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Exploring the Impact of Context on Spread of Integrated Team-Based Methods for Chronic Disease Management

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Abstract

Team-based care is widely used in primary care to help manage complex chronic conditions; yet little is known about how to spread evidence-based models to new contexts. This research explored the impact of context on the spread of an integrated, team-based program for COPD in primary care, known as Best Care COPD (BCC). This research used a qualitative collective case study approach guided by a constructivist paradigm. The results highlighted that some care settings presented challenges, however the providers were able to overcome these barriers and only required minor adaptations primarily in day-to-day processes. The BCC program was able to balance program fidelity with adaptability to ensure that the program was successful as it spread to different sites with unique contexts. This study provided insight into how to support the spread of BCC and other chronic disease management programs in primary care through an understanding of context. Supporting the spread of successful programs will enable appropriate care for a greater patient population.

Keywords

Spread, Implementation, Team-based care, Context, Primary Care, Chronic Disease Management

Summary for Lay Audience

Team-based care has been recognized as an effective way to manage complex health conditions. Team-based care involves collaborating with providers across different areas of healthcare with the goal of keeping patients at the centre of their care. However, even though a program may be successful in one context, it may not have the same success when implemented elsewhere. Despite an agreement on the value of team-based healthcare programs, there is limited understanding on how these programs can expand from site to site and how the context of the site can impact the implementation of a program.

Our study explored the Best Care COPD (BCC) program. BCC is a team-based program that focuses on the management of Chronic Obstructive Pulmonary Disease (COPD), a complex and progressive disease. As the program has expanded to different contexts, this research sought to understand how the context at the site has impacted the expansion of the program. This research incorporated multiple data collection tools with healthcare providers involved with the delivery of BCC.

The findings from this research highlighted that the BCC program has been able to spread to different contexts while only experiencing minor challenges so far. Participants often expressed that these challenges have been overcome by the flexibility of the BCC provider. However, adapting the program to the unique site runs the risk of altering the outcomes of the program. The BCC program mitigated this risk by involving primary care providers directly in the initial planning phases as to anticipate specific challenges that may arise as the program spread to new primary care contexts. Incorporating a dynamic understanding of context into the program design from experts in the new setting allowed for continued growth with consistent outcomes.

This research provides insight into how BCC can expand to more contexts with varying needs. These findings have the potential to help support the spread of other chronic disease management programs with similar care characteristics to COPD. It is important to explore how these successful programs can expand to new sites and in turn, help more patients access appropriate care for their condition.

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Authorship Statement

The primary researcher (MD) and supervisor (SLS) designed the research project. Recruitment was completed by MD with support from SLS and the organization that is responsible for the creation and delivery of the program (Asthma Research Group INC). Data collection was completed by both MD and SLS; MD distributed all LDs, one focus group was conducted by MD and the other conducted by SLS, and all phone interviews were conducted by MD. Data was analyzed by MD, SLS and an additional research team member (Melanie Dissanayake). MD drafted the thesis with feedback from SLS and advisory committee. The final thesis was completed by MD and approved by SLS and examination committee.

Table of Contents

List of Tables

List of Appendices

Chapter 1

1 Introduction

Team-based care is a model of care that can be used to better manage patient's complex conditions, including chronic diseases (Labson, 2015). Team-based care involves working collaboratively with other providers and patients to achieve coordinated care (Peikes et al., 2014). The use of teams within healthcare has improved patient management and improved health sector outcomes such as a reduction in emergency room visits (Labson, 2015). Team-based models in primary care can allow patients to access appropriate care at earlier stages of their condition, access that is vital to support the management of patients with chronic diseases (Maslin-Prothero & Bennion, 2010). Within the primary care setting, the use of teams has been seen to significantly improve efficiency and quality of care for those with complex chronic diseases (Peikes et al., 2014; Campbell et al., 2001). It is important to utilize team-based methods to improve patient care.

While the benefits of team-based care are agreed upon (Campbell et al., 2001; Labson, 2015; Maslin-Prothero & Bennion, 2010; Peikes et al., 2014; Wiltsey Stirman et al., 2012), there is still a lack of consensus regarding how to support the spread of these successful models of care to new contexts (Wiltsey Stirman et al., 2012). Spread can be understood broadly as the horizontal implementation of a program into a new setting (Greenhalgh & Popoutsi, 2019). When considering spread, there is a tendency to focus on the healthcare program; however, effectiveness will largely depend on context (Horton et al., 2018). The spread of healthcare programs is a context-sensitive process that occurs across multiple levels (Bauer et al., 2019; Horton et al., 2018). This implies that implementation will be influenced by a combination of organizational and health system level factors that cannot be isolated from the implementation efforts themselves (Horton et al., 2018). Context extends beyond the physical setting to include the social roles, interactions and relationships among the new environment (May et al., 2016). While there is agreement on the importance of contextual considerations, there is a lack of consensus regarding how to conceptualize context, the impact context has on spread, and how to best support future expansion. There is a need to explore the role of context in the spread of chronic disease management programs.

The primary care setting plays a vital role within the management of chronic diseases (Dennis et al., 2008). Primary care in Canada serves as both a direct provision of first-contact services and coordination of care that is influential for the management of chronic conditions (Gocan et al., 2014; Government of Canada, 2012). Primary care has been seen to improve patient health outcomes, improve patient satisfaction, and lower costs for the healthcare system (Dhalla & Tepper, 2018). Management of chronic diseases is suitable for primary care settings as patients with these conditions require continuous, coordinated, and comprehensive care, all of which are defining features of primary care (Reynolds et al., 2018). Within primary care, there are various care settings including solo physicians, Family Health Teams (FHTs), Community Health Centres (CHCs), and nurse practitioner led clinics (Hutchison et al., 2011). Current research emphasizes the importance of utilizing team-based approaches within these primary care settings to support treatment and prevention for patients with chronic disease(s) (Hutchison et al., 2011; Reynolds et al., 2018). It is critical to understand how to support future spread of these programs to help a greater patient population.

1.1 Research Questions and Objectives

The goal of this research was to explore the impact of context on the spread of integrated models of team-based care for the management of chronic disease within primary care. This research answered the following question: how does context impact the spread of integrated models of team-based care for chronic disease management in primary care settings?

For the purpose of this research, spread was defined as the ability of a program to be implemented into new locations to benefit more patients and providers (Greenhalgh & Popoutsi, 2019). Spread can be understood using the implementation continuum; that is, the continuum of phases as a program transitions from pre-implementation, to implementation, then spread and sustainability (Sibbald et al., 2022b). It is important to understand the role of context as programs transition through this implementation continuum to support future spread and sustainability. To do this, I studied the spread of the Best Care COPD (BCC) program, an integrated model of team-based care for COPD as it continues to spread to new sites across Southwestern Ontario into various primary care models. The BCC program was created to integrate existing evidence-

based guidelines for COPD care into one program. The aim of BCC is to help individuals with COPD improve self-management of their chronic condition by including education components, skills training, immunization management, and exacerbation action plan development with relevant medication prescriptions into their regular care. This research had the following objectives:

1. To examine how a chronic disease management program in primary care settings are adapted to fit local contexts,
2. To explore the role of care setting on the spread of chronic disease management programs.

I used case study methodology (Stake, 1995, as cited in Crowe et al., 2011), informed by a constructivist paradigm (Guba & Lincoln, 1994) to answer the research question and address the objectives. Case study is an effective methodology choice to answer 'how' and 'why' research questions (Baxter & Jack, 2008). How and why questions will be essential to understand the impact of context and how this information can be used to support future spread. A constructivist paradigm aligns with this research due to the dynamic nature between the researcher and the participants (Ponterotto, 2005). This interactive nature between the researcher and the participants is essential in case study methodology to enable the participant to share their story and thus enable the research team to gain data about the specific case (Baxter & Jack, 2008; Stake, 2006). Employing this methodological and paradigm perspective was an effective choice to understanding the impact of context on the spread of integrated models of team-based care in the management of chronic disease within primary care.

1.2 Rationale

Chronic obstructive pulmonary disease (COPD) is a chronic, life-threatening lung disease that is most often characterized by progressive limitation of airflow (Chapman et al., 2003). While there is no cure for COPD, with treatment and self-management it is possible to relieve flare-ups (World Health Organization [WHO], 2021). In 2018, chronic lower respiratory diseases were the fifth leading cause of death in Canada, accounting for 12,998 deaths, with COPD being the most prevalent chronic lower respiratory disease nationally (Statistics Canada, n.d.; Public Health

Agency of Canada [PHAC], 2018). A report by the Canadian Chronic Disease Surveillance System emphasized the increasing prevalence of COPD in Canada (PHAC, 2018). This condition is likely more prevalent than the statistics suggest because underdiagnoses remains a significant issue with COPD (Green et al., 2015). This increasing prevalence places a significant strain on the primary care system as majority of patients with COPD access care through their primary care practitioner (Chapman et al., 2003; Green et al., 2015). There is an increased burden on the health care system to adapt and ensure proper care and management of COPD including utilizing team-based care (PHAC, 2018). It is important to explore how to support the spread of COPD management programs to new sites to better assist care teams with the goal of providing better care for this increasing patient population.

This study is part of a larger research project which focuses on the implementation continuum of the BCC program. The research thus far has focused on team composition and performance at the initial site (Sibbald et al., 2020), and an implementation proof-of-concept at a second site (Paciocco et al., 2021). The initial case demonstrated the important components that contributed to the impressive performance of the BCC program within the initial site (Sibbald et al., 2020). The second case emphasized the value of the BCC program and the factors that facilitated this initial spread (Paciocco et al., 2021).

This thesis project is a part of a CIHR Grant that is exploring the spread of the BCC program to additional sites (Sibbald et al., 2022b). The Grant sought to understand the progressive implementation of BCC; that is, the spread of the program to more sites (Sibbald et al., 2022b). Sibbald et al. (2022b) proposed a framework to support the progressive implementation of BCC, a framework shaped by local contextual factors. This overarching Grant inspired the researcher to learn more about how the spread of the BCC program has been impacted by context and how to conceptualize context to enhance future spread of the BCC program.

As BCC continues to grow, it is important for the care settings to use previous findings to support implementation efforts. However, there is still a gap that remains in understanding the spread of BCC to new contexts. The initial two phases of this project were implemented at two FHTs and did not consider how this program can be supported as it is spreads to sites with different practice models. The research conducted for the Grant found that the process of spread

was framed by context; however, more research was needed to understand this impact (Sibbald et al., 2022b). As the program is implemented in new sites, it will be important to consider the influence of context and the role context can play in the overall implementation continuum at the site, an objective that has not been explored previously. The ability to support the spread of the BCC program will in turn help deliver care to more patients with COPD.

1.3 COVID-19 Impact Statement

This data collection took place during the COVID-19 pandemic, which may have impacted the implementation process. While I did not study this directly and did not evaluate the impact of the pandemic, I acknowledge that COVID-19 likely impacted the context and implementation processes explored in this research. Further research is needed to understand how the pandemic impacted this project.

1.4 Structure of Thesis

The first chapter of this thesis was used to provide a brief introduction into the topic and the key themes that will be explored throughout this research. This chapter provided an introduction into the BCC program, an integrated, team-based model of care in the primary care setting, as well as the larger research that has been done to date surrounding the BCC program. The second chapter provides an overview of the current literature on the main topics within this research project. This chapter situates this thesis within the larger realm of literature and identifies the gaps that exist. Chapter 3 highlights the qualitative methods and methodology that were used to conduct the research as well as the theoretical framework that was used for analysis. In the fourth chapter, I present the findings according to the theoretical framework used for analysis. This chapter highlights seven themes that were coded in the data. In Chapter five, I discuss the findings as they pertain to the research objectives and research question in combination with the literature. Finally, Chapter six provides the concluding remarks of this thesis including implications for practice and the healthcare system, directions for future research, and a summary of this research study.

Chapter 2

2 Literature Review

This chapter provides insight into the current literature that has guided me to understand my research question: how does context impact the spread of integrated models of team-based care in primary care settings? This chapter begins by discussing primary care and the role of team-based care within this setting (Section 2.1). I then highlight chronic disease management and more specifically, COPD management and the importance of interdisciplinary teams (Section 2.2). I discuss spread and some of the complexities surrounding context within this process (Section 2.3). I finish this chapter by discussing gaps uncovered in this literature review and how my research aimed to fill these gaps (Section 2.4).

2.1 Primary Care

Primary care is widely recognized as the cornerstone of the Canadian healthcare system (Aggarwal & Williams, 2019). Primary care involves several aspects of care including diagnosis, treatment, illness prevention, and health promotion (Ministry of Health & Ministry of Long-Term Care [MOH & MOLTC], n.d.). In Ontario, primary care is often an individual's first point of contact with the healthcare system (Gocan et al., 2014; MOH & MOLTC, n.d.; Rothman & Wagner, 2003). For patients with chronic conditions, primary care acts as a critical point of entry to accessing care and is essential to supporting the management of their complex condition (Gocan et al., 2014). One of the defining features of primary care is the coordination of care across clinicians; this is particularly important for patients with chronic diseases (Rothman & Wagner, 2003).

In the province of Ontario, there are on-going efforts to improve care and these efforts are shifting how primary care operates (Aggarwal & Williams, 2019). These efforts aim to expand access to primary care services, while simultaneously improving the quality of care that patients receive (Glazier et al., 2012). One of the main focuses of these efforts is centered around the prevention and management of complex and chronic conditions and highlights the importance of

patient engagement (Hutchison et al., 2011). A core dimension to achieving improved care involved the transition from traditionally solo-physician practices to interprofessional teams (Glazier et al., 2012). Team-based care is one of the main pillars of primary care, making it an essential target for primary care improvement (Bodenheimer et al., 2014). It is believed that bringing together groups of healthcare providers with their own unique knowledge and expertise can promote more comprehensive, continuous and patient-centered care (Aggarwal & Williams, 2019). These efforts are designed to improve coordination among a patient's healthcare team, effectively mobilize resources, and help the patient smoothly navigate the healthcare system (Aggarwal & Williams, 2019).

This shift in primary care has enabled the transition from the formally predominant independent practice model to group-based practices (MOH & MOLTC, n.d.). With this transition, the compensation structure for primary care shifted from the fee-for-service practice model to blended models with incentives for priority services (Hutchison et al., 2011). There is evidence to suggest that blended practice models and incentives can improve physician productivity (Hutchison et al., 2011). While acknowledging the importance of compensation in primary care, this thesis does not focus on the compensation aspect of the transition to group-based practice models. With on-going efforts to improve primary care, there has been the evolution of several different primary care practice models, each with its own unique structures and contexts.

In the early 2000s, primary care practice models in Ontario began to focus on shared work environments and new practice models began to replace the solo-physician primary care practices (Gocan et al., 2014). These first primary care models included Family Health Networks (FHNs) and Family Health Groups (FHGs) that were a blended practice model that evolved to facilitate the transition within the healthcare system (Glazier et al., 2012). While FHNs and FHGs did not necessarily need to be team-based practices, they shifted the compensation model which allowed the evolution into team-based strategies (Glazier et al., 2012). These primary care practice models provided an incentive for chronic disease management, highlighting the importance of focusing on chronic disease as the transition progressed (Glazier et al., 2012). In 2003, the First Ministers Health Accord announced a goal of transitioning the primary healthcare system towards team-based practice models by stating their goal to have at least 50% of Canadians accessing primary care through an interdisciplinary team (Hutchison et al., 2011).

Shortly following this goal was the introduction of Family Health Organizations (FHOs) followed by Family Health Teams (FHTs) (Glazier et al., 2012). These practice models were specifically aimed to improve access to primary care by shifting to an interdisciplinary team approach (Aggarwal & Williams, 2019). FHTs included a diverse team of allied health professionals, funding for an executive director position, and electronic medical records to coordinate patient care easily (Glazier et al., 2012). Nurse practitioner led clinics operated similarly to FHTs except led by a nurse practitioner with a family physician functioning as a consult role (Hutchison et al., 2011). Community Health Centres (CHCs) are another practice model that existed alongside the primary care transition (Glazier et al., 2012). CHC models first arose in 1979 and received additional government attention in 2004/2005 when the government aimed to create 21 new CHCs (Hutchison et al., 2011). The aim of this practice model is to provide care to underserved populations (Aggarwal & Williams, 2019). This primary care model utilizes interprofessional teams targeted to their unique population health needs and social determinants of health (Glazier et al., 2012). These team-based approaches specifically focus on promoting health and overall patient wellness through a focus on patient-centered care (Aggarwal & Williams, 2019; Glazier & Redelmeier, 2010).

Patient-centered care involves empowering the patient to participate as an equal partner in the patient-practitioner relationship, enabling them control over their condition (Stewart et al., 2013). A single disease focus will not fulfill the patients' care needs, rather patient-centered care explores various components of the patient's illness experience, their personal needs, and their personal context (Stewart et al., 2013). Patient-centered care is associated with improved patient health outcomes, improved patient satisfaction and improved provider satisfaction (Stewart et al., 2013). A key dimension of patient-centered care involves continuity of care and coordination among healthcare providers (Kuipers et al., 2019). This coordination of care is essential to enabling efficient use of healthcare resources, a focus of future healthcare transformations (Ministry of Health and Long-Term Care [MOHLTC], 2020)

In 2019, Ontario's Ministry of Health launched a health system reform involving the formation of Ontario Health Teams (OHTs) (MOHLTC, 2020). These OHTs include a group of providers and organizations that are clinically and financially accountable for a specific geographic population to deliver a full continuum of care (MOHLTC, 2020). Part of the OHT model was to

provide an integrated funding envelope to a coordinated team of providers and service organizations (i.e., services are delivered through and paid for by a single payer to ensure continuity of services) (Embuldeniya et al., 2021). OHTs had a focus on the Quadruple Aim: improving patient experience, improving provider experience, reducing cost, and improving health outcomes (Bodenheimer & Sinsky, 2014). The goal of this system reform is that at maturity, all providers and organizations across the province will belong to a specific OHT to provide coordinated and patient-centered care (Sibbald et al., 2022a). As the needs of patients continues to evolve, it will be important to understand the impact of team-based care and the role that it plays within different primary care models that currently exist.

2.1.1 Team-Based Care

Primary care has shifted towards team-based models of care that involve healthcare providers and staff working directly with patients to achieve high-quality, coordinated, and comprehensive care (Peikes et al., 2014). Collaborative practice involves an interdisciplinary process for communication and shared decision-making to encourage the shared knowledge and skills in a patient's care team (Gocan et al., 2014). The term 'team-based care' is a broad category and can include several components such as two or more professionals working together from different disciplines with a shared goal, exchange of knowledge, collaboration, and support over multiple points in time, interdependent on one another, and an understanding of each other's roles with symmetrical powers (Gocan et al., 2014). Effective team environments rely on a clear understanding of roles and responsibilities to allow all members to function at the top of their skill set (Aggarwal & Williams, 2019). Team-based care has many benefits for the patient and the healthcare system including improved patient satisfaction, enhancing patient knowledge and skills, improved healthcare access, efficient resource utilization, and coordinated services (Gocan et al., 2014).

Team-based care has many benefits within primary care. Collaboration among teams at the level of primary care is essential to ensure continuity of care (Brown et al., 2016). This continuity of care is beneficial at reducing downstream use of healthcare services and fragmentation in care resulting in wasted resources (Maslin-Prothero & Bennion, 2010; Peikes et al., 2014). Team-

based care supports care coordination even when the issue is beyond the scope of the family physician (Bodenheimer et al., 2014). Within FHTs, the goal is to bring together an interdisciplinary team of providers including the family physician, allied health providers (including nurses, social workers, dietitians, pharmacists, etc.), and administrative support with an emphasis on patient engagement (Brown & Ryan, 2018; Hutchison et al., 2011). The make-up and model of the primary care team can impact the delivery and quality of healthcare in Ontario (Russell et al., 2009). A team's ability to successfully evolve is impacted by the conflict resolution strategies a team has in place and the ability to adapt to change (Brown & Ryan, 2018). Establishing continuity of care presented challenges when the team was not well coordinated with one another (Haj-Ali et al., 2020).

Co-location is an important component of team-based care. Sharing a physical environment has been noted by primary care teams as an opportunity to form relationships and contribute to team evolution (Brown & Ryan, 2018; Ryan et al., 2019). Ryan et al (2019) also noted that teams that were not co-located with one another presented challenges for effective communication (Ryan et al., 2019). Physical co-location goes beyond the physical space itself to create a sense of place that can support collaboration and communication for a team to be successful (Ryan et al., 2019). However, the COVID-19 pandemic has presented new insight into co-location and suggests that it is not about the physical shared space, but the collaboration it facilitates (Lukey et al., 2021).

Team-based care is believed to be particularly beneficial for patients with complex needs such as those with chronic conditions (Maslin-Prothero & Bennion, 2010). Continuity of care can help to facilitate effective, timely and safe healthcare that is necessary for complex conditions (Haj-Ali et al., 2020). Team-based approaches have been beneficial in prevention and management for those with chronic conditions and have been a means to improve health status and quality of life (Gocan et al., 2014).

2.2 Chronic Disease Management

Chronic disease can be understood as a condition that persists more than one year in length and requires on-going medical attention (National Center for Chronic Disease Prevention and Health

Promotion [NCCDPHP], n.d.). Individuals living with chronic disease may experience limitations to their daily living activities and overall quality of life (NCCDPHP, n.d.). Chronic diseases often require long-term supervision, observation, and care (Reynolds et al., 2018). More than one in five adults in Canada are currently living with one or more of the four major categories of chronic diseases; these include chronic respiratory disease, cardiovascular, cancer and/or diabetes (Public Health Agency of Canada [PHAC], 2017). As of 2017, these same four categories of chronic disease accounted for 65% of all deaths annually across the country (PHAC, 2017). The same patterns can be seen globally as chronic diseases are one of the leading causes of death (Reynolds et al., 2018). As the prevalence of chronic diseases rises globally, this will pose an increasing burden on healthcare systems; there is a growing need to meet the specific challenges associated with management for this patient population (Reynolds et al., 2018).

While there is no cure for chronic diseases, there are treatment options available to manage symptoms. Management for chronic disease(s) requires a collaborative approach involving the patient and their healthcare providers working together to create goals and action plans tailored to the patient's unique needs (Tsasis & Bains, 2009). The Chronic Care Model (CCM) is an evidence-based framework to guide quality improvement within the realm of chronic disease management (Wagner et al., 2001). The CCM contains six central elements that are integral to supporting chronic disease management in primary care; these elements include self-management support, community resources, delivery system design, decision support, organization of the healthcare system and clinical information systems (Wagner et al., 2001). Self-management has been highlighted as a key element involved with the management of chronic diseases (Reynolds et al., 2018); for this reason, self-management will be one of the main focuses of this literature review. Self-management can include several different components including knowledge on the condition, emotional support and strategies for activities with daily living (Tsasis & Bains, 2009). Despite the prevalence of chronic diseases and the burden this poses to the healthcare system, Canada severely lacks in comparison to other countries within chronic care delivery (Schoen et al., 2006).

