individual-level barriers, practice-level barriers, and system-level barriers.

A study conducted by Nancarrow et al. (2013) combined the results from a systematic review surrounding interdisciplinary teams and a qualitative exploration of perspectives to create a list of 10 characteristics an effective interdisciplinary team functioning at a high level should

demonstrate. The interviews were conducted in the UK and involved 253 staff from 11 care teams. These characteristics, outlined in Table 2.2, cover various aspects of a team including leadership and how the team is structured, the team's policies and procedures, and characteristics regarding the team members as individuals. Nancarrow et al. (2013) noted that the context of the literature reviewed lacked detail making it difficult to isolate characteristics of high-performing teams. The authors discussed the need for these ten characteristics to be empirically validated by interdisciplinary teams to determine their accuracy and transferability.

In a discussion paper released by the Institute of Medicine of the National Academies in 2012, Mitchell and her team described a set of core principles and values that when put into practice help achieve high-value healthcare teams. Using similar methods to Nancarrow et al. (2013), Mitchell et al. (2012) reviewed the literature to determine the principles and values outlined in the literature, and then took to the field to review and validate their findings with 11 teams across the United States. Five values found on highly effective team members were identified – honesty, discipline, creativity, humility, and curiosity – and five principles emerged that, when interwoven, ‘embodied teamness.’ These principles were shared goals, clear roles, mutual trust, effective communications, measurable processes and outcomes. Although not listed in the five principles, Mitchell et al. (2012) stated that the most important factor to performance is the leadership's ability to support these principles.

Research by Sinsky et al. (2013) examined 23 urban, suburban, and rural high-performing primary care practices in the United States and determined innovations conducted by the teams that improved team efficiency and reduced physician burnout. These innovations, although not characteristics of the team as described in the previous studies, help give shape to high-performing teams. Sinsky et al. (2013) determined that proactive planned care, with pre-visit planning and laboratory tests, shared clinical care among team, shared clerical tasks, improved communication, and improved team functioning through co-location, team meetings, and work flow mapping were all present in high-performing teams.

Mohr and Donaldson (2000) determined eight dimensions that were present across high-performing microsystems. A clinical microsystem is “a small group of people who work together on a regular basis to provide care to discrete subpopulation of patients ... and are often



embedded in larger organizations” (Nelson et al., 2002, p. 474). The eight dimensions are: constancy of purpose, investment in improvement, alignment of role and training for efficiency and staff satisfaction, interdependence of the care team to meet patient needs, integration of information and technology into work flows, ongoing measurement of outcomes, supportiveness of the larger organization, and connection to the community to enhance care delivery and extend influence (Mohr & Donaldson, 2000).

Following Mohr and Donaldson’s (2000) work, Nelson et al. (2002) also studied 20 high-performing clinical microsystems to determine their successful characteristics. The researchers noted that these nine characteristics are not separate; rather, they interact with each other in a dynamic way. The nine characteristics are: leadership, culture, organizational support, patient focus, staff focus, interdependence of care team, information and information technology, process improvement and performance patterns.

Dinh et al. (2014), in a separate report for The Conference Board of Canada, reviewed the literature, on teams conducted a survey of stakeholders and held interviews with key informants. The researchers determined that the traits of a high-functioning interprofessional primary care team are: strong governance and leadership; appropriate funding, remuneration, and financial incentives; provision of and equitable access to appropriate health and social services; recruitment and retention of highly skilled personnel who work to their full scopes of practice; existence of and adherence to practice policies and agreements; interprofessional education and training for service providers (formative and continuous); supportive infrastructure, including co-location, open design of physical space, opportunities for team communication, and appropriate use of information technology; appropriate, standardized, and consistent monitoring; and evaluation of individual and team performance and of patient outcomes.

McMurphy (2009) conducted a review of the literature and determined the attributes and benefits of high-quality primary healthcare organizations. This review was primarily focused on Canadian literature and documents from Canadian governmental and research agencies; however, international literature was also included if it showed transferability to a Canadian context. This review was not specific to primary healthcare, but of healthcare organizations in general.

Table 2.2 Characteristics of high-performing interprofessional primary healthcare teams as outlined by the literature.

Themes	Ragaz et al., 2010	McMurphy et al., 2009	Dinh et al., 2014	Gocan et al., 2014	Dinh, 2012 <sup>See Note</sup>
Communication	<ul style="list-style-type: none"> <li>• Good communication</li> </ul>		<ul style="list-style-type: none"> <li>• Opportunities for team communication</li> </ul>	<ul style="list-style-type: none"> <li>• Communication strategies</li> </ul>	
Roles				<ul style="list-style-type: none"> <li>• Clearly defined and understood role(s)</li> <li>• Patient education regarding provider roles</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of role clarity</li> <li>• Hierarchical roles and relationships</li> </ul>
Leadership and Management	<ul style="list-style-type: none"> <li>• Set achievable goals that addresses community need</li> <li>• Achieve strategic balance</li> <li>• Planning for the future</li> <li>• Develop a model that sets your team up for success</li> <li>• Effective human resource policies</li> <li>• Define vision and goal</li> </ul>	<ul style="list-style-type: none"> <li>• A clear mission and vision</li> <li>• Sustained leadership</li> <li>• Patient-focused</li> <li>• Effective management of physicians</li> <li>• Stakeholders' participation</li> <li>• Change management</li> </ul>	<ul style="list-style-type: none"> <li>• Strong governance and leadership</li> <li>• Existence of and adherence to practice policies and agreements</li> </ul>	<ul style="list-style-type: none"> <li>• Clarity of vision</li> <li>• Flattened hierarchy and effective leadership</li> <li>• Systems and processes to ensure the right patient is seen by the right professional</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of strong governance and leadership</li> <li>• Inappropriate team skill mix and size</li> </ul>
Scope of Practice	<ul style="list-style-type: none"> <li>• Providers work to the full scope of practice</li> </ul>	<ul style="list-style-type: none"> <li>• Patients treated at the most effective level along the continuum of care</li> </ul>	<ul style="list-style-type: none"> <li>• Recruitment and retention of highly skilled personnel who work to their full scopes of practice</li> </ul>	<ul style="list-style-type: none"> <li>• Scope of practice</li> </ul>	
Evaluation and Outcome Measurement	<ul style="list-style-type: none"> <li>• Evaluate progress</li> </ul>	<ul style="list-style-type: none"> <li>• Ongoing performance measurement and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate standardization and consistent monitoring and evaluation of individual and team performance and of patient outcomes</li> </ul>		<ul style="list-style-type: none"> <li>• Inadequate monitoring and evaluation to inform change</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• EMR</li> </ul>	<ul style="list-style-type: none"> <li>• Effective information technology</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriate use of information technology</li> <li>• Appropriate standardized and consistent monitoring and evaluation of individual and team performance and of patient outcomes</li> </ul>	<ul style="list-style-type: none"> <li>• EMR integration</li> </ul>	<ul style="list-style-type: none"> <li>• Suboptimal use of technology</li> <li>• Inadequate monitoring and evaluation to inform change</li> </ul>

Strategic Relationships	<ul style="list-style-type: none"> <li>Negotiate with the Ministry</li> </ul>	<ul style="list-style-type: none"> <li>Strategic use of partnerships to achieve integration</li> </ul>	<ul style="list-style-type: none"> <li>Provision of and equitable access to appropriate health and social services</li> <li>Adequate funding, remuneration, and financial incentives</li> </ul>	<ul style="list-style-type: none"> <li>Community alliance</li> <li>Adequate funding remuneration and human resources</li> </ul>	<ul style="list-style-type: none"> <li>Suboptimal funding models</li> </ul>
Professional Development	<ul style="list-style-type: none"> <li>Physicians use the FHT model to its fullest</li> </ul>		<ul style="list-style-type: none"> <li>Interprofessional education training for service providers (formative and continuous)</li> </ul>	<ul style="list-style-type: none"> <li>Degree of professional preparation for collaborative practice</li> <li>Program facilitation partnerships</li> </ul>	<ul style="list-style-type: none"> <li>Inadequate interprofessional education and training</li> </ul>
Investments	<ul style="list-style-type: none"> <li>Investing in success</li> <li>Building the team's individuals' attitudes</li> <li>Adaptation</li> <li>Sharing accomplishments</li> </ul>	<ul style="list-style-type: none"> <li>Resources for change</li> </ul>			
Infrastructure			<ul style="list-style-type: none"> <li>Supportive infrastructure including co-location, open design of physical space</li> </ul>	<ul style="list-style-type: none"> <li>Shared time and space</li> </ul>	<ul style="list-style-type: none"> <li>Lack of infrastructure</li> </ul>
Organizational Culture				<ul style="list-style-type: none"> <li>Group culture</li> </ul>	<ul style="list-style-type: none"> <li>Lack of trust</li> </ul>
Care	<ul style="list-style-type: none"> <li>Patient triage</li> </ul>			<ul style="list-style-type: none"> <li>Patient-centered approach to care</li> </ul>	
Themes	Nancarrow et al., 2013	Nelson et al., 2002	Mitchell et al., 2012	Sinsky et al., 2013	Mohr & Donaldson, 2000
Communication	<ul style="list-style-type: none"> <li>Communication</li> </ul>		<ul style="list-style-type: none"> <li>Effective communication</li> </ul>	<ul style="list-style-type: none"> <li>Verbal and inbox messaging, team meetings</li> </ul>	
Roles and Collaboration	<ul style="list-style-type: none"> <li>Respecting and understanding roles</li> </ul>	<ul style="list-style-type: none"> <li>Staff focus</li> <li>Interdependence of care team</li> </ul>	<ul style="list-style-type: none"> <li>Clear roles</li> </ul>	<ul style="list-style-type: none"> <li>Interdependence of the care team to meet patient needs</li> </ul>	<ul style="list-style-type: none"> <li>Alignment of role and training for efficiency and staff satisfaction</li> </ul>
Leadership and Management	<ul style="list-style-type: none"> <li>Leadership and management</li> <li>Clarity of Vision</li> </ul>	<ul style="list-style-type: none"> <li>Leadership</li> </ul>	<ul style="list-style-type: none"> <li>Leadership</li> <li>Shared Goals</li> </ul>	<ul style="list-style-type: none"> <li>Constancy of purpose</li> </ul>	
Scope of Practice	<ul style="list-style-type: none"> <li>Appropriate skill mix</li> </ul>				
Evaluation and Outcome Measurement	<ul style="list-style-type: none"> <li>Quality of outcomes of care</li> </ul>	<ul style="list-style-type: none"> <li>Process Improvement</li> <li>Performance Patterns</li> </ul>	<ul style="list-style-type: none"> <li>Measurable processes and outcomes</li> </ul>		<ul style="list-style-type: none"> <li>Ongoing Measurement of outcomes</li> </ul>

Technology		<ul style="list-style-type: none"> <li>• Information and information technology</li> </ul>			<ul style="list-style-type: none"> <li>• Integration of information and technology into work flows</li> </ul>
Strategic Relationships					<ul style="list-style-type: none"> <li>• Supportiveness of the larger organization</li> <li>• Connection to the community to enhance care delivery and extend influence</li> </ul>
Professional Development	<ul style="list-style-type: none"> <li>• Appropriate resources and procedures</li> </ul>				
Investments					<ul style="list-style-type: none"> <li>• Investment in improvement</li> </ul>
Infrastructure				<ul style="list-style-type: none"> <li>• Space that allows for shared clinical tasks, co-locations, work-flow, and mapping</li> </ul>	
Organizational Culture	<ul style="list-style-type: none"> <li>• Climate</li> </ul>	<ul style="list-style-type: none"> <li>• Culture</li> </ul>	<ul style="list-style-type: none"> <li>• Trust</li> </ul>		
Care		<ul style="list-style-type: none"> <li>• Patient Focus</li> </ul>		<ul style="list-style-type: none"> <li>• Shared Clinical Care</li> <li>• Proactive planned care</li> </ul>	
Individual Characteristics	<ul style="list-style-type: none"> <li>• Individual characteristics</li> </ul>		<ul style="list-style-type: none"> <li>• Honesty</li> <li>• Discipline</li> <li>• Creativity</li> <li>• Humility</li> <li>• Curiosity</li> </ul>		

Note: Dinh (2012) discussed barriers to interprofessional teams and therefore the phrasing for the reference is reverse that of the other references provided in the table.

Lastly, Ragaz et al. (2010) conducted interviews with the executive directors, lead physicians, and other independent health professionals of five FHTs in Ontario. The five FHTs were a mixture of urban and rural setting and were identified as ‘successful’. Ragaz et al. (2010) identified four main lessons and 17 sub lessons that were identified as strategies for FHT leadership.

As can be seen, there is a significant amount of literature and attention spent on the characteristics of high performing teams, but still there are gaps that describe the processes and structures that high performing teams use.

## 2.5 Chronic Obstructive Pulmonary Disease

Patients with chronic diseases, like chronic obstructive pulmonary disease (COPD), benefit from the care by interprofessional teams. COPD has become one of the significant health challenges facing society. COPD is the third leading cause of death worldwide (López & Campos et al., 2016) and was responsible for 5% of the deaths worldwide in 2015 (WHO, 2017). COPD is “characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities” (Agustí et al., 2017, p. 1). The limited airflow that is characteristic of COPD is caused by a mixture of small airway disease (obstructive bronchiolitis) and parenchymal dysfunction (emphysema) manifesting as dyspnea (shortness of breath), an unproductive chronic cough due to excessive sputum production, and an increased risk for respiratory infections and acute exacerbations (Agusti et al., 2017). Acute exacerbations, or lung attacks, are periods of acute worsening of symptoms that occur more frequently as disease severity progresses, further compromising patient’s lung function (Agusti et al., 2017). COPD is caused by chronic exposure to inhaled toxins, typically tobacco smoke, environmental exposure such as biomass fuel exposure, and exposure to outdoor pollutants. Approximately 30% of all diagnoses come from occupational and outdoor pollution, such as cooking over a fire (López & Campos et al., 2016).

## Prevalence of COPD

The prevalence rates of COPD are difficult to determine due to high rates of un-diagnosis and an inconsistent measure for diagnosis ((López & Campos et al., 2016); however, recent studies have predicted that 17-19% of Canadians aged 35-79 meet the diagnostic criteria for COPD (Evans et al., 2014; Tan et al., 2009). Similarly, Hill et al. (2010) determined using spirometry that prevalence rates were 20.7% in Ontario. This rate of 20.7% is compared to the self-reporting prevalence rates of 5.9% in Ontario by Smetanin et al. (2011). This discrepancy is due to the large percentage of people that display symptoms of mild COPD without proper treatment and diagnosis.

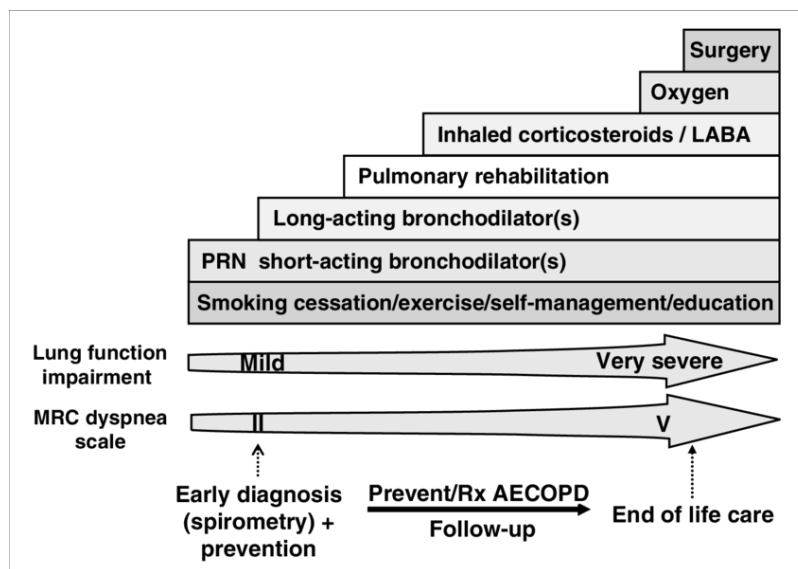


Figure 2.1 Canadian Thoracic Society recommendations for a comprehensive approach to managing COPD. (O'Donnell et al., 2008). AECOPD Acute Exacerbation. Rx Prescription. MRC Medical Research Council. PRN As Needed. LABA Long-Acting Beta2 Agonist.

## Usual Care of COPD

The care for COPD depends on the severity of the disease and the frequency of exacerbation (O'Donnell et al., 2008). See Figure 2.1. Early diagnosis and monitoring of the disease using spirometry is recommended to determine lung function, which can change dramatically without showing symptoms. The first step to managing COPD at any disease stage is smoking cessation to eliminate exposure, exercise to maintain and improve lung function, self-management to empower patients to manage their disease daily, and education to help patients understand the progressive nature of the disease and

ways to slow progression. Patients within all stages of COPD will be placed on inhalers ranging from short-acting emergency inhalers, to long-acting inhalers, to inhaled steroids. Once COPD has progressed from severe to very severe, patients will be placed on oxygen, with surgery being an option for some.