There are several challenges with the management of chronic diseases in Canada. The healthcare system itself is not designed for the prevention and management of chronic diseases (Tsasis &

Bains, 2009). The current system is designed to deal with acute episodic care; this makes it difficult to provide organized care for complex and long-term conditions such as chronic diseases (Reynolds et al., 2018). This is coupled with the issue of co-morbidity within this patient population; a daily challenge for assisting patients with chronic disease management is that they often experience two or more complex conditions (Roversi et al., 2016). There is an urgent need to incorporate interdisciplinary and integrated teams into the routine care to deliver high-quality and efficient care for managing multifactorial chronic diseases (Roversi et al., 2016); a component of care in Canada that has been challenging (Schoen et al., 2006). Additionally, the implementation of chronic disease management programs requires additional resources and difficulties surrounding access (Campbell et al., 2013). For individuals with chronic conditions, the most common barriers to care were service availability and wait time to both routine and specialist care (Ronksley et al., 2014; Tsasis & Bains, 2009). While primary care is a critical component of prevention and treatment for chronic diseases, access can present a challenge (Ronksley et al., 2014). In a study by Ronksley et al. (2014) authors explored the access to chronic disease management in primary care within four Canadian provinces. Ronksley and colleagues determined that almost 10% of Canadians with chronic conditions reported difficulty in accessing primary care (Ronksley et al., 2014). As the proportion of aging adults is predicted to increase in the coming years, chronic diseases are in turn expected to place an increased demand on the healthcare system (Public Health Agency of Canada [PHAC], 2020). With the increasing prevalence of chronic diseases, the pressure is on for the Canadian healthcare system to adapt to deliver high-quality, cost-effective, timely and equitable care to this patient population (Tsasis & Bains, 2009).

Team-based strategies for the management of chronic diseases have been highlighted as one of the most effective strategies (Campbell et al., 2013). Primary care has been defined as an appropriate setting for implementing these team-based approaches to chronic disease management as it aligns with many of the defining features of the model including continuity and coordination of care (Rothman & Wagner, 2003). There is a need to transition from the old primary care model in which patients moved from silo to silo where independent providers operated, to a collaborative model in which different specializations work together to enhance patient access and outcomes (Tsasis & Bains, 2009). This shift coupled with the shift in primary care compensation discussed in Section 2.1 can ease the implementation of chronic disease

management programs and better support prevention and management efforts (Tsasis & Bains, 2009). Team-based care can support patient outcomes particularly for those with co-morbid conditions, while also alleviating healthcare resources by reducing duplication of services (Tsasis & Bains, 2009). Chronic disease management and prevention needs to involve interdisciplinary teamwork (Tsasis & Bains, 2009).

2.2.1 Chronic Obstructive Pulmonary Disease

Chronic obstructive pulmonary disease (COPD) is a chronic and progressive condition that is characterized by airflow limitation with symptoms such as dyspnea, cough and sputum production (Chapman et al., 2003). The impact of COPD in Canada and globally is substantial and is increasing (Leung et al., 2021; Green et al., 2015). More than 10% of Canadians over the age of 35 are living with COPD (PHAC, 2017); due to the previous history of smoking rates and the aging population, this number is increasing at a rate of 2.5% annually (Leung et al., 2021; PHAC, 2017). COPD is significantly impacting healthcare resource utilization and society more broadly such as through workplace productivity loss (Chapman et al., 2003; Leung et al., 2021)

As COPD causes gradual airway obstruction, early diagnosis and treatment is essential; primary care is the most effective setting in which this can be achieved (Price et al., 2010). A majority of patients with COPD will access care through their primary care provider (Green et al., 2015; Vachon et al., 2022). Primary care providers play a unique role as they are often the first to identify a patient at risk of COPD and play a significant role in the prevention and management care pathway (Todd et al., 2008). Self-management has been seen to improve outcomes for patients with COPD; this was seen through improved patient knowledge and improving patients' quality of life (Reynolds et al., 2018). There is a need to focus on more collaborative and integrated models of care to support the management of COPD within primary care and the health system at large (Vachon et al., 2022).

Similar to chronic disease management, the management of COPD has several challenges. Obtaining an accurate COPD diagnosis poses a barrier to patients being able to access appropriate care (Price et al., 2010). Often patients may not present their symptoms to their

primary care provider as they attribute them to other areas of health such as normal aging processes or gaining weight (Price et al., 2010). Additionally, misdiagnosis as another health condition can place a large burden on the health services while providing the patient with little to no relief (Greshon et al., 2018; Price et al., 2010). Screening with spirometry is the most reliable strategy to detect COPD, however, this method of screening is underused in primary care practices leading to underdiagnoses (Price et al., 2010; Todd et al., 2008). Even with a proper COPD diagnosis, patients may have issues accessing care as there is low adherence to current guidelines for COPD among primary care providers in comparison to guidelines for other chronic conditions (Cho et al., 2019). Furthermore, a paper by Green et al. (2015) highlighted that comorbidity is highest among patients with COPD than any other chronic conditions; 76.7% of the COPD patients in their study noted having at least one additional condition (Green et al., 2015). Difficulty obtaining a COPD diagnosis coupled with the complexities of comorbidity can pose a challenge to COPD management.

Team-based care plays a critical role in the management of COPD. Currently, there is a large-scale quality improvement collaborative in Quebec that aims to improve chronic disease management in primary care settings (Vachon et al., 2022). This collaborative, known as COMPAS+, aims at engaging patients and primary care providers to improve the delivery of priority chronic diseases, notably COPD (Vachon et al., 2022). One of the main findings from this paper highlighted that restructuring of COPD primary care services is necessary to facilitate the access to allied health providers, such as respiratory therapists, in the patient's care team to enable appropriate communication and collaboration (Vachon et al., 2022). Given the high prevalence of complex conditions such as COPD coupled with the aging population (PHAC, 2020; Green et al., 2015), team-based care will be essential to improve care delivery by providing coordinated care amongst allied health providers and ensure effective use of resources. Interprofessional teams are critical within the management of COPD.

2.3 Spread of Healthcare Programs

While there is significant research that highlights the value of beneficial healthcare programs, being able to spread these programs is a complex process that requires considerations that are

unique from the initial implementation itself (Barker et al., 2015). Spread can be understood as the horizontal process of disseminating and implementing a successful program in new locations and/or new organizations (Lanham et al., 2013; Greenhalgh & Popoutsi, 2019). This process is not a straightforward task and requires deliberate, intentional efforts to achieve these effects (Barker et al., 2015). Despite the value of spread, there has been limited primary research that has sought to understand this complex process. Of the primary research included in this literature review, the publications tended to focus on the value of the program and only a small proportion of the findings discussed spread in some capacity. It is easy to fall into the trap of thinking once a program has been shown to be beneficial that the demanding work is completed (Horton et al., 2018). While it is important first to understand if the program is worth spreading, an effective program alone will not be enough to facilitate the process of spread (Edwards & Barker, 2014). To achieve the full potential of a program, this requires spreading the program at scale; this process of spread requires capacity, skills and resources that are unique from the original implementation (Horton et al., 2018).

Spread is not a one-time process; it is a part of an implementation continuum. A paper by Klaic et al. (2022) used the term 'implementability' to refer to the likelihood of a program being adopted into routine care in various settings over time. This was further supported in a paper by Sibbald et al. (2022b) that used the term progressive implementation to describe the horizontal expansion of a program across three main implementation phases, starting with pre-implementation and ending with spread and sustainability. A failure to consider the full range of factors impacting this implementation continuum can result in underestimate of the degree of complexity and ultimately a program that is not spread or sustained (Horton et al., 2018). While various aspects of spread have received more attention in recent literature, studying these individual concepts in isolation is not sufficient to understand the complex process of spread (Klaic et al., 2022). The next step for health research is to understand how to support the spread of programs to benefit more patients and providers.

When considering spread, there is substantial literature to support the importance of program fidelity. Keeping the central components of the program is important to ensure that the program is delivered and received as it was originally intended and maintain the original successes (Klaic et al., 2022). However, program fidelity poses a challenge as it does not necessarily account for

the unique considerations that are needed to ensure that a program is able to fit in a new setting (Lanham et al., 2013). It is important to avoid using the term 'replicability' within this process (Edwards & Barker, 2014). Replicability implies disseminating the program without any adaptations that are needed to support the program as it transitions from the test environment to the new setting (Edwards & Barker, 2014; Horton et al., 2018). Rather than a linear approach, spread involves creating plans that are adapted and tailored to the unique context (Lanham et al., 2013).

Adaptation is often acknowledged in the current literature as a vital component of spread. Within healthcare, adaptation can be understood as the actions or mechanisms that are in response to a challenge (Lyng et al., 2021). There is substantial literature to support the idea that the program will need the ability to adapt to the unique needs of the local context, the needs of the organization and the needs of the stakeholders (Cleary et al., 2018; Darmstadt et al., 2020; Gonzalez et al., 2019; Lanham et al., 2013; Nakimuli-Mpungu et al., 2013; Petersen et al., 2019; Sibbald et al., 2022b; Swinkels et al., 2018; Vargas et al., 2020; Warner et al., 2018). The local context is a term that can be used to understand the setting of the organization; factors to consider within the local context will be touched upon further in section 2.3.1. To facilitate the integration into routine practice, the context of the site and understanding the patterns within the setting can facilitate the programs' ability to spread (Lanham et al., 2013; Nakimuli-Mpungu et al., 2013; Vargas et al., 2020). There is a need to understand how to achieve a balance between the counteracting pressures of maintaining program fidelity, while accounting for the local context (Milat et al., 2013).

To facilitate the spread process, there is a need to understand how a program can support the implementation continuum at multiple levels (Horton et al., 2018). It takes discussions at multiple levels to make sense of how the program can align with a new context (Lanham et al., 2013; Nakimuli-Mpungu et al., 2013). Policies and incentives may help to increase motivation; however, this is not enough alone to increase capacity (Greenhalgh et al., 2004). It is important to consider both the inner setting, such as the context of the practice itself, and the outer setting, which can include the larger healthcare system, and how these may facilitate or inhibit the spread to new settings (Klaic et al., 2022). Strategies to facilitate the implementation continuum must address more than one level to be successful (Nilsen & Bernhardsson, 2019).

Translating a program into a new context is a complicated process that involves significant resource utilization (Horton et al., 2018). Healthcare resources have been defined as "all materials, personnel, facilities, funds, and anything else that can be used for providing health care services" (Ransom & Olsson, 2017, p.320). Resources were described as essential; however, to ensure that programs can effectively spread it requires reorientation of health services, rather than simply the addition of new resources (Darmstadt et al., 2020; Eaton et al., 2011). These resources must be able to adapt to support the overall health system to create effective and sustained change and not crumble when the funding and resource period ends (Darmstadt et al., 2020; Eaton et al., 2011). Focusing on spreading programs that are cost effective can help to facilitate the process (Milat et al., 2013). These resources extend beyond tangible resources; there is a need to invest in the readiness and capabilities of those who are responsible for translating the program to the new setting (Horton et al., 2018).

Buy-in is a key component of spread to facilitate ownership in the adoptees (Horton et al., 2018). Findings across this literature review highlighted that government and policy commitment alone are not enough to spread a healthcare program or model (Hanlon et al., 2017). Rather, it is important for individuals to have the appropriate expertise, motivation, and self-efficacy to facilitate the spread process (Barker et al., 2015; Hanlon et al., 2017; Petersen et al., 2019). As described above, the implementation into a new context takes a considerable number of personal resources and the decision to invest the time needed to ensure successful spread is dependent on the perceptions of both providers and recipients (Horton et al., 2018; Klaic et al., 2022). Facilitating ownership is a critical component of spread as it ensures delivery processes are relevant to the specific contextual factors and challenges (Vanyoro et al., 2019). The ability to utilize the opinions of those at the local level can ensure that the spread of the program is tailored towards the unique needs of the context (Vanyoro et al., 2019). The interaction between the individuals, the program, and the context can play a significant role in the ability to spread and highlights the importance of considering the individuals within the process (Greenhalgh et al., 2004).

The process of spread is not linear but requires adaptability and reflexivity throughout the entire process to be able to best fit with the context (Greenhalgh et al., 2017). Monitoring and evaluating was another key component of the process; being able to evaluate the program and

adapt to the local context in real time (Barker et al., 2015; Gonzalez et al., 2019; Greenhalgh et al., 2017; Marcus et al., 2020; Nakimuli-Mpungu et al., 2013). The implementation continuum is impacted by multiple and interdependent contextual factors; it is difficult for individuals to navigate this process without a clear understanding of the context and how it impacts the spread process (Pfadenhauer et al., 2015).

2.3.1 Context within Implementation & Spread Research

Despite spread being an important phase of the implementation continuum, there is a lack of literature on the phenomenon and a lack of understanding of how the process is shaped by context (Lanham et al., 2013). The definition of context widely varies in the literature, if included at all (Booth et al., 2019). When it is defined, context is often described in broad terms such as any factors that are external to the program itself and influences the implementation as intended (Booth et al., 2019). Context is often treated as an aside in comparison to a critical phenomenon that is important to understand to support a program within that context (Greenhalgh & Manzano, 2021). Section 2.3 emphasized the importance of context underlying much of the spread process, however without an understanding of the concept, it is challenging to translate the research into practice (Rogers et al., 2020).

Understanding context is a complex task; it is not simply the backdrop for implementation, rather it interacts with, impacts, and alters the program and the implementation efforts (Pfadenhauer et al., 2015). Context is a dynamic process that is rarely straightforward which is one of the challenges for understanding how it impacts the implementation continuum (Pfadenhauer et al., 2015). It is not only the physical setting, but incorporates the social environment and the interactions, roles, and relationships within that environment (Minary et al., 2018; Rogers et al., 2020). While setting is used often with a narrower focus to refer to the location itself, context is a broad term to encompass the new implementation environment and can include the underlying systems, culture, and physical components (Horton et al., 2018; Pfadenhauer et al., 2015). There are different dimensions of context that need to be considered including spatial context, temporal context, cognitive context, and social context (Nilsen & Bernhardsson, 2019). Context occurs at multiple levels within the system such as the individual level, team level, organization level and

the external level, however these levels are interdependent on one another; this further supports the need to capture a holistic perspective of the concept of context (Nilsen & Bernhardsson, 2019; Rogers et al., 2020). Healthcare programs are context-sensitive; this implies that the implementation will be impacted by aspects within the organization and wider healthcare system (Horton et al., 2018). Context is usually captured at a single point in time; however, this poses a challenge as the local context may shift as the implementation process progresses (Booth et al., 2019; Sibbald et al., 2022b). There is no single replicable way to implement and spread a program; it is important to understand the context to gather insight how to support the implementation continuum (Greenhalgh & Papoutsi, 2019). Exploring the dynamics and complexities of context can help to understand how programs are successful in one context compared to another with hopes that this insight can help to support spread on a larger scale (May et al., 2016).

In the current literature, there is clear support for the importance of context, but a lack of understanding on how to translate that within a real-world setting makes it difficult to apply into practice (Pfadenhauer et al., 2015). Adopting a complex program into a complex context is often a challenging task that may require adaptation to suit the new environment (Horton et al., 2018). However, tailoring the intervention to the setting can become messy when considering wide scale adoption across a wide variety of contexts (Armstrong et al., 2016). Intervention efforts are a result of the context itself and this poses challenges to understand the dynamic relationship of which components are a result of the program versus the components that are a result of the context (Minary et al., 2018). Other professionals such as Greenhalgh and Papoutsi (2019) have also sought out to understand the role of context using a combination of a more rigid approach, such as that seen in traditional implementation science approaches, complimented by the flexibility needed in complexity science. This work holds that a learning health system can facilitate the implementation continuum; this includes providing a nuanced account of what changed and why to support ongoing learning (Greenhalgh & Papoutsi, 2019). Understanding of context within implementation research can provide insight into how to apply this concept within the spread process. There is a need to understand context within implementation research and more specifically within spread research to support this process.

Within spread literature, there is even less guidance on how context influences the process. A framework proposed by Sibbald et al. (2022b) described the different mechanisms influencing the process of progressive implementation, or spread. This framework acknowledges that the spread is framed by the local context, however more research was needed to understand how this may impact the process. Another framework proposed by Klaic et al. (2022) captures the 'implementability' of a program and the likelihood for future spread, however it is not clear the impact context has in the framework. This framework holds that fidelity and acceptability (including adaptability) are important components of the spread process which again emphasizes the balance of adopting to the unique context while not deviating too far from the intended implementation (Klaic et al., 2022). This framework holds that 'implementatbility' is a context-dependent process that should be reassessed for each context (Klaic et al., 2022); however, that is not always feasible. Similarly, a paper by Edwards & Barker (2014) highlighted that employing a context-sensitive scale-up design by testing a program across multiple contexts can help to support future spread. However, this also poses additional questions as the paper does not seek to understand the impact of a specific context and the additional challenges with the feasibility of testing the scale up across multiple contexts (Edwards & Barker, 2014). More literature is needed to understand how spread is successful in some contexts and not others.

2.3.2 Context within Implementation Frameworks

While there are several implementation frameworks, there is a lack of consensus around how these can be applied to different contexts (Binagwaho et al., 2020). Within implementation research and frameworks specifically, context is a term used often, but lacks a consistent conceptual understanding (Nilsen & Bernhardsson, 2019). Nilsen and Bernhardsson (2019) highlighted that to truly understand how implementation outcomes are achieved, it is essential to look at the context and understand the influence within the process. Omitting crucial details such as context, can create issues for other researchers to interpret and apply research frameworks and findings (Nilsen & Bernhardsson, 2019). Nilsen and Bernhardsson (2019) conducted a scoping review with the goal of understanding and mapping different implementation determinant frameworks that considered contextual determinants. The authors held that context included any

determinant that were not associated with the practice/program itself, individual characteristics of the providers, or strategies for implementation (Nilsen & Bernhardsson, 2019). Their scoping review highlights how the frameworks interpreted context and factors believed to be influential within the process. Using their comparison, there were two frameworks considered that effectively acknowledged context within implementation for my setting: CFIR and i-PARHIS (Damschroder et al., 2009; Harvey & Kitson, 2016).

The Consolidated Framework for Implementation Research (CFIR) presented by Damschroder et al. (2009) is a meta-theoretical framework that can be used to evaluate the implementation context. Given the abundance of implementation frameworks in the literature, the CFIR utilizes other existing theories to provide an overarching comprehensive framework (Damschroder et al., 2009). This framework provides value to this research as it acknowledges that the success of implementation is dependent on the context itself (Damschroder et al., 2009). The CFIR holds that there are five main domains, each with supporting constructs within (Damschroder et al., 2009). The CFIR is one of the few implementation frameworks that defines context (Nilsen & Bernhardsson, 2019); context is "the set of circumstances or unique factors that surround a particular implementation effort" (Damschroder et al., 2009, p.3). The CFIR embeds context within several domains but primarily within outer setting, inner setting, and process domains (Nilsen & Bernhardsson, 2019). One challenge of the CFIR is that the framework is not created to account for the interaction between the constructs; however, the framework provides an opportunity to explore and test the constructs empirically to understand the interdependencies (Damschroder et al., 2009). The CFIR has been highlighted as a valuable framework due to the ability to create actionable findings that can easily be translated into practice by considering a comprehensive overview of influences both positively and negatively (Keith et al., 2017). The CFIR provides an opportunity to explore a diverse group of constructs to help understand the complexity involved with implementation (Damschroder et al., 2009).

The Promoting Action on Research Implementation in Health Services (PARIHS) framework is another framework that holds the success of implementation is dependent on three main elements: evidence, facilitation, and context (Kitson et al., 1998; Kitson et al., 2008; Rycroft-Malone, 2004). This framework holds that these elements exist on a continuum from low to high and that successful implementation is more likely when these elements lean towards high

(Rycroft-Malone, 2004). This framework also proposed a definition for context that stated that context can include "the environment or setting in which people receive healthcare services, or in the context of getting research evidence into practice, the environment or setting in which the proposed change is to be implemented" (Rycroft-Malone, 2004, p. 299). One criticism of this framework is the lack of detail on how to produce actionable findings, this lack of applicability makes it difficult to create findings that will support future sites (Harvey & Kitson, 2016). In 2016, i-PARIHS was created to improve the framework; one key distinction included differentiating between the local level and the wider organizational context; this was done by recognizing the importance of the meso and macro level contextual factors (Harvey & Kitson, 2016). This complex framework provides value for understanding how to support implementing evidence into a new practice (Harvey & Kitson, 2016; Rycroft-Malone, 2004).

Both frameworks have demonstrated an understanding of context within implementation research, however their desired outcomes are slightly unique. The CFIR is a framework intended to understand the influences on implementation, while PARIHS and i-PARIHS are focused on effective practice through the implementation of evidence-based practices (Nilsen & Bernhardsson, 2019). Given the difference in desired outcomes, the CFIR is positioned to better understand the overarching impact of context within this research.

2.4 Gaps in Literature

Recently, there has been a growing literature to support the importance of considering context in implementation research, however the description of context in a dynamic and practical way is rare (Minary et al., 2018). Majority of large-scale interventions are often missing key details that are essential to enabling successful programs to spread (Horton et al., 2018). There is a need for high quality studies to assess the mechanisms of context that can help to support the spread process (Milat et al., 2013). Context is often interpreted as merely the backdrop for implementation at one single point in time (Booth et al., 2019; Pfadenhauer et al., 2015). Rather, spread is a learning process and requires a longitudinal approach that seeks to understand the impact of context as the program transitions through the implementation continuum (May et al., 2016). My research will fill this gap in the literature as I aim to understand the impact of context

throughout the various phases of the implementation continuum to understand the role it plays as the program continues to expand.

Understanding the dynamic and complexities of implementation in one setting compared to another can help to enable a greater understanding of factors that can support spread (May et al., 2016). It is often difficult for adopters to be aware of contextual differences as it is difficult for them to see their own context; providing a comparison helps them to decide what is needed within their specific situation (Horton et al., 2018). This research will seek to understand how the setting or model of the organization itself can either support the spread process or present challenges that need to be overcome. Additionally, majority of the literature included in this review did not explore spread within the Canadian primary care system. This literature will act to further enhance the field of spread and scale literature as it provides an empirical example within the Canadian primary care system that is lacking in the current literature.

As emphasized by Sibbald et al. (2022b), there is a current lack of guidance on how to account for the unique considerations of the local context while maintaining the fidelity of successful programs to ensure similar outcomes. This research will aim to fill this gap in the literature by providing a comprehensive understanding of how to achieve a balance between these counteracting pressures in an empirical setting. With an insufficient understanding of context, it is difficult to understand how to conceptualize context within spread research given this ongoing tension of fidelity and adaptation in the literature (Pfadenhauer et al., 2015). The hope is that findings from this study will be beneficial to allow readers to understand the impact of context in an empirical example and allow themselves to gain an understanding of how to utilize context to support continued program expansion and ultimately sustainability.

2.5 Summary

This chapter provided an overview of the current literature surrounding the important topics of this thesis; these topics included primary care, team-based care, chronic disease management, COPD management, the implementation continuum and spread, the role of context within spread, and context within implementation frameworks. These topics were important to identify

the gaps within the current literature that were used to help determine the trajectory for this research project. This chapter demonstrated that there is a need to explore the impact of context within spread through a dynamic and longitudinal approach, that uses an empirical example in the Canadian primary care context and provides a comprehensive understanding of the impact of context on the implementation continuum that can be used to support future programs. The next chapter provides insight into the methodology and methods used to answer the research objectives and question.

Chapter 3

3 Methodology and Methods

In this chapter, I outline the paradigm and methodology that I have chosen for my research project (Sections 3.1 & 3.2). This chapter provides insight into the setting for the case study and participant recruitment (Section 3.2). I provide details on the data collection (Section 3.3) and analysis (Section 3.4), as well as highlight my guiding quality criteria used throughout my research project (Section 3.5). This chapter describes the process used to answer the overall research question; how does context impact the spread of integrated models of team-based care for chronic disease management in primary care settings?

3.1 Paradigm

In qualitative research, before deciding on the methodology it is essential to establish one's paradigmatic perspective (Guba & Lincoln, 1994). A paradigm can be understood as the conceptual lens that guides the researcher's methodological decisions and informs the interpretation of the data (Kivunja & Kuyini, 2017). I begin this chapter by outlining my personal beliefs as a qualitative researcher that have shaped my thesis. There are three main components to paradigms: (1) ontology, (2) epistemology, and (3) axiology (Ponterotto, 2005). Ontology questions the nature of reality and what can be known about this nature (Guba & Lincoln, 1994). I strongly align with a relativist ontology, meaning that I assume that there are multiple and equally valid realities of the world (Ponterotto, 2005). The second component is concerned with the nature of the reality between the researcher and the participants known as the epistemology (Guba & Lincoln, 1994). I believe that the reality is subjective and that the research is transactional between the researcher and participants (Guba & Lincoln, 1994). The third component, the axiology, is concerned with the role of the researcher's values in the research process (Ponterotto, 2005). While I believe that it is important to acknowledge and bracket any potential biases that I bring to the research, these will influence the research in some capacity as the findings are co-created between the participants and me (Ponterotto, 2005).

Understanding my position and beliefs as a qualitative researcher is important to understanding the methodological design of my research project.

My perspective strongly aligns with a constructivist paradigm. Constructivism aligns with relativism, implying that there is not only one understanding of context; rather, there are multiple realities for how sites have interpreted and adapted to their unique situation (Guba & Lincoln, 1994). Additionally, constructivism holds that deeper understandings are gained through the relationship between the researcher and the participants (Ponterotto, 2005). In my thesis, it was important to use a methodology that enables a collaborative relationship between the researcher and participants to appreciate how context was understood at the unique primary care sites. Lastly, constructivism holds a hermeneutical and dialectical methodology (Guba & Lincoln, 1994). There is a lack of agreement in the literature on the impact of context, rather it is discovered through the interactions and discussions of the researcher and participants in their natural setting. It is important to interpret the experiences at the unique primary care sites to understand how context should be considered as the program continues to spread. Overall, a constructivist approach was an effective choice to guide this research.

3.2 Methodology

One challenge within implementation literature is the difficulty in understanding how to study the phenomenon of spread (Lanham et al., 2013; Rogers et al., 2020). As noted in Chapter 2, there are inconsistencies in how the term is defined and conceptualized, and this is even more complex when considering how to evaluate the impact of context (Eaton et al., 2011; Rogers et al., 2020). Rogers et al. (2020), conducted a systematic review with the sole purpose of understanding how to define and measure context within implementation research. The authors found that, of the 64 studies included in their review, there were over 40 different methods used (Rogers et al., 2020). Upon looking further into the value of these methodological choices, the authors were able to determine that qualitative methods were most effective and suitable at exploring the complexities that surround context (Rogers et al., 2020). Rogers et al. (2020), noted that qualitative methods enabled a rich and dynamic understanding that was able to account for unique findings that arose. The authors highlighted that in quantitative methods,

tools were most often based on validated, context specific surveys and lacked the flexibility to account for contextual determinants outside their specified definition (Rogers et al., 2020). A qualitative approach was the most appropriate choice to address the complexities of my research question.

3.2.1 Case Study

Case study is an effective methodology that allows for in-depth explorations of complex issues in a real-world context where a phenomenon of interest occurs (Crowe et al., 2011). Case study methodology was an appropriate choice for health services research as it captures the dynamic and evolving nature of the healthcare system and the phenomenon of interest that is not possible in other traditionally linear approaches (Sibbald et al., 2021). The phenomenon of spread is entangled within the context in which it is occurring, leading to difficulties in distinguishing characteristics of the program from the organization itself (Horton et al., 2018). As stated by Sibbald et al. (2021), "case studies can be useful when researchers want to understand how interventions are implemented in different contexts, and how context shapes the phenomenon of interest" (p.292). As a result of this interconnected nature, it was important to explore the Best Care COPD (BCC) program as it exists in different primary care sites with varying practice models to be able to understand the influence of context on the implementation and spread of the program.

Case study allows the researcher to gain a holistic understanding of a phenomenon (Fàbregues & Fetters, 2019). Context can impact spread at several different levels and the interplay between the levels and elements of context may provide valuable insight; using fragmented approaches that may attempt to capture only some elements of context runs the risk of not providing a holistic understanding that is essential for our phenomenon of interest (Bauer et al., 2019). Taking a holistic approach helped to understand the association between context and implementation success as needed to understand my research question (Rogers et al., 2020).

A key tenet to case study methodology is selecting the theoretical perspective that underlies the study design (Sibbald et al., 2021). There are three main foundational approaches that are

proposed by Robert Stake (Stake, 1995, as cited in Sibbald et al., 2021), Sharan Merriam (Merriam, 1998, as cited in Sibbald et al., 2021) and Robert Yin (Yin, 2002, as cited in Sibbald et al., 2021). A case study approach according to Stake (1995, as cited in Sibbald et al., 2021) involved qualitatively exploring a specific and complex function with a focus on four main defining characteristics including capturing a holistic perspective, empirically based on the study of their observations, interpretive and emphatic of the experience of the subjects (Yazan, 2015). Merriam (1998, as cited in Sibbald et al., 2021) held that case studies are beneficial to qualitatively understand a single entity with a focus on three defining characteristics including particularistic, descriptive and heuristic (Yazan, 2015). Case study methodology as proposed Yin (2002, as cited in Sibbald et al., 2021) aims to understand a concept in a real-life context through a combination of qualitative and quantitative methods. For the purpose of my thesis, it was important to understand these three main foundational approaches to select the most appropriate for my research.

While there are commonalities and differences among each of the proposed approaches, I utilized Stake's approach to case study methodology for two main reasons: the paradigmatic perspective and design of the approach. While Yin's perspective utilizes a positivist approach, Stake and Merriam's approach to case study methodology is strongly grounded in a constructivist paradigm (Yazan, 2015). In my thesis project, an approach underlined by a constructivist perspective helped to enhance the consistency and coherency of both the research methods and overall findings (Sibbald et al., 2021; Yazan, 2015). As consistent with a constructivist paradigm, it was important to acknowledge multiple realities given the importance of understanding the phenomenon in its natural setting (Fàbregues & Fetters, 2019). Additionally, Stake holds that case studies should use a flexible design that includes progressive focusing, which implies that the researchers set two or three initial research interests, but the study is able to be adapted for unique considerations that were not originally anticipated (Yazan, 2015). Spread is a dynamic process and involves complex considerations that may adapt as the implementation process progresses (Sibbald et al., 2022b). This differed from Merriam which held that the design of the project is based upon the literature review (Merriam, 1998, as cited in Sibbald et al., 2021). This flexible approach allowed the researcher to account for the unique and complex process of spread. For the purpose of this research study, using Stake's approach to case study methodology was an appropriate choice.

Stake provides three types of case study approaches: intrinsic, instrumental, and collective case studies (Stake, 1995, as cited in Crowe et al., 2011). Intrinsic case studies are beneficial to help understand a unique phenomenon, often when the case is different from all others (Crowe et al., 2011). Instrumental case studies are another type of case study as proposed by Stake that are often used to gain a better understanding of an overall phenomenon through the exploration of a particular case (Stake, 1995, as cited in Crowe et al., 2011). Collective case studies are beneficial to incorporate multiple cases simultaneously to create a broader understanding of a phenomenon (Crowe et al., 2011). A collective case study design involves exploring multiple instrumental case studies (Chmiliar, 2010). Multiple instrumental case studies provided value to my research as I was able to use the combination of primary care sites that have implemented the BCC program to gain a broader understanding both within and across contexts (Crowe et al., 2011). Another benefit of collective case study is the ability to yield results that are more powerful than a single case; a collective approach gave me the opportunity to explore the variation across sites and care models that a single case study cannot represent (Chmiliar, 2010). Using a collective case study with carefully selected cases allowed for a comparison across contexts to determine the impact of differing contexts on the overall phenomenon of spread (Chmiliar, 2010).

3.2.2 Setting

This research examined the spread of an integrated team-based COPD management program within primary care called BCC. The program is delivered and monitored through an overarching not-for-profit corporation, the Asthma Research Group INC (ARGI). However, it is being implemented within individual primary care organizations across the southwestern Ontario region. The BCC program was created by ARGI to integrate existing evidence-based guidelines for COPD care into one program. The aim of BCC is to help individuals with COPD improve self-management of their chronic condition by including education components, skills training, immunization management, and exacerbation action plan development with relevant medication prescriptions into their regular care. Effectiveness of the program has been evaluated through formal patient outcomes as seen in a randomized control trial conducted by Ferrone et al. (2019), that demonstrated improvements in patients' lung function and reduced severe exacerbations.

Effectiveness of the program has also been described through qualitative measures such as improved patient experience and improved quality of life (Paciocco et al., 2021; Sibbald et al., 2020).

The providers of the BCC program are hired by ARGI to deliver the care within primary care practices in conjunction with the patient's usual primary care provider(s). The BCC providers are registered health professionals that have successfully completed their certified respiratory educators (CREs) distinction through the Canadian Network for Respiratory Care (Paciocco et al., 2021); from hereinafter these providers will be referred to as the educators. The program involves an initial appointment with an educator, usually an hour in length, then follow-up visits thereafter as needed, with all patients reviewed at least annually. All visits occur at the patient's usual primary care practice. The educators work alongside the primary care team to improve the patient's overall care.

Previous phases of this research demonstrated the feasibility of the implementation of the BCC program at two Family Health Teams (FHTs) in Southwestern Ontario. Since then, Sibbald et al. (2022b) has explored BCC as it continued to expand, including the implementation at several primary care sites across the region. With this growth, the program has been implemented in a variety of practice models beyond the FHT model explored in previous research studies, including Community Health Centres (CHCs) and non-team-based models. This thesis explored the impact of context as this program spreads to these new models of care. A key tenet of case study methodology is to define the boundaries of the selected cases (Fàbregues & Fetters, 2019; Sibbald et al., 2021). A case study may be bounded in terms of time, place, or physical boundaries (Chmiliar, 2010). For this thesis, each case was bounded by the specific implementation site. As this study aimed to explore the difference in context across a wide range of care settings, we included a variety of primary care sites that varied in care models and size (Stewart, 2012). With the help of both my supervisor, Dr. Shannon Sibbald, and ARGI, I was able to gain access to the sites. Stake states that selection of the sites is based on a concept or idea that bounds them together (Stake, 2006). For this research, we used primary care sites that have implemented the BCC program as a commonality amongst the cases, while exploring the impact of context in different primary care models.

3.2.3 Participant recruitment

There were three main groups of participants in this research study: (1) the direct providers of the BCC program (referred to as educators), (2) leaders of the BCC program, and (3) primary care providers who work alongside the program at the sites. The first group of participants, the educators, were recruited with the help of ARGI. A research team meeting was scheduled with the help of the ARGI team in which eligible BCC educators were informed of the research project and invited to participate. Following this meeting, the educators were provided with the Letter of Information (LOI) for further details. We collected the email addresses of interested educators and reached out to collect informed consent using Qualtrics. The second group of participants included the leaders of the BCC program. These included providers of the BCC program that held a leadership position. These providers were also recruited similarly to the educators above, we used the help of ARGI to provide the BCC leaders with the Letter of Information via email and collected consent via Qualtrics. The last group of participants, primary care providers, were recruited through the help of ARGI as well. The ARGI team provided the research team with email addresses of primary care providers at the site. The research team then reached out to invite the providers to participate and provide them with the LOI to review for further details. If they were interested in participating, we scheduled a time that was convenient and collected verbal consent prior to the start of the phone interview.

3.3 Data collection

Case study methodology allowed for extensive data collection using a variety of data sources (Chmiliar, 2010). This enabled the phenomenon to be explored through different lenses to understand the multiple facets of the phenomenon (Baxter & Jack, 2008). Utilizing multiple data collection methods helped to provide patterns both within and across cases to help understand how context impacted the overall phenomenon of spread (Sibbald et al., 2021). Since this research is part of a larger study that is collecting a substantial amount of data through multiple sources, this study narrowed down the data collection methods to focus on the tools relating to

context. This research used qualitative data collection methods. Primary data collection methods included living documents (LDs), focus groups, and interviews. Documents (such as evaluation reports and observation notes) were also collected and used to support data analysis as secondary data collection. A key consideration in collective case studies is the need for flexible data collection to obtain detailed data for each unique case (Crowe et al., 2011). As a result, most of the data collection tools used a semi-structured approach to allow for the flexibility needed for collective case study, while also providing data that was able to be easily analyzed across cases (Crowe et al., 2011). One critique of case study methodology is the tendency to collect too much data without adequate time for analysis and interpretation (Crowe et al., 2011). Based on previous phases of the larger research project, I believe that my decision to focus on these data collection tools was sufficient and manageable, while also providing valuable insights from various perspectives. Data collection and analysis were iterative as per methodological considerations; data was analyzed continuously throughout the collection process and was used to inform data collection to ensure that that the questions were appropriate and allowed for data collection as the implementation progressed (Baxter & Jack, 2008).

3.3.1 Living documents (LDs)

LDs are longitudinal, fluid documents that used a semi-structured approach to help understand the implementation process of BCC in real time (Ling et al., 2012). LDs were distributed to the educators at each site and the BCC leaders. Each educator received a total of seven LDs at three-week intervals, each with several questions that focused on understanding the impact of context as the implementation process progressed. One LD was distributed to BCC leaders that incorporated questions that were more appropriate to hear from the leadership team directly. These findings were used to inform the questions and corresponding probes in the focus groups and phone interviews. The LDs can be found in Appendix A.

3.3.2 Focus groups

Focus groups used a semi-structured approach to build from the LDs to understand the dynamic and collective experience of the spread of BCC program, with specific probes focusing on context at the unique sites. Focus groups were conducted with the educators of the program from different primary care contexts via Zoom. The focus group guide can be found in Appendix B. Focus groups were approximately 60 minutes in length and were audio-recorded and transcribed verbatim. Any participant who was unable to make the arranged date and time was offered the option of participating in a phone interview, however none of the providers took this option.

3.3.3 Interviews

I conducted semi-structured interviews with primary care providers who worked alongside BCC to help understand how the program has impacted their practice. These interviews were approximately 15 minutes in length and were beneficial to understand the perspective of other providers in the practice. The interview guide can be found in Appendix C. The phone interviews were audio-recorded and transcribed verbatim.

3.3.4 Reflexivity

Given the interactive nature between the researcher and participants in case study research guided by a constructivist paradigm, it is important to engage in reflexivity (Baxter & Jack, 2008; Stake, 2006). Reflexivity involves the researcher clearly articulating to the audience of the research (publications, conference presentations, etc.) the interactions between themselves, the setting, the participants, and the research process, and is essential to promoting rigour and transparency (Cruz & Higginbottom, 2013; Tracy, 2010). I kept a reflexive journal throughout the research process which allowed me to keep a clear trail of all the decisions made and my influence on the research process to promote sincerity (Tracy, 2010). My reflection can be found in Chapter 5.

3.4 Data analysis

Given the high volume of data to be analyzed, it is essential within case study methodology to plan how the data will be organized (Stake, 2006). This research used NVivo, a database for organizing codes and sorting raw data to where it can be easily updated and re-categorized as the data collection progresses. This software provided an effective method for keeping the data focused on the research question and reduced the temptation to explore findings out of the scope of this research (Baxter & Jack, 2008).

The data within this research was deductively coded using an implementation framework that was tailored to our setting. I first used the Consolidated Framework for Implementation Research (CFIR) to deductively code the data. This framework was an effective choice as it acknowledges that the extent to which implementation can be successful and support the spread to new sites is dependent on the specific context (Damschroder et al., 2009). Within CFIR, implementation is understood as a social process meaning that implementation is intertwined with the context in which it takes place (Damschroder et al., 2009). CFIR has five main domains, with several supporting constructs to understand this connection between implementation and context (Damschroder et al., 2009). Using this meta-theoretical framework to guide the coding process was an effective method to promote the overall quality of the study within case study methodology (Fàbregues, & Fetters, 2019). In the first round of coding, the primary researcher coded the entire data set, a fellow research team member also coded the entire data set, and my supervisor reviewed approximately 10% of the data. Within case study methodology, it is important to analyze both within and across cases (Chmiliar, 2010); this round of coding was first coded by case. Following this round of coding, we met together as a research team to discuss our early findings and interpretations. During this meeting, we discussed the strengths and weaknesses of using CFIR in our research question and determined how we should tailor the framework to our context. Consistent with other literature, we determined that while providing value, CFIR did not account for the complexities present within the process of spread (Sibbald et al., 2022b).

From this meeting I determined that we needed to conduct a second round of coding. Inspired by a publication by Safaeinili et al. (2019), I decided that we needed to tailor CFIR to our specific

context. This publication by Safaeinili et al. (2019) used an example to highlight that, while CFIR presents a comprehensive overview of facilitators and barriers to implementation, it is not always appropriate in every context. Rather, modifications are needed to enable a deeper understanding of complex systems such as primary care (Safaeinili et al., 2019). The authors presented several strategies such as re-orientating the constructs towards the specific context and providing case-specific examples to help understand CFIR within complex and dynamic systems (Safaeinili et al., 2019). When considering how to adapt CFIR to our context, I identified areas of the framework that should be modified to our research setting. This involved the removal of constructs that did not appear in the first round of coding and the addition of constructs including distinguishing between the meso (ARGI, the organization responsible for BCC) and macro settings (the larger healthcare system) in the outer setting domain. The decision to distinguish between levels in the outer setting was from the iPARIHS framework discussed in Chapter 2 (Harvey & Kitson, 2016); I believe that this addition was important and not already covered by my interpretation of CFIR. The final coding framework is seen in Appendix D. Additionally, to assist with the second round of coding, I created a codebook with tailored definitions of how the construct may appear within our context as seen in Sefaeinili et al. (2019). This round of coding was analyzed across data sources and again was coded in full by both the primary researcher and the fellow research team member, and my supervisor reviewed approximately 10% of the data set.

3.4.1 Supporting Data Analysis

Supporting documents were collected including field notes and quarterly reports, which supported the analysis in this study by facilitating an understanding of the data collected from the participants. This analysis was ongoing throughout the research process and analyzed relevant documents from the organizations to help identify meaning and increased knowledge surrounding impact of care setting (Bowen, 2009). The supporting documents were important to provide a holistic perspective that is not captured directly from the participants.

3.5 Ethics

This study received ethics approval from Western University's Health Sciences Research Ethics Board (Study ID 116445) prior to participant recruitment and data collection. All participants received a full explanation of the potential costs and benefits associated with the research project and were provided with the LOI for additional information prior to collecting informed consent. All focus groups and interviews were audio-recorded with proper informed consent.

3.6 Quality Criteria

I have incorporated several strategies to promote quality within my research project. I used the eight criteria proposed by Tracy (2010) to evaluate my research. These criteria are beneficial for my research as it aims to conceptualize common markers of what makes a good quality, qualitative research project, while considering different methodologies and paradigmatic perspectives (Tracy, 2010). The criteria proposed by Tracy (2010) included a worthy topic, rich rigor, promoting sincerity, enhancing credibility, resonance, significant contribution, ethical quality and overall coherency. A worthy topic involves research that adds to the current literature, not merely confirming existing assumptions (Tracy, 2010). Identifying and addressing gaps from the current literature coupled with my knowledge from the previous phases of the larger empirical research helped to ensure that this thesis has the potential to inform future implementation and spread processes. Promoting rich rigor within a research study involves making smart decisions about the research design and case selection to ensure that the findings are appropriate to the given research question (Tracy, 2010). Exploring systematic reviews such as that of Rogers et al. (2020) discussed in Section 3.2 provided a strong foundation to ensure that the selected methodology was effective for this research question. Promoting sincerity involves being transparent and authentic in my research decisions and dissemination (Tracy, 2010). Engaging in strategies such as keeping a reflexive journal throughout the entire process ensured that I was able to be transparent about the process with myself, the research and the audience. Enhancing credibility involves promoting the trustworthiness of the research (Tracy, 2010). In my thesis, I included member reflections as an opportunity to ensure my findings were an accurate reflection of the lived experiences. The ability for research to resonate with an audience involves research that can affect people directly through strategies such as

transferability and generalizations (Tracy, 2010). While I acknowledge that case study methodology is not generalizable, I use BCC as an exemplar to demonstrate how to improve integrated team-based care for chronic disease management in primary care settings more broadly. The addition of a significant contribution is a criterion that involves adding innovative research to support the current literature and overall health system (Tracy, 2010). This research adds methodological significance by using living documents, a data collection method not widely used, to collect longitudinal data on a complex process. Promoting ethical quality is an important criterion to creating high-quality qualitative research including procedural ethics, situational ethics and exiting ethics (Tracy, 2010). This study received ethics approval from Western University's Health Sciences Research Ethics Board (Study ID 116445). Finally, I was able to promote meaningful coherence by aligning the research design, data collection and analysis (Tracy, 2010). These criteria can be used to promote quality throughout my research project. Additionally, the standards for reporting qualitative research: a synthesis of recommendations (SRQR) checklist was used (O'Brien et al., 2014).

3.7 Summary

This chapter outlined the paradigm and methodology that have guided my research project. I start this chapter by discussing my paradigmatic perspective as a qualitative researcher. I describe how given the social processes involved in understanding the phenomenon of spread, a constructivist paradigm ensures that I produce a coherent research project. In section 3.2, I highlight how I determined that a qualitative, collective case study was the most appropriate choice for my research study. A qualitative case study methodology, guided by a constructivist perspective was effective to provide insight into my research question and objectives.

This research explored the spread of the BCC program, an integrated team-based COPD management program within primary care settings. Given the importance of understanding the setting in case study methodology, it is important to articulate the real-world context where the phenomenon of interest occurs (Crowe et al., 2011); for this study, the setting consisted of various care contexts that have implemented the BCC program. As I aim to understand the impact of context, I have included sites with a variety of primary care models including both

team-based care and non-team-based models. In my research, I have included three participant groups: (1) the educators who directly deliver the program, (2) the leaders of BCC, and (3) primary care providers who work alongside the program at the primary care sites. I plan to use BCC as a case example to help answer my research question.

Data collection and analysis was iterative and continuous. I used multiple qualitative methods in our data collection; this included living documents, focus groups, and interviews. All tools used a semi-structured approach and earlier findings were used to inform later data collection. With contributions from my research team, I analyzed the data using a modified version of the CFIR. The analysis was further supported using document analysis. I end the chapter by discussing the quality criteria strategies that are being used to consider different dimensions of quality according to Tracy (2010). Together, this method will be effective to guide my research project. The next chapter will share findings from the analysis of the collected data.

Chapter 4

4 Results

This chapter of my thesis presents the findings from the analysis of the data. I begin this chapter by discussing the characteristics of the participant group (Section 4.1). I then move into discussing the main findings of the analysis across all data sources (Section 4.2); themes are supported using verbatim quotes. The results of the study worked to answer the overall research question: how does context impact the spread of integrated models of team-based care in primary care settings?

4.1 Participant Demographics

In total, there were 23 participants involved in the study. These participants included a range of individuals with different associations to the Best Care COPD (BCC) program including direct providers (hereinafter referred to as the educators due to their CRE distinction), the leadership team, and primary care providers that work alongside the program at the sites. The breakdown of participant characteristics can be found in Table 1. Participant's involvement in data collection was dependent on their association with the BCC program; see Table 1.