### Cost of COPD Care

Current primary healthcare interventions for COPD often focus on reactionary care after an acute exacerbation resulting in an ‘acute rescue’ care cycle requiring repeated hospitalization (Fromer, 2011). Exacerbations place a large financial burden on the healthcare system and consume more than 50% of total COPD healthcare spending (Fromer, 2011). In 2007, the estimated total economic burden of direct and indirect costs of respiratory diseases in Canada totaled \$154 billion (The National Lung Health Framework, 2008). In 2011, the direct costs for COPD in Ontario, Canada was \$3.3 billion dollars (Smetanin et al., 2011), and COPD severity has a direct relationship with healthcare spending. Waye and Jacobs (2016) reported that in 2014 in Alberta, Canada 49,000 patients with mild to moderate COPD accumulated healthcare costs of \$27 million whereas 14,000 patients with severe COPD accumulated healthcare costs of \$187 million dollars. Out of the total money spent on COPD that year, 51% of it was spent on hospital services for acute exacerbations (Waye & Jacobs, 2016). Therefore, due to its high prevalence and the clinical and economic burden associated with COPD, a focus on COPD’s ongoing management and prevention in primary healthcare is needed (Fromer, 2011).

### Successful Management of COPD in Primary Care

Fromer (2011) discussed that planned visits should be scheduled where patients can work on and learn more about maintenance as an individual or with family members present. However, if acute care is needed, then same day appointments are critical. During maintenance appointments, patients should learn about medication management, patient education, spirometry and disease staging, pharmacotherapy initiation, inhaler training, influenza vaccination, smoking cessation, and physical exercise (Fromer, 2011). All of the above-mentioned maintenance items should be based on current COPD guidelines (Fromer, 2011). Fromer (2011) also suggested that utilizing electronic

medical records to ensure appropriate follow up, task assignment, and to assist in following guidelines in the daily workflow are helpful. Fromer (2011) also found that teamwork was achieved within allied health professional teams by “assigning tasks based on actual skill sets and ensure that every team member works at the highest skill level permitted by licensing” (p. 608). Lastly, a COPD coordinator, such as a respiratory care specialist, specially trained respiratory therapist or nurse, was suggested to assist patients (Fromer, 2011).

## 2.6 Purpose

This chapter provided background on the use of interprofessional healthcare teams in primary healthcare for the treatment of patients with COPD. A review of the literature has found that the state of research surrounding high-performing teams is robust, even for high-performing FHTs in Ontario. While there is significant literature examining the characteristics of high-performing interprofessional primary healthcare teams, there are some gaps in the literature regarding the processes and structures that these high-performing teams use. Although it is useful to identify characteristics that high-performing teams have in common, little information has been found that explains how to develop or evaluate these characteristics. Several studies did mention that the context in which the team is placed influences the characteristics that are important for each specific team, which makes generalization difficult. Additionally, only one study, Ragaz et al. (2010), specifically looked at the FHT context in Ontario; however, the authors focused primarily on the role of leadership. As such, there is a gap in the literature regarding the processes and structures used by high-performing interprofessional primary healthcare teams generally, and in Ontario’s FHTs specifically. As a result, researching this gap is warranted.

Furthermore, research surrounding the structures and processes for the provision of disease-specific programs, such as COPD, by high-performing interprofessional teams was also found to be absent. As well, the use of COPD educators, similar to the role of diabetes educators for diabetes, has been established to play a critical role in the optimal management of COPD (Amalakuhan & Adams, 2015), yet little research has been conducted on the integration of the COPD educator role in primary care. Diabetes



educators have been shown to enrich patient experience and patient knowledge, and greatly support primary care physicians (Grohmann et al., 2017). Hernandez et al. (2013) acknowledged that there is a care gap for access to COPD educators and the need to validate the perceived benefit of COPD educators by patients and providers. Therefore, this study seeks to explore the role of COPD educators working on a high-performing primary Lung Health Team.

## Chapter 3 - Methods and Methodology

This chapter explains the methodology and methods selected to answer this study's research questions and to outline the methods used in study to demonstrate rigor and adherence to the methodology that was chosen. The chapter begins with a brief reintroduction to the purpose of the study, followed by a description of the nature of the study and a justification of the methodology and methods used to complete this research. Finally, the quality criteria used in the study to promote rigor in the study will be offered.

### 3.1 Research Tools and Procedures

#### Qualitative Methodology

This study seeks to explore the success of a primary healthcare team that developed a Lung Health Program utilizing certified respiratory educators (CREs). A qualitative methodology was chosen to aid in the exploration (Denzin & Lincoln, 2011). Creswell (2007) describes five approaches to qualitative research that occur most frequently in social, behavioural, and health science literature: narrative, phenomenology, grounded theory, ethnography, and case study. Narrative research tells the story of participants' lived experiences. Phenomenology research describes a phenomenon's essence by exploring participant's experiences with the phenomenon. Grounded theory research develops theories from people's experiences to clarify less-understood problems, situations, or contexts. Ethnography research observes participants in a 'real-life' environment to explore how context and culture guides the human experience. Case study research investigates real-world cases and assumes that the investigation involves important contextual conditions in relation to the case (Yin, 2017). Case study methodology was used for this study.

Case study methodology is defined as "an empirical method that investigated a contemporary phenomenon (the 'case') in depth and within its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" (Yin, 2017, pg.15). Since case study methodology involves studying the case in its context, it allows for distinct methodological characteristics. For instance, there may be multiple variables influencing the case that cannot be removed as the case is being studied in context. Additionally, case study

methodology relies on multiple sources of evidence (Hyett et al., 2014; Yin, 2017), allowing for a convergence of data (Patton, 1999; Yin, 2014). These features of case study have resulted in a flexible methodology.

Case study methodology allows for teams to be studied in context, highlighting practical elements of the environment and the workplace culture (Wilkinson, 2011). Factors such as forms, routines, team values, structures, and leadership styles can also be highlighted (McCormack et al., 2011). As well, team effectiveness has been found to be influenced by organizational context (Lemieux-Charles & McGuire, 2006). These factors contribute to the complexity of studying teams, which would otherwise be lost if the team was studied in isolation (Mantzoukas, 2008).

Seminal texts describing case study methodology have been written by Yin (2014), Merriam (2009), and Stake (1995). Each methodologist approaches case study according to their epistemological and ontological views: Stake (1995) and Merriam (2009) with constructivist views and Yin (2014) with a positivist/post-positivist view. The epistemological beliefs of these researchers permeate their methods of investigation, case selection, and methods of analysis; consequently, when designing a case study, consistency between methods and the researcher's paradigmatic views is needed to achieve coherence and to improve study quality (Tracy, 2010). This case study was designed using Yinian methods to align with a post-positive paradigm. A post-positive paradigm postulates that there is one reality that can objectively and imperfectly be described and understood by bracketing oneself from the research to remove prejudice or bias (Guba & Lincoln, 1994). This differs from the constructivist paradigm, which Stake (1995) and Merriam (2005) adopt, which maintains that reality is constructed, and more than one reality exists, so constructivist research involves co-creating findings with participants based on subjectivity (Guba & Lincoln, 1994).

## Case Study Design

Yin (2017) describes three case study methodologies – descriptive, explanatory, and exploratory – each with distinct advantages and methods corresponding to the researcher's purpose and aims. Descriptive, explanatory, and exploratory methodologies can be designed around single or multiple cases; therefore, creating six (2x3) basic case study methodologies

altogether (Yin, 2017). Although each case study type has distinct characteristics, the boundaries between types are not sharp, and as a result there are large overlaps (Yin, 2017). Table 3.1 outlines the differences between the types.

Table 3.1 Compares the characteristics of exploratory, descriptive, and explanatory case study as described by Yin. (Yin, 2014; Yin, 2017)

	Exploratory	Descriptive	Explanatory
Main Goal	Explore	Describe	Explain
Main Usage	Typically used in pilot-test phase. Can be used to develop propositions.	Describe the incidence or prevalence of a phenomenon. Can be used to develop theory.	Can test theory and cause-effect relationships.
Study Design	Some rationale and direction determined prior to study beginning, but defining questions and hypothesis determined during study are used for subsequent studies.	A descriptive theory is developed prior to study, which determines the priorities for data collection.	One or more explanatory theories are chosen, and cases are found to support or refute theories. The study design tests the theory.
Types of Questions	'what'	'who,' 'where,' and 'what'	'how' and 'why'
Use of Theory	Typically used when previous literature and theory around topic is lacking.	Developed from the literature that covers the scope and depth of what is being studied.	Explanatory theory or theories
Research Aims and Questions	To develop hypothesis and propositions used in further studies.	To describe a phenomenon and assist in testing descriptive theories.	To test existing theories and explain presumed causal links.

This study used an exploratory case study methodology. The exploratory process allows for preliminary propositions and hypotheses development that are then used in future research,

thereby acting as ‘pilot’ research methodology (Streb, 2010). This study utilized an exploratory case study methodology to develop prepositions and hypotheses that will guide future studies in developing a conceptual framework for testing and evaluating high-performing teams.

Exploratory case studies provide researchers with flexibility and adaptability to begin research without specific or well-defined propositions or research questions (Streb, 2010). This study was initiated by the Lung Health Program’s Cofounders and members of the Advisory Team. They approached the Principle Investigator (PI) to study the team because they identified themselves as high-performing, which fit into the PI’s current stream of research on high-performing primary healthcare teams. Moreover, the team was looking for advice about the spread and sustainability of the program. Little was known about the team, its structure, providers, and program when the research began, so detailed research questions and propositions were not generated in advance – a suitable situation for the use of an exploratory case study (Yin, 2017). Lastly, the general research questions used in this study are posed as “what” questions, which is consistent with exploratory research (Yin, 2017). Although the results of this case study contain a detailed description of the team and program, this research’s design and scope are more consistent with an exploratory case study, a characteristic overlap that case study methodology allows for (Yin, 2017).

The methodological flexibility of the exploratory case study approach is seen by some as a weakness, allowing for inadequate or unscientific studies (Streb, 2010), but attention to validity and reliability can demonstrate the soundness of the research methodology (Streb, 2010; Yin, 2018). The methods used to achieve credibility and rigor, and improve quality, are explained in detail in Section 3.6.

## Case Study Design and Case Selection

Yin (2017) further classifies case studies on the number of cases and units of analysis being studied (See Figure 3.1). Case studies that examine one case are called single-case case study, whereas those examining more than one case are called a multiple-case study. Single and multiple case studies can also have multiple units of analysis. A unit of analysis is defined by Yin (2017) as a bounded entity, which can be a person, organization, event, etc. A holistic case study has only one unit of analysis (Yin, 2014) and focuses on the global unit (Yin, 2009). Meanwhile, case studies can also have an embedded design with multiple units of analysis (Yin,

2014), allowing the researchers to focus on different parts of the case. Combinations of these four designations create Yin's (2018) four case study designs: single-case holistic design, single-case embedded design, multiple-case holistic design, and multiple-case embedded design. This

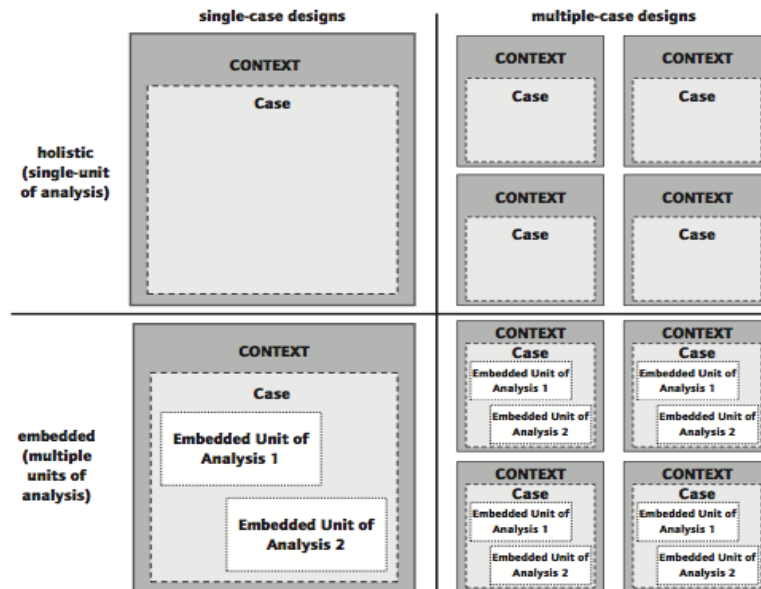


Figure 3.1 Basic Types of Designs for Case Studies Source: (Yin, 2014)

study's design was a single-case holistic case study. A single-case holistic case study binds the case to a single unit of analysis, and for this study the unit of analysis was the primary healthcare team that delivers the Lung Health Program across the collection of Family Health Teams (FHTs) (which will be referred to as the Lung Health Team moving forward). Defining the boundary of this case study to the 'Lung Health Team' helps to focus the study (Baxter & Jack, 2008), which is important for this research as the Lung Health Program is large in scope and is offered in seven FHTs. Binding the case study to the Lung Health Team also helps to develop inclusion and exclusion criteria for participants (Baxter & Jack, 2008).

Yin (2014) lists five rationales when selecting cases for single case study: a critical case, an extreme case, a representative case, a revelatory case, and a longitudinal case. The case selected for this study was an extreme case. The Lung Health Team represents an extreme case because the team acts as an outlier in primary care due to its successful patient outcomes; it has an extreme value. Seawright and Gerring (2008) explain that outliers are especially valuable because they offer "an observation that lies far away from the mean of a given distribution; that

is to say, it is unusual. ... For case study analysis, it is the rareness of the value that makes a case valuable” (p. 301). Although this team utilizes a chronic care respiratory model that follows guidelines available to all FHTs and primary health providers across Ontario, the team has consistent patient outcomes that are unique across the province. The interest surrounding this team’s success, the uniqueness of the team’s structure, and the successful patient outcomes come together to make this case an extreme case.

### 3.2 Participants

To study the Lung Health Team, purposeful sampling was used to recruit participants for the study (Creswell, 2007). Various participant types were recruited to develop a well-rounded perspective of the Lung Health Team and program, and to answer the research questions. For identification purposes, participants employed as members of the healthcare team were referred to as providers, and all participants who received medical treatment or are family support members are referred to as patients. See Figure 3.2.

Three types of providers were recruited for this study: (1) providers that deliver the Lung Health Program (identified as the Coordinating Team); (2) providers that provide an advisory and administrative role to the running of the Lung Health Program (identified as the Advisory Team); and (3) providers that work in the FHTs and work alongside the Coordinating Team (identified as Other Providers).

Patient participants were included in the study if they were: (1) individuals, or family members of individuals, that are currently receiving treatment by the Lung Health Team; (2) are 18 years or older; and (3) can read and write English. Participant demographics are detailed in Section 41.

## Recruitment

Recruitment of providers and patients occurred with the help of the Lung Health Team's cofounders, who contacted the PI to study their team and who acted as gatekeepers throughout the research (Lavrakas, 2008). Several recruitment methods were used depending on the level of access provided by the cofounders. The PI and research team were invited by the cofounders to attend team meetings of the Advisory Team and the Coordinating Team to gain access to the providers for recruitment. The meetings took place in March and April 2017, respectively. The PI presented study rationale and outlined the study procedures prior to obtaining informed

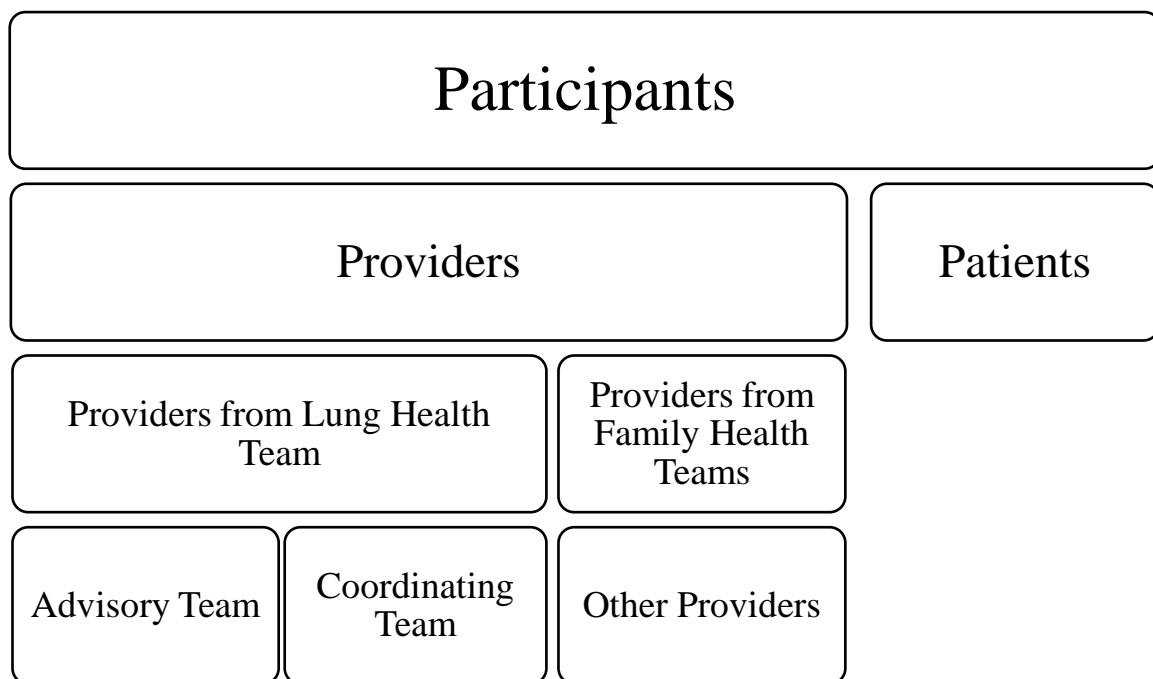


Figure 3.2 Types of participants recruited.

consent of providers at both team meetings. All providers associated with the Coordinating Team and the Advisory Team consented to participate in this study. Further detail about participant demographics are provided in Section 4.1.

The cofounders did not give access to patients for recruitment, so patient recruitment occurred through the Coordinating Team. The Coordinating Team were given recruitment flyers to give to patients and family members when they attended their scheduled appointments. The Coordinating Team was given instructions to recruit participants that met the inclusion criteria of



the study. The cofounders allowed for approximately fifteen patient participants to be recruited for the study and scheduled the focus groups when recruitment had been completed.

The Other Providers were recruited for the study by a recruitment email sent to all executive directors of FHTs that offer the Lung Health Program. The executive directors then passed the recruitment email on to any providers that worked alongside the Coordinating Team. Email addresses for any Other Providers interested in participating in the study were passed to the researchers by the cofounders. Recruitment took place until no further providers were interested in participating in the study.

Consent to participate in the study by Patient participants and Other Providers participants was collected by the researcher at the beginning of the focus groups or phone interviews, respectively.

### 3.3 Data Collection

Data was collected from focus groups with the Coordinating Team, Advisory Team providers, and Patient participants. Phone interviews took place with Other Providers. Lastly, an environmental scan was performed to understand the internal and external contextual factors affecting this team. The specifics of each data collection method are explained in more detail below.

#### Focus Groups

Focus groups explore the knowledge and experiences of participants (Kitzinger, 1995). A semi-structured interview guide, specific to the participants' roles, was created to lead the focus groups. The provider focus group guide consisted of 7 open-ended questions with prompts (Appendix E) that focused on the team's development, the team's perspective of successful and high-performing teams, and facilitators and barriers to the team's success. The patient focus group guide consisted of 8 open-ended questions with prompts (Appendix F) to discuss the patient's perception of their healthcare team, the care they receive, and their role on their healthcare team. The focus groups were audio-recorded and transcribed verbatim by the transcription company Transcript Heroes. The facilitator and notetaker recorded field notes to

capture non-verbal details of the discussion. All transcripts were reviewed and ‘cleaned’ to remove any personal identifiers.

Focus groups with the Advisory and Coordinating Teams took place separately during their next team meetings in September and June 2017, respectively, and took 1 hour. The provider participants from each team were purposely divided to allow for homogeneity in group composition so that providers with more experience or leadership roles would be together in the same focus groups (Krueger, 2014). Patient focus groups were scheduled by the Coordinating Team providers. Patients were grouped according to the Coordinating Team provider they receive care from.

Table 3.2 Number and Type of Focus Group Participants

Focus Group Participant Types	Number of Participants that Participated in Focus Group (N = 33)
Advisory Team Focus Group #1	5
Advisory Team Focus Group #2	7
Coordinating Team Focus Group #1	3
Coordinating Team Focus Group #2	5
Patient Focus Group #1	5
Patient Focus Group #2	3
Patient Focus Group #3	5

## Phone Interviews

Phone interviews instead of focus groups were conducted with the Other Provider participants. Focus groups were appropriate for the Coordinating Team and Advisory Team because they took place during a previously scheduled team meeting and providers did not need to reschedule clinical work hours; however, focus groups were not appropriate for this participant type as they are employed at different FHTs and attending a focus group would disrupt their clinical work hours. Seven phone interviews took place with Other Providers. A semi-structured interview guide was used for the interviews and focused on the perceived benefit

of the Lung Health Team by the Other Providers. The interviews took place when the Other Providers were at work and lasted 5-20 minutes each. The shortest interviews took place with physicians. Interviews were audio-recorded and transcribed verbatim by the researcher. The researcher conducting the interviews took field notes during and after the interviews. All transcripts were ‘cleaned’ to remove any personal identifiers that may reveal the identity of the participant. Phone interviews took place until data saturation had taken place and the researcher was not learning new information from subsequent interviews (Morse, 1995).

## Environmental Scan

An environmental scan was used to investigate and identify internal and external factors that act as facilitators and barriers to the Lung Health Team and influence future decisions (Albright, 2004; Muralidharan, 2003). Environmental scans originated in the business field but have been used in health research to map quality improvement initiatives in the primary healthcare sector (Sibbald et al., 2013), and to determine health literacy processes and initiatives (Scime, 2017). The environmental scan took place by conducting a document analysis of internal documents (Scime, 2017; Sibbald et al., 2013) provided by the Advisory and Coordinating Team, observations of team meetings (Choo, 2001), and a comprehensive internet search (Graham et al., 2008) of Lung Health Programs offered by primary healthcare organizations in the regional area of the Lung Health Team as defined by the current Local Health Integration Network (LHIN) boundary.

This environmental scan took place in two phases. First, the external context was investigated by conducting a comprehensive internet search to determine how the Lung Health Team and program were positioned in the LHIN’s primary healthcare landscape. Primary healthcare organization’s websites – such as FHTs and Community Health Centers located within the LHIN, and the LHIN website – were manually searched for programs and services geared for patients with chronic respiratory disease, and more specifically COPD. Additionally, healthline.ca was searched and Google searches for “COPD programs and services in {insert LHIN name} LHIN” were conducted. Saturation occurred when no new programs were found during searches. Hospitals and public health organizations were excluded from the search, as the focus of this environmental scan was on programs offered in primary healthcare. Information about any programs or services related to chronic respiratory disease, or COPD specifically,

were entered into an Excel database. Data was collected according to: program type, services provided, organization offering services, and focus of program.

The second phase of the environmental scan took place by investigating the internal context of the Lung Health Team. This was done in two ways: observations and document review. Observations took place during a Coordinating Team meeting and an Advisory Team meeting. Field notes were taken during the team meetings collecting data regarding the non-verbal communication, noting which members of the team spoke the most and who team members deferred to, and the content of the team meetings. It was during these two team meetings that recruitment for the study took place. A review of internal documents also occurred during this phase of the environmental scan. Providers from the Coordinating and Advisory Teams were asked to provide internal documents about the Lung Health Program they felt were pertinent to our understanding of their team, which totaled 20 internal documents. These documents included vision and mission statements ( $n = 3$ ), meeting minutes ( $n = 12$ ), proposals and funding requests ( $n = 4$ ), and a memorandum of understanding ( $n = 1$ ). Due to confidentiality reasons, the details of the internal documents are not included in this report although they were used to triangulate findings and provide a deeper context to the data collected from the participants and the external documents.

### 3.4 Data Analysis

Yin (2017) describes that analysis during a case study can be deductive and rely on theoretical propositions, inductive and analyze the data from the 'ground up', organized to create a case description, and examine plausible rival explanations. This analysis was inductive, meaning that findings emerged from the data and are data-driven, rather than utilizing deductive coding methods, which refers to analysis being more theoretically driven. Common approaches to data analysis in qualitative studies are content and thematic analysis (Vaismoradi et al., 2013). Content analysis is the systematic coding of data into categories, whereas thematic analysis involves identifying pattern or themes in the data (Vaismoradi et al., 2013). Content analysis typically involves more descriptive analysis looking at categories and frequencies in categories, while thematic analysis often utilizes more interpretation and minimal description of the frequencies of categories found in the data (Elo & Kyngä, 2008; Vaismoradi et al., 2013). Inductive thematic analysis was used in this research as a method for identifying, analyzing,

organizing, describing, and reporting the themes that emerged from the data (Braun & Clarke, 2006).

The analysis occurred iteratively, meaning that it began when data collection began and was ongoing. The researcher had conversations about field notes and team meeting observations with fellow researchers to begin the analysis. Immersion into the data and into analysis also began when transcripts were cleaned and/or created. Each focus group transcript, interview transcript, field note, and document were read multiple times, with and without audio-recordings, to ensure immersion in the data (Morrow, 2005). All data was uploaded and analyzed using NVivo 11, a qualitative analysis software. The data was organized multiple times (Yin, 2017) in NVivo 11 to assist with the different phases of data analysis described below and to increase the reliability of the entire case study (Yin, 2017).

Coding is the process of identifying and reordering data as a means of reducing data and decontextualizing the data into chunks, but also for expanding and transforming the data (Braun & Clarke, 2006; Coffey & Atkinson, 1996). Several phases of coding took place during this analysis. During the first phase of coding, the researcher read the data section by section and wrote initial codes to describe the data. Codes were created by looking at both latent and manifest content, creating codes based on interpretation or based on content, respectively (Vaismoradi et al., 2013). This first phase of the coding process was also conducted by the PI and a fellow graduate student and open codes and thoughts of possible emerging themes were discussed. Any discrepancies were discussed until agreement was reached.

After the initial coding process, the data was reread by the researcher, and the codes created during open coding were examined. Codes were grouped together with other codes containing similar content. This phase was repeated several times to ensure the accuracy of the codes grouped together and that no other codes were emerging from the data. Potential themes and subthemes were created and data relevant to each theme was collected. The potential themes and subthemes were discussed during several research team meetings with the PI and a fellow graduate student to ensure accuracy. Lastly, the data was read over one last time to confirm the data had been properly coded for the themes and subthemes.

The analysis process began with data collected from the focus groups. Focus group transcripts were read and analyzed according to participant type (Providers – Advisory Team, Coordinating Team; Patients) first, and then all focus group data was integrated together and analyzed as a whole. All phone interviews were analyzed together. After the phone interviews were conducted, themes across all participant types began to emerge. An analysis of the themes across the participant types then took place. The data collected from the environmental scan was analyzed according to source.

Each data source was collected to assist in answering the study's research questions, which is outlined in Table 3.3 below.

### 3.5 Ethics

All methods and procedures for this study have been approved by the Western Research Ethics Board (REB Protocol# 108415). Written informed consent was collected from all participants prior to joining the study. Participants are aware that the description of the team described in this case study may lead to the identity of the team being revealed; however, all data was anonymized to maintain a level of confidentiality for individual members of the team.

### 3.6 Quality

In qualitative research generally, and in case study methodology specifically, paradigmatic and theoretical approaches should be explicitly stated to provide justification of methods and methodology and to improve study validity (Hyett, 2014). This study follows a post-positivist paradigm and aligns with Yin's (2017) post-positivist methodological description of exploratory case study. To achieve paradigmatic adherence the methods used, including the study design, data collection and analysis, align with a post-positive perspective. Reflexive notes were created during data collection and analysis to encourage reflexivity and bracketing to remain objective (Koch & Harrington, 1998). The results were triangulated by using multiple methods of data collection, conducting report backs throughout the data collection process, and drawing on a collective analysis approach by reviewing coding with other researchers of the project to improve the results' credibility (Koch & Herrington, 1998; Tracy, 2010). Two report backs were given to the Coordinating and Advisory Team to improve the trustworthiness of the data and to ensure that the data analysis resonated with the participants (Brit et al., 2016).

Table 3.3 The data sources and related research questions.

Research Question	Data Source	Data Analysis
1. What are the components of the primary healthcare team and the Lung Health Program that contribute to improve performance?	Focus Groups, Internal Documents, Observations, Phone Interviews	Integrated analysis of focus groups and phone interviews. Internal documents and observations as triangulation.
2. What are the facilitators and barriers that affect this team?	Focus Groups, Phone Interviews, Internal Documents, Web Search	Integrated analysis of all data.
3. What is the perceived benefit of this Lung Health Program to patients and providers?	Focus Groups and Phone Interviews	Analysis of data according to participant type.
4. What would support the sustainability and spread of this Lung Health model?	Focus Groups and Web Search	Integrated analysis.

Yin (2017) describes four tests of quality in case study research. First, the test of construct validity examines if appropriate operational definitions are being used for the concepts being studied (Yin, 2017). To ensure that construct validity is achieved, Yin (2017) suggests collecting multiple sources of data, having a chain of evidence, and performing member checks. Multiple forms of data were collected for this study, the chain of evidence was clearly laid out in the findings chapter of this thesis, and the preliminary results were sent to the provider participants for review. Secondly, internal validity helps to identify if the causal relationships being studied are in fact related and not influenced by another ‘hidden’ variable that the research did not control for. Internal validity of a study can be improved by ensuring the correct data analysis methods are being used. This test of quality is only relevant for explanatory case studies, as descriptive and exploratory case studies do not test causal relationships. Thirdly, the test of external validity determines whether the case study results are generalizable beyond the study. The findings of case studies are often not suitable for generalizability due to the complex contextual nature of case study methodology; however, the findings can be generalized using theory, which is called analytic generalizability (Yin, 2017). To achieve analytic generalizability, studies can be supported by descriptive theories or explanatory theories. In an

exploratory case study, which does not use descriptive or explanatory theories, theory and literature can be used after analysis to examine how the results of the study align. Lastly, Yin (2017) describes the test of reliability, which maintains that study results should be able to be repeated by another researcher. To maintain reliability in this research, the data was stored in a database separate from the researcher's reflexive notes to ensure that the researcher's bias was not included in the data, and the chain of evidence was clearly explained in the results section of the report. A detailed case protocol was created and followed to ensure that other researchers could duplicate the findings of this research (Yin, 2017).



## Chapter 4 - Findings

This chapter describes the findings from the analysis of the data collected to explore and learn lessons from the primary healthcare team under study and their Lung Health Program. This chapter is divided into three sections. The first section describes the participants' demographics. Next, section two, provides an overview of the team and its context. Finally, the chapter ends with an outline of the four themes and themes that emerged from the data analysis. The participants quotes are used in this chapter to support the claims of this study (Sandelowski, 1994) and to provide a chain of evidence (Yin, 2017). All quotes have been deidentified; however, participant's roles and the participants group has been provided for context.

### 4.1 Participant Demographics

Overall, 41 participants consented to participate in this study, of which 28 were providers and 13 were patients or family members of patients. However, not all providers of the Advisory Team that attended the recruitment team meeting and consented to the study were able to attend the focus group team meetings; therefore, there is a discrepancy between the number of participants that consented to participate in the study and the number of participants that participated in the focus group. No other opportunities to hold focus groups with these missing participants were afforded by the cofounders. Additionally, two providers that consented to participate in the study are members of both the Coordinating Team and Advisory Team; therefore, they attended both the Coordinating Team and Advisory Team focus groups. Twelve participants attended the Advisory Team focus groups, eight attended the Coordinating Team focus groups, and seven Other Providers participated in the phone interviews (See Table 4.1).

### 4.2 Case Description and Context

The structure of this Lung Health Team is complex (see Figure 4.1). It is comprised of two distinct teams: Coordinating Team and Advisory Team. The Coordinating Team and the Advisory Team work together to provide a Lung Health Program in seven regionally located Family Health Teams (FHTs). The Coordinating Team is a homogeneous group consisting of certified respiratory educators (CREs) that deliver the Lung Health Program. The Advisory

Team is comprised of senior representatives from the FHTs that work collectively to secure resources and conduct research to advance the care given by the Coordinating Team.

Table 4.1 Descriptive Characteristics of the Research Participants

<b>Participant Characteristics</b>	
Consented Participants	41
Actual Participants	38
Actual Providers Participants	27
Actual Patient Participants	13
<b>Providers</b>	
<b>Advisory Team (n=12<sup>1</sup>)</b>	
Executive Director	7
Clinical Lead Physicians	3
CRE <sup>2</sup>	2
QIDSS <sup>3</sup>	2
<b>Coordinating Team (n=8<sup>1</sup>)</b>	
CRE <sup>2</sup>	8
<b>Other Provider (n=7)</b>	
Clinical Lead	2
Nurse Practitioner	2
Clinical Program Manager	2
Executive Director	1
<b>Patients</b>	
<b>Patient Diagnosis (n=11)</b>	
COPD	7
Asthma	2
Unknown Chronic Respiratory Disease	2
<b>Family Members (n=2)</b>	
Wife	1
Daughter	1
Note: <sup>1</sup> - Two participants are members of both the Advisory Team and the Coordinating Team, and they participated in focus groups with both teams. <sup>2</sup> CRE – Certified Respiratory Educator. <sup>3</sup> QIDSS – Quality Improvement Decision Support Specialist.	