A total of 16 providers of the BCC program were contacted to participate in this study; 14 of the educators consented (Response Rate (R) = 87.5%). The educators worked across one or more of the following categories of primary care models: non-team-based care models, FHTs (team-based care), or CHCs (team-based care). There were 13 educators involved with data collection; following the initial consent, one provider indicated that they wanted to withdraw. All educators worked at an FHT model, four educators worked at both a FHT and non-team-based model, one educator worked at both a FHT and CHC model, and two educators worked across all three categories (see Table 1). The educators were each distributed seven living documents (LDs) at three-week intervals using Qualtrics. Response rates ranged from 46.2 – 76.8% (Table 2); this was consistent with response rates seen in previous phases of our larger research study. The same 13 educators were invited to participate in a focus group. Two focus groups were conducted with

four educators in each (n=8, RR= 61.5%). Each focus group lasted approximately one hour. Upon completion of data collection, two educators withdrew from the study. Following the data analysis, all educators were invited to a member reflection session. Two sessions were conducted; one session had six educators and the second session with four educators (n=10, RR=76.9%).

Six BCC Leaders were contacted to participate, and all consented (RR=100%). All individuals completed a BCC Leaders LD (n=6, RR= 100%). Qualtrics was used for data collection.

Five primary care providers were invited to participate and three consented to our study (RR=60%). Of the three that consented, all providers completed the phone interview (n=3, RR=100%). The primary care providers (n=3) that participated in our study were from two different sites that have implemented the BCC program; both sites were FHT models. The phone interviews were each approximately 15 minutes in length, and were audio recorded and transcribed verbatim.

In total, there were four unique data sources amounting to 66 collected documents across participant groups (Table 2).

Table 1. Participant Categories

Participant Categories			
BCC Educator	14	Educator working at only FHT model	7
		Educator working at FHT and CHC models	1
		Educator working at FHT and non-team-based models	4
		Educator working across all three primary care models	2
Coordinator	2		
Leadership	2		
Physician*	3		

Quality and Evaluation Staff	2
TOTAL	23

* 1 physician was a lead resident at their site.

Table 2. Type of Data Collection and Response Rates

Type of Data Collection	**Number of Participants**	**Number of Documents**	**Response Rates**
Educator Living Documents (LDs)	13	LD1- 10	76.9%
		LD2- 10	76.9%
		LD3- 10	76.9%
		LD4- 7	53.8%
		LD5- 6	46.2%
		LD6- 6	46.2%
		LD7- 6	46.2%
BCC Leaders Living Documents	6	6	100%
Educator Focus Groups	8	2	61.5%
Primary Care Provider Interviews	3	3	100%
TOTAL	22	66	46.2%-100%

4.2 Analysis

This section presents the findings from the deductive coding using CFIR; in some sections, multiple CFIR constructs are presented together as one theme to demonstrate the connections between constructs (see Table 3). For example, the first theme discusses the constructs of structural characteristics and planning that were consistently coded together. Verbatim quotes support the themes.

Seven main themes were coded in the data; (1) structural characteristics and planning, (2) macro level external policies and planning, (3) available resources and adaptability, (4) patient needs and adaptability, (5) structural characteristics and implementation climate, (6) structural characteristics and networks & communications, and (7) cosmopolitanism at the meso level. The themes are presented in aggregate across multiple participant groups. Some themes are longer than others owing to the number of participants that discussed the various constructs relating to the theme; therefor length of the theme is not a reflection of the priority of the theme.

Table 3. Themes and Connections Across Domains.

		CFIR DOMAINS					
		Intervention Characteristics	Characteristics of Individuals	Inner Setting	Outer Setting		Processes
					Meso Level	Macro Level	
THEMES	Structural Characteristics and Planning			X			X
	Macro Level Policies and Planning					X	X
	Available Resources and Adaptability	X		X			
	Patient Needs and Adaptability	X		X			
	Structural Characteristics and Implementation Climate			X			
	Structural Characteristics and Networks & Communications			X			
	Cosmopolitanism at the Meso Level				X		

4.2.1 Structural Characteristics and Planning

The construct of structural characteristics and the construct of planning were commonly coded together during the researcher's analysis. The construct of structural characteristics falls within the CFIR domain of inner setting and was interpreted in this research as the primary care model of the site and the contributing characteristics such as the age, maturity, and size of the primary care setting itself. Understanding the impact of the structural characteristics was critical to providing insight into the local context. The construct of planning was categorized under CFIR's process domain and understood as the planning for both the implementation and spread of the BCC program. Responses demonstrated that these constructs were seen as mutually reinforcing to describe the integration of BCC into the current and future sites as the program continues to spread.

Unanimously across data from all sources, BCC was highlighted as a model of care that improved COPD management, and chronic disease care more broadly, regardless of the practice model of the primary care site. One participant shared that "the program is designed in a way that it molds nicely with any environment it is put into" (LD5). The educators were able to seamlessly implement the program into new sites independent of the care setting. While many participants highlighted team-based care as the ideal model for the BCC program, because of BCC's team-based management approach, participants emphasized that BCC was successful in all models of primary care; "the implementation of the BCC program I would say had led to a more team-based approach, even in solo physician care setting" (LD2). Another participant shared that "the impact is not unique to any settings. Positive impact everywhere" (LD7). This was echoed by several participants across all sources of data.

This seamless transition of the BCC program into practices with different structural characteristics was largely due to the planning by the BCC Leaders. Maintaining program fidelity has been a vital component of the planning and execution process of the program throughout the implementation continuum; "we do work across all primary care models… so we prioritize program fidelity, so we know we have a program that works because we have robustly evaluated it in many different ways" (BCC Leaders LD). This big picture integration was identified by the leaders as a key factor to facilitating the large scale spread of the BCC program

while maintaining consistent benefits to patients and providers. Throughout the BCC Leaders LD, there was a clear tension between the adaptability of BCC to meet the everyday needs of the primary care setting and not compromising the integrity of the program.

> *We tried to find this balance between fidelity and adaptability… it's designed to fit within a primary care practice. And so, it doesn't require a lot of adaptability on a site-by-site basis but we do permit some changes, some adaptability, some alteration of plan…So, we will modify and adapt the program but the tension there is we would hesitate to adapt the program to a point where we feel like we've lost program fidelity. (BCC Leaders LD)*

The planning construct was essential to ensure that BCC was able to maintain the same impacts even when the characteristics of the sites themselves differed.

From the beginning, BCC was designed to fill gaps in care to facilitate the provision of Canadian and International guideline-based care standards in primary care practices. The ability to execute the BCC program as intended, regardless of the characteristics of the site, was a result of the planning of the initial program. The BCC program was created in collaboration with primary care providers to ensure that it would seamlessly fit into any primary care practice model.

> *We created the Best Care Program with primary care providers, and so the direction that this program went in was guided by primary care providers who have insights into their own clinic processes and flow… So, to the greatest extent possible, we have aligned our processes to ensure that they are not disruptive to the primary care practice in anyway. (BCC Leaders LD)*

This collaborative approach with those on the front-line from the initial planning phases helped to alleviate the burden of adaptation as the program continued to expand. This front-line perspective was important to understanding how the program was able to integrate into the primary care setting; "I still believe it's because we work at all levels. You know, we're right on the ground and that's important" (BCC Leaders LD). Involving primary care providers within the initial planning sessions was seen to enable implementation as intended within primary care settings with variable structural characteristics.

4.2.2 Macro Level External Policies and Planning

There is a need to understand the different levels of implementation and spread of BCC; this incorporates the level of the wider healthcare system (the macro level). External policies were understood in this project as external policies and recommendations outside the control of either the primary care organization or ARGI themselves. This construct falls under CFIR's outer setting domain, and for this analysis, the domain was divided further into meso and macro levels. Understanding how BCC planned for macro level influences provided insight into the continued growth of the program.

Navigating changes in the provincial health care system can present challenges for planning future spread, while executing and maintaining program fidelity. This requires the BCC leaders to shape the strategic plan of BCC to align with the direction of macro level influences. This alignment was noted as not an easy task and was compared to navigating a 'moving target.' However, when effectively planned for, these external policies can present an opportunity for BCC to excel within the current provincial health care system.

> *The Ontario Health Team restructuring has been helpful to Best Care in the extent to which that is true will become more apparent as [Ontario Health Team] maturity develops, but conceptually the notion of bringing together the entire health system to work in a coordinated and integrated fashion has always been- it has been a focus of Best Care. (BCC Leaders LD)*

The alignment with the Ontario Health Team restructuring was noted as presenting an opportunity to build partnerships and relationships that can be used to foster ongoing spread. While there is still more work to do, integrating with the Ontario Health Teams provides the opportunity to build partnerships that can support the spread to more regions, including those with significant healthcare needs such as Northern Ontario which is currently limited by funding that focuses on Southwestern Ontario (BCC Leaders LD). Being able to plan for the BCC program within the ever-changing healthcare environment was noted by participants as supporting future spread.

4.2.3 Available Resources and Adaptability

Adapting to the resources available at the primary care sites where the BCC program had been implemented was a common theme from the data. The CFIR construct of available resources, originally a sub-construct under readiness to implement within inner setting, was modified for this research project; in this interpretation of CFIR, available resources was used as its own construct in the inner setting domain. Adaptability is a construct that falls under intervention characteristics that demonstrates the degree to which BCC can be adapted, tailored, or refined to the needs and the available resources at each unique primary care site. Together these constructs demonstrate the availability of resources, and how educators were able to adapt to ensure a standardized and high-quality BCC delivery. Throughout the collected data, it appeared that the model of primary care dictated the resources available to the BCC program; "I don't think it changes the approach we need to take. It does affect the type of resources that we would have available to us" (BCC Leaders LD). The level of care did not change from model to model, however the resources available to the educator varied slightly between the three categories of primary care models explored in this study. One educator further emphasized this point by sharing that "the program itself is the same from site to site. But it's just getting to know your sites" (Focus Group 1). There were several resources that were noted by participants as different among the models that required the educators to adapt; these included remote access, access to a phone, access to supplies, support from providers and staff, and challenges of time and space.

Gaining remote access to the systems of the primary care site, primarily electronic medical records and booking systems, was noted as a common challenge, primarily amongst individuals in non-team-based primary care models. One participant emphasized this point by sharing the following statement:

> *I also don't receive remote access to the clinic in the non-team based which makes it very hard to communicate with patients and not fall behind in work as I only have a set amount of time to work each day and I'm normally already very busy. (LD2)*

Lack of remote access made it challenging for the educators to work productively and often resulted in working overtime to catch up on phone calls and action plans (LD4). While not a challenge at every non-team-based care site, this frustration did appear among other participants.

Lack of remote access made it challenging to provide care to sites especially when it may be several days/weeks until the educator returns to that site again.

Access to a phone was another common challenge amongst those in non-team-based settings, which resulted in challenges in accessing the educators.

> *I don't have a phone, a landline in [non-team-based care site], so I have to use my own phone for everything. And the reception doesn't want to help with anything admin. So I'll tell patients over the phone that when I'm leaving a voicemail, 'OK, just call the [site's] medical front desk and just let them know that you want to speak with me.' And then sure enough, 15 minutes later, I get a message saying, 'Oh, this person so and so called for you, they want you to call back' and then I'm calling back and then they don't answer and then I leave another voicemail, and it just turns into a cat and mouse game. (Focus Group 1).*

One participant shared that, when coupled with a lack of remote access, not having a phone presented difficulties for patients to access timely care; "so even if I were to give them my cell phone, I'm at home, and they're like, 'Oh, I'm so and so'. I can't book them. I can't do anything" (Focus Group 1). Participants noted that a lack of resources disrupted their processes and often required adaptations on the part of the educator to overcome these.

Among primary care models, it was often noted by participants that the access to supplies was different. Access to samples was noted by a few participants as a challenge, mainly in non-team-based care.

> *At the family health team, the nurses commonly take care of ordering samples and organizing the medication cabinet but at the private clinic, I do this myself… The nurses at the private clinic also give out puffer samples without informing me so I'm never up-to-date on what samples I have or need. (LD 3)*

Team-based clinics including both FHTs and CHCs were often noted by participants as having access to supplies and other resources that were beneficial to supporting the ease of implementation and appropriately caring for patients. Another participant shared that "the [solo physician] clinics also did not provide me with any budget or resources when I started, as I felt

very alienated and not supported" (LD2). This challenge in resources highlighted the adaptability on the part of the educator to work around supply challenges.

The level of support was noted as another difference among primary care models that required the educator to adapt to their different sites. This was first seen through the help and support of the administrative staff at the site; "at the FHT, reception books my [appointments], make reminder calls, faxes the [primary care providers] and keeps everything up to date. At the other non-team-based care sites I do not have this help" (LD5). A few educators shared that this support of the day-to-day processes took time away from administrative tasks and provided time to focus on patient care. Participants typically noted this was most common in team-based settings such as FHTs. One participant expressed that "the difference of support between the two sites made a huge difference to me during the implementation phase of BCC" when directly comparing between their FHT and their non-team-based practice (LD2). As stated above, tasks such as reminder calls for patient appointments were noted as a time saver when supported by administrative staff (LD3). This was further supported by another participant that shared the following statement: "In my FHT setting, the majority of my time is spent directly with the patient" (LD3). This ease of implementation allows the program to focus on providing the patient with high-quality and effective patient care. This support further extended into access to allied health providers to assist with patient's overall care. In team-based settings, educators noted having the support of other allied health professionals as improving the patient's overall care.

> *And so, in team-based settings we do have a greater opportunity to connect with other allied health professionals. So, it probably changes the offering slightly, but it doesn't really change our approach because we use a very similar approach for all models. (BCC Leaders LD)*

Educators shared that team-based settings with referral to other allied health providers often made it easy to support the patient's overall health, beyond simply their respiratory care. The support for the other areas of health was seen as a benefit as these other areas can indirectly impact respiratory health. The support available to educators both through administration with

daily tasks and access to allied health were slightly different among primary care models and often required slight adaptations to the day-to-day activities and interactions within the program.

The final group of resources involved both the hours that educators were able to interact with patients and the space for the educators at the sites. The primary care model was emphasized by several participants as posing a limitation to the hours that educators were able to see patients. One participant shared that within non-team-based care settings they have had issues with restrictive hours at the site:

> *Sometimes it becomes challenging to I guess – for example there is one clinic that I can only go at 10:30 because they have meetings from 9:00 to 10:30. And they close at 4:00 the days that I'm [there]. And unfortunately, I can only go there with those clinics. And the times that they are closed I cannot see patients as well (Focus Group 2).*

The participant continued to share that this occasionally happens in team-based sites, but after-hours services can allow for greater flexibility with patient scheduling (Focus Group 2). Another resource that was common among participants was finding space for the educator within the practice. Team-based care occasionally noted that there was space dedicated specifically for allied health professionals: "we have a specific clinical space for the [educator] to work out of, and it was kind of like any other Allied Health" (Interview). This appeared to be similar in CHCs as they noted having dedicated office and/or cabinet space for their supplies. While participants occasionally mentioned that space was a challenge in non-team-based settings, educators also noted that they were able to overcome these issues.

Despite the difference in resources, the educators were able to be flexible and adaptable to ensure the ease of implementation of the program into the care setting of the site.

> *I find a way to implement the BCC program at all my sites because I am adaptable. I do not always work in the same rooms at my [non-team-based care] clinics; it depends on who is working and which exam rooms are free. This does not necessarily [a]ffect the way I conduct BCC appointments though, it just takes some additional set up time. (LD4)*

This flexibility was noted by many participants as easing the implementation process. Many participants expressed that no two sites are the same and it requires flexibility to adapt to the

variation in resources available. Another participant emphasized this point by stating that "as different as [non-team-based care site] is from [team-based care site], the patients respond the same way. They get so excited to see me or learn about their breathing or anything" (Focus Group 1). Most participants highlighted that the BCC program was effective across all primary care models and the patient experience overall is positive.

4.2.4 Patient Needs and Adaptability

Similar to the theme discussed above, adapting to the needs of the patients was a key component of the program that facilitated the ease of implementation and ultimately the spread of the program. The CFIR construct of patient needs was originally within the domain of outer setting, however, for this interpretation of CFIR, it was determined that this construct more accurately suited the interpretation of the inner setting. The construct of patient needs was used to understand the needs of the patients within the organization and factors that may have acted as barriers or facilitators to their care. Given the importance of patient needs within the BCC program, it was important to understand how the program was adapted to the unique sites and unique patient needs.

> *I would say tackling inequalities is not an aim of the BCC program, but rather an expectation of their employees to go out of their way to make the experience the best it can be, tailored directly to each individual patient. (LD1)*

The BCC program focuses on patient-centered care and the educators emphasized that a principal component of patient-centered care involved adapting to their unique needs (LD1). Throughout the data sources, participants highlighted ways in which they were able to adapt to provide equitable access to care.

> *If the client does not speak English we will arrange for an interpreter to be present. We allowed for clients to bring emotional support workers to attend appointments if requested. If a client cannot afford their medications we will arrange for free samples or other programs that may provide coverage. It is very important to help remove barriers otherwise our clients will not be successful in managing their disease properly. (LD1)*

While the needs of patients were not necessarily the same across primary care models, participants did often express the importance of adapting to patient needs particularly in CHC settings. Educators often noted that the vulnerability of patients within CHC models presented additional challenges to care.

> *I am at a CHC and the clientele can be hard to manage at times due to other issues/concerns… I do get quite a few no shows but I have actually improved their attendance quite a bit because I give them reminder calls 1-2 days prior to our appointment. This has helped a lot. (LD2)*

Finding ways that the educators were able to adapt, such as the timing of reminder calls, was important to ensure that these vulnerable populations receive adequate care.

Providing care to vulnerable patients was an essential component of the program because of the COVID-19 pandemic. Spirometry was a principal component of the BCC program and respiratory care, however due to the pandemic this was not always possible; yet the program was still successful (LD7). Participants across all primary care models noted that there were challenges in how to operate the program and emphasized the need to adapt to patients and their comfort levels.

> *Since, [primary care providers] minimized patients contacts during the lockdown, they did not have updates on their patients' health thus, educators were a great resource in bringing patient concerns to their physicians during the pandemic. I believe that educators working as a support system of patients, contributed to program's continued success. (LD7)*

Educators were essential to providing overall patient-centered care and this was elevated during the pandemic. Educators often provided one of the few in-person appointments for patients and acted as a liaison for other areas of the patient's overall health (LD7). Additionally, many participants were hesitant to attend high-risk settings because their conditions made them vulnerable (LD7). Educators noted that they were able to adapt by providing phone appointments (LD7) or even in-home visits if required (LD1). Adapting to the needs of the patient within the pandemic highlighted the value of the BCC program across all primary care models, but was

particularly beneficial when considering vulnerable populations. As one participant highlighted, patient-centered care is a vital component of the BCC program and involves the consideration of more than just their respiratory needs: “I’m not just a respiratory end point. I'm looking at a lot of comorbidities that go along with that respiratory standpoint. And how they [e]ffect the respiratory care point as well” (Focus Group 2).

4.2.5 Structural Characteristics and Implementation Climate

Across the data, the three categories of primary care models appeared to have impacted the trust and buy-in needed to support the BCC program. The CFIR constructs of structural characteristics and implementation climate were seen to be interdependent on one another, and the relationship appeared to be influential for the support of the BCC program within the inner setting. The construct of implementation climate was used to understand the receptivity and support of the primary care organization for the BCC program. Within the CFIR, implementation climate included a sub-construct that was evident throughout the data that included the relative priority or the perceptions of the importance of BCC implementation; this was seen primarily through program buy-in. Structural characteristics and implementation climate together were important to highlight the influence of the primary care model on the implementation and spread of the BCC program.

Due to the collaborative approach of the BCC program, participants often expressed that there was a supportive climate from the site early on in team-based settings including both FHTs and CHCs. One participant shared that in these settings, BCC was perceived to be an important addition to the site and treated as an important addition to patients’ healthcare teams.

> *I do find that when the care is group based as a team (more connected and intertwined) such as in FHT, the BC[C] program is much more accepted and patient’s show more interest towards it. The FHT doctors see BC[C] as a part of the team and a respected educated group who can provide valuable information about the situation. (LD1)*

This early buy-in was noted by participants as important to receiving referrals from primary care providers and critical in the provider’s willingness to implement the recommended strategies

(LD7). This support also translated into greater support within the patient populations. Primary care provider referrals were seen as 'gold' when implementing the BCC program as it showed the patient that the educator was a vital component of care and not simply an extra appointment (Focus Group 1).

However, participants noted that this was more challenging within some non-team-based primary care models. Educators occasionally mentioned the difference in buy-in and support within their different models of care.

> *In the FHT I am seen as an integral part of treatment and they value my skill and knowledge of pulmonary diseases. In a [non-team-based] setting, I am seen as an 'adjunct' therapy that would 'be interesting to go see' instead of something that is integral in caring for patients… Trying to develop the respect and dignity of the program is much harder in a [non-team-based] setting than a FHT. (LD2)*

The perception of the program was highlighted by the provider quoted above as being a critical determinant to facilitating the respect needed to function as a care team. While not the case with every non-team-based site, participants often noted that it took longer to develop trust between the primary care provider and the educator to allow the program to succeed and continue to grow; "It is sometime[s] more difficult in [non-team-based] offices, but nonetheless still successful once it takes off" (LD3). Participants often noted that they were able to overcome these challenges that presented within non-team-based care models.

> *At [non-team-based] settings, [primary care provider]'s are used to performing all the tasks on their own since they most often do not have assistance, sometimes they are a bit [hesitant] on educators (someone from outside of their clinic) coming to work at their clinic and offering suggestions for their patients. However, at similar settings, [primary care providers] start placing their faith on educators' expertise once they have seen/heard them interact with their patients. All it requires is a little rapport and communication with [primary care providers]. (LD1)*

Educators often noted that they were able to overcome any initial hesitancy by approaching the site with a sense of vulnerability. This was supported by another participant in a later LD:

> *One thing I've noticed that works very well in the implementation of BCC is coming across as vulnerable to the doctors and patients you speak to. As long as we don't come across as 'know-it-alls' and we recommend or suggest therapy rather than telling the doctor what to do it really helps in the understanding and maintain[ing] of BCC" (LD2)*

While the transition was noted by participants as easier in team-based settings, the educators were able to adjust their approach to ensure program buy-in regardless of the primary care model.

The challenge of initial buy-in was noted mainly as an issue within non-team-based settings as providers in these settings do not have the same experience working with an allied health provider as is the case in FHTs or CHCs; however, a few educators also mentioned the impact of the size of the practice. Regardless of team-based or non-team-based care, larger sites often took longer to implement the BCC program as the process involves more members (LD6). In larger sites, especially where primary care providers are not all at the same practice as the BCC educator, this presented difficulties in ensuring engagement across the entire site (LD6). This will be discussed more in depth below in section 4.2.6. The characteristics of the site itself were seen to be interdependent with the implementation climate of the BCC program.

4.2.6 Structural Characteristics and Networks & Communications

Communication structures within the primary care practices was a recurring theme throughout the collected data. Networks and communications, within the CFIR domain of inner setting, were understood within this research as the social networks and quality of formal and informal communication at the site. The characteristics of the site and the communication structures played important roles in facilitating an integrated, team-based approach needed to support the BCC program.

Face-to-face communication, including both formal and informal interactions, were highlighted by participants as important to establish the collaboration needed to facilitate the BCC program. One educator highlighted the value of in-person communication by sharing the following statement:

> *The conversations with the physicians face-to-face developed the individual relationships with the physicians and allowed for more [questions] & [answers] between us, which further emphasized the benefits of the program. As soon as a connection was made and a greater understanding of the merits of the program was established, engagement shortly followed. (LD6)*

This communication included formal methods such as formal sit-down meetings to establish roles and responsibilities, but also informal chats in the hallway between patient appointments. Educators perceived that their patients were grateful to have a coordinated network of health professionals, meaning that they were able to access multiple services within the same building from a group of providers that commonly work together (LD2).