## The Lung Health Program

The Lung Health Program is a comprehensive chronic care program designed for patients with chronic respiratory disease. The program works by creating a ‘triad’ between the CRE, patient, and the patient’s primary health provider, which is most often a general physician or nurse practitioner. The CRE works collaboratively with the health provider and the patient to teach self-management methods, deliver disease-specific education, create action plans, provide

emergency kits, and teach inhaler techniques. Using spirometry for diagnosis and evaluation of patient's symptoms are also critical components to the program's success.

## The Family Health Teams

The FHTs contract a CRE from the Coordinating Team to deliver the Lung Health Program and to work with the patients, physicians, and other allied health providers in the FHT. The CRE becomes embedded in the FHT while remaining part of the Coordinating Team. The seven FHTs that currently contract the Coordinating Team have 113 physicians and a total of 220,000 paneled patients. A regional standardized Lung Health Program is created by offering the same care at the seven FHTs that seeks to “deliver, improve, and measure the quality of Lung Health care provided, and to work collaboratively within and across organizations to build capacity” (Internal Document # 12).

## The Coordinating Team

The Coordinating Team is a not-for-profit corporation that has hired CREs, each having originally been trained as a certified respiratory therapist. Currently, the Coordinating Team is a homogenous team, meaning that all members on the team have the same qualifications and training; however, the CREs work alongside other allied health professionals employed by the FHTs such as other CREs, pharmacists, and nurse practitioners. The CREs work as independent health providers employed by the Coordinating Team and are contracted out to the FHTs. The Coordinating Team's vision focuses on providing Lung Health and wellness services that are patient-centered, learning-centered, evidence-based, and collaborative (Internal Document # 1) to meet their objectives of: (1) promoting a multidisciplinary community health strategy; (2) assisting in the patient's education and skills required for self-management; (3) educating healthcare providers in the delivery of guideline-based care; (4) offering community outreach to all community sectors; (5) conducting research regarding clinical practice guidelines; and (6) providing electronic tools to assist in program delivery and assessment (Internal Document # 3).

Patients with respiratory distress and disease are referred to the Lung Health Program within their FHT. The Coordinating Team had 3000 visits between April 1, 2016 to March 10, 2017 where the team saw 900 unique visits from patients with COPD or suspected COPD, had 950 follow-up appointments, and confirmed a COPD diagnosis for 442 patients. The Coordinating

Team has been recognized by the MOHLTC for their work in Lung Health and has received the Minister's Medal Honouring Excellence in Health Quality and Safety for the success of their regional Lung Health Program (Internal Document #5).

### Organizational Context

The Lung Health Team is located within the boundaries of a Local Health Integration Network (LHIN) that has placed a high priority on interventions to address chronic respiratory disease, especially chronic obstructive pulmonary disease (COPD). This LHIN is one of the few in the province that has listed chronic respiratory disease and COPD as a priority and is the only LHIN in the province with a comprehensive COPD priority (External Document #1). Therefore, this team's work is highly supported by the LHIN and the team often works with the LHIN in development of initiatives.

There are several health organizations in this LHIN that provide interprofessional team-based primary healthcare. According to the Ministry of Health and Long-Term Care (MOHLTC) there are nine Family Health Teams, 15 Family Health Organizations, one Family Health Network, and 10 Family Health Groups in the area surrounding the Lung Health team. Additionally, there are 16 Community Health Centers and two Aboriginal Health Access Centers. Currently, seven of the nine Family Health Teams have joined the Advisory Team and run the Lung Health Program with the Coordinating team.

There are a wide variety of health-related organizations that offer programs (n=54) specific for patients with COPD. These programs featured: smoking cessation (n=14), education, support and self-management (n=11), pulmonary rehabilitation (n=11), lung health programs (n=7), education and pulmonary rehab (n=3), exercise (n=2), lung function testing (n=2), education and support (n=2), lung function testing and pulmonary rehab (n=1), and education for clinicians (n=1).

The majority of the programs offered in the area were community based (n=34) being run from Community Health Centers (n=27), YMCA (n=2), a group of organizations (n=4), and public health (n=1). Other programs were run by FHTs (n=15) and hospitals (n=5), but these programs are not community drop-in programs. No websites could be found with information regarding programs offered by the Family Health Organizations, Family Health Networks, and Family Health Groups in the area, so this list might not be exhaustive.

Figure 4.1 The context surrounding the Lung Health Team

### The Advisory Team

The Advisory Team is comprised of senior representatives from seven regionally located FHTs, and members consist of a respirologist, lead primary healthcare physicians, CREs, and the FHT executive directors. The Advisory Team functions external to the seven FHTs to monitor

and advise the Coordinating Team and coordinates reporting to the MOHLTC by the FHTs to collectively bring attention to the work the Coordinating Team in the hopes of increasing MOHLTC funding (Internal Document #14). The Advisory Team aims to be recognized by the LHIN for primary healthcare innovation and works aligns its goals to meet the initiatives of the LHIN (Internal Document #15). The Advisory Team is currently conducting a random control trial using the same triad model of care by the CREs in the Coordinating Team to provide heart-specific care to patients with atrial fibrillation and chronic health failure.

### 4.3 Emerging Themes and Subthemes

The following section presents the themes that emerged from analysis of data from the focus groups, interviews, and document analysis.

Four themes and eleven subthemes were identified, which are illustrated in Figure 3.1. The following themes contribute to the success of this primary healthcare team and Lung Health Program: (1) shared team identity; (2) strength-based approach to teaming; (3) team structure drives the product, which in this case is a chronic respiratory care model; and (4) a strong product. Each theme and related subthemes will be further explained in the following four sections.

Shared Team Identity	Strength-Based Approach to Teaming	Team Structure Drives the Product	Strong Product
<ul style="list-style-type: none"> <li>•Challenges of role clarity</li> <li>•Out of a shared desire and need</li> <li>•Sharing the identity to get from here to there</li> </ul>	<ul style="list-style-type: none"> <li>• Presence of champions</li> <li>•The team is as strong as its parts</li> </ul>	<ul style="list-style-type: none"> <li>•The role of the CRE in the triad</li> <li>•CRE as consultant</li> <li>•The larger network</li> <li>•Learning organization</li> </ul>	<ul style="list-style-type: none"> <li>•Follow best practices</li> <li>•Patient empowerment</li> <li>•High Scope of Practice</li> <li>•Measure patient outcomes</li> </ul>

Figure 4.2 Four themes that contribute to the success of this primary healthcare team and Lung Health Program

### 4.3.1 Shared Team Identity

The idea of identity was repeatedly described by the study participants and found in the internal documents provided by the team as contributing to the team's success. The theme of team identity describes how well the team demonstrates belongingness by desiring to work together and the clarity of the roles played by team members. The subthemes 'challenges of role clarity,' 'out of a shared desire and need,' and 'sharing the identity to get from here to there' will be described below.

#### Challenges of Role Clarity

All participants discussed the benefits of the CREs and referring health provider within each triad. Providers explained that they saw the CREs' involvement in patient care as essential. They praised CREs for their in-depth knowledge and expertise, especially around COPD medications.

*[CRE#5] is certainly much more aware, over the last five years or so, there has been an explosion of different puffers and combinations and delivery systems, and it's nice to have somebody who's familiar with those and is able to take the time to figure out which ones work for which patient (Physician, Other Provider, Phone Interview #7).*

Similarly, patients saw both the referring health provider and the CRE as important members on their care team, but they saw the CREs as essential to their health.

*So not that I don't respect or value [GP#13], but I've really come to see [CRE#3] as a really important part of our team (Patient, Focus Group #4).*

*But I will say with [CRE#1] being here I think my chances are much better. I may be dead right now without, because I ... you know, I was really doing poorly (Patient, Focus Group #5).*

Even though the CREs were praised for being experts in lung health and were seen by patients as the cornerstone to their care, the clarity of the CRE's roll in the triad was occasionally diminished. At times, providers and patients acknowledged a hierarchy between physicians and CREs. Physicians spoke often of the CREs playing a supporting role to their care and patients believed that their care should be coming from their referring health provider.

*We're a collection of inter-professionals right, so ... there is that flat line respect and a flat line understanding that there's a fit, you're doing what is helping me (Provider, Advisory Team, Focus Group #2).*

*I'm surprised my own doctor doesn't come in and talk to me. Everything is [CRE#1]. I'm supposed to be their patient. And I'm [CRE#1]'s patient, but I get more care from [CRE#1] than my own doctor (Patient, Focus Group #5).*

Meanwhile, nurse practitioners had a different view of the role of the CRE in the triad. Unlike the physicians who discussed the CREs supporting them, the nurse practitioners acknowledged the expertise of the CRE and saw their role as supporting the care provided by the CRE.

*If the RTs make recommendations then I can just reinforce that. So, um, I may not always go in as much depth as the RTs have gone in. ... so then at follow-up, it's basically are you still continuing this right? (Nurse Practitioner, Other Provider, Phone Interview #6).*

CREs discussed that they often had to overcome these hierarchical views to gain patients' and physicians' trust. The CREs dealt with this challenge in several ways, such as acknowledging patients' desire to have physicians more involved in their care, sharing the success of the Lung Health Program with providers, creating learning opportunities, and demonstrating their expertise and knowledge.

*Patients come in, well doctor so-and-so said this, you know, 45 years ago, but he's a doctor. So, we spin it that your doctor's all part of this, don't worry, your doctor's all part of this care and I'm preparing a report, writing that report right now and the recommendations I'm making and don't – reassuring them that – for that matter, reassuring the family doctor also that we're – that it's all one collaborative. We're not making a sole decision. That's reassuring for the patient (CRE, Coordinating Team, Focus Group #7).*

*As patients were seeing results, then there was, ah, more and more trust in the individual conducting the service. So, I trust that's where you get the evolution, and that is how you get the buy-in (Provider, Advisory Team, Phone Interview #2).*

*I'm thinking of an elderly patient, and I think that [CRE#5] ended up switching the patient to a medication that I wouldn't usually think of, you know, but it's bigger, so if someone has arthritis it is easier to hold than some of the other delivery systems (Physician, Other Provider, Phone Interview #7).*

As discussed by all participants, the care provided by the CRE is fundamental to the success of the team. However, some hierarchical views by the patients and some providers reduces the clarity of the role the CREs play in the triad, which may limit the CREs access to provide care.

## Out of a Shared Desire and Need

A part of team identity is the desire for the team to work together. The provider participants discussed the history of the team and how it came together based on a shared desire and need. Collaborating with other FHTs established a “*network of survival*” (Provider, Advisory Team, Focus Group#1) when the FHTs were first established. The different FHTs recognized they shared goals with each other and by combining resources, both financial resources and personnel, during a time of need, the team was able to grow and be non-competitive with each other, and establish a regional Lung Health Program that benefits the FHTs in a non-competitive way.

*All of that sameness brought us all together trying to mine things so that we weren't recreating the wheel. ... So, looking at what, you know, what best practice is out there, what other teams are doing, and do we have the resources to leverage where we want to go (Provider, Advisory Team, Focus Group #1).*

*There's no competition, but I think there's a recognition that together we could get additional resources, right, that you know, we work, we get more as a group so it's not a competition for resources, it's actually an advantage and strategic to come together (Provider, Advisory Team, Focus Group #1).*

The need that was shared during the development of the team and the desire to work together in a non-competitive way helps shape the team's identity and helps them gather more resources as a collective.

## Sharing the Identity to Get from Here to There

Several times in the focus groups and in the internal documents the identity of the team was addressed: “a patient and learning centered innovative interprofessional team that delivers evidence based collaborative self-management” (Internal Document #2). It was very clear that members of the Coordinating and Advisory Team were aware of the team's identity and vision. Most discussions between participants addressed aspects of this identity, which allows the team to focus on what they are doing now and why the team is moving ahead.

*In the beginning it was more about...what are the things I need to deliver and service that our community needs? ... and now it's more about how do we get better? And how do we influence the system? And how do we make? How do we innovate? And how do we? So it's a different place (Provider, Advisory Team, Focus Group #2).*



Altogether, the desire to work together in a non-competitive manner, recognizing the benefit of the team's work, spreading the team's identity, and having clarity of the role of each member helps in the success of the team. While the team did acknowledge some challenges that come with defining the roles on a heterogeneous team due to the different skills, values, and scope of practice, the team discussed methods they are using to overcome these challenges.

#### 4.3.2 A Strength-Based Approach to Teaming

When speaking of why the Lung Health Team is successful and the characteristics of a successful team, participants described that the Lung Health Team is strong because it is comprised of strong individuals. Participants described that the presence of a single person had an impact on the team, like the presence of a champion or opinion leaders, and that the 'success' culture of the team was created by having a team composed of strong individuals. The subthemes 'presence of champions' and 'the team is as strong as its parts' are explained below.

##### Presence of Champions

Participants named various champions at each level of the team. The participants described these leaders as pivotal to the team's success. Three champions were specifically named throughout the provider focus groups and interviews. These leaders were seen as influential, dedicated to the team, and essential to creating buy-in from Other Providers to the program. All three leaders were described as having different roles on the team. Two are described as networkers that were a part of the leadership of the team. The third leader is described more as a facilitator because of their role in the FHT as a primary physician.

*You need the right people. I think leadership. You always have to have [GP#5] and – brings that leadership, I think, to our team as a whole. Yeah. It's a very flat, flat organizational chart. Basically, it's [GP#5], [CRE#2] and then the rest of us and I think [GP#3] is a very big facilitator because they're primary care. So, they're a family doctor, and I mean has just bought in hook, line and sinker. They speak so positively and so well that whenever they're engaging other physicians that might be fearful of joining or understanding. [GP#3] is very wonderful in how they do that. And then, of course, I mean [GP#5] is amazing. Yes. Talk about facilitation, [GP#5] can swing with the crowd and get us back on track and lead and guide (CRE, Coordinating Team, Focus Group #6).*

## The Team Is As Strong As Its Parts

Participants believed that the success of the team came from the individuals on the team, but they were divided as to whether they thought that the team's success came from having successful individuals on the team, or if there was something more.

*How we are who we are, like the dynamic piece is the people around the table, it's the strength of each individual and you know, I've been part of groups where you have that one or two people that are just so poisonous or cancerous that they bring others down to your point that there's a block. ... I think we're all of like minds around the table. I think that makes it, that's the core of how we work well (Provider, Advisory Team, Focus Group #1).*

Other members noted that as team members have left and the 'cocktail' changes, that the team remained successful, suggesting that something in addition to the individuals on the team – such as the team's culture or the shared successful characteristics – may be the reason for team success.

*Around the extent to which we created the culture that we currently exist in from a team point of view, whether it just happened you know, sometimes it's just super good people come together and then you have a great team (Provider, Advisory Team, Focus Group #1).*

*I think having the right people starting – you know, when we started, when [CRE#3] and I kind of started, we kind of pushed, I think, both of us pretty equally so that you don't sit around, right? You have to have patients and we're accountable for dollars and for numbers. So I think that has, I would think, spilled off on everybody (CRE, Coordinating Team, Focus Group #6).*

Participants described that successful individuals would be hardworking, possess a growth mindset, demonstrate a willingness to collaborate, be caring, and embrace innovation.

### 4.3.3 Team Structure Drives the Product

The structure of the team was the backbone of the Lung Health Program; it helped drive the delivery of the product, which in this case, is the chronic respiratory model of care.

Participants saw the team's structure as an important part to the team's success. The subthemes 'the triad', 'CRE as consultants', 'the larger Advisory Team Network', and 'learning organization' are explained below.

## Role of CRE in the Triad

The CREs play a unique role in the Lung Health Team as a member of the triad. Their availability allows for the development of a trusting relationship, maintains communication, provides flexible access to care, and fosters collaboration with physicians, all of which are factors that benefit patient care.

In the triad, health providers describe that they use the CREs for the timelier tasks such as action plans, the development of emergency kits, inhaler technique education, diagnosis, evaluation, and self-management education.

*We use the RT very commonly for asthma actions, planned COPD action plans, we do preliminary spirometry testing. A lot of time we get that the same day which is nice. ... They've relieved a lot of work off me in the sense that we used to do action plans which are very, very time consuming. I no longer do those. I have the RT to do those (Physician, Other Provider, Phone Interview #3).*

Since the CREs complete more involved tasks alongside patients, which are tasks that physicians' schedules often don't allow for, CREs spend longer amounts of time with the patients and therefore a large percentage of patients' respiratory care receive comes from the CRE. Longer appointments, such as the hour-long initial appointment and subsequent 30-minute follow-up appointments, foster a trusting relationship between the patient and the CRE. Patients often compared the care received from the health provider to the care received by their CRE.

*Okay you've got 90 seconds, give me, I got a guy coming in. [CRE#1] takes the time to talk to you and finds out just how you're actually doing, and what you need (Patient, Focus Group #7).*

*I should want to take care of my own health for myself, but it's like, I want to please [CRE#3], I want to do all the things I'm supposed to be doing, so that I think I'm going to have great readings when I get tested by [CRE#3] (Patient, Focus Group #4).*

Patients felt heard and felt “like a star” (Patient, Focus Group #3). Additionally, the extra time allows for the CRE to personalize the patient's care based on the patient's needs and abilities.

*I'm thinking of an elderly patient, and I think that [CRE#5] ended up switching the patient to a medication that I wouldn't usually think of, you know, but it's bigger, so if someone has arthritis it is easier to hold than some of the other delivery systems (Physician, Other Provider, Phone Interview # 7).*

For the triad to work well, all members must communicate with each other. CREs and patients described that part of the CRE role in the triad was to maintain communication between the physician and the patient and between the physician and the CRE. Communication breakdown most often occurred between the physician and the CRE. Due to a limited scope of practice, CREs must communicate all suggested medication changes or testing through a physician. For these prescription changes or requisition requests to occur, CREs communicate with providers through EMR, email, and in person, when possible, during or after a patient visit. The CREs need to maintain a flow of information about the patient to the provider. However, CREs and patients often felt that there was limited communication from the provider to the CRE. A patient commented:

*On more than one occasion [CRE#1] has to go out and check something that [GP#1] told me that didn't get to [CRE#1] until I mentioned it and then [CRE#1] went to go check on it. ... So I don't think the information is always getting to [CRE#1] in a timely manner (Patient, Focus Group #5).*

Likewise, CREs suggest that the lack of communication from the doctor impedes the CREs ability to act in a quick fashion.

*You know, patient X will have an asthma flare up and end up in emerg. and the emerg. doc ... will send something to the chart and then nothing when it's put into the chart gets sent to us so when a patient comes back in six months later or four months later and they say oh, yeah, I was in the hospital twice for an asthma flare up and it's like [sigh] (CRE, Focus Group #7).*

The CRE role tends to have more flexibility built into it, which facilitates timely access to care. Almost every patient told of an experience where they arrived at the office when they were in trouble and were able to meet with the CRE without a scheduled appointment. This availability was very important to the patients and increased the trust they had in the CRE for being available when care was most needed.

*And one day we [the patient and family member] were in here and I was really not feeling well, and we were standing at the receptionist. And [CRE#1] came out and asked me, 'How are you feeling?' And I said, 'Not worth a damn.' And [CRE#1] started talking to me and went right straight to the doctor and got different medication. [CRE#1] said, 'Don't go away.' Because they had a patient that they were dealing with. They said, 'Don't go away. You wait here,' which I did do (Patient, Focus Group #5).*

Providers discussed the importance for CREs to maintain availability in their schedule for collaboration throughout the day.

*Acute care things that you could use them for as well, like, you can do pulmonary function tests when someone is actually wheezing (Physician, Other Provider, Phone Interview #3).*

*So, on multiple occasions, I see the physicians consulting with [CRE#8] in regards to a patient they may have in their office. Or, they may just say, 'Hey, do you have room you can slot them in?' You know, bring them down the hall, um, to be able to see them. ... Even with smoking. Because a lot of times, they'll get somebody in their office, and they're really engaged, and they come from a distance. Or, they may be gone a week at a time. Not sure when they can get back in (Clinical Program Coordinator, Other Provider, Phone Interview #4).*

The CREs play a multifaceted role in the triad, which leads to positive patient outcomes. They assist patients as they navigate care with their healthcare providers. This role is hindered by a lack of communication and strategies are needed to ensure that CREs are receiving timely patient history in order to assist patients properly. One of the strategies to assist communication is the co-location of the CREs with the physician. Providers and patients discussed the importance of the proximity of the CRE within the FHT instead of having to refer out of house.

*I think that it would just be one less referral. So, one less external referral, everything in-house. I see it more as an impact for the patient. And for the community. You are giving them a specialized program right in the town that they live (Executive Director, Other Provider, Phone Interview #2).*

## CRE As Consultants

The CREs work as independent consultants in the FHTs on behalf of the Coordinating Team. This consultant role was seen as a benefit by the CREs and Advisory Team. Working as a consultant and being paid by the Coordinating Team, rather than being a paid employee of the FHTs, the CREs are accountable for the number of patients seen and the standardization of their care. The CREs' accountability for standardized care works to improve the program's fidelity.

*Yeah. It's kind of a balance between the fact that, you know, we're each operating as a consultant, right, independently, but we're still accountable for the performance and quantity and quality of those days that we're working (CRE, Coordinating Team, Focus Group #6).*

The integration of the CREs into the FHTs was seamless, as most providers and all patients did not notice this integration. Being a part of the Coordinating Team and participating in team

meetings and having the Coordinating Team's CREs cover for each other created an accountability to ensure that the care they were providing was up to standard.

*It's like comparative best practice. So, when I go through your notes and it's like oh, cool, because that's how I would have thought or oh, that's how she would have thought. Why? Oh, that's why. And you learn but it should – the interchangeability (CRE, Coordinating Team, Focus Group #7).*

*We just had a very complex patient come here for the first time in a year and [CRE#3] had seen them for several years. Very, very, very complex. Like now on oxygen, several exacerbations, etcetera. It was an initial appointment to me, but instead of the, 'Oh my God, there's so much to go through,' as soon as I put their name in I saw the last six years of [CRE#3]'s notes. It was instantaneous. ... It took an hour of, you know, research out of it because [CRE#3] had already done it. ... That's really reassuring for the patient to not have to start from scratch (CRE, Coordinating Team, Focus Group#7).*

Having the CREs work as consultants that are fully integrated providers in the FHTs improves the quality of care the patients receive.

## The Larger Advisory Team Network

The network created by the Advisory Team was seen as beneficial and innovative in ensuring that patient care follows best practice and is proven to work.

*By supporting the Lung Health Program, then we built into this bigger entity that allows us to be innovative, but when you boil it down to what it is really about, it's how did we work together, how do we come together to get funding to fund these positions and then have the creativity of individuals ... who are dedicating their time to a project, and the rest of the organization, we are able to benefit, our patients are able to benefit from the research that is being conducted, and the program that is being provided (Provider, Other Provider, Phone Interview #1)*

The Advisory Team Network is able to share its skills, resources, and expertise with the FHTs of the network to provide quality-based care, rather than the FHTs needing to individually spend these resources.

*I think just to say in a nutshell what we do is I think we look at evidence when we're looking at designing a program at the beginning. We're going to build into our program those things based on the evidence that we think are going to have an impact. And we're going to deliver that in a structured formalized way that we can measure very carefully with a lot of granularity in our database. And then we can look at outcomes and you would think that if you put things that evidence says are going to work into practice that they're actually going to work, but we just don't take that as assumption, we take, we then do the research to say let's prove that putting*

*this, these things we put in primary care, is actually going to work. That's the process that we take (Provider, Advisory Team, Focus Group #2).*

The sharing of resources improves the quality of care for COPD patients across the region because of the network's structure.

## A Learning Organization

The Advisory Team builds evaluation into the Lung Health Program and as such can be considered a learning organization. By working as a learning organization, the team facilitates learning and continuously transforms itself. Evaluation takes place at several levels: health-system level, practice level, and patient level.

(1) Health-system level: The Lung Health Team evaluates the success of the team by comparing their patient outcomes with the outcomes of the regional health system. They do this by using numbers and outcomes from regional health system administration to track their patient's health service utilization and therefore their general health and control of their disease. The team tracks visits to ED and admission and readmission rates.

(2) Practice level: The Lung Health Team evaluates the success of the program by collecting aggregate data from all FHTs. They evaluate the number of patients with suspected chronic respiratory disease that have a diagnosis, the number of patients with confirmed chronic respiratory disease that have received vaccinations and action plans, and the number of referrals into the Lung Health Program by health providers. This allows the team to monitor which FHT or health provider has low referral rates, so the team can educate the FHT or health provider on the benefits of the team and try to mediate the problem.

(3) Patient level: Lastly, the Lung Health Team evaluates the program by evaluating the patients and their outcomes specifically. The measurements and evaluations take place during visits with the CRE where spirometry, FEV1/FVC (forced expiration volume in one second/forced vital capacity) and quality of life scores (using CAT scores) are measured. The team also measures the number of patient 'no shows' and patient satisfaction (using questionnaires) to determine the patient's engagement with the program.

Evaluating the program on different levels helps demonstrate the quality of the program and gives the team tangible numbers from which they can determine areas of improvement. This increases care capacity, increases compliance of health care providers to follow the existing clinical practice guidelines, and improves screening of identified higher risk populations.

#### 4.3.4 A Strong Product

Participants commented that not only was the team and its structure a factor in the team's success, but also the team's product plays a large role in the success of the team. They felt that the product, the chronic respiratory model of care, the Lung Health Program, that the team delivered, plays a large role in the success of the team. This section talks about the characteristics of the chronic respiratory care model that were developed by the team. This theme will be described by looking at the sub-themes 'follow best practices', 'patient empowerment', 'high scope of practice, and 'measure patient outcomes.'

#### Following Best Practices

The Advisory Team used a modified Delphi process to determine which existing evidence-based Canadian guidelines developed by Canadian Medical Association aligned with care that can be offered at the primary care level (Internal Document #7). The team then followed the care delivery methods outlined in the Chronic Disease Prevention and Management Framework (MOHLTC, 2007). This ensures that the product was designed to provide the highest level of evidence-based care, which translates into better outcomes for patients.

#### Patient Empowerment

Patients described feelings of taking charge and feeling in control of their disease due to the self-management knowledge that they were learning from the CRE. Providers felt that patients were better able to manage their symptoms and anticipate an exacerbation earlier because of the self-management and education they provided.

*[CRE#3] has helped me to see patterns over time that I hadn't been aware of. [CRE#3] asks me a lot of questions that I don't even realize were related to the asthma, that really are, and she's helped me to look at it in a different way. And to be more responsible for my own health, because I can just sort of ignore lots of signs, and then all of a sudden, oh my goodness, I'm in big trouble (Patient, Focus Group #4).*



Patients explained that they relied less on medical treatment and had less healthcare utilization because they could manage their symptoms better on their own. CREs discussed that older patients were more difficult to empower due to their paternalistic mindset of dependence on their physician, but that younger patients were readily open to taking control of the management of their disease.

*I find it generational. I find at my age and less absolutely because they've Googled it and they've researched it and they are not just going to do what you ask them to do. There's a lot of dialogue. I find the seniors and more the geriatric population there's a bit of a paradigm shift with them. Like they're very used to just tell me what to do and I'll do it because that's how I always. And yeah, there needs to be a transition there. They're certainly not the ones that would lead with an action plan. Like they need help (CRE, Coordinating Team, Focus Group #7).*

## High Scope of Practice

The CREs working on the team described that they were working at their full scope of practice, which allows them to be respiratory experts. This expert knowledge assists patients and Other Providers by providing better care.

*I mean we're pumped out of the school and write your boards to be an RT. That's great, but there is – when I walked into this and just even looking at the medications it is overwhelming the amount of and then even the little things like, you know, an Advair 250 MDI, you know, two puffs VID versus an Advair 250, you know, powder. You can't do two puffs. Like it's just the little, little nuances that makes this job more challenging than the hospital job (CRE, Coordinating Team, Focus Group #7).*

Expanding the CREs' scope of practice improves the CREs' job satisfaction and increases the efficiency of the team by having the right care being provided by the right providers.

When new CREs join the team there is significant training that takes place through mentorship. New staff job shadowed seasoned CREs so that they are trained according to the standards of the Lung Health Program. The mentorship that occurs between new and seasoned CREs ensures that new staff begin developing a high scope of practice early on. This mentorship also maintains the team culture of learning and growing in knowledge. Learning opportunities by staff also take place at bi-monthly team meetings. At team meetings new medications, guidelines, and procedures are reviewed and staff collaborate and discuss difficult patient case management.

## Measure Patient Outcomes

Patients described that having their lung function measured at appointments was a good indicator of their ability to manage their disease. Patients discussed how the regular measurement created an accountability and they wanted to have “good numbers” to make their CRE proud. The measurements also provided patients and CREs with a record of how their care had progressed over time.

*It's amazing to me how much the plan has changed. Even though I don't think I've changed a lot, the drugs have changed, or my needs have changed, and we regularly change that (Patient, Focus Group #4).*

Providers described that having spirometry in the office allowed for more patients to access the test. The improved access to spirometry also allowed the providers to use spirometry in more alternative ways to just diagnosis. One provider suggested that it could be used to convince a non-smoker to engage in smoking cessation.

*I mean, sometimes it might be someone who is a middle-aged smoker having spirometry hoping that showing them their lung function has decreased and maybe it is that little bit extra to push them to quit smoking (Provider, Other Provider, Phone Interview #7).*

*They do spirometry right here in the office which is helpful too for the older people who don't want to go anywhere else (Provider, Other Provider, Phone Interview #6).*

## 4.4 Findings Summary

The goal of this research was to explore and learn lessons from a primary healthcare team and Lung Health Program. A case study of the Lung Health Team was conducted, using focus groups and interviews with the patients and providers to answer this question. The findings of the research suggests that the team's success comes from having a developed team identity, utilizing a strength-based approach to teaming, delivering a strong product, and having a team structure that can provide the product. Although the team does have barriers, primarily funding, role clarity, communication, and buy-in, the team possesses the characteristics required to overcome these barriers and deliver a quality product.

## Chapter 5 - Discussion

This study was conducted to explore and learn lessons from a primary healthcare team and its successful Lung Health Program. This chapter will begin by locating the findings of the study within the characteristics of high-performing teams outlined in the literature review chapter of this thesis. The study's findings will also be discussed in relation to the current literature surrounding these characteristics. The significance of findings and the study strengths and limitations will then follow, with the chapter ending with a discussion on how this study adds to the current literature, as well as, directions for further research.

There are many different factors that can affect the success of a primary healthcare team. The literature categorizes these factors as global factors (from the healthcare system), local factors, and within-team factors (Dinh et al., 2014; Gocan et al., 2014; Mulvale & Bourgeault, 2007). Each of the various factors will influence teams differently (Gocan et al., 2014). Findings from this study suggest that the different participant groups, for example the Advisory Team, Coordinating Team, patients, and Other Providers, discussed different factors that were relative to their particular context and knowledge of the team. For example, the members of the Advisory Team discussed health system factors, including securing financial resources, and local factors, such as a Lung Health Program, that influenced the team. The Coordinating Team participants discussed primarily local and within-team factors as they are less involved with the administrative tasks of the Lung Health program. The Other Providers, depending on their role on the team, also primarily discussed local and within-team factors. And lastly, the Patient participants discussed within-teams factors, which mostly made up their perspectives of working with the team. The majority of the themes and subthemes that emerged from this research came from data that describes the local and within-team factors. Therefore, the global factors affecting this team may be underrepresented in the findings.

Leadership is pivotal in forming a teamwork philosophy and encouraging collaboration amongst the team (Brown et al., 2015). When leadership is effective, it is known to unify team differences, enhance problem solving, and provide support for innovative clinical practices (Gocan et al., 2014). The hierarchical structuring that occurs within a healthcare team is often a cause of tension, and teams with a deep hierarchical structure reported negative effects on

teamwork (Gocan et al., 2014). The findings from this research suggest that a flat hierarchy was seen as a positive by the providers as it allowed for freedom and flexibility as well as higher levels of innovation. These findings are supported by Howard et al. (2011), who noted that teams with a greater hierarchical structure tend to have lower team culture. However, Goldman et al. (2010) suggested that shared power and accountability is challenging to operationalize within group culture as the physician has additional accountability responsibilities.

None of the literature reviewed for this thesis on the characteristics of a high-performing healthcare teams discuss the importance of a champion in leadership specifically; however, Greenhalgh et al. (2004) suggested that champions play a large role on a team. The findings from this study support this. Greenhalgh et al. (2004) noted that champions could have many roles in the organization. Three providers were named champions of this primary healthcare team, yet they all played different roles within the team. One champion acts as a transformational leader, as they were described as someone “who harnesses support from members of the organization” (p. 603). Another champion acts as a network facilitator that “develops cross-functional coalitions within the organization” (p. 603). Finally, the third champion, a primary care physician, acts more as an opinion leader, according to the definition offered by Greenhalgh et al. (2004). An opinion leader is a person with influence in the organization who exerts influence based on their representativeness and credibility. In this team, the opinion leader played a significant role in generating buy-in from other physicians and allied health professionals, thereby producing a larger scope of practice and role clarity for the certified respiratory educators (CREs) on the Coordinating Team.