While participants highlighted the value of effective communication structures, this varied within primary care models. Effective communication structures within team-based models were highlighted as a facilitator of increased knowledge among the entire care team. Multiple primary care providers highlighted the continued learning that they and their team received because of their interactions with the educator; "I work in a team-based environment and with academic learners, it also helped my learners learn about new guidelines as well as myself… So it's been good for a learning at multiple stages" (Interview). This communication was seen to facilitate knowledge translation among the entire care team.

While team-based primary care models were noted more often as receptive to communication with the allied health providers, the size of the site posed a barrier; "FHT where primary physicians are located in an entirely different building from educator- not being able to have face-time with the physician and relying on instant messaging/messaging systems" (LD1). Larger team-based settings where the primary care physicians are in a different building than the allied health posed challenges for supporting this communication (LD1). This was made more difficult due to the busy schedule of primary care providers, especially when the educator needed something in a timely manner (LD3). Participants often shared that their plan of actions tended to be lengthier when they did not have a personal connection with the primary care provider they were approaching (Focus Group 1). This lengthier plan of action was noted by primary care providers as a challenge of the program;

Sometimes these reports are actually quite onerous... It does result in good care, but I think it just- just figuring out the level of detail in the report. They just seem to be quite hard to get to the meat and potatoes. (Interview)

Due to their busy schedules, they do not have the time capacity to evaluate the entire plan of care. Communication structures were important to ensuring collaboration among the primary care team and supporting efficient use of both the educator and physicians' time. On the other hand, non-team-based care models occasionally noted their own communication difficulties. One participant expressed this by sharing that smaller sites, often non-team-based practices, feel "independent and less structured, leading to issues with availability to discuss" (LD6). This was further challenged by limited hours at some non-team-based care sites, making communication difficult (Focus Group 2). However, participants shared that sites that implemented communication processes, such as staff to support the relay of information, were noted as more successful in enabling the collaboration to support the continued growth of the BCC program (LD3).

4.2.7 Cosmopolitanism at the Meso Level

Connections within the ARGI team was a common theme that arose from the data as an important facilitator of implementation and future spread of the BCC program. In the CFIR, cosmopolitanism was categorized within the outer setting domain. In this interpretation of the CFIR, the outer setting domain was divided into the meso and macro level. Cosmopolitanism within the meso level is a construct used to understand the extent to which individuals within ARGI are networked with each other despite working across multiple primary care sites. This network was highlighted as essential to supporting the continued growth of the BCC program.

Within the BCC program, ARGI is the overarching organization responsible for overseeing the delivery of the program. Educators are responsible for the delivery of BCC at their own sites. Given the independent nature of the sites, educators often highlighted the essential network among other educators; "We are a lone entity within our primary care centres, so it helps to be able to connect with other [educators] in [ARGI] for help" (LD7). Despite this physical

separation, when asked in a focus group about the support available to them throughout the implementation, all providers indicated the ARGI team as a source of support (Focus Group 1). This was supported across all data collection sources.

> *I feel our bosses and higher up workers are very accessible and treat every employee (new or experienced) with the same respect and expectations, so this makes connecting and reaching out to them very comfortable and non-threatening. We also have apps with group conversations so we can reach out for immediate needs or work-related questions in a pinch. (LD1)*

This connection between all individuals within ARGI was noted as a facilitator during the initial BCC implementation when any challenges arose, through to the implementation, and spread and sustainability as the program continued to expand irrespective of the primary care model itself. The participants expressed that "right from the beginning, the openness of the group and the sense of family really help to set the tone for the program. The assistance with training the educators and establishing each educator within each site was excellent" (LD1). Participants often described BCC as a team collaborative; "once we get a 'yes' that's the beginning; we have the opportunity to prove the program. It's really the program coordinator, but, mostly the front-line certified educator case manager that ensures the ongoing success" (BCC Leaders LD). Every individual played a key role in supporting the future spread of the program. Shared accountability was important to facilitating ownership within all providers. As one of the BCC Leaders stated, "our program is only as strong as our weakest link" (BCC Leaders LD). This team approach to the BCC program created a buy-in amongst all providers and created a team-based implementation approach with support at multiple levels.

The peer-to-peer approach used throughout the implementation process was seen as a facilitator to overall spread and scale-up. The program was "developed in primary care by primary care" (BCC Leaders LD). This front-line approach was noted as a method to build ownership within the educators, and ultimately the primary care providers at the site; "without each educator's efforts, all of [the BCC Leaders] hard work is for naught. Each educator is responsible for the health and strength of the program and, inevitably, its sustainability" (LD6). One of the reasons

BCC has been successful to date is this team dynamic; utilizing this team approach can help educators to implement and spread the BCC program in diverse primary care models.

4.3 Summary

This chapter presented an overview of the findings from the data collection using a tailored version of the CFIR (see Appendix D). In total, 23 participants consented to the study, across three different participant groups. There were 14 BCC educators that participated in seven sets of living documents (RR=46.2 – 76.8%) and two focus groups (RR= 61.5%). Six BCC Leaders participated in one living document (RR= 100%). Three primary care providers participated in a phone interview (RR= 100%). When applicable, CFIR constructs were presented together to demonstrate the connection between the codes. The data analysis showed that there were seven main themes coded in the data; (1) structural characteristics and planning, (2) macro level external policies and planning, (3) available resources and adaptability, (4) patient needs and adaptability, (5) structural characteristics and implementation climate, (6) structural characteristics and networks & communications, and (7) cosmopolitanism at the meso level.

The first theme, structural characteristics and planning, demonstrated the connection between the inner setting and process domain. This theme highlighted the easy spread of the BCC program because consideration of the primary care context was part of the original planning of the program.

The second theme, external policies within the macro level and planning, demonstrated how the program plans for spread at multiple levels to ensure that BCC can integrate within the larger healthcare system. Understanding this macro level approach can help to understand how the BCC program was able to navigate changes in external policies.

Available resources and adaptability was a common theme in the data analysis process. One of the main differences among sites was the resources available to the educators. The difference in resources often required adaptability and flexibility on the day-to-day processes of the educator.

Similar to the theme above, patient needs and adaptability, the fourth theme that arose from the data included adapting to the needs of the patients at the site. This adaptability was noted to ease implementation and integration that was able to support future spread.

The next theme, structural characteristics and implementation climate was demonstrated throughout the initial implementation to the spread of the BCC program that the primary care model impacted the trust and buy-in to support the BCC program. This buy-in was noted as an important contributor to supporting program spread.

The sixth theme that arose from the data was the structural characteristics and networks & communications. The role of communication within primary care practices was highlighted as an important contributor to supporting the spread of the BCC program. Primary care models with effective communication structures were noted to be more effective at program implementation and spread.

The final theme was cosmopolitanism at the meso level. The support from the individuals at ARGI was seen to be beneficial at supporting the continued spread of the BCC program.

The next chapter will discuss how these themes were important to answer the overall research objectives and question, and highlights the unique contributions to the literature.

Chapter 5

5 Discussion

The purpose of this research study was to answer the question: how does context impact the spread of integrated models of team-based care for chronic disease management in primary care settings? To answer this question, two main objectives were explored; (1) examine how a chronic disease management program in primary care settings are being adapted to fit local contexts, and (2) explore the role of care setting on the spread of chronic disease management programs.

This chapter begins by discussing each of the research objectives as they pertain to the findings (Section 5.1). This discussion is supported by findings from the literature. I then transition to discuss how the findings presented have answered the research question (Section 5.2). Furthermore, I present how the findings from this study add a unique contribution to the literature (Section 5.3). Consistent with my constructivist perspective, I provide my reflexive account of the research process (Section 5.4). Lastly, I highlight the potential limitations of my study (Section 5.5).

The Best Care COPD (BCC) program is a high-quality chronic disease management program. BCC was created using evidence-supported best practices and acts to standardize COPD care. The program has demonstrated the ability to improve patient outcomes and increase patient and provider satisfaction (Ferrone et al., 2019; Paciocco et al., 2021; Sibbald et al., 2020; Sibbald et al., 2022b). This program originally started as a local collaborative and has rapidly spread into multiple sites across the province, mainly within Southwestern Ontario.

The BCC program serves as an appropriate case to help answer the research question and objectives as it is an integrated, team-based model of care within the realm of chronic disease management, focusing on the management of COPD. Recent literature has highlighted that for patients with COPD, a lack of interprofessional teams, and limited collaboration and coordination can present challenges to the management of COPD and quality of care (Vachon et al., 2022). Integrated and team-based chronic disease management approaches for COPD have been found to improve quality of life, improve lung function, reduce severe exacerbations, and

reduce COPD-related health services usage (Ferrone et al., 2019). This supports my notion that through a better understanding of the impact of context within the BCC program, the findings will be able to effectively answer the research question and objectives to support other integrated models of team-based care for chronic disease management and improve patient care.

The model of the primary care setting can play a significant role in the delivery and quality of the services (Russell et al., 2009). Understanding the context in different primary care models can help to understand how the program is able to maintain consistent outcomes when the model of care may differ. Non-team-based primary care models were the dominant primary care delivery method before the shift in primary care in the early 2000s (Gocan et al., 2014). One of the main goals of shifting the models of primary care was to incorporate interprofessional teams within everyday practice (Aggarwal & Williams, 2019). In Ontario, FHTs and CHCs are the chief team-based models of care (Hutchison et al., 2011). When referring to care setting throughout this chapter, the term is used to describe the three main categories of primary care models: (1) non-team-based models, (2) FHT models, or (3) CHC models.

5.1 Research objectives as they pertain to the findings

This section begins by discussing each research objective and how they were understood in this research project.

The first objective aimed to understand how a chronic disease management program within primary care was adapted to fit local contexts. Within the process of spread, the importance of adaptation has been at the forefront of the literature. Approaching spread with an adaptation lens is critical to understand how to translate a program to a new context and system (Edwards & Barker, 2014). However, when the educators of the BCC program were asked directly how they adapted or tailored the program to the primary care site, many did not have an answer. It became apparent through further discussions that the processes of the BCC program between primary care models did not change resulting in similar patient experience and outcomes. Despite the context around them, educators delivered the same standards of the BCC program across all their sites. Being able to maintain fidelity across primary care models was highlighted as one of the

critical ways that BCC was able to facilitate large-scale spread with consistent outcomes despite variations in the contexts. This also was seen in the literature that holds, while tailoring the intervention may ease the implementation process, it is not appropriate for scale-up and spread (Armstrong et al., 2016). Fidelity is the moderator between the program and the intended outcomes (Pfadenhauer et al., 2015). Without a focus on maintaining fidelity, there can be variable outcomes and inconsistencies across primary care models.

The findings highlight the delicate balance between adaptability and fidelity. This balance was needed to ensure that the educators were able to seamlessly transition the BCC program into different primary care models, while holding the same standard of the BCC program. It was apparent throughout the data analysis that this balance in the delivery of BCC was a result of planning that began at the origination of the program. Most of the implementation literature refers to context as any component external to the program itself. However, this thesis research, similar to that of May et al. (2016), suggests that to be successful, the contextual dynamics must be considered within the intervention. One of the reasons that BCC has been successful without requiring major adaptations is that the BCC program was created in collaboration with primary care providers who are experts in the context of primary care. These providers were able to anticipate and address potential challenges that could arise in primary care contexts to ensure that BCC was able to be effective in any primary care model. Primary care providers hold the inside knowledge needed to anticipate major problems that the BCC program might encounter and the strategies that can overcome them (Armstrong et al., 2016). The ability to align the BCC program with primary care from the beginning helped to ensure that the BCC program did not disrupt the processes of the site, even when the processes and models differed. This alignment facilitated the balance between adaptability and fidelity; the transition to new primary care settings was often seamless with only minor limitations primarily in the access to resources, patient needs, and social environment.

As the BCC program continued to spread, it was noted that there were only minor adaptations needed based largely upon the characteristics of the site and the model of primary care, or care setting. These differences required flexibility and adaptation on behalf of the educator but did not alter the standards of the BCC program that the patients received. Our second research objective,

to explore the role of care setting on the spread of chronic disease management programs, identified these differences.

One difference noted between care settings was the resources available to the sites. Resource distribution is a critical component of the spread process (Horton et al., 2018). As highlighted throughout Chapter 4, these resources often required adaptability by the educators to ensure that patients received the same BCC standards at each care setting. The consideration of resources has been highlighted in spread and scale literature specifically in low- and middle-income countries (Eaton et al., 2011); however, there has been less attention in higher income countries. The process of spread can require a significant investment of resources; other strategies such as reorganization of the system can help integrate a program into routine practice and support the process of spread even when resource availability is challenging (Eaton et al., 2011). Participants across all BCC care settings spoke of their success in adapting to the resources at the primary care sites.

The resources available appeared to be dependent on the primary care models at the participating sites. Participants emphasized that they had more easily available resources in team-based care contexts including both FHT and CHC models. This was elaborated as having access to the primary care setting databases remotely, having access to an office space and dedicated phone, the availability of prescription medication samples, having support from administration staff, having access to allied health professionals, and flexible hours of operation. These resources were beneficial as it enabled educators to focus their time on patient interactions, which in turn increased program buy-in from both patients and the primary care team. The degree of fit between a program and the context in which it is implemented is an essential component to facilitating the implementation continuum (Armstrong et al., 2016). The resources of team-based sites and the processes of the BCC program appeared to strongly align, suggesting that team-based venues may be the optimal setting for the BCC program due to this easy integration. This supports the assertion by Sibbald et al. (2022b) that BCC is most effective when implemented in a team-based setting. Findings concerning the non-team-based settings highlighted difficulties in accessing the resources. The participants expressed that, in some non-team-based sites, it was challenging to conduct the daily BCC processes as the lack of resources presented minor barriers to program delivery. However, the flexibility of the educator was highlighted by both the BCC

leaders and educators as one of the main reasons that BCC was able to integrate within these settings, despite resource challenges. Within the process of spread, challenges often arise when the new setting is different than the original and this includes available resources (Booth et al., 2019). In the BCC program, it was noted that the access to resources were often different between team-based settings and non-team-based settings but also within the same category of models; thus, highlighting the importance of the educator's minor adaptations to ease the implementation continuum and deliver the same quality of care.

The needs of patients was another theme that required minor adaptations in how care was delivered to ensure that BCC was appropriate for all individuals. The BCC program is designed as a patient-centered program in which educators adapt and create individualized care plans. However, it was also noted that some care settings required slightly different day-to-day processes based on the needs of the specific population. This was primarily seen by participants within CHC settings as they often expressed that in these models in particular, the patients can be more vulnerable than those in other care settings. By focusing on patient-centered care and the needs of that specific patient, participants noted that they were often able to adapt the processes (i.e. by hiring a translator, providing sample medications, timing of reminder calls) to ensure the program was effective for that unique patient and promote program adherence. Providing coordinated care that meets each patient's unique needs has been highlighted in the literature as an important indicator of a program's ability to spread and be sustained (Vargas et al., 2020). The findings from this thesis highlight that finding modifications to meet unique patient needs is important to ensuring that patients view the value of BCC in their overall care experience and promote program adherence.

Context is a dynamic process that incorporates not only the physical, but also social environment (Rogers et al., 2020). To help determine a program's ability to spread, it is essential to assess the acceptability of the intervention with the social processes of the care setting (Milat et al., 2013). The BCC program is an integrated, team-based model of care, meaning that a vital component of the program involves the collaboration with the primary care team. Spread of a program is facilitated when there is buy-in from the practice and the stakeholders within that practice (Armstrong et al., 2016). Armstrong et al. (2016) found that, if the appropriate individuals were not engaged and did not regard the work as a priority, the program implementers could not

continue the program on their own. The same was true for the BCC program; if the educators did not have the support of the primary care team to collaborate and implement their action plans, the program would not have seen the same success. This buy-in and support was seen as easier in team-based settings including both FHTs and CHCs as providers in these settings have experience working with allied health. Participants highlighted that while more challenging in non-team-based settings, it was possible to establish the buy-in and support needed by focusing on transparent communication and vulnerability. While the care setting appeared to be related to early buy-in, co-location was another important theme that impacted the buy-in from other providers. Regardless of the care setting, primary care sites where the educator worked in the same physical space as the primary care provider were seen to facilitate collaboration. This is consistent with current literature that has shown that challenges with effective communication may arise when providers are not in the same direct physical space (Ryan et al., 2019). At large FHTs, where educators were dispersed across separate locations, communication was often a challenge. Due to the COVID-19 pandemic, co-location at times was not always possible but primary care teams were able to overcome this challenge through effective communication systems. This buy-in and collaboration was a key component that helped throughout the implementation continuum, from the early implementation phases towards spread and sustainability.

5.2 Research question as it pertains to the findings

Research has shown the implementation continuum, and particularly the process of spread, is framed by the local contextual factors (Sibbald et al., 2022b); however, further research was needed to understand the impact of the context on this process of spread. Using the BCC program as the case example, this research aimed to understand the following research question: how does context impact the spread of integrated models of team-based care for chronic disease management in primary care settings? Context is a dynamic process that requires a complex analytical analysis not merely a descriptive tool (Greenhalgh & Manzano, 2021). As seen in this research, describing the model of primary care on the surface is not sufficient to understand context from a holistic perspective. For example, within the theme of structural characteristics

and networks & communications, the model of primary care itself did not lead to better outcomes; rather, it took an analysis of the communication structures within those models to understand how this theme facilitated the collaboration needed to strengthen the program. FHTs were often perceived to have more effective communication; however, the findings showed that in large FHTs, the co-location of the team and allied health was an indicator of effective communication and networks, rather than simply being a part of a FHT. Focusing solely on the care model of the site can lead to a surface level understanding of how the context that impacts the implementation and spread of the program. This research demonstrated that an in-depth and holistic perspective is needed to account for the impact of context to support future spread.

As seen in this thesis, exploring different components of context in isolation is not sufficient to understand the impact of context within implementation research as consistent with Klaic et al. (2022) and Greenhalgh & Manzano (2021). When analyzing the data, it became apparent the importance of understanding the interdependent constructs of the framework used and interdependencies across domains. This dynamic perspective supported a holistic understanding of how context impacted the spread of the BCC program. Being able to capture elements from multiple domains enabled an understanding of how the processes work together to facilitate the continued spread of the BCC program. This was demonstrated through the theme of structural characteristics and planning. These constructs are from two different domains, yet together they are essential to understanding how BCC has been able to integrate into different care settings. The ability of the BCC program to balance adaptability and fidelity as the program continued to expand was due to the consideration of context from the initial phases of the creation of the BCC program. Exploring each of these domains in isolation would have led to a fragmented understanding of the implementation continuum. Had the process domain not considered constructs from within the inner setting of primary care, the BCC program would not have been able to anticipate the future needs of the program as it continued to expand, likely resulting in significant modifications needed and thus variable outcomes. A heightened understanding of the complexities and interdependencies of context can enable researchers to understand how to support context within their own practice (Rogers et al., 2020). The findings from this research will enable a greater understanding of the complexity surrounding context and the need to explore the interdependencies to facilitate the process of spread.

Context is often the pre-condition to any implementation strategy (Pfadenhauer et al., 2015); yet the boundary between context and implementation strategies is often ambiguous (Nilsen & Bernhardsson, 2019). As shared in the framework proposed by Sibbald et al. (2022b), context frames the entire implementation continuum. Context cannot be separated from the implementation strategies itself; it is intertwined at various levels. This research emphasizes that a keen understanding of the context should be included within pre-implementation and revisited throughout the process, with the hopes that the strong foundation supports the whole implementation continuum. Rather than approaching context as the background influences, it is important to understand the ways that context can interact with the implementation processes; an understanding that could have been missed if context were viewed merely as the physical setting.

5.3 Unique contributions to the literature

Spread is a term that is common within implementation research; however, there is a lack of consensus on how to apply the term in empirical settings (Pfadenhauer et al., 2015). This research provides a unique contribution to the current literature by exploring context using a longitudinal approach. In current literature, context is often evaluated at one single point in time (Booth et al., 2019), highlighting the need for longitudinal approaches that focus on implementation processes and particularly spread and sustainability (Klaic et al., 2022; May et al., 2016). The ability to collect data from the same group of providers at several different points in time allowed an in-depth exploration as the implementation continuum progressed. This perspective presented a unique opportunity to analyze within and across cases to understand how challenges were overcome and how the BCC program continued to grow. A manuscript is in progress that will highlight the value of this methodological approach in implementation research.

This research contributed to the literature by emphasizing that it is not sufficient to only consider context as you transition to later phases of the implementation continuum; rather, spread is supported through an understanding of the context early on. This ability to focus on context from the initial phases can help to balance the ongoing debate of adaptability and fidelity in the literature. As seen with BCC, if the program addresses context at the program design stage in

collaboration with those who are experts within that context (in the case of BCC this was primary care providers), this can prevent the need for major adaptations as the program progresses through the implementation continuum.

Together the dynamic perspective of this thesis was an important contribution to the current literature, as it did not merely aim to summarize facilitators and barriers in context as BCC expanded. The ability to explore the interdependencies among components of context and implementation processes provided important lessons on how the BCC program was impacted by context. This is important because what may facilitate spread in one setting may act as a barrier in another (May et al., 2016); thus, it is important to understand how the BCC program was impacted by context not just the influences.

This research provided an empirical example of the impact of spread on an integrated, team-based chronic disease management program within primary care settings. Within the current literature, there was limited primary research that focused on spread and very little in the Canadian context. Providing a direct comparison across primary care models will enable other researchers to decipher their own contextual factors; a process that is hard to do without a comparison across contexts and without an understanding of the potential impacts on context (Horton et al., 2018). This empirical example adds to the literature a real-world situation and the impact of context within the practice setting to further support the theoretical work in the literature.

5.4 Reflexivity

My reflexive journal was an opportunity to highlight my own personal strengths and weaknesses throughout the research study, in addition to logging events that occurred that were beyond my personal control. I began my MSc program in September 2020, in the midst of the COVID-19 pandemic; I had no idea the impact this would have on my studies. While I remained optimistic about what my two-year journey would entail, I had to be flexible and adapt to the current global situation. Given the importance of the relationship between researcher and the participant in both case study methodology and a constructivist paradigmatic perspective (Baxter & Jack, 2008;

Stake, 2006), it was quite disappointing that I was not able to interact with my participants face-to-face. In my reflexive journal, I noted times that the lockdowns felt discouraging as I hoped to create this rapport that was slightly more difficult via virtual methods. Despite being different than I anticipated, this experience provided me with the opportunity to explore optimal methods to engage in data collection virtually. I believe this flexibility to virtual methods has made me a better and more adaptable researcher. I strongly believe this flexibility will be beneficial beyond the COVID-19 pandemic. Another challenge was timing; COVID-19 lockdowns brought a logistical challenge of when to start the data collection. Despite having our ethics approval since April 2021, recruitment did not start until October 2021. As the BCC program provides respiratory care, we anticipated that lockdowns would be a busy time for the educators. To receive the most valuable information I could, I had to make sure that I collected our data at an appropriate time when educators had the capacity to engage in extra time commitments. While I hoped to start data collection earlier, this extended period allowed me "to approach data collection with my best foot forward" as I had noted in my reflexive journal. This period of time gave me the opportunity to reflect on my data collection tools, as well as seek feedback from ARGI to improve my data collection further. During this time, I was able to complete two separate ethics amendments to ensure that the tools were as effective as possible. I used this time to my advantage to strengthen the data collection tools.

The learning from my reflexive journal, together with the support of my supervisor, helped me to grow as a researcher and to reflect on progress and improve areas of weaknesses. One of the learnings from my thesis journey was regarding participant engagement. I had sent out generic emails and was receiving little engagement from the participants. My supervisor suggested sending out individual emails. While this took more time, the engagement I received was outstanding. This approach created a rapport with the participants that made them feel comfortable to ask about any points of confusion or clarification needed.