Aligning with leadership is the theme of vision. The literature strongly suggests that having a vision and moving the vision into action influences team success (Gocan et al., 2014; Ragaz et al., 2010). The vision of a healthcare team is usually related to a philosophy of care and is often influenced by team collaboration (Mulvale et al., 2008). Ragaz et al. (2010) explained that to be successful in delivering on a vision, leadership must balance the demands of regulatory bodies, such as the Ministry, demands from the team, and demands of the vision. Findings from this research show that the leadership has developed a strong vision and mission for the team: patient-centered collaborative self-management. This vision was found in vision and mission statements, meeting minutes, and discussions with providers from the Coordinating Team and

Advisory Team. All members could clearly identify the team vision and how their actions were moving the team towards the vision.

Research suggests that communication, co-location and shared time and space are all characteristics of high-performing teams that could be enhanced with supportive infrastructure (Dihn et al., 2014). Previous research describes how consistent communication among providers in an FHT is critical to building trust among team members and helps in developing a shared sense of accomplishment (Ragaz et al., 2010). Communication can take place in various forms, such as email, electronic medical record (EMR), and hallway conversations (Ragaz et al., 2010). Findings from this study support that communication was important to this team's success. Physicians and CREs generally felt that communication was sufficient due to their co-location and being able to have face-to-face conversations when needed; however, CREs felt that using the current methods of communication, specifically changes to patients' status, were often not effective, thereby reducing timely access to care. An improved method of communication would provide notification of changes to patient status to both CREs and providers rather than the more passive filling of information into the EMR that is currently happening.

Patients and providers discussed how the program design of having the CREs co-located with the physicians aided in the team's successful care. CREs considered how being co-located allowed for immediate personal communication with physicians when necessary. Physicians noted that co-location helped develop trust in the CREs' ability to manage patient care, allowed for more effective acute disease management, and facilitated collaboration. Although the Coordinating Team was spread among the 7 FHTs and weren't co-located together, the findings suggest that the team's co-location together wasn't as necessary as long as there were regular team meetings and opportunities to consult with one another through phone calls, texts, and emails.

Previous research discussed how allied health professionals find it rewarding to work at their full scope of practice (Ragaz et al., 2010). For healthcare professionals to work at their full scope of practice, it is important that all providers are clear of the providers' abilities and skills (Ragaz et al., 2010). Engaged providers working in a collaborative role found that intentional definition of Other Providers' scope of practice can help avoid tension amongst the team (Ragaz

et al., 2010). Findings from this study support that when the CREs role is understood, collaboration between the CRE and physician was smooth and the patient and providers all benefited. When the CRE role was not clearly evident, tension developed between the CRE and provider. This tension could often be eliminated through education, either through passive means during lunch and learns or reports, or more direct means when the CRE or team leaders would approach the provider and discuss what services the CREs could provide.

Previous research regarding the patient's perspectives of their healthcare team shows that the patient's needs, relationships with the providers, and the structure of the healthcare context determines the patient's perception of the team members' roles (LaDonna et al., 2017). For example, patients with health failure saw allied health professionals on their team as key team members. These findings of this research support LaDonna et al. (2017), as all patients participating in this study found that the CREs on the Coordinating Team were essential to their care because of the relationship and the care that they received.

Team culture, trust, and respect within a team environment can be the result of effective leadership (Ragaz et al., 2010) and ensuring that team members have the 'right fit' (Conference Board of Canada, 2014). Previous research discusses the importance of building a high-performing team with individuals that have high-performing characteristics. These characteristics can develop the desired group culture (Gocan et al., 2014) and facilitate the functioning of the team (Mitchell et al., 2012). The literature mentions that successful health providers possessed characteristics such as flexibility, openness, leadership qualities, initiative (Ragaz et al., 2010), honesty, discipline, creativity, humility, and curiosity (Mitchell et al., 2012). This research is supported by the findings from this study. Based on these findings and the characteristics of high performance outlined by the literature, this primary healthcare team seems to function as a high-performing primary healthcare team. Likewise, the individual team members demonstrated characteristics of highly effective team members.

High-performing team literature iterates the importance of having human resource policies that aided in hiring and maintaining a high-performing environment (Ragaz et al., 2010). Although this team did not currently have specific hiring policies in place, they demonstrated that they had discussed characteristics that were important for their employees to have, such as

being hard working, innovative, knowledgeable, and having a willingness to collaborate. Additionally, the team had developed several checks, such as mentoring new staff, the use of the e-tool, and the accountability of being in a triad with a physician to ensure that new staff would enter into a high-performing culture. It would be beneficial for the team to draft a hiring policy with clear expectations for staff behaviour and work. However, for the policies to remain beneficial, they must allow for change as the team develops and be functional and straightforward (Ragaz et al., 2010).

Those physicians that ‘bought into’ the Lung Health Program and trusted CREs to provide care to their patients were able to reap the benefits and expertise of the CRE. To buy into the Lung Health Program, physicians needed to acknowledge that the CREs had more time to dedicate to patients and that the CREs may have a greater depth and breadth of knowledge. When the physician and the CRE were able to work together as a team several things began to occur: patient care and patient health outcomes improved, more guidelines were followed, and the physicians were able to learn from the process, thereby improving their practice.

When a team begins to “organize their knowledge of team tasks, equipment, roles, goals, and abilities in a similar fashion” they are described as having a team mental model (Lim & Klein, 2006). Literature suggests that team mental models allow team members to anticipate other’s actions and coordinate their behaviours, and that teams whose members share team mental model will outperform teams whose members do not (Lim & Klein, 2006). However, it is important to note that the accuracy of the team mental model is important as a team can have similar ideas and vision for the team, but those ideas and vision may not be accurate (Lim & Klein, 2006). The members of this Lung Health Team that participated in this study had all “bought-in” to the idea of CREs delivering the Lung Health Program, that is, they shared a team mental model. It is unsure if the pool of participants in the focus group and interviews was an accurate representation of the entire team. The Coordinating Team discussed times when there was conflict with providers over their role in patient care, so it can be assumed that it was not a truly accurate representation. This self-selection bias is discussed more in the study limitations section.

Patients of the Lung Health Team experienced three types of continuity of care: informational continuity, management continuity, and relational continuity. Structuring the team as a triad promotes improved communication and patient trust, as well as a sense of responsibility by the provider, all of which Haggerty et al. (2003) expressed are important factors in primary care. The triad structure gives patients “the perception that providers know what has happened before, that different providers agree on a management plan, and that a provider who knows them will care for them in the future” (Haggerty et al., 2003, p. 1221).

## 5.1 Significance of Findings

The literature reviewed for this thesis located several papers that examined the importance of interprofessional teams in healthcare. For example, Nancarrow et al. (2013) conducted a systematic review of the literature to develop a framework that listed competencies for effective interdisciplinary teamwork. This framework was supported by their research of healthcare teams in the UK. The findings of this study support the framework developed by Nancarrow et al. (2013) in a primary healthcare setting in Ontario, Canada.

Research has been conducted on the integration of allied health professionals into FHTs in Ontario. These studies have been outlined in the literature review chapter; they include the integration of occupational therapists (Donnelly et al., 2014), physical therapists (Cott et al., 2011), and social workers (Ashcroft et al., 2018); however, as previously mentioned, the integration of certified respiratory educators into FHTs in Ontario has not been studied. Studies have mentioned the success of comprehensive nursing interventions as an effective strategy for managing COPD in primary care. Likewise, this study provides validation of Hernandez et al. (2013) study to show that there is perceived benefit of the role of COPD educator in primary healthcare for both patients and providers.

All patients interviewed shared a large perceived benefit of the CREs in the Coordinating Team. Some patients believed that they would not be alive if not for the care provided them by the CREs. Likewise, all physicians included in this study that had “bought-into” the ideas of the CREs in the triad of care, believed that the CREs’ availability and knowledge were the main benefits afforded to the patients. Because of the perceived benefit of the CRE as COPD educator by both patients and providers, this model should be spread to other FHTs across Ontario. The



spread of this model could improve patient knowledge and empowerment, as well as improve the care patients receive, and therefore, possibly improve the outcomes for patients with COPD. Lastly, this model has the potential to help reduce utilization of health services by lowering ER and outpatient visits and hospitalizations. These potential provincial wide results could impact the financial and resource burden on Ontario's healthcare system.

One of the objectives of this research was to identify recommendations that would support the sustainability and spread of this Lung Health model. Four were identified through the course of this research. These four recommendations were identified based on the most important structures and processes of this study's findings.

1. Ensuring CREs work as contracted independent health professionals.

Where possible have CREs working in new FHTs contracted to the Coordinating Team. This will assist with program and implementation fidelity and accountability. At a minimum, ensure that the CREs are having opportunities for mentorship from more experienced Coordinating Team CREs and participating in Coordinating Team meetings to ensure program fidelity and continuity of care across all sites. New staff revealed how important mentorship was for them as they began work with ARG1 and their scope of practice expanded.

2. Creating team homogeneity.

Currently the Coordinating Team is mostly made up of respiratory therapists. This occupational homogeneity of the team may be assisting with team dynamics and functioning on the Coordinating Team specifically. Addition of CREs trained as other allied health professionals may create tension on the team and create feelings of hierarchy amongst providers that work alongside the Lung Health providers. Beginnings of this mindset were revealed during data collection and have created a loss of confidence and resentment by some staff towards a current CRE trained as a respiratory therapist.

Homogeneity within the Coordinating Team will complement the heterogeneity of the interprofessional team that the Coordinating Team is working with. By reducing any hierarchical tension between the members on the Coordinating Team, the less tension there will be on the larger interprofessional health team that the Coordinating Team is working with. The combination of the strengths and expertise on the interprofessional

health team, made up of physicians, nurse practitioners, and CREs, is complemented by the homogeneity of the CREs on the Coordinating Team.

3. Focusing on physician buy-in.

Physician buy-in was important for the development of the Lung Health Program and seamless care provided by the triad. To increase buy-in in new FHTs it would be helpful to identify a physician opinion leader within the new FHT and focus on educating them about the success of the Lung Health Program. An opinion leader is a person with influence in the organization who exerts influence based on their representativeness and credibility. By having an opinion leader on board in the new FHT, the spread of buy-in will increase much quicker.

4. Determine organizational readiness.

Ensuring that an organization is ready and has the general capacity to implement the Lung Health Program will dramatically improve the chance for implementation success. There are various metrics that can be used to measure an organizations readiness such as Organizational Readiness for Implementing Change (ORIC). Members of the Advisory Team identified several times that the identity of the team came from the shared need and desire. Finding other teams with the same need and desire will facilitate the uptake of the Lung Health Program.

## 5.2 Study Strength and Limitations

This study was methodologically congruent with Yin's (2014) description of exploratory case study. Data saturation was achieved during the focus groups with patients, during the phone interviews with Other Providers, and all providers on the Advisory Team and Coordinating Team participated in this study. Converging beliefs surrounding the success of the team were discovered across all participant groups, which highlighted that the team's identity, strength-based team approach, team structure, and care model used are key to the team's success. By integrating data from all four groups of participants, we identified factors from various perspectives that should all be considered when implementing this intervention into other FHTs in Ontario.

Phone interviews with the Other Providers were significantly shorter than the focus groups. Focus groups took place during team meetings, whereas interviews took place during work hours. The Other Providers may have felt that they did not have the time to answer questions fully or had limited privacy needed in their work environment to truthfully reply to the questions. Additionally, the interview questions asked the Other Providers questions about the member of the Coordinating Team, while the focus group questions asked the Lung Health Team members questions about the team they were on: the Lung Health Team. The Other Providers may have felt uncomfortable sharing truthful feelings about their co-workers; meanwhile, the Advisory and Coordinating Team would have been discussing themselves and the work that they do.

The recruitment of patients by providers enrolled in the study may have generated a cohort of patient participants that may have been biased towards providing positive reports regarding the care they receive from the providers demonstrating a false team mental model. Given that not all of the patients in the FHTs receive care from the Lung Health Team, and the researchers did not have access to patient files, it was necessary to rely on the assistance of the Lung Health Team for recruitment. Also, the patients and Other Providers that agree to participate in the phone interviews may have created a self-selection bias by wanting to help this Lung Health Team because they believe in the work that they do and is being done. To limit bias and coercion by the Lung Health Team during recruitment, the research team provided the Lung Health Team with recruitment posters to distribute according to patient scheduling. To further reduce recruitment bias, an uninvolved third party, such as the receptionist, could have handed out the flyers to patients.

Conceptual bias also took place during this research. The research team entered into the study with the idea that this team was high performing. The research team discussed our views of the team and reasons why we believed the team was high performing during consent and in the letter of information provided to the participants. With this bias in mind, the research team may have influenced participants in their view of the team. This limitation could have been prevented by bracketing the research team's views of the success of the team and reflexively examining the discourse surrounding the team's success.

Lastly, as this research progressed it became evident that the different participant groups had distinctive and valid viewpoints of the Lung Health Team; therefore, limiting the analysis to a single reality using a post-positivist lens would have limited the results of this study. Taking this into consideration, this research utilized Yin's (2014) post-positivist methods in design, but a modified post-positivist/constructivist paradigm was used for analysis.

### 5.3 Implications for Future Work

This research looked at literature surrounding the characteristics, principles, and values of high-performing primary care, FHTs, and teams. After reviewing the literature, and conducting this study, we can conclude that this team shares characteristics with other high-performing teams. Looking forward, this research can influence future work on high-performing primary care teams. A prospective study can be conducted using the characteristics found in the literature review to evaluate and identify other high-performing primary care teams. Using the main themes and characteristics of this high-performing primary care team, an evaluation framework can be developed to help identify and evaluate high-performing teams.

This study has identified a need for the expansion of the role of respiratory educators in primary care. As this Lung Health Team looks to spread their program into other FHTs, research could be conducted on the implementation of the program. This research could help to further understand this team's facilitators and barriers, and the structures and processes used by this team. Additionally, research on the implementation of this Lung Health Program would help to identify characteristics needed for organizational readiness and leadership needs for implementation to be successful.

CREs are used in primary care outside of FHTs. Research could compare the use and impact of the CRE role outside of this FHT and to understand and compare the perspectives of the CREs. The CREs in this study provided care for patients with COPD that are receiving more active curative care rather than palliative care. A study could be conducted to see how the role of the CRE changes as the patient begins to receive palliative care.

Lastly, this team could be studied in longitude to determine how high-performing teams work over time. This research could point out barriers to the team's success that could not be realized through cross-sectional research.

## 5.4 Conclusion

This study aimed to explore and learn lessons from the primary healthcare team under examination and its uniquely successful Lung Health Program to determine: (1) the components that contribute to improved performance; (2) the facilitators and barriers that affect this team; (3) the perceived benefit of the Lung Health Team by patients and providers; and (4) how best to support the sustainability and expansion of this Lung Health Team. A qualitative, exploratory case study involving 41 patient and provider participants was conducted to meet this research aim. Findings from this study suggest that a shared team identity, a strength-based approach to teaming, a team structure that can support the chronic respiratory care model, and a strong chronic respiratory care model are components that contribute to this team's high performance. A lack of physician buy-in, communication, and funding act as barriers to this team's success. Patients and physicians perceive that the Lung Health Program and CREs are very beneficial because they are knowledgeable and available. Additionally, having CREs contracted by the Coordinating Team, maintaining homogeneity of the team with CREs being respiratory therapists as much as possible, focusing on buy-in in new FHTs, and ensuring readiness and general capacity for any new FHTs will help with sustainability and spread of the Lung Health Program.

More research needs to be conducted on the processes and structures of other high performing teams to see if there is any overlap with the team studied in this research. By identifying more processes and structures of other high-performing teams, researchers and healthcare leaders can begin implementation. Improving the quality of care for patients with COPD in the primary healthcare system, would dramatically improve patient quality of life and reduce the financial and resource burden on the Ontario healthcare system. Additionally, developing an evaluation for high-performing interprofessional primary healthcare teams can help teams reach a state of high-performance faster thereby resulting in better care for all patients in Ontario.



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# Appendices

## Appendix A - Ethics Approval Form



**Western  
Research**

Research Ethics

### Western University Health Science Research Ethics Board HSREB Amendment Approval Notice

**Principal Investigator:** Dr. Shannon Sibbald

**Department & Institution:** Health Sciences, Western University

**Review Type:** Delegated

**HSREB File Number:** 108415

**Study Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**HSREB Amendment Approval Date:** March 31, 2017

**HSREB Expiry Date:** February 13, 2018

#### Documents Approved and/or Received for Information:

Document Name	Comments	Version Date
Revised Western University Protocol	108415 Clean	2017/03/25
Revised Letter of Information & Consent	Providers - Clean	2017/03/25
Revised Letter of Information & Consent	Patients - Clean	2017/03/25

The Western University Health Science Research Ethics Board (HSREB) has reviewed and approved the amendment to the above named study, as of the HSREB Initial Approval Date noted above.