The final point of learning from my reflexive journal was the importance of multiple perspectives in the research. During the data analysis, it became apparent how important it was to have multiple perspectives within the data collection. Adaptation was a vital component of spread that I had seen many times in the literature; however, when the educators were directly asked this question, many were not able to comment on the differences between care settings. It

was not until analyzing the living documents with the BCC Leaders that it became more apparent why the educators did not perceive there to be any major differences between primary care models. The combination of insight from both the leaders and the front-line educators enabled an understanding of how the program was created and the day-to-day processes that allowed us to understand the impact of context within the BCC program. In isolation, it was difficult to get a comprehensive understanding of the impact of context, but together it became clear the importance of multiple providers within the process of spread and the value of various categories of participants.

5.5 Limitations

While this research took steps to ensure a high-quality qualitative research project, there are limitations to acknowledge. Firstly, research surrounding spread is challenging as there is a lack of consistent terminology and definition for this process in the current literature (Eaton et al., 2011). Across studies examined for Chapter 2, there were many different terms used to describe a similar process; terms used most often included spread, scale-up, integration, diffusion of innovations, and implementation. This variation posed a challenge as it was difficult to accurately select sources to avoid missing sources from the current literature.

Additionally, this data collection took place during the COVID-19 pandemic, which may have impacted the implementation process. However, we did not study this directly and did not evaluate the impact of the pandemic.

The timing of the research was another potential limitation as it potentially created challenges for participant recruitment. The busy schedule of providers coupled with the waves of the pandemic presented challenges as the additional commitment to complete our data collection was difficult at times. Attrition was a challenge in our living documents; this was likely due to the busy schedules of the educators as they transitioned into another wave of the pandemic. We had two educators withdraw from our study following the distribution of our final set of living documents. Additionally, I would have hoped to recruit a few more primary care providers; however, recruitment presented challenges. Two of the primary care providers that did

participate in our research were from the same primary care site. I would have preferred to recruit participants across the three categories of primary care models; however, I believe the findings collected were sufficient as I saw re-emerging themes across the interviews with no new themes emerging and these themes were consistent with the findings across other participant groups.

The Ontario health care system is undergoing a health systems reform, and this must be considered in relation to the findings (MOHLTC, 2020). This reform may impact how the program is able to integrate into everyday practice within the primary care setting. While the goals of the reform appear to align strongly with the goals of the BCC program, the impact of the reform on the spread of the BCC program will not be known until reforms are more fully enacted.

5.6 Summary

This chapter discussed the findings from this research and how they align with the current literature. It began by discussing the findings from each of the research objectives. The first objective aimed to explore how a chronic disease management program in primary care settings was adapted to fit local contexts. While adaptation appeared as a prominent theme in spread literature, the BCC team noted that there were no major adaptations needed across care settings. This thesis provides value to the literature as it highlights the difficult balance between adaptability and fidelity needed to ensure program spread with consistent outcomes. The BCC program was able to ensure this balance by involving primary care providers in the planning of the BCC program. This planning ensured that context was accounted for within the program itself and that as BCC continued to expand, there were only minor adaptations needed. This in turn helped to answer the second research objective which aimed to explore the role of care setting on the spread of chronic disease management programs. Across care settings, there were minor adaptations needed primarily based on available resources, patient needs and the social environment. With some flexibility in the day-to-day processes, educators often emphasized that they were able to overcome the noted challenges to ensure the same high-quality program across all care settings.

Together, this research was beneficial to answering the overall research question: how does context impact the spread of integrated models of team-based care for chronic disease management in the primary care setting? Context is a complex process that requires a dynamic and comprehensive analysis. To understand the impact of context, it is necessary to look at the interdependencies across constructs and how they exist across the implementation continuum and across various levels of the healthcare system. This research suggests that context is not merely the backdrop for implementation; rather, it is important to develop a comprehensive understanding of context early in the implementation continuum to ensure success in later phases. It is important to understand context as more than just the physical setting to truly understand how to support continued growth across various contexts.

This research adds to the scant literature on spread, particularly to the literature situated in Canada. This research provided a unique contribution to the literature as it sought to understand the impact of context through a longitudinal and dynamic approach, that has been lacking in the literature.

Furthermore, this chapter presents my reflexive notes consistent with my methodology and paradigm. My reflexive notes discuss the challenges that arose from the on-going COVID-19 pandemic, lessons learnt regarding participant engagement, and the importance of multiple perspectives within my research.

This chapter concludes with the acknowledgement of limitations present in my study, including the challenges of identifying relevant literature to support the research due to inconsistencies within spread literature, the timing of data collection, challenges with attrition and participant recruitment, and the ongoing health systems reform.

The next chapter highlights the implications of this research, future direction of the research and my concluding remarks.

Chapter 6

6 Significance and Conclusions

This chapter provides the final considerations and conclusions concerning the overall research question; how does context impact the spread of integrated models of team-based care for chronic disease management in primary care settings? The chapter begins by discussing the implications of the research (Section 6.1). I then discuss potential areas for future research (Section 6.2). I conclude this chapter with a summary of the contents from this research project (Section 6.3).

6.1 Study Implications

6.1.1 For Practice

The Best Care COPD (BCC) program that started as a small regional program, has rapidly grown province wide. This research has demonstrated that the continued spread of the BCC program has led to its implementation in different primary care practice models, or care settings. This research aims to support continued growth of the BCC program. The understanding of how the care settings have impacted the implementation and spread can be used to maintain the growth of the BCC program while promoting consistent outcomes. This research highlighted that the program structure is the same across contexts; the patient interactions and interactions with the primary care team are consistent despite variations in care setting. Rather, what does change is the resources that the educator has available to them and the operations at the unique primary care site. It was highlighted throughout this research that flexibility by the educator has been a key facilitator to enabling consistent program quality. The focus on adaptability that is prominent in the literature was found in this research to be the adaptations in the day-to-day processes. Minor adaptations often included educators doing their own reminder calls or being flexible to the space that they work in while at a certain clinic. These day-to-day adaptations were variable across care settings; however, the patient care was consistent across sites. This research has highlighted that, to support the continued growth of the BCC program, the BCC team must

continue to emphasize consistent patient and primary care interactions, while adapting the day-to-day processes to ensure the program is not disruptive to the primary care site. By focusing on a delivery of the same high-quality program, the educators were able to successfully deliver the BCC program, despite variations in care setting.

Through our larger research project, we have developed an understanding of the different mechanisms that influence the spread, or the progressive implementation, of the BCC program (Sibbald et al., 2022b). It is understood that context frames the mechanisms and the implementation continuum (Sibbald et al., 2022b). The information from this thesis suggests that context may in fact act as an amplifier during pre-implementation. That is, a keen understanding of context (obtained during pre-implementation) can enhance the likelihood of successful implementation, and spread and sustainability. My findings suggest that developing a better understanding of context early in pre-implementation will impact the whole implementation process. Therefore, context should be understood as integral to the structure of the framework as proposed by Sibbald et al. (2022b). Further research is needed to understand exactly how context amplifies each of the foundational, transformative and enabling mechanisms. This research builds on the current literature by focusing on understanding the delicate between adaptability and fidelity as the program spreads to new settings through an understanding of context.

6.1.2 For the Healthcare System

While qualitative research does not aim to be generalizable, the study provides lessons learned on how context has impacted the spread of the BCC program. Exploring how the spread of BCC was impacted by context can provide insight that will resonate across chronic disease management within primary care settings. It is my hope that individuals at all levels of the healthcare system can use these lessons to understand how context has impacted their own unique program.

This research seeks to add to the literature by presenting a way to understand context within the process of spread. Consistent with the current literature, context is a multifaceted and dynamic term that must be explored across various phases of implementation, and across several levels

and stakeholders of the system (Rogers et al., 2020). This research highlights the importance of exploring context from a holistic perspective. Understanding the interconnectedness of the domains will allow researchers and policy makers to have a better understanding of how to account for the context and how to support the program across different settings. In the current literature, context has been presented as the background for implementation in comparison to a phenomenon that needs to be supported (Pfadenhauer et al., 2015). Understanding the vital role that context plays throughout the implementation continuum emphasizes the need to account for context to ensure effective programs can spread and be sustained. This spread and sustainability will ensure efficient use of health services resources, while simultaneously increasing patient care for a greater patient population.

6.2 Recommendations for Future Research

This study has the potential to support continued growth of integrated, team-based models of care for chronic disease management; however, there are areas that require further attention to support the implementation continuum. The first is understanding how to facilitate program sustainability. Sustainability has been identified as a key component of the implementation continuum; however, currently little is known on how to ensure that beneficial programs are able to integrate into practices long-term. Sustainability can be understood as maintaining a program, or components of a program, to support the continued benefits (Moore et al., 2017). There is a need to add to the implementation continuum to understand factors that can promote overall program sustainability (Shediac-Rizkallah & Bone, 1998). Understanding how the BCC program has been able to support program sustainability will be important to ensuring that as the program continues to spread, these new sites are able to foster long-term program success. The second area for future research is the need to understand how to facilitate scale-up. While spread is often referred to as the horizontal implementation, scale-up can be thought of as the vertical implementation (Leeman et al., 2017). Horizontal implementation in the BCC program can be understood as the spread to new primary care sites across the Southwestern Ontario region. Whereas the BCC leaders expressed on multiple occasions the need to spread to areas of greater need, however this was often limited by their funding. More research is needed to understand

this vertical implementation to understand how BCC can transition beyond the region of Southwestern Ontario and extend to more patient populations.

6.3 Conclusion

Integrated models of team-based care have been acknowledged as an effective method to help manage chronic conditions such as COPD (Labson, 2015). This is particularly true in primary care settings, where the majority of patients with COPD access care (Chapman et al., 2003; Green et al., 2015; Hutchison et al., 2011). While there is widespread agreement on the value of these programs, little is known on how to best support the spread of such programs to new sites (Wilsey Stirman et al., 2012). Several resources highlight the importance of considering the context throughout the implementation continuum, yet there is a lack of understanding around how context influences the overall process and how to support a program as it continues to grow (Bauer et al., 2019; Horton et al., 2018). This study aimed to address this gap in the research by providing insight into the process of spread and the impact of context by using the BCC program as a case example.

This research aimed to answer the following research question: how does context impact the spread of integrated models of team-based care? This study used collective case study methodology, guided by a constructivist paradigm. This was beneficial to understand how the program has been impacted by the local context at different primary care sites, but also compare across cases to understand how to support future spread. This research included the use of living documents, focus groups, and phone interviews with providers of the program (the educators), the BCC leadership team, and primary care providers that work alongside the program. Data collection and analysis was iterative and continuous, and utilized Nvivo to help organize the data.

In total, there were 23 participants in my study (14 educators, six BCC leaders, and three primary care providers). Involvement in data collection was dependent on their association with the BCC program. Findings were analyzed using the Consolidated Framework for Implementation Research (CFIR) that had been tailored for this thesis. The analysis showed that seven main

themes were coded in the data; when applicable, themes included constructs in combination. The themes included: (1) structural characteristics and planning, (2) macro level external policies and planning, (3) available resources and adaptability, (4) patient needs and adaptability, (5) structural characteristics and implementation climate, (6) structural characteristics and networks & communications, and (7) cosmopolitanism at the meso level.

Through an analysis of the presented themes, this research was able to understand the overall research objectives and question. The standards of the BCC program appeared to be consistent despite variations in context, while requiring only minor adaptations on the day-to-day processes of the educators. The findings showed that the BCC program was able to focus on program fidelity as it accounted for context from primary care providers within the planning of the program. This insider knowledge about the processes at primary care settings acted to ensure that the BCC program was able to fit into different primary care models as the program continued to spread, while not being disruptive to the site. This consideration of context early in the process ensured that the program was able to spread without requiring major adaptations that would impact the fidelity of the program; rather, it became apparent that there were only minor limitations across care settings. The findings showed that differences among care settings included availability of resources, the needs of patients and the social environment. Despite this variation, BCC was viewed as successful as the educators were able to adapt processes to ensure the delivery was consistent with the BCC standards.

The findings from this research highlight the dynamic and interconnected nature of context within the implementation continuum. Utilizing a comprehensive approach that explores the interdependencies among constructs was necessary to understand the overall research question. This research highlighted that exploring constructs in isolation runs the risk of this ‘backdrop’ perspective as they do not account for the interdependencies along the entire implementation continuum. There is a need to understand context as more than just the physical setting, but to understand the intricacies within that can facilitate or inhibit future spread. It is important to understand how to account for context not only within the spread and sustainability phase of the implementation continuum but highlights the importance of considering context within pre-implementation. Consideration early in the implementation continuum ensures that the program has the foundation to support the spread to new contexts with only minor adaptations needed.

This work adds a unique contribution to the literature as it provided a comprehensive and dynamic understanding of the impact of context on the spread of the BCC program beyond describing facilitators and barriers. This approach enabled an understanding of how context impacted the spread of BCC, with hopes that the lessons learnt can be shared to other integrated, team-based models for chronic disease management in primary care settings. This work provides an empirical example that focuses on spread, a component of the literature that is otherwise missing.

This research enabled an in-depth understanding of how to support the spread of the BCC program. A central focus on maintaining program fidelity, while allowing for minor adaptations was important to ensuring consistent success of BCC that was not disruptive to the care setting. Case study methodology does not aim to be generalizable; however, the findings may support the expansion of similar integrated chronic disease management programs in primary care settings. This research will be beneficial for improving patient care through the ability to support the spread to new sites and benefit a greater patient population.

References

Aggarwal, M., & Williams, A. P. (2019). Tinkering at the margins: Evaluating the pace and direction of primary care reform in Ontario, Canada. *BMC Family Practice*, *20*(1), 128. https://doi.org/10.1186/s12875-019-1014-8

Armstrong, N., Herbert, G., & Brewster, L. (2016). Contextual barriers to implementation in primary care: An ethnographic study of a programme to improve chronic kidney disease care. *Family Practice*, *33*(4), 426–431. https://doi.org/10.1093/fampra/cmw049

Barker, P. M., Reid, A., & Schall, M. W. (2015). A framework for scaling up health interventions: Lessons from large-scale improvement initiatives in Africa. *Implementation Science*, *11*(1), 12. https://doi.org/10.1186/s13012-016-0374-x

Bauer, M. S., Weaver, K., Kim, B., Miller, C., Lew, R., Stolzmann, K., Sullivan, J. L., Riendeau, R., Connolly, S., Pitcock, J., Ludvigsen, S. M., & Elwy, A. R. (2019). The collaborative chronic care model for mental health conditions: From evidence synthesis to policy impact to scale-up and spread. *Medical Care*, *57*(Suppl 3), S221–S227. https://doi.org/10.1097/MLR.0000000000001145

Baxter, P., & Jack, S. (2008). Qualitative case study methodology: Study design and implementation for novice researchers. *The Qualitative Report*, *13*(4), 544-559. https://doi.org/10.46743/2160-3715/2008.1573

Binagwaho, A., Frisch, M. F., Udoh, K., Drown, L., Ntawukuriryayo, J. T., Nkurunziza, D., Donahoe, K. B., & Hirschhorn, L. R. (2020). Implementation research: An efficient and effective tool to accelerate universal health coverage. *International Journal of Health Policy and Management*, 1. https://doi.org/10.15171/ijhpm.2019.125

Bodenheimer, T., Ghorob, A., Willard-Grace, R., & Grumbach, K. (2014). The 10 building blocks of high-performing primary care. *The Annals of Family Medicine*, *12*(2), 166–171. https://doi.org/10.1370/afm.1616

Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: Care of the patient requires care of the provider. *The Annals of Family Medicine*, *12*(6), 573–576. https://doi.org/10.1370/afm.1713

Booth, A., Moore, G., Flemming, K., Garside, R., Rollins, N., Tunçalp, Ö., & Noyes, J. (2019). Taking account of context in systematic reviews and guidelines considering a complexity perspective. *BMJ Global Health*, *4*(Suppl 1), e000840. https://doi.org/10.1136/bmjgh-2018-000840

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal*, *9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

Brown, J. B., & Ryan, B. L. (2018). Processes that influence the evolution of family health teams. *Canadian Family Physician Medecin De Famille Canadien*, *64*(6), e283–e289.

Brown, J. B., Ryan, B. L., & Thorpe, C. (2016). Processes of patient-centred care in Family Health Teams: A qualitative study. *CMAJ Open*, *4*(2), E271–E276. https://doi.org/10.9778/cmajo.20150128

Campbell, D. J. T., Sargious, P., Lewanczuk, R., McBrien, K., Tonelli, M., Hemmelgarn, B., & Manns, B. (2013). Use of chronic disease management programs for diabetes: In Alberta's primary care networks. *Canadian Family Physician Medecin De Famille Canadien*, *59*(2), e86-92.

Campbell, S. M., Hann, M., Hacker, J., Burns, C., Oliver, D., Thapar, A., Mead, N., Safran, D. G., & Roland, M. O. (2001). Identifying predictors of high quality care in English general

practice: Observational study. *BMJ*, *323*(7316), 784–784. https://doi.org/10.1136/bmj.323.7316.784

Chapman, K. R., Bourbeau, J., & Rance, L. (2003). The burden of COPD in Canada: Results from the confronting COPD survey. *Respiratory Medicine*, *97*, S23–S31. https://doi.org/10.1016/S0954-6111(03)80022-7

Chmiliar, L. (2010). Multiple-case designs. In A. Mills, G. Durepos, & E. Wiebe, *Encyclopedia of Case Study Research*. SAGE Publications, Inc. https://doi.org/10.4135/9781412957397.n216

Cho, E. E., Mecredy, G. C., Wong, H. H., Stanbrook, M. B., & Gershon, A. S. (2019). Which physicians are taking care of people with COPD? *Chest*, *155*(4), 771–777. https://doi.org/10.1016/j.chest.2018.12.018

Cleary, S., Erasmus, E., Gilson, L., Michel, C., Gremu, A., Sherr, K., & Olivier, J. (2018). The everyday practice of supporting health system development: Learning from how an externally-led intervention was implemented in Mozambique. *Health Policy and Planning*, *33*(7), 801–810. https://doi.org/10.1093/heapol/czy051

Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*, *11*(1), 100. https://doi.org/10.1186/1471-2288-11-100

Cruz, E. V., & Higginbottom, G. (2013). The use of focused ethnography in nursing research. *Nurse Researcher*, *20*(4), 36–43. https://doi.org/10.7748/nr2013.03.20.4.36.e305

Damschroder, L. J., Aron, D. C., Keith, R. E., Kirsh, S. R., Alexander, J. A., & Lowery, J. C. (2009). Fostering implementation of health services research findings into practice: A

consolidated framework for advancing implementation science. *Implementation Science*, *4*(1), 50. https://doi.org/10.1186/1748-5908-4-50

Darmstadt, G. L., Weng, Y., Pepper, K. T., Ward, V. C., Mehta, K. M., Borkum, E., Bentley, J., Raheel, H., Rangarajan, A., Bhattacharya, D., Tarigopula, U. K., Nanda, P., Sridharan, S., Rotz, D., Carmichael, S. L., Abdalla, S., Munar, W., & Ananya Study Group. (2020). Impact of the Ananya program on reproductive, maternal, newborn and child health and nutrition in Bihar, India: Early results from a quasi-experimental study. *Journal of Global Health*, *10*(2), 021002. https://doi.org/10.7189/jogh.10.021002

Dennis, S. M., Zwar, N., Griffiths, R., Roland, M., Hasan, I., Powell Davies, G., & Harris, M. (2008). Chronic disease management in primary care: From evidence to policy. *Medical Journal of Australia*, *188*(S8). https://doi.org/10.5694/j.1326-5377.2008.tb01745.x

Dhalla, I. A., & Tepper, J. (2018). Improving the quality of health care in Canada. *Canadian Medical Association Journal*, *190*(39), E1162–E1167. https://doi.org/10.1503/cmaj.171045

Eaton, J., McCay, L., Semrau, M., Chatterjee, S., Baingana, F., Araya, R., Ntulo, C., Thornicroft, G., & Saxena, S. (2011). Scale up of services for mental health in low-income and middle-income countries. *The Lancet*, *378*(9802), 1592–1603. https://doi.org/10.1016/S0140-6736(11)60891-X

Edwards, N., & Barker, P. M. (2014). The importance of context in implementation research. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, *67*(Supplement 2), S157–S162. https://doi.org/10.1097/QAI.0000000000000322

Embuldeniya, G., Gutberg, J., Sibbald, S. S., & Wodchis, W. P. (2021). The beginnings of health system transformation: How Ontario Health Teams are implementing change in the context of uncertainty. *Health Policy*, *125*(12), 1543–1549. https://doi.org/10.1016/j.healthpol.2021.10.005

Fàbregues, S., & Fetters, M. D. (2019). Fundamentals of case study research in family medicine and community health. *Family Medicine and Community Health*, *7*(2), e000074. https://doi.org/10.1136/fmch-2018-000074

Ferrone, M., Masciantonio, M. G., Malus, N., Stitt, L., O'Callahan, T., Roberts, Z., Johnson, L., Samson, J., Durocher, L., Ferrari, M., Reilly, M., Griffiths, K., Licskai, C. J., & The Primary Care Innovation Collaborative. (2019). The impact of integrated disease management in high-risk COPD patients in primary care. *Npj Primary Care Respiratory Medicine*, *29*(1), 8. https://doi.org/10.1038/s41533-019-0119-9

Glazier, R. H., & Redelmeier, D. A. (2010). Building the patient-centered medical home in Ontario. *JAMA*, *303*(21), 2186. https://doi.org/10.1001/jama.2010.753

Glazier, R. H., Zagorski, B. M., & Rayner, J. (2012). *Comparison of primary care models in Ontario by demographics, case mix and emergency department use, 2008/09 to 2009/10*. Institute for Clinical Evaluative Sciences. https://www.deslibris.ca/ID/232144

Gocan, S., Laplante, M. A., & Woodend, K. (2014). Interprofessional collaboration in Ontario's Family Health Teams: A review of the literature. *Journal of Research in Interprofessional Practice and Education*, *3*(3). https://doi.org/10.22230/jripe.2014v3n3a131

Gonzalez, W., Bonvecchio Arenas, A., García-Guerra, A., Vilar-Compte, M., Villa de la Vega, A., Quezada, L., Rosas, C., Lozada-Tequeanes, A. L., & Hernández, A. (2019). An iterative process for training design and implementation increased health workers' knowledge for taking nutrition behavior change to scale. *The Journal of Nutrition*, *149*(Supplement_1), 2323S-2331S. https://doi.org/10.1093/jn/nxz203

Government of Canada. (2012). *About primary health care*. https://www.canada.ca/en/health-canada/services/primary-health-care/about-primary-health-care.html

Green, M. E., Natajaran, N., O'Donnell, D. E., Williamson, T., Kotecha, J., Khan, S., & Cave, A. (2015). Chronic obstructive pulmonary disease in primary care: An epidemiologic cohort study from the Canadian Primary Care Sentinel Surveillance Network. *CMAJ Open*, *3*(1), E15–E22. https://doi.org/10.9778/cmajo.20140040

Greenhalgh, J., & Manzano, A. (2021). Understanding 'context' in realist evaluation and synthesis. *International Journal of Social Research Methodology*, 1–13. https://doi.org/10.1080/13645579.2021.1918484

Greenhalgh, T., & Papoutsi, C. (2019). Spreading and scaling up innovation and improvement. *BMJ*, l2068. https://doi.org/10.1136/bmj.l2068

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*, *82*(4), 581–629. https://doi.org/10.1111/j.0887-378X.2004.00325.x

Greenhalgh, T., Wherton, J., Papoutsi, C., Lynch, J., Hughes, G., A'Court, C., Hinder, S., Fahy, N., Procter, R., & Shaw, S. (2017). Beyond adoption: A new framework for theorizing and evaluating nonadoption, abandonment, and challenges to the scale-up, spread, and sustainability of health and care technologies. *Journal of Medical Internet Research*, *19*(11), e367. https://doi.org/10.2196/jmir.8775

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (1st edition, p. pp.105-117). Sage.

Haj-Ali, W., Moineddin, R., Hutchison, B., Wodchis, W. P., & Glazier, R. H. (2020). Role of Interprofessional primary care teams in preventing avoidable hospitalizations and hospital readmissions in Ontario, Canada: A retrospective cohort study. *BMC Health Services Research*, *20*(1), 782. https://doi.org/10.1186/s12913-020-05658-9

Hanlon, C., Eshetu, T., Alemayehu, D., Fekadu, A., Semrau, M., Thornicroft, G., Kigozi, F., Marais, D. L., Petersen, I., & Alem, A. (2017). Health system governance to support scale up of mental health care in Ethiopia: A qualitative study. *International Journal of Mental Health Systems, 11*(1), 38. https://doi.org/10.1186/s13033-017-0144-4

Harvey, G., & Kitson, A. (2016). PARIHS revisited: From heuristic to integrated framework for the successful implementation of knowledge into practice. *Implementation Science*, *11*(1), 33. https://doi.org/10.1186/s13012-016-0398-2

Horton, T., Illingworth, J., & Warburton, W. (2018). *The spread challenge: How to support the successful uptake of innovations and improvements in health care.*

Hutchison, B., Levesque, J.-F., Strumpf, E., & Coyle, N. (2011). Primary health care in Canada: Systems in motion: Primary health care in Canada: Systems in Motion. *Milbank Quarterly*, *89*(2), 256–288. https://doi.org/10.1111/j.1468-0009.2011.00628.x

Keith, R. E., Crosson, J. C., O'Malley, A. S., Cromp, D., & Taylor, E. F. (2017). Using the Consolidated Framework for Implementation Research (CFIR) to produce actionable findings: A rapid-cycle evaluation approach to improving implementation. *Implementation Science*, *12*(1), 15. https://doi.org/10.1186/s13012-017-0550-7

Kitson, A., Harvey, G., & McCormack, B. (1998). Enabling the implementation of evidence based practice: A conceptual framework. *Quality and Safety in Health Care*, *7*(3), 149–158. https://doi.org/10.1136/qshc.7.3.149

Kitson, A. L., Rycroft-Malone, J., Harvey, G., McCormack, B., Seers, K., & Titchen, A. (2008). Evaluating the successful implementation of evidence into practice using the PARiHS framework: Theoretical and practical challenges. *Implementation Science*, *3*(1), 1. https://doi.org/10.1186/1748-5908-3-1

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of Higher Education*, *6*(5), 26. https://doi.org/10.5430/ijhe.v6n5p26

Klaic, M., Kapp, S., Hudson, P., Chapman, W., Denehy, L., Story, D., & Francis, J. J. (2022). Implementability of healthcare interventions: An overview of reviews and development of a conceptual framework. *Implementation Science*, *17*(1), 10. https://doi.org/10.1186/s13012-021-01171-7

Kuipers, S. J., Cramm, J. M., & Nieboer, A. P. (2019). The importance of patient-centered care and co-creation of care for satisfaction with care and physical and social well-being of patients with multi-morbidity in the primary care setting. *BMC Health Services Research*, *19*(1), 13. https://doi.org/10.1186/s12913-018-3818-y

Labson, M. C. (2015). Innovative and successful approaches to improving care transitions from hospital to home. *Home Healthcare Nurse, Publish Ahead of Print*. https://doi.org/10.1097/NHH.0000000000000182

Lanham, H. J., Leykum, L. K., Taylor, B. S., McCannon, C. J., Lindberg, C., & Lester, R. T. (2013). How complexity science can inform scale-up and spread in health care: Understanding the role of self-organization in variation across local contexts. *Social Science & Medicine*, *93*, 194–202. https://doi.org/10.1016/j.socscimed.2012.05.040

Leeman, J., Birken, S. A., Powell, B. J., Rohweder, C., & Shea, C. M. (2017). Beyond "implementation strategies": Classifying the full range of strategies used in implementation science and practice. *Implementation Science*, *12*(1), 125. https://doi.org/10.1186/s13012-017-0657-x

Leung, C., Bourbeau, J., Sin, D. D., Aaron, S. D., FitzGerald, J. M., Maltais, F., Marciniuk, D. D., O'Donnell, D., Hernandez, P., Chapman, K. R., Walker, B., Road, J. D., Zheng, L., Zou,

C., Hogg, J. C., & Tan, W. C. (2021). The prevalence of chronic obstructive pulmonary disease (COPD) and the heterogeneity of risk factors in the Canadian population: Results from the Canadian obstructive lung disease (COLD) study. *International Journal of Chronic Obstructive Pulmonary Disease*, *Volume 16*, 305–320. https://doi.org/10.2147/COPD.S285338

Ling, T., Brereton, L., Conklin, A., Newbould, J., & Roland, M. (2012). Barriers and facilitators to integrating care: Experiences from the English Integrated Care Pilots. *International Journal of Integrated Care*, *12*(5). https://doi.org/10.5334/ijic.982

Lukey, A., Johnston, S., Montesanti, S., Donnelly, C., Wankah, P., Breton, M., Gaboury, I., Parniak, S., Pritchard, C., Berg, S., Maiwald, K., Mallinson, S., Green, L. A., & Oelke, N. D. (2021). Facilitating integration through team-based primary healthcare: A cross-case policy analysis of four Canadian provinces. *International Journal of Integrated Care*, *21*(S2), 12. https://doi.org/10.5334/ijic.5680

Lyng, H. B., Macrae, C., Guise, V., Haraldseid-Driftland, C., Fagerdal, B., Schibevaag, L., Alsvik, J. G., & Wiig, S. (2021). Balancing adaptation and innovation for resilience in healthcare – a metasynthesis of narratives. *BMC Health Services Research*, *21*(1), 759. https://doi.org/10.1186/s12913-021-06592-0

Marcus, T. S., Reji, E., & Ngcobo, S. (2020). Peer-learning reviews to improve Gauteng community-oriented primary care: Findings from AitaHealth™-enabled ward-based outreach teams. *African Journal of Primary Health Care & Family Medicine*, *12*(1). https://doi.org/10.4102/phcfm.v12i1.2155

Maslin-Prothero, S. E., & Bennion, A. E. (2010). Integrated team working: A literature review. *International Journal of Integrated Care*, *10*, e043.

May, C. R., Johnson, M., & Finch, T. (2016). Implementation, context and complexity. *Implementation Science*, *11*(1), 141. https://doi.org/10.1186/s13012-016-0506-3

Merriam, S. B. (1998). *Qualitative research and case study applications in education.* Jossey-Bass Publishers.

Milat, A. J., King, L., Bauman, A. E., & Redman, S. (2013). The concept of scalability: Increasing the scale and potential adoption of health promotion interventions into policy and practice. *Health Promotion International*, *28*(3), 285–298. https://doi.org/10.1093/heapro/dar097

Minary, L., Alla, F., Cambon, L., Kivits, J., & Potvin, L. (2018). Addressing complexity in population health intervention research: The context/intervention interface. *Journal of Epidemiology and Community Health*, *72*(4), 319–323. https://doi.org/10.1136/jech-2017-209921

Ministry of Health & Ministry of Long-Term Care [MOH & MOLTC]. (n.d.). *Primary care payment models in Ontario*. https://www.health.gov.on.ca/en/pro/programs/pcpm/

Ministry of Health and Long-Term Care [MOHLTC]. (2020). *Ontario Health Teams: Guidance for health care providers and organizations*. https://www.google.com/search?client=safari&rls=en&q=Ontario+Health+Teams:+Guidance+for+Health+Care+Providers+and+Organizations&ie=UTF-8&oe=UTF-8

Moore, J. E., Mascarenhas, A., Bain, J., & Straus, S. E. (2017). Developing a comprehensive definition of sustainability. *Implementation Science*, *12*(1), 110. https://doi.org/10.1186/s13012-017-0637-1

Nakimuli-Mpungu, E., Alderman, S., Kinyanda, E., Allden, K., Betancourt, T. S., Alderman, J. S., Pavia, A., Okello, J., Nakku, J., Adaku, A., & Musisi, S. (2013). Implementation and

scale-up of psycho-trauma centers in a post-conflict area: A case study of a private–public partnership in Northern Uganda. *PLoS Medicine*, *10*(4), e1001427. https://doi.org/10.1371/journal.pmed.1001427

National Center for Chronic Disease Prevention and Health Promotion [NCCDPHP]. (n.d.). *About chronic diseases*. Centers for Disease Control and Prevention.

Nilsen, P., & Bernhardsson, S. (2019). Context matters in implementation science: A scoping review of determinant frameworks that describe contextual determinants for implementation outcomes. *BMC Health Services Research*, *19*(1), 189. https://doi.org/10.1186/s12913-019-4015-3

O'Brien, B. C., Harris, I. B., Beckman, T. J., Reed, D. A., & Cook, D. A. (2014). Standards for reporting qualitative research: A synthesis of recommendations. *Academic Medicine*, *89*(9), 1245–1251. https://doi.org/10.1097/ACM.0000000000000388

Paciocco, S., Kothari, A., Licskai, C. J., Ferrone, M., & Sibbald, S. L. (2021). Evaluating the implementation of a chronic obstructive pulmonary disease management program using the Consolidated Framework for Implementation Research: A case study. *BMC Health Services Research*, *21*(1), 717. https://doi.org/10.1186/s12913-021-06636-5

Peikes, D. N., Reid, R. J., Day, T. J., Cornwell, D. D. F., Dale, S. B., Baron, R. J., Brown, R. S., & Shapiro, R. J. (2014). Staffing patterns of primary care practices in the comprehensive primary care initiative. *The Annals of Family Medicine*, *12*(2), 142–149. https://doi.org/10.1370/afm.1626

Petersen, I., van Rensburg, A., Kigozi, F., Semrau, M., Hanlon, C., Abdulmalik, J., Kola, L., Fekadu, A., Gureje, O., Gurung, D., Jordans, M., Mntambo, N., Mugisha, J., Muke, S., Petrus, R., Shidhaye, R., Ssebunnya, J., Tekola, B., Upadhaya, N., … Thornicroft, G. (2019). Scaling up integrated primary mental health in six low- and middle-income

countries: Obstacles, synergies and implications for systems reform. *BJPsych Open*, *5*(5), e69. https://doi.org/10.1192/bjo.2019.7

Pfadenhauer, L. M., Mozygemba, K., Gerhardus, A., Hofmann, B., Booth, A., Lysdahl, K. B., Tummers, M., Burns, J., & Rehfuess, E. A. (2015). Context and implementation: A concept analysis towards conceptual maturity. *Zeitschrift Für Evidenz, Fortbildung Und Qualität Im Gesundheitswesen*, *109*(2), 103–114. https://doi.org/10.1016/j.zefq.2015.01.004

Ponterotto, J. G. (2005). Qualitative research in counseling psychology: A primer on research paradigms and philosophy of science. *Journal of Counseling Psychology*, *52*(2), 126–136. https://doi.org/10.1037/0022-0167.52.2.126

Price, D., Freeman, D., Cleland, J., Kaplan, A., & Cerasoli, F. (2010). Earlier diagnosis and earlier treatment of COPD in primary care. *Primary Care Respiratory Journal*, *20*(1), 15–22. https://doi.org/10.4104/pcrj.2010.00060

Public Health Agency of Canada [PHAC]. (2017). *How healthy are Canadians? A trend analysis of the health of Canadians from a healthy living and chronic disease perspective.* Public Health Agency of Canada.

Public Health Agency of Canada [PHAC]. (2018). *Report from the Canadian chronic disease surveillance system: Asthma and chronic obstructive pulmonary disease (COPD) in Canada, 2018.* Ministry of Health. https://www.canada.ca/en/public-health/services/publications/diseases-conditions/asthma-chronic-obstructive-pulmonary-disease-canada-2018.html

Public Health Agency of Canada [PHAC]. (2020). *Aging and chronic diseases: A profile of Canadian seniors.* https://epe.lac-bac.gc.ca/100/201/301/weekly_acquisitions_list-ef/2021/21-31/publications.gc.ca/collections/collection_2021/aspc-phac/HP35-137-1-2020-eng.pdf

Ransom, H., & Olsson, J. M. (2017). Allocation of health care resources: Principles for decision-making. *Pediatrics In Review*, *38*(7), 320–329. https://doi.org/10.1542/pir.2016-0012

Reynolds, R., Dennis, S., Hasan, I., Slewa, J., Chen, W., Tian, D., Bobba, S., & Zwar, N. (2018). A systematic review of chronic disease management interventions in primary care. *BMC Family Practice*, *19*(1), 11. https://doi.org/10.1186/s12875-017-0692-3

Rogers, L., De Brún, A., & McAuliffe, E. (2020). Defining and assessing context in healthcare implementation studies: A systematic review. *BMC Health Services Research*, *20*(1), 591. https://doi.org/10.1186/s12913-020-05212-7

Ronksley, P. E., Sanmartin, C., Campbell, D. J. T., Weaver, R. G., Allan, G. M., McBrien, K. A., Tonelli, M., Manns, B. J., Hennessy, D., & Hemmelgarn, B. R. (2014). Perceived barriers to primary care among western Canadians with chronic conditions. *Health Reports*, *25*(4), 3–10.

Rothman, A. A., & Wagner, E. H. (2003). Chronic illness management: What is the role of primary care? *Annals of Internal Medicine*, *138*(3), 256. https://doi.org/10.7326/0003-4819-138-3-200302040-00034

Roversi, S., Fabbri, L. M., Sin, D. D., Hawkins, N. M., & Agustí, A. (2016). Chronic obstructive pulmonary disease and cardiac diseases. An urgent need for integrated care. *American Journal of Respiratory and Critical Care Medicine*, *194*(11), 1319–1336. https://doi.org/10.1164/rccm.201604-0690SO

Russell, G. M., Dahrouge, S., Hogg, W., Geneau, R., Muldoon, L., & Tuna, M. (2009). Managing chronic disease in Ontario primary care: The impact of organizational factors. *The Annals of Family Medicine*, *7*(4), 309–318. https://doi.org/10.1370/afm.982

Ryan, B. L., Brown, J. B., & Thorpe, C. (2019). Moving from space to place: Reimagining the challenges of physical space in primary health care teams in Ontario. *Canadian Family Physician Medecin De Famille Canadien*, *65*(9), e405–e410.

Rycroft-Malone, J. (2004). The PARIHS framework—A framework for guiding the implementation of evidence-based practice: *Journal of Nursing Care Quality*, *19*(4), 297–304. https://doi.org/10.1097/00001786-200410000-00002

Safaeinili, N., Brown-Johnson, C., Shaw, J. G., Mahoney, M., & Winget, M. (2019). CFIR simplified: Pragmatic application of and adaptations to the Consolidated Framework for Implementation Research (CFIR) for evaluation of a patient-centered care transformation within a learning health system. *Learning Health Systems*, *4*(1). https://doi.org/10.1002/lrh2.10201

Schoen, C., Osborn, R., Huynh, P. T., Doty, M., Peugh, J., & Zapert, K. (2006). On the front lines of care: Primary care doctors' office systems, experiences, and views in seven countries: Country variations in primary care practices indicate opportunities to learn to improve outcomes and efficiency. *Health Affairs*, *25*(Suppl1), W555–W571. https://doi.org/10.1377/hlthaff.25.w555

Shediac-Rizkallah, M. C., & Bone, L. R. (1998). Planning for the sustainability of community-based health programs: Conceptual frameworks and future directions for research, practice and policy. *Health Education Research*, *13*(1), 87–108. https://doi.org/10.1093/her/13.1.87

Sibbald, S., Embuldeniya, G., Kokorelias, K., & Wodchis, W. (2022a). Engaging patients and family members in system reform: The Ontario Health Team experience. *International Journal of Integrated Care*, *22*(S2), 209. https://doi.org/10.5334/ijic.ICIC21281

Sibbald, S., Misra, V., daSilva, M., & Licskai, C. (2022b). A framework to support the progressive implementation of integrated team-based care for the management of COPD: A

collective case study. *BMC Health Services Research*, *22*(1), 420. https://doi.org/10.1186/s12913-022-07785-x

Sibbald, S. L., Paciocco, S., Fournie, M., Van Asseldonk, R., & Scurr, T. (2021). Continuing to enhance the quality of case study methodology in health services research. *Healthcare Management Forum*, *34*(5), 291–296. https://doi.org/10.1177/08404704211028857

Sibbald, S., Schouten, K., Sedig, K., Maskell, R., & Licskai, C. (2020). Key characteristics and critical junctures for successful interprofessional networks in healthcare – a case study. *BMC Health Services Research*, *20*(1), 700. https://doi.org/10.1186/s12913-020-05565-z

Stake, R. (2006). *Multiple case study analysis*. The Guilford Press.

Stake, R. E. (1995). *The art of case study research*. SAGE.

Statistics Canada. (n.d.). *Leading causes of death, total population, by age group.* https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310039401

Stewart, J. (2012). Multiple-case study methods in governance-related research. *Public Management Review*, *14*(1), 67–82. https://doi.org/10.1080/14719037.2011.589618

Stewart, M., Brown, J. B., Weston, W. W., McWhinney, I. R., McWilliam, C. L., & Freeman, T. R. (2013). *Patient-centered medicine: Transforming the clinical method* (3rd ed.). CRC Press. https://doi.org/10.1201/b20740

Swinkels, I. C. S., Huygens, M. W. J., Schoenmakers, T. M., Oude Nijeweme-D'Hollosy, W., van Velsen, L., Vermeulen, J., Schoone-Harmsen, M., Jansen, Y. J., van Schayck, O. C., Friele, R., & de Witte, L. (2018). Lessons learned from a living lab on the broad adoption of eHealth in primary health care. *Journal of Medical Internet Research*, *20*(3), e83. https://doi.org/10.2196/jmir.9110

Todd, D. C., McIvor, R. A., Pugsley, S. O., & Cox, G. (2008). Approach to chronic obstructive pulmonary disease in primary care. *Canadian Family Physician Medecin De Famille Canadien*, *54*(5), 706–711.

Tracy, S. J. (2010). Qualitative quality: Eight "big-tent" criteria for excellent qualitative research. *Qualitative Inquiry*, *16*(10), 837–851. https://doi.org/10.1177/1077800410383121

Tsasis, P., & Bains, J. (2009). Chronic disease: Shifting the focus of healthcare in Canada. *Healthcare Quarterly*, *12*(2), e1–e11. https://doi.org/10.12927/hcq.2009.20597

Vachon, B., Giasson, G., Gaboury, I., Gaid, D., Noël De Tilly, V., Houle, L., Bourbeau, J., & Pomey, M.-P. (2022). Challenges and strategies for improving COPD primary care services in Quebec: Results of the experience of the COMPAS+ quality improvement collaborative. *International Journal of Chronic Obstructive Pulmonary Disease*, *Volume 17*, 259–272. https://doi.org/10.2147/COPD.S341905

Vanyoro, K. P., Hawkins, K., Greenall, M., Parry, H., & Keeru, L. (2019). Local ownership of health policy and systems research in low-income and middle-income countries: A missing element in the uptake debate. *BMJ Global Health*, *4*(4), e001523. https://doi.org/10.1136/bmjgh-2019-001523

Vargas, I., Eguiguren, P., Mogollón-Pérez, A.-S., Samico, I., Bertolotto, F., López-Vázquez, J., & Vázquez, M.-L. (2020). Can care coordination across levels be improved through the implementation of participatory action research interventions? Outcomes and conditions for sustaining changes in five Latin American countries. *BMC Health Services Research*, *20*(1), 941. https://doi.org/10.1186/s12913-020-05781-7

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: Translating evidence into action. *Health Affairs*, *20*(6), 64–78. https://doi.org/10.1377/hlthaff.20.6.64

Warner, G., Lawson, B., Sampalli, T., Burge, F., Gibson, R., & Wood, S. (2018). Applying the consolidated framework for implementation research to identify barriers affecting implementation of an online frailty tool into primary health care: A qualitative study. *BMC Health Services Research*, *18*(1), 395. https://doi.org/10.1186/s12913-018-3163-1

Wiltsey Stirman, S., Kimberly, J., Cook, N., Calloway, A., Castro, F., & Charns, M. (2012). The sustainability of new programs and innovations: A review of the empirical literature and recommendations for future research. *Implementation Science*, *7*(1), 17. https://doi.org/10.1186/1748-5908-7-17

World Health Organization [WHO]. (2021). *Chronic obstructive pulmonary disease (COPD)*. https://www.who.int/news-room/fact-sheets/detail/chronic-obstructive-pulmonary-disease-(copd)

Yazan, B. (2015). Three approaches to case study methods in education: Yin, Merriam, and Stake. *The Qualitative Report*. https://doi.org/10.46743/2160-3715/2015.2102

Yin, R. K. (2002). *Case study research: Design and methods.* SAGE Publications.

Appendices

Appendix A: Living document themes and corresponding questions.