HSREB approval for this study remains valid until the HSREB Expiry Date noted above, conditional to timely submission and acceptance of HSREB Continuing Ethics Review.

The Western University HSREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use Guideline for Good Clinical Practice Practices (ICH E6 R1), the Ontario Personal Health Information Protection Act (PHIPA, 2004), Part 4 of the Natural Health Product Regulations, Health Canada Medical Device Regulations and Part C, Division 5, of the Food and Drug Regulations of Health Canada.

Members of the HSREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.



## Appendix B - Letter of Information and Consent Provider - Focus Group



**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**Principal Investigator:**

Dr. Shannon Sibbald, Health Sciences, University of Western Ontario

**Research Team:**

Dr. Chris Licskai, Department of Medicine, Schulich School of Medicine & Dentistry

Dr. Tim O’Callahan, President of Essex County Medical Society

Karen Schouten, Health Promotion, Graduate Student, University of Western Ontario

Rachelle Maskell, Rehabilitation Sciences, Graduate Student, University of Western Ontario

### **Letter of Information – HEALTHCARE PROVIDER**

#### **1. Invitation to Participate**

You are being invited to participate in this research study because you are a member of a high functioning interdisciplinary healthcare team that provides care for complex patients. This mixed methods study aims to provide a better understanding of the functioning, processes and structure of interdisciplinary care teams. To assess and measure team functioning, this study will observe how interdisciplinary care teams provide care for patients suffering with Chronic Obstructive Pulmonary Disease or COPD.

#### **2. Purpose of the Letter**

The purpose of this letter is to provide you with the information required to make an informed decision regarding participation in this research study. It is important for you to know why the study is being done and what it will involve. Please take the time to read this letter carefully and feel free to ask questions if anything is unclear or if there are words or phrases you do not understand. All individuals participating in the study will be informed of any changes or new information as it may affect your decision to participate.

#### **3. Purpose of this Study**

A high-performing team is now widely recognized as an essential tool for constructing more patient-centered, coordinated, and effective health care delivery. Our goal is to support interdisciplinary healthcare teams who deal with complex patients by building a better definition of the healthcare team. We are conducting a mixed methods study which aims to better understand team functioning and process by comparing two family health teams; a high performing team and a newly forming team.

The objectives of the study include;

- Observe the function and process of care teams
- Assess core principles underlying team-based care
- Better understand the role of patients in care teams

#### **4. Inclusion Criteria**

Healthcare providers and administrative staff from family health teams that participate in the Primary Care Innovation Collaborative (PCIC) will be invited to participate. This study seeks to obtain 70 team members from your interdisciplinary facility to participate as well as 20 patients served by the PCIC.

#### **5. Exclusion Criteria**

No one currently working in the team will be excluded.

#### **6. Study Procedures**

If you agree to participate in the study, you will be asked to participate in a team focus group, complete a 15-minute survey, and participate in observation. During the focus group you will discuss team culture, function and structure as well as the different perspectives of the team. You will also be asked to “draw the team” based on your experience of working within the team. These drawings are a part of a “Systems Engineering” (SE) approach to research. The SE approach combines visual methods like mind mapping with verbal interviews to discover complex and non-procedural facets of challenging interprofessional scenarios. Lastly, you will be asked questions about your drawing to better understand how you, as a team member, understand the culture, function, and structure of the team. The focus group will be audio-recorded to ease in data collection. A note-taker will also be present during the focus groups to help with participant identification. It is anticipated that this focus group will last about 45 minutes. If a team member is unable to attend the focus group session, but wishes to participate in the study, then an individual interview can occur using the same interview guide that is used during the focus group.

Observations will take place during various team meetings where appropriate. We will also conduct an environmental scan and document review to better understand the structure of the clinic and how it influences care delivery. A mutually agreeable time and place for the focus group will be decided closer to the start of the study. It is anticipated that the entire task will be completed in one hour.

After the completion of the interview you will be provided with the researcher’s contact information should you have any questions or follow up comments. After the completion of data analysis, a report will be provided with the findings of the study. If you have any concerns or questions about the findings, you are welcome to contact the PI.

#### **7. Possible Risks and Harms**

There are no known harms associated with participation in this study. However, for some people, these questions can be distressing and this distress can occur during or after they complete the study. There may be some social or emotional risks or discomforts to participating team

members as participants will be asked about their work in the network and team, including facilitators and barriers to efficient cooperation. However, we believe that this study is low risk.

## **8. Possible Benefits**

Team members will have the opportunity to reflect on their work in the team; they will also have the chance to improve team processes by learning about any potential gaps / areas for improvement. As well, information gathered from this study may provide benefits to society that will, in general, enhance our understanding of health care teams and further develop teams and networks, and more specifically, improve the quality of health services in Ontario.

## **9. Compensation**

You will not be compensated for your participation in this research.

## **10. Voluntary Participation**

Participation in the study is completely voluntary. You may at any time withdraw from the study without giving a reason. Please see Confidentiality Section of this Letter of Information which deals with the data collected after withdrawal from the study. You do not have to take part in the study if you do not want to. Refusal to participate, consent or withdraw will generate no consequence for your employment. By signing the consent from you do not waive any personal legal rights. You have the right to not answer any questions. You should only agree to take part if you are satisfied that you know enough about these things.

## **11. Confidentiality**

Each respondent will write their initials and date of birth on a form at the time of giving informed consent. This form will have a unique study ID number.

Your research results will be stored in the following manner:

- All paper-based data will be stored in a locked cabinet in a secure office at Western University (Western Centre for Public Health and Family Medicine). Only the research team directly involved in this study will have access to these data.
- All electronic data will be stored on a secure network behind institutional firewalls at Western University. All electronic files will be password protected. Only the research team directly involved in this study will have access to these data.

The study data will be kept for a minimum of 15 years according to LHSC and Lawson policies. Depending on the possibility and length of a follow-up study, it may be used for a longer period. Withdrawal of your participation does not necessarily include withdrawal of any data compiled up to that point, however there will be no personal identifiers attached to the compiled data. Once the study or follow-up study is completed, hard copies of data or personal identification will be shredded. All other data will be deleted from hard drives and flash drives. The audio recordings and transcription of the focus group sessions will be stored with the corresponding paper-based data or electronic data and will be stored in a locked cabinet in a secure office at Western University and on a secure network behind institutional firewalls at

Western University. Representatives from University of Western Ontario Health Sciences Research Ethics Board and Lawson Quality Assurance and Education Program may require access to their study records for quality assurance purposes.

## **12. Contacts for Further Information**

If you require any further information regarding this research project or your participation in the study you may contact the Principle Investigator, Shannon Sibbald.

If you would like to receive a copy of any potential study results, please contact Shannon Sibbald at the above information.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics or David Hill, Scientific Director, Lawson Health Research Institute.

## **13. Publication.**

The results of this study are to be published in peer-reviewed journals as well as graduate student theses. Your name will not be used in any publications.

## **14. Participation in Concurrent or Future Studies.**

If you are participating in another study at this time, please inform the research team to determine if it is appropriate for you to participate in this study.

*This letter is yours to keep for future reference.*

## **Participant Consent Form**

**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**Study Investigator's Name:** Dr. Shannon Sibbald

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

You do not waive any legal rights by signing this consent form and/or agreeing to participate.

Participant's Name (please print): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Person Obtaining Informed Consent (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Are you interested in being contacted about future research studies being done by this research team?

☐ Yes

Participant's Signature: \_\_\_\_\_

☐ No

## Appendix C - Letter of Information and Consent - Patient Focus Group



**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**Principal Investigator:**

Dr. Shannon Sibbald, Health Sciences, University of Western Ontario

**Research Team:**

Dr. Chris Licskai, Department of Medicine, Schulich School of Medicine & Dentistry

Dr. Tim O’Callahan, President of Essex County Medical Society

Karen Schouten, Health Promotion, Graduate Student, University of Western Ontario

Rachelle Maskell, Rehabilitation Sciences, Graduate Student, University of Western Ontario

### **Letter of Information - PATIENT**

#### **1. Invitation to Participate**

You are being invited to participate in this research study because you are a patient with complex medical needs, receiving care from a high-performing, interdisciplinary healthcare team. This mixed methods study aims to provide a better understanding of the functioning, processes and structure of interdisciplinary care teams. To assess and measure team functioning, this study will observe how interdisciplinary care teams provide care for patients suffering with Chronic Obstructive Pulmonary Disease or COPD.

#### **2. Purpose of the Letter**

The purpose of this letter is to provide you with the information required to make an informed decision regarding participation in this research study. It is important for you to know why the study is being done and what it will involve. Please take the time to read this letter carefully and feel free to ask questions if anything is unclear or if there are words or phrases you do not understand. All individuals participating in the study will be informed of any changes or new information as it may affect your decision to participate.

#### **3. Purpose of this Study**

A high-performing team is now widely recognized as an important tool for developing more patient-centered, coordinated, and effective health care delivery. Our goal is to support interdisciplinary healthcare teams who deal with complex patients by building a better definition

of the healthcare team. We are conducting a mixed methods study which aims to better understand team functioning and process by comparing two family health teams; a high performing team and a newly forming team. The objectives of the study include;

- Observe the function and process of care teams
- Assess core principles underlying team-based care
- Better understand the role of patients in care teams

#### **4. Inclusion Criteria**

Individuals who have been diagnosed with COPD and are currently receiving treatment for this diagnosis by the health care team of study are eligible to participate in this study. As well, the participants must be 18 years or older that can read and write English are eligible to participate in this study.

#### **5. Exclusion Criteria**

Patients will be excluded if they are non-English speaking, are unable to comprehend the letter of information and consent documentation, and/or under the age of 18. Furthermore, participants will not be able to participate if they have been advised by a health care provider to not participate in this study.

#### **6. Study Procedures**

If you agree to participate, you will be asked to have a one-on-one interview during one of your visits to the clinic. During the interview, three things will happen. You will be asked to complete a survey with the help of the researcher, you will be asked to “draw the team” based on your experience of working with the team. These drawings are part of an approach which combines visual materials like drawings with verbal interviews to better understand team structure. Lastly, you will be asked questions about your drawing to better understand how you, as a patient, understand how the health care team functions. The interview will be audio recorded to ease in data collection.

It is anticipated that the entire task will be completed in 45 minutes, during one session. The task will be completed at the clinic that you already receive treatment at a time that is mutually agreed upon. A total of 20 patients and 70 health care providers from family health teams that

participate in the Primary Care Innovation Collaborative will be recruited and enrolled in the study.

After the completion of the interview you will be provided with the researcher's contact information should you have any questions or follow up comments. After the completion of data analysis, a report will be provided with the findings of the study. If you have any concerns or questions about the findings, you are welcome to contact the PI.

## **7. Possible Risks and Harms**

There are no known or anticipated physical, or psychological risks or discomforts associated with participating in this study. There are minimal emotional risks or discomforts to patients in completing this study if the patient has had a negative experience with the team or his/her care. Talking about this negative experience may be emotionally difficult. We believe that this study is low risk.

## **8. Possible Benefits**

Patients will have the opportunity to reflect on their hopes and expectations of team based care and may learn about themselves in the process. As well, information gathered from this study may provide benefits to society that will, in general, enhance our understanding of health care teams and further develop teams and networks, and more specifically, improve the quality of health services in Ontario.

## **9. Compensation**

There is no compensation for participation in this study.

## **10. Voluntary Participation**

Participation in the study is completely voluntary. You may at any time withdraw from the study without giving a reason. Please see Confidentiality Section of this Letter of Information which deals with the data collected after withdrawal from the study. You do not have to take part in the study if you do not want to. You have the right to not answer any questions. You should only agree to take part in this study if you are satisfied that you know enough about these things.



## **11. Confidentiality**

Each respondent will write their initials and date of birth on a form at the time of giving informed consent. This form will have a unique study ID number.

Your research results will be stored in the following manner:

- All paper-based data will be stored in a locked cabinet in a secure office at Western University (Western Centre for Public Health and Family Medicine). Only the research team directly involved in this study will have access to these data.
- All electronic data will be stored on a secure network behind institutional firewalls at Western University. All electronic files will be password protected. Only the research team directly involved in this study will have access to these data.

The study data will be kept for a minimum of 15 years according to LHSC and Lawson policies. Depending on the possibility and length of a follow-up study, it may be used for a longer period. Withdrawal of your participation does not necessarily include withdrawal of any data compiled up to that point, however there will be no personal identifiers attached to the compiled data. Once the study or follow-up study is completed, hard copies of data or personal identification will be shredded. All other data will be deleted from hard drives and flash drives. The audio recordings and transcription of the focus group sessions will be stored with the corresponding paper-based data or electronic data and will be stored in a locked cabinet in a secure office at Western University and on a secure network behind institutional firewalls at Western University. Representatives from University of Western Ontario Health Sciences Research Ethics Board and Lawson Quality Assurance and Education Program may require access to their study records for quality assurance purposes.

## **12. Contacts for Further Information**

If you require any further information regarding this research project or your participation in the study you may contact the Principle Investigator, Shannon Sibbald.

If you would like to receive a copy of any potential study results, please contact Shannon Sibbald at the above information.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics or David Hill, Scientific Director, Lawson Health Research Institute.

**13. Publication.**

The results of this study are to be published in peer-reviewed journals as well as in graduate student theses. Your name will not be used in any publications.

**14. Participation in Concurrent or Future Studies.**

If you are participating in another study at this time, please inform the research team to determine if it is appropriate for you to participate in this study.

*This letter is yours to keep for future reference.*

## **Participant Consent Form**

**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**Study Investigator's Name:** Dr. Shannon Sibbald

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

You do not waive any legal rights by signing this consent form and in agreeing to participate.

Participant's Name (please print): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Person Obtaining Informed Consent (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Are you interested in being contacted about future research studies being done by this research team?

☐ Yes

☐ No

Participant's Signature: \_\_\_\_\_

## Appendix D - Letter of Information and Consent - Provider Phone Interview



**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

### **Principal Investigator:**

Dr. Shannon Sibbald, Health Sciences, University of Western Ontario

### **Research Team:**

Dr. Chris Licskai, Department of Medicine, Schulich School of Medicine & Dentistry

Dr. Tim O'Callahan, President of Essex County Medical Society

Karen Schouten, Health Promotion, Graduate Student, University of Western Ontario

Rachelle Maskell, Rehabilitation Sciences, Graduate Student, University of Western Ontario

## **Letter of Information – HEALTHCARE PROVIDER**

### **1. Invitation to Participate**

You are being invited to participate in this research study because you are a member of a high functioning interdisciplinary healthcare team that provides care for complex patients. This mixed methods study aims to provide a better understanding of the functioning, processes and structure of interdisciplinary care teams. To assess and measure team functioning, this study will observe how interdisciplinary care teams provide care for patients suffering with Chronic Obstructive Pulmonary Disease or COPD.

### **2. Purpose of the Letter**

The purpose of this letter is to provide you with the information required to make an informed decision regarding participation in this research study. It is important for you to know why the study is being done and what it will involve. Please take the time to read this letter carefully and feel free to ask questions if anything is unclear or if there are words or phrases you do not understand. All individuals participating in the study will be informed of any changes or new information as it may affect your decision to participate.

### **3. Purpose of this Study**

A high-performing team is now widely recognized as an essential tool for constructing more patient-centered, coordinated, and effective health care delivery. Our goal is to support interdisciplinary healthcare teams who deal with complex patients by building a better definition of the healthcare team. We are conducting a mixed methods study which aims to better understand team functioning and process by comparing two family health teams; a high performing team and a newly forming team.

The objectives of the study include;

- Observe the function and process of care teams
- Assess core principles underlying team-based care
- Better understand the role of patients in care teams

#### **4. Inclusion Criteria**

Healthcare providers and administrative staff from family health teams that participate in the Primary Care Innovation Collaborative (PCIC) will be invited to participate. This study seeks to obtain 70 providers and 20 patients.

#### **5. Exclusion Criteria**

No one currently working in the team will be excluded.

#### **6. Study Procedures**

If you agree to participate in this part of the study, you will be asked to complete one interview. The interview will take about 15 minutes and can take place over the phone at a time that is convenient for you. The interview will be audio-recorded. Verbal consent will be obtained prior to the interview. This letter of information will be mailed to you to sign and return. Information gathered from your interview will not be used in research until the signed consent form is returned.

After the completion of the interview you will be provided with the researcher's contact information should you have any questions or follow up comments. After the completion of data analysis, a report will be provided with the findings of the study. If you have any concerns or questions about the findings, you are welcome to contact the PI.

#### **7. Possible Risks and Harms**

There are no known harms associated with participation in this study. However, for some people, these questions can be distressing and this distress can occur during or after they complete the study. There may be some social or emotional risks or discomforts to participating team members as participants will be asked about their work in the network and team, including facilitators and barriers to efficient cooperation. However, we believe that this study is low risk.

#### **8. Possible Benefits**

Team members will have the opportunity to reflect on their work in the team; they will also have the chance to improve team processes by learning about any potential gaps / areas for improvement. As well, information gathered from this study may provide benefits to society that will, in general, enhance our understanding of health care teams and further develop teams and networks, and more specifically, improve the quality of health services in Ontario.

## **9. Compensation**

You will not be compensated for your participation in this research.

## **10. Voluntary Participation**

Participation in the study is completely voluntary. You may at any time withdraw from the study without giving a reason. Please see Confidentiality Section of this Letter of Information which deals with the data collected after withdrawal from the study. You do not have to take part in the study if you do not want to. Refusal to participate, consent or withdraw will generate no consequence for your employment. By signing the consent from you do not waive any personal legal rights. You have the right to not answer any questions. You should only agree to take part if you are satisfied that you know enough about these things.

## **11. Confidentiality**

Each respondent will write their initials and date of birth on a form at the time of giving informed consent. This form will have a unique study ID number.

Your research results will be stored in the following manner:

- All paper-based data will be stored in a locked cabinet in a secure office at Western University (Western Centre for Public Health and Family Medicine). Only the research team directly involved in this study will have access to these data.
- All electronic data will be stored on a secure network behind institutional firewalls at Western University. All electronic files will be password protected. Only the research team directly involved in this study will have access to these data.

The study data will be kept for a minimum of 15 years according to LHSC and Lawson policies. Depending on the possibility and length of a follow-up study, it may be used for a longer period. Withdrawal of your participation does not necessarily include withdrawal of any data compiled up to that point, however there will be no personal identifiers attached to the compiled data. Once the study or follow-up study is completed, hard copies of data or personal identification will be shredded. All other data will be deleted from hard drives and flash drives. The audio recordings and transcription of the focus group sessions will be stored with the corresponding paper-based data or electronic data and will be stored in a locked cabinet in a secure office at Western University and on a secure network behind institutional firewalls at Western University. Representatives from University of Western Ontario Health Sciences Research Ethics Board and Lawson Quality Assurance and Education Program may require access to their study records for quality assurance purposes.

## **12. Contacts for Further Information**

If you require any further information regarding this research project or your participation in the study you may contact the Principle Investigator, Shannon Sibbald by phone at 519-661-2111 x86258 or by email at ssibbald@uwo.ca. If you would like to receive a copy of any potential study results, please contact Shannon Sibbald at the above information.

If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics or David Hill, Scientific Director, Lawson Health Research Institute.

## **13. Publication.**

The results of this study are to be published in peer-reviewed journals as well as graduate student theses. Your name will not be used in any publications.

## **14. Participation in Concurrent or Future Studies.**

If you are participating in another study at this time, please inform the research team to determine if it is appropriate for you to participate in this study.

*This letter is yours to keep for future reference.*

## **Participant Consent Form**

**Project Title:** Evaluation of Team-based Care: The Asthma Research Group Inc. Approach

**Study Investigator's Name:** Dr. Shannon Sibbald

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

You do not waive any legal rights by signing this consent form and/or agreeing to participate.

Participant's Name (please print): \_\_\_\_\_

Participant's Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Person Obtaining Informed Consent (please print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Please sign this consent form, scan, and forward to the research team via email or fax at:

Attn: Dr. Shannon Sibbald



## Appendix E - Provider Focus Group Guide

### **iCOPE Provider Focus Group Guide**

#### SCRIPT:

As you know you have been identified as being a part of a successful, or high performing team. The literature defines a high performing team as being known as innovators, with a reputation for excellent outcomes around better health, improved patient experience, or more affordable cost. Our evaluation of your team started earlier this year. In March, we came to present on our research, and to observe your team. We had you complete surveys and a drawing, or map. Today, we want to explore some of our findings with you, and learn more about the functioning of this team. Our end goal is two-fold: first, we want to be able to celebrate the successes of this team in a systematic way; second, we want to try to learn from your group, to be able to share lessons to other groups who are trying to implement a similar process.

The purpose of the focus group is for you to discuss together, and build off one another's ideas. We are here to moderate the discussion, and keep the conversation moving in the right direction. There are no wrong answers.

When we came in March we had you sign a consent form, so we do not need to obtain your consent again today – unless you were not here (ASK: anyone?). We will be audio-recording today's session, and we have an observer who will be taking notes. The transcript of today, and the notes will be anonymous and confidential. Like all our data, you will have a chance to review our aggregate findings before any publication. Does anyone not want to be recorded?

We are going to start with ‘GRAND TOUR QUESTIONS’.

1. Tell me about how this group started as a team.
  - a. What were some of the defining moments?
  - b. Do you remember any roadblocks?
    - How were they handled? (conflict resolution)
  - c. What about facilitators?
2. What role does context play in your team?
  - a. How did the role of context shift or change from the beginning (developing) to now?
3. Define a successful team.
4. How would you know if a team is successful?
  - a. What other factors have facilitated or stifled your team’s success?
  - b. How might you formally measure/monitor/evaluate this success?
  - c. How might you take steps to improve likelihood of success?
5. The mapping exercise we did was based on an approach to data collected called 'Rich Picture'. Rich Pictures are used in qualitative research to gather information in complex team environments. In our analysis of the maps we found three central themes:
  - a) The context in which PCIC is situated is complex, but seems to be driven by QI;
  - b) There are obvious (and sometimes named) leaders to the team. Also important is collaboration and idea sharing;
  - c) Outcomes or impacts for patients and families is important.We’re interested in your thoughts on those three themes. Do they resonate? Is anything missing?
6. Let’s talk specifically about the “ARGI” piece of your team.
  - a. How is it integrated or adapted?
  - b. How do providers perceive this service integration?
    - Specifically, CRE/RT vs others?
  - c. How do patients and families perceive this service integration?
7. Thinking broadly, or specific to ARGI (but please indicate which you are talking about): what is the role of patient on your team?
  - a. Should that role be different?
  - b. Could it be better? How would that occur?

## Appendix F - Patient Focus Group Guide

### **iCOPE ARG1 Patient Focus Group Guide**

SCRIPT:

[DO LOI AND CONSENT FIRST]

We would like to thank you for being here with us today and talking about your health care team.

We want to talk with you today to understand your experiences with your health care team.

This focus group is for you, the patients, to discuss together the care that you receive from your health care team and from any other care provider you have in this family health team. We are here to keep the discussion moving along. There are no wrong answers. During the focus group, we will take some time for you to draw out your team on a piece of paper and then after the focus group, we ask that you fill out a survey.

A reminder this focus group will be audio-recorded and there are some observers who will be taking notes, and will be around to help if you need.

Are there any questions?

We are going to start with talking about your health care team before we take some time to draw your health care team:

1. Describe your health care team.
  - a. Who do you have appointments with?
2. Draw your health care team.
3. Tell us about the care you receive from your HCT.
  - a. Your respiratory therapist.
  - b. Your Doctor
  - c. Other health care providers
4. How does the care you receive here compare to your hopes and expectations or any other care that you have received?
5. What could be done to better prepare you for managing your COPD?
  - a. What do you think is missing or would improve your care?
6. Please think back over the last 6 months and think about the care you have received from your RT for your COPD. Please rate the care that you have received over the past 6 months. Overall, did you find your care to be:
7. What is your role on the team?
  - a. How do you participate in your care?
8. Is there anything else that you would like to add to our discussion today?  
PROBE: Looking back at the map that you drew earlier, is there anything that you would change about it?

## Appendix G - Provider Phone Interview Guide

### ARGI Provider Interview Guide

#### SCRIPT:

Hello.

May I please speak with [Insert participant's name]. *If they are not available, a message will not be left.*

My name is [Research Assistant]. I am a research assistant working with Dr. Shannon Sibbald from Western University. I am assisting Dr. Sibbald today with conducting phone interviews with providers working with the respiratory therapists in your FHT.

Thank you for agreeing to participate in this interview. Is this time still convenient for you?

Before we begin, I need to ensure you have read the letter of consent, and have signed the consent form. I believe that [Name of ARGI Contact] has provided you with a copy of the study's letter of information and consent. Do you have any questions about the information in the letter?

*[If already have consent]* Thank you for taking time to send in your sign consent form – we have received it.

*[If do not have consent]* We have not yet received your consent, please email or fax your consent as soon as possible so that we can use the information from this interview in our research.

Today we will have a short interview to better understand the respiratory team that works in your FHT, and how you, a provider, has been impacted by this team. The interview will be audio-recorded. Your participation in this study is voluntary, and you can decide to stop at any time. Everything that you say will be confidential and all data collected will be anonymous.

If you have any concerns with this interview or this study, the contact information for the principle investigator, Dr. Shannon Sibbald, or the ethics board at Western University are listed on the last page of the letter of information.

Do you agree to be audio-recorded? [begin audio-recording]

Do you agree to consent to this interview?

1. If you could explain a bit about yourself and the work that you do in the Thameview FHT.

2. Tell me about your experiences working with the RTs in your clinic.
  - a) Probe: Are you aware of the larger RT structure known as ARG1? Please tell me about your knowledge and experience with ARG1.
- 2) How does working with the RTs impact the way you practice?
  - a) PROBE: How does working with ARG1 impact your practice?
- 3) How might you improve the ARG1 RT model to better meet the needs of your practice?
- 4) If ARG1 were to be adapted to another FHT, what advice would you give?
  - a) PROBE: to the RTs? Docs? Other allied health professionals? EDs? so that this service could be used to its fullest?

## Appendix H - Curriculum Vitae

# Karen Schouten

### EDUCATION

#### Western University

*MSc. Health and Rehabilitation Science - Health Promotion*

*Supervisor: Dr. Shannon Sibbald*

London, ON

2016 - Present

- Thesis Research: What makes this team so special? An exploratory case study of a high performing primary care team.
- Relevant Coursework: Qualitative Methodology, Current Topics in Health Promotion, Healthcare Law & Policy, Knowledge Translation
- Cumulative Average: 83.25

#### Simon Fraser University

*Bachelor of Education*

Burnaby, BC

2007 - 2008

- Specialization in secondary school mathematics

#### St. Francis Xavier University

*BSc with Advanced Major*

Antigonish, NS

2004 - 2006

- Awarded with Distinction

#### Redeemer University College

*Liberal Arts Certificate*

Ancaster, ON

2000 - 2002

### RESEARCH EXPERIENCE

#### Western University

*Research Assistant; Dr. Carri Hand*

*Study Objective: Researching the benefits of satellite fitness programming for older adults*

*Skills:*

- Assisting with ethics application
- Recruiting participants
- Collecting data using questionnaires and interviews
- Analyzing data using SPSS and other qualitative techniques using NVivo
- Preparing scoping review of satellite fitness programs

London, ON

Sept. 2017 - Present

#### Western University London, ON

*Graduate Student Assistant; Dr. Ruth Martin*

*Objective: Development of e-learning graduate diploma program at Western University*

*Skills:*

- Conducting market research about employment opportunities for Health & Rehab graduate students
- Developing program content for new e-learning graduate diploma program

London, ON

Jan. 2017 - Present

**Western University**

*Research Assistant; Dr. Shannon Sibbald*

London, ON

*Oct. 2016 - Present*

*Study Objective: Researching interdisciplinary health teams that treat complex patients with COPD and Asthma*

**Skills:**

- Assisting with ethics application submission and protocol amendments
- Facilitating data collection, and then management and analysis of data from interviews, focus groups, survey, and visual data.
- Informing participants about study procedures and obtaining informed consent
- Coordinating participant interviews and other administrative details of the project
- Conducting literature reviews and drafting manuscripts

**Western University**

*Research Assistant; Dr. Ruth Martin*

London, ON

*May 2017 – Aug. 2017*

*Study Objectives: Development of e-learning graduate diploma program for Western University*

**Skills:**

- Market research of current online, health graduate degrees, diplomas, and certificates from recognized universities across Canada.
- Preparation of manuscript for publication
- Assisted in the production of grant reports and executive reports
- Presentation of research to interested stakeholders

**PUBLICATIONS IN PROGRESS**

- “Market research on online, health graduate programs in Canada.” Article submitted for publication in Canadian Journal of Higher Education April 2018.
- “A high-functioning COPD primary care network.” With Dr. Chris Licskai & Dr. Shannon Sibbald

Article manuscript in progress, to be submitted for publication April 2018.

**ORAL & POSTER PRESENTATIONS**

- Chabot, N., Pack, R., Colley, P., Schouten, P., Baker, N., & Martin, R. (2018). A Needs Assessment of Online Health Sciences Continuing Education: Findings from a Focus-Group Study. To be presented at Online Summit Conference. Toronto, ON.
- Schouten, K., Hand, C., Dellamora, M., Drenth, T., & Letts, L. (2018). Process and Impacts of Neighbourhood-Based Recreation Programming for Older Adults. To be presented at International Federation on Ageing Conference. Toronto, ON.
- Schouten, K. (2018). What makes this team so special? An exploratory case study of a high performing primary care team. Presented at Health and Rehabilitation Science Graduate Research Conference 2018. London, ON.
- Sibbald, S.L., Ferrone, M. & Schouten, K. (2018). High Performing Team-Based Care Across Sectors and Disciplines. Presented at Better Breathing Conference 2018. Toronto, ON.
- Colley, P., Schouten, K. & Martin, R. (2017). Market research on online, health graduate programs in Canada. Presented at the World Conference on Online Learning. Toronto, ON.
- Colley, P., Schouten, K. & Martin, R. (2017). Market research on online, health graduate programs in Canada. Presented at the eCampus Launch. London, ON.



- Maskell, R., Schouten, K., & Sibbald, S.L. (2017). Understanding interdisciplinary care: A perspective on functionality and the patient role. Presented at the Health and Rehabilitation Science Graduate Research Conference 2017. London, ON.

## **RELEVANT EMPLOYMENT & VOLUNTEER EXPERIENCE**

### **Conference Volunteer**

Health Promotion Ontario Conference 2017 Toronto, ON

- Provided input during conference planning as a health promotion student
- Registered conference participants

Health and Rehabilitation Science Graduate Research Conference 2018 London, ON

- Peer reviewed submitted abstracts

### **Robarts Research Institute**

London, ON

*Volunteer to Researcher: Dr. Grace Parraga*

Jan. 2017 - Present

*Study Objectives: Various studies related to the MRI imaging of patients with chronic respiratory disease*

- Creating Regulatory and Health Canada binders for new and current studies
- Organizing medical hard drive for efficient location of regulatory clinical trial files
- Maintaining, updating and providing consistency within the Regulatory and Health Canada binders for past and current clinical trials
- Updating participant logs, maintaining and organizing participant charts
- Organizing study supplies
- Pulling data from participant charts and database
- Collecting data during participant visits

### **Central Community Health Center**

St Thomas, ON

*ID Clinic Volunteer*

Sept. 2016 – Dec. 2016

- Assisted public with obtaining birth certificates for Ontario Works Applications
- Worked with sensitive, confidential information
- Confidentiality training

### **St Thomas General Hospital**

St Thomas, ON

*ER Volunteer*

Nov. 2014 – Feb. 2014

- Responsible handling of patient samples and tests to hospital lab according to hospital procedure
- Ported patients to appointments and tests
- Worked with confidential patient files
- Brought test results to care providers

### **Meadowridge School**

Maple Ridge, BC

*Middle School Teacher*

Sept. 2008 – Nov. 2009

Taught Grade 6 – 10 Math, Science, Technology, Phys.Ed

- Prepared engaging lessons according to Provincial Standards
- Researched best practices and implemented into daily practice to facilitate learning

**Shoppers Drug Mart**

*Pharmacy Technician*

Maple Ridge, BC  
March 2007 – Sept. 2007

- Proper handling of medication and disposal of expired medicine
- Completed inventory and restocking of medicine
- Prepared suspensions and filled prescriptions

**PROFESSIONAL TRAINING AND DEVELOPMENT**

Project Management 2 Nov. 2017

*Mitacs*

Interventional Study Training SOPs March – Aug. 2017

*Lawson Health Research Institute*

SOPs 002, 003, 007, 014, 015, 019, 006, 008, 009, 012, 025

Biological Specimens SOP 011

Privacy & Confidentiality Certificate March 2017

*London Health Science Centre*

Project Management 1 Feb. 2017

*Mitacs*

Spirometry Interpretation Workshop Jan. 2017

*The Lung Association*

Intro to R Workshop Feb. 2017

*Western University*

TCPS 2 : CORE Oct. 2016

*Tri-Council Policy Statement*

**AWARDS & MEMBERSHIP**

Western University Graduate Scholarship – 2017, Western University

Western University Graduate Scholarship – 2016, Western University

Dean's List – 2004, St Francis Xavier University

Most Improved Player (Varsity Basketball) – 2001, Redeemer University College

**MEMBERSHIP**

Health Promotion Ontario

Western Triathlon Club