Q1: IMPLEMENTING THE BCC PROGRAM AND BACKGROUND INFORMATION	**RT**	**BCC Leader**
Q1a: What are the aims of the BCC program and how, if at all, have these aims evolved since its implementation?	X	X
Q1b: What does the BCC program do to benefit patients and/or improve the delivery of services? Does the BCC program meet patients' needs?	X	
Q1c: Is tackling inequalities an aim of the BCC program? For example, does the BCC program address barriers and facilitators to patients' needs? Please explain why or why not.	X	X
Q1d: How well are you networked with other RT's/BCC providers?	X	
Q1e: What are the key things that you think support the implementation of the BCC program?	X	
Q1f: What evidence or analyses were provided to you to help you understand the BCC program? What evidence are you aware of that underpins the approach adopted? Was this locally based, tacit knowledge, or was it inspired by wider published research?	X	X
Q1g: What has worked well in the implementation of the BCC program?	X	
Q1h: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	
Q1i: How has context/care setting impacted implementation of the BCC program?	X	

Q2: WHO IS DOING WHAT?	**RT**	**BCC Leader**
Q2a: What specific strategies are currently being, or should be pursued to improve the integration of the BCC program in your organization for the long-term?		X
Q2b: What are the various roles and responsibilities of those involved in the BCC program? Please list the core members of the team.	X	X
Q2c: Were there any people/organizations that had a leadership role in the implementation of the BCC program? Please outline the leader(s) and whether their role was informally or formally established.	X	

Q2d: What has worked well in the implementation of the BCC program?	X	
Q2e: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges	X	
Q2f: How has context/care setting impacted implementation of the BCC program?	X	

Q3: PROCESSES	**RT**	**BCC Lea-der**
Q3a: Describe the activities of the BCC program which absorb the most resources (e.g., time, supplies, investment, and opportunity costs).	X	X
Q3b – How are the new BCC services integrated into existing organizational processes (e.g., contracts, memorandum of agreement, sharing values etc.)?	X	X
Q3c- Specific to your role in the BCC program, how have patients and their caregivers and/or family members been engaged/involved (e.g., in planning, implementation, and/or evaluation)?	X	X
Q3d: Describe what the BCC activities intend to achieve (e.g., improvements in equity, access, and health outcomes). When do you expect to see these benefits being delivered?	X	X
Q3e: Do you believe that the BCC activities are the best way to accomplish these aims and benefits?	X	X
Q3f: What has worked well in the implementation of the BCC program?	X	
Q3g: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	
Q3h: How has context/care setting impacted implementation of the BCC program?	X	

Q4: OUTPUTS AND OUTCOMES	**RT**	**BCC Lea-der**
Q4a: How has the BCC program improved the experiences of patients and/or their caregivers (e.g., improved equity, access, patient experience, patient outcomes, autonomy, and dignity and respect)? Please provide an example.	X	
Q4b: How have regional or the provincial shifts toward integrated approaches to care (e.g., increased funding, change in policy, restructuring of system) impacted the implementation or sustainability of the BCC program?		X

Q4c: How have clinicians (including nurses and other health professionals) responded to the BCC program and its integrated approach to care? Please provide an example.	X	
Q4d: Has there been increase in the capacity & infrastructure (e.g., trainings, personnel, funding, equipment, building space etc.) for further improvements of the BCC program? Please provide an example.	X	
Q4e: Has there been an increase in the knowledge base around the BCC program and/or the patients/clients served? Please provide an example.	X	
Q4f: Please describe any other outcomes (intended or not intended) of the BCC program not already covered above.	X	
Q4g: What has worked well in the implementation of the BCC program?	X	
Q4h: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	
Q4i: How has context/care setting impacted implementation of the BCC program?	X	

Q5: IS THE BCC PROGRAM PROGRESSING TO PLAN?	**RT**	**BCC Lea-der**
Q5a: How would you describe the progress of the BCC program so far?	X	
Q5b: Are there elements of the BCC program that work for some people in your organization, but not others? Please describe.	X	
Q5c: Describe local factors (e.g., events, activities, changes in policy) that were out of the BCC program's control that contributed to the success of the program so far.	X	X
Q5d: Describe local factors that impeded the BCC program so far.	X	X
Q5e: What has worked well in the implementation of the BCC program?	X	
Q5f: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	
Q5g: How has context/care setting impacted implementation of the BCC program?	X	

Q6: EQUITY	**RT**	**BCC Lea-der**
Q6a: What plans are there to ensure that any benefits associated with the BCC program might be sustained in the future?	X	X

<table>
<tr><td>Q6b: Who is responsible for continuing the sustainability of BCC?</td><td>X</td><td>X</td></tr>
<tr><td>Q6c: Have these arrangements been formalized? If so, how have they been formalized (e.g., contractual arrangements or memorandum of understanding)?</td><td></td><td>X</td></tr>
<tr><td>Q6d: How might the findings of the BCC program ‘fit’ with wider changes in the health and social care system (e.g., in the professions, funding, training, and organizational contexts)?</td><td></td><td>X</td></tr>
<tr><td>Q6e: How might the result of the BCC program impact health system planning?</td><td></td><td>X</td></tr>
<tr><td>Q6f: Do you anticipate that future changes in the health system will support the integration processes in the BCC program? Please describe how.</td><td></td><td>X</td></tr>
<tr><td>Q6g: Do you anticipate that future changes in the health system will undermine the integration processes in the BCC program? Please describe how.</td><td></td><td>X</td></tr>
<tr><td>Q6h: Do you believe the changes you have made or are intending to make are likely to be sustained? Why or why not?</td><td>X</td><td></td></tr>
<tr><td>Q6i: Specific to the BCC program, which of the social determinants do you believe contribute to disparity in access to care and/or disparity in health outcomes? Please select all that apply.

<table>
<tr><td>☐</td><td>Income</td><td>☐</td><td>Social exclusion</td></tr>
<tr><td>☐</td><td>Education</td><td>☐</td><td>Social safety network</td></tr>
<tr><td>☐</td><td>Unemployment and job security</td><td>☐</td><td>Access to health services</td></tr>
<tr><td>☐</td><td>Employment and working conditions</td><td>☐</td><td>Aboriginal status</td></tr>
<tr><td>☐</td><td>Early childhood development</td><td>☐</td><td>Gender</td></tr>
<tr><td>☐</td><td>Food security</td><td>☐</td><td>Race</td></tr>
<tr><td>☐</td><td>Housing</td><td>☐</td><td>Disability</td></tr>
<tr><td></td><td></td><td>☐</td><td>Other</td></tr>
</table>

Please explain:</td><td>X</td><td></td></tr>
<tr><td>Q6j: Which of the following populations have you delivered the BCC program to?

<table>
<tr><th></th><th>Yes</th><th>No</th><th>Don’t know</th></tr>
<tr><td>Aboriginal peoples</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Youngest-old (65-74 years)</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Middle-old (75-84 years)</td><td>☐</td><td>☐</td><td>☐</td></tr>
<tr><td>Oldest- old (≥ 85 years)</td><td>☐</td><td>☐</td><td>☐</td></tr>
</table></td><td>X</td><td></td></tr>
</table>

People with disabilities	☐	☐	☐					
Francophone	☐	☐	☐					
People experiencing homelessness	☐	☐	☐					
Low income	☐	☐	☐					
Religious/faith communities	☐	☐	☐					
Other	☐	☐	☐					

Please explain:

Q6k: Does the BCC program adequately address the needs of the following populations?

Aboriginal peoples	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐N/A
Youngest-old (65-74 years)	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐N/A
Middle-old (75-84 years)	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐N/A
Oldest-old (≥ 85 years)	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A
People with disabilities	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A
Francophone	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A
People experiencing homeless-ness	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A
Low income	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A
Religious/ faith communities	☐ Strongly Agree	☐ Agree	☐ Neutral	☐ Disagree	☐ Strongly Disagree	☐ N/A

X

Other ☐ Strongly Agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly Disagree ☐ N/A Please explain:		
Q6l: What strategies would allow the BCC program to better serve the needs of these populations? Please be as specific as possible.		X
Q6m: How can equity-oriented care for the BCC program be improved?		X
Q6n: What strategies do you feel helped or hindered primary care providers (i.e., physicians, nurse practitioners, and others) buy-in and engagement with the BCC program?	X	
Q6o: How would you describe the impact of the BCC program on patients' care experiences?	X	
Q6p: What strategies could be implemented to improve patients' and caregivers' experiences with BCC?	X	
Q6q: What has worked well in the implementation of the BCC program?	X	
Q6r: Have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	
Q6s: How has context/care setting impacted implementation of the BCC program?	X	

Q7: SUSTAINABILITY	**RT**	**BCC Lea-der**
Q7a: Who (if anyone) is involved with sustainability planning to ensure the impact of the BCC program is continued in the future?		X
Q7b: How do local clinic or provider specific factors affect the delivery or continued implementation of the BCC program?		X
Q7c: Reflecting back over the past year, what characteristics of the BCC program contributed to its successful implementation?	X	
Q7d: How has the peer-to-peer implementation process impacted your experience in implementing and delivering the BCC program?	X	
Q7e: What characteristics of the BCC program inhibited its implementation? What strategies did you rely on to overcome any challenges?	X	
Q7f: What additional resources would you require to ensure the success and the sustainability of the BCC program?	X	
Q7g: Reflecting on the past year, how would you describe the impact of the BCC program on primary care providers (please specify type of provider, i.e., physician, nurse practitioner, or other)?	X	
Q7h: What strategies could be implemented to improve physicians' experiences of the BCC program?	X	

Q7i: Reflecting on the past year, what has worked well in the implementation of the BCC program?	X	X
Q7j: Reflecting on the past year, have you encountered any challenges in implementing the BCC program? If yes, please explain these challenges.	X	X
Q7k: Reflecting on the past year, how has context/care setting impacted implementation of the BCC program?	X	X

Appendix B: Focus group guide

Provider Focus Group Guide

Introduction:

Today you will be participating in a focus group with other providers to better understand the implementation of the new BEST CARE COPD program, and your experiences with the program. The interview will be audio-recorded. Everything that you say will be confidential and all data collected will be anonymous. We request that you maintain confidentiality for others of what is discussed as well. Please keep in mind, your participation is voluntary, and you can decide to stop or skip questions at any time.

1. Describe the BEST CARE COPD program and your role within it.

    a) Describe what a patient experiences in this program. (Get at program complexity, duration, scope, intricacy, and number of steps)

    b) How does the program compare to other similar existing programs in your setting? What was missing in standard care that the BEST CARE COPD program was targeted to fix?

2. **IMPLEMENTATION-1**: How was the decision made to implement the program?

    a) What was your role in the implementation?

    b) What support, internal or external to your organization, did you have during implementation?

    c) What was happening locally, or provincially that may have supported or hindered your choice to implement?

3. **PREPARATION**: How did you prepare for the implementation of the program?

    a) What kinds of training/structured learning sessions were used?

    b) What was the role of internal versus external support during this phase?

    c) What was helpful; what would have been more helpful?

4. **ADAPTION**: What kinds of changes or alterations were made to the BEST CARE COPD program to fit your clinic and community?

5. **PATIENTS**: How did patients respond to the program?

a) What role did patients have?

- During implementation

b) Should that role have been different?

c) Was the program effective at meeting the needs specific to your patient population? If no, how could this be improved?

6. **IMPLEMENTATION-2**: Tell me about the process and plan around program implementation.

a) Were there clearly defined roles, milestones or targets?

b) Has the program been implemented according to plan?

c) How did the infrastructure of your organization impact the implementation of the program?

d) If you had to implement this program again, what would you do differently?

7. **EVALUATION**: What methods are you using to monitor or evaluate the program?

a) How are they working for you?

b) If NONE: What are you planning on doing?

8. Do you think the BEST CARE COPD program is sustainable?

a) Why or why not?

b) What needs to happen to ensure sustainability?

9. What advice would you give another group, in a similar setting, going through this process of implementing a new program?

10. How has COVID-19 impacted the delivery of the BCC program? Do you anticipate any changes as a result of COVID-19 in the future with the BEST CARE COPD program?

Appendix C: Interview guide.

BEST CARE COPD Program Provider Interview Guide

SCRIPT:

Good morning/afternoon.

May I please speak with [Insert participant's name] (*If they are not available, do not leave message).*

My name is [Research Assistant]. I am a research assistant working with Dr. Shannon Sibbald from Western University. I am assisting Dr. Sibbald on conducting phone interviews with practitioners involved in the BEST CARE COPD program.

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

You should have received a letter of information and consent form. Do you have any questions about the information in the letter and have you signed this from?

Today I will conduct a short interview to better understand the implementation of the new BEST CARE COPD program, and your experiences with the program. The interview will be audio-recorded. Everything that you say will be confidential and all data collected will be anonymous. Please keep in mind, your participation is voluntary, and you can decide to stop at any time.

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

Before we continue further, do you agree to be audio-recorded? [begin audio-recording]

Do you agree to consent to this interview?

<u>Interview Guide</u>

1) To start, please explain your role and the work that you do in your organization.

   a) PROBE: How would you describe your healthcare practice?

   b) PROBE: Do you provide team-based care? Describe any structures or processes that you would describe as 'integrated care' that already exist in your clinic?

c) PROBE: Are you part of a formal team-based care organization? If yes, which? (FHT, CHC, NPLC, other?)

2) Are you aware of the BEST CARE COPD program?

a) PROBE: Please tell me about your experience with BEST CARE COPD.

b) PROBE: How did the idea of implementing the BCC program originate?

c) PROBE: What evidence was provided to you to help you understand the BCC program?

d) PROBE: What has it been like working with the RTs in your clinic.

e) PROBE: Specific to BCC, how are patients and their caregivers engaged/involved?

f) PROBE: Has the BEST CARE COPD program improved your experience working with patients with COPD?

g) PROBE: Has BEST CARE COPD improved the experiences of patients and/or their caregivers? If yes, how?

h) PROBE: Does the BCC program help to tackle inequalities?

3) What was your experience with the implementation of the BEST CARE COPD program?

a) PROBE: What was your role in implementation? What role did others have?

b) PROBE: How have the aims of the program evolved since the implementation?

c) PROBE: How is the BCC services integrated into the organizational processes?

d) PROBE: What has worked well in the implementation of the BCC program?

e) PROBE: Where there any complications? What would you have needed to overcome these?

f) PROBE: Were there any aspects of the program that helped to facilitate the implementation?

g) PROBE: How has the peer-to-peer implementation process impacted your experience implementing and delivering the BCC program?

h) PROBE: What activities seem to be consuming the most resources (time, people, finances)?

4) Who (if anyone) is involved with sustainability planning to ensure the impact of the BCC program is continued in the future?

   a) PROBE: Do you believe the changes are likely to be sustained? Why or why not?

   b) PROBE: How do local clinic or provider specific factors affect the delivery or continued implementation of the BCC program/

5) How can the BEST CARE COPD program be improved to better meet the needs of your patients and/or your practice?

   a) PROBE: Do you foresee any challenges in the future?

   b) PROBE: What strategies would allow the BCC program to better serve the needs of your patient population?

6) BEST CARE COPD is being implemented in other organizations across the region and the province; what advice would you give to new sites implementing the BCC program?

   a) PROBE: What would you keep, what might you change?

   b) PROBE: How has context/care setting impacted implementation?

7) How has COVID-19 impacted the program now? Do you anticipate any changes as a result of COVID-19 in the future with the BEST CARE COPD program?

Appendix D: Coding framework

Domain	Construct	Definition according to Damschroder et al (2009)
Intervention Characteristics	Evidence strength and quality	"Stakeholders' perceptions of the quality and validity of evidence supporting the belief that the intervention will have desired outcomes" (p.6).
	Relative advantage	"Stakeholders' perception of the advantage of implementing the intervention versus an alternative solution" (p. 6).
	Adaptability	"The degree to which an intervention can be adapted, tailored, refined, or reinvented to meet local needs" (p.6).
	Complexity	"Perceived difficulty of implementation, reflected by duration, scope, radicalness, disruptiveness, centrality, and intricacy and number of steps required to implement" (p.6).
	Design quality and packaging	"Perceived excellence in how the intervention is bundled, presented, and assembled" (p.7).
	Cost	"Costs of the intervention and costs associated with implementing that intervention, including investment, supply, and opportunity costs" (p.7).
Meso Level Outer setting	Patient needs	"The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization" (p.7).
	Cosmopolitanism	"The degree to which an organization is networked with other external organizations" (p.7).
	External policies and incentives	"Broad constructs that encompass external strategies to spread interventions, including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives,

		and public or benchmark reporting" (p.7).
Macro Level Outer setting	Patient needs	"The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization" (p.7).
	Cosmopolitanism	"The degree to which an organization is networked with other external organizations" (p.7).
	External policies and incentives	"Broad constructs that encompass external strategies to spread interventions, including policy and regulations (governmental or other central entity), external mandates, recommendations and guidelines, pay-for-performance, collaboratives, and public or benchmark reporting" (p.7).
Inner Setting	Structural characteristics	"The social architecture, age, maturity, and size of an organization. Social architecture describes how large numbers of people are clustered into smaller groups and differentiated, and how the independent actions of these differentiated groups are coordinated to produce a holistic product or service" (p.7).
	Networks and communications	"The nature and quality of webs of social networks and the nature and quality of formal and informal communications within an organization" (p.8).
	Culture	"Norms, values, and basic assumptions of a given organization" (p.8).
	Implementation climate	"The absorptive capacity for change, shared receptivity of involved individuals to an intervention [8],

		and the extent to which use of that intervention will be 'rewarded, supported, and expected within their organization'" (p.8).
	1. Tension for change	"The degree to which stakeholders perceive the current situation as intolerable or needing change" (p.8).
	2. Compatibility	"The degree of tangible fit between meaning and values attached to the intervention by involved individuals, how those align with individuals' own norms, values, and perceived risks and needs, and how the intervention fits with existing workflows and systems" (p.8).
	3. Relative priority	"Individuals' shared perception of the importance of the implementation within the organization" (p.8).
	4. Organizational incentives and rewards	"Extrinsic incentives such as goal-sharing awards, performance reviews, promotions, and raises in salary, as well as less tangible incentives such as increased stature or respect" (p.8).
	5. Goals and feedback	"The degree to which goals are clearly communicated, acted upon, and fed back to staff and alignment of that feedback with goals" (p.9).
	6. Learning climate	"A climate in which: leaders express their own fallibility and need for team members' assistance and input; team members feel that they are essential, valued, and knowledgeable partners in the change process; individuals feel psychologically safe to try new methods; and there is sufficient time and space for reflective thinking and evaluation (in general, not just in a single implementation)" (p.9).
	Readiness to implementation	"Tangible and immediate indicators of organizational commitment to its decision to implement an intervention, consisting of three sub-constructs (leadership engagement,

		available resources, and access to information and knowledge)" (p.9).
	1. Leadership Engagement	"Commitment, involvement, and accountability of leaders and managers with the implementation" (p.9).
	2. Access to information and knowledge	"Ease of access to digestible information and knowledge about the intervention and how to incorporate it into work tasks [8]. Information and knowledge includes all sources such as experts, other experienced staff, training, documentation, and computerized information systems" (p.9).
	Available resources	*"The level of resources dedicated for implementation and ongoing operations including money, training, education, physical space, and time" (p.9).*
	Patient needs	*"The extent to which patient needs, as well as barriers and facilitators to meet those needs, are accurately known and prioritized by the organization" (p.7).*
Characteristics of Individuals	Knowledge and beliefs about the intervention	"Individuals' attitudes toward and value placed on the intervention, as well as familiarity with facts, truths, and principles related to the intervention" (p.9).
	Self-efficacy	"Individual belief in their own capabilities to execute courses of action to achieve implementation goals" (p.9).
	Individual stage of change	"Characterization of the phase an individual is in, as he or she progresses toward skilled, enthusiastic, and sustained use of the intervention" (p.10).
	Individual identification with organization	"A broad construct related to how individuals perceive the organization and their relationship and degree of commitment to that organization" (p.10).
	Other personal attributes	"This is a broad construct to include other personal traits. Traits such as

		tolerance of ambiguity, intellectual ability, motivation, values, competence, capacity, innovativeness, tenure, and learning style have not received adequate attention by implementation researchers" (p.10).
Process	Planning	"The degree to which a scheme or method of behavior and tasks for implementing an intervention are developed in advance and the quality of those schemes or methods" (p.10).
	Engaging	"Attracting and involving appropriate individuals in the implementation and use of the intervention through a combined strategy of social marketing, education, role modeling, training, and other similar activities" (p.11).
	1. Opinion leaders	"Individuals in an organization who have formal or informal influence on the attitudes and beliefs of their colleagues with respect to implementing the intervention" (p.11).
	2. Formally appointed implementation leaders	"Individuals from within the organization who have been formally appointed with responsibility for implementing an intervention as coordinator, project manager, team leader, or other similar role" (p.11).
	3. Champions	"Individuals who dedicate themselves to supporting, marketing, and 'driving through an [implementation]', overcoming indifference or resistance that the intervention may provoke in an organization" (p.11).
	4. External change agents	"Individuals who are affiliated with an outside entity who formally influence or facilitate intervention decisions in a desirable direction" (p.11).

	Executing	"Carrying out or accomplishing the implementation according to plan" (p.11).
	Reflecting and evaluating	"Quantitative and qualitative feedback about the progress and quality of implementation accompanied with regular personal and team debriefing about progress and experience" (p.11).

Shading of the box denotes a construct found in the results.
Italics denotes a construct that was tailored to this research.

CURRICULUM VITAE

Madelyn daSilva

EDUCATION

Class of 2022	**Master of Science, Health and Rehabilitation Sciences, Health Promotion** Faculty of Health Sciences, Western University Thesis: Exploring the Impact of Context on Spread of Integrated Team-Based Methods for Chronic Disease Management Supervisor: Dr. Shannon L. Sibbald, PhD.
Class of 2020	**Honors Specialization in Health Sciences** Faculty of Health Sciences, Western University

PROFESSIONAL DEVELOPMENT CERTIFICATIONS

2022	CIHR Institute of Gender and Health Core Competency Module for Sex and Gender in Biomedical Research CIHR Institute of Gender and Health Core Competency Module for Sex and Gender in Primary Data Collection with Human Participants CIHR Institute of Gender and Health Core Competency Module for Sex and Gender in Analysis of Secondary Data from Human Participants Equity, Diversity and Inclusion: modules offered by Western University/University of Northern British Colombia
2019	Tri-Council Research Ethics Certification (TCPS 2:CORE)

WORKSHOPS ATTENDED

April 2022

Editing and proofreading- Writing Support Centre, Western University
Writing effective research proposals- Writing Support Centre, Western University
Writing your literature review- Writing Support Centre, Western University
Writing your thesis or dissertation- Writing Support Centre, Western University

November 2021

Introduction to NVivo- Western Libraries, Western University

November 2020

Preparing to publish- Western Libraries, Western University

May 2020

Ask an Ethics Officer Workshop- Implications for COVID- Western University

RESEARCH EXPERIENCE

May 2022 – Present

Project Coordinator
Department of Family Medicine, Western University
Supervisor: Dr. Bridget Ryan, PhD & Dr. Amanda Terry, PhD.

September 2020 – Present

Graduate Research Assistant
Sibbald Lab Team, Western University
Supervisor: Dr. Shannon L. Sibbald, PhD

June 2020 – August 2020

Research Support Officer
Lawson Research- Family Medicine, London Health Sciences Centre
Supervisor: Dr. Shannon L. Sibbald, PhD

September 2019 – September 2020

Research Assistant
Sibbald Lab Team, Western University
Supervisor: Dr. Shannon L. Sibbald, PhD

September 2019 – September 2020

Research Assistant
Health Ethics, Law & Policy Lab, Western University
Supervisor: Dr. Shannon L. Sibbald, PhD

WORK EXPERIENCE

September 2021 – December 2021

Graduate Teaching Assistant, Western University

Assisted in the facilitation of the course HS1001- Personal Determinants of Health.

September 2020 – December 2020

Graduate Teaching Assistant, Western University

Assisted in the facilitation of the course HS1001- Personal Determinants of Health.

SELECTED HONOURS AND AWARDS

2022	Poster award at the Health and Rehabilitation Sciences Graduate Conference
2020	Dean's Honor List
2019	Dean's Honor List

PUBLICATIONS *(N=3)*

I) Peer-Reviewed Manuscripts (*N=1*)

Sibbald S.L., Misra V., **daSilva M**., Licskai C. (2022). A framework to support the progressive implementation of integrated team-based care for the management of COPD: a collective case study. *BMC Health Services Research, 22*, 420. https://doi.org/10.1186/s12913-022-07785-x

II) Manuscripts Under Review (*N=1*)

daSilva M., Bhatti S., Dissanayake M., Sibbald S.L. (2022). Beyond implementation: A mixed-methods study exploring the conceptions and facilitators of sustainability in a quality improvement collaborative.

III) Other Dissemination *(N=1)*

Sibbald S.L., **daSilva M.**, Ferrone M., Licskai C.L. (2022). IKT in chronic disease management: An integrated knowledge translation success story in primary care.

CONFERENCES AND PRESENTATIONS *(N=14)*

I) International Conferences (*N=1)*

daSilva M., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care in chronic disease management: A case study.* North American Conference on Integrated Care, Virtual, October **2021**. Poster Presentation.

II) National Conferences *(N=4)*

daSilva M., Misra V., Licskai C., Ferrone M., Sibbald S.L**.,** *A framework to support the progressive implementation of integrated team-based care for the management of COPD: A collective case study*. Canadian Association for Health Services Research and Policy, Virtual, May **2022**. Poster Presentation.

daSilva M., Misra V., Licskai C., Ferrone M., Sibbald S.L**.,** *A framework to support the progressive implementation of integrated team-based care for the management of COPD: A collective case study*. Canadian Respiratory Conference, Victoria, BC, April **2022**. Poster Presentation.

daSilva M., Chhatawal N., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care in chronic disease management: A case study.* Canadian Association for Health Services and Policy Research, Virtual, May **2021**. Poster Presentation.

daSilva M., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care in chronic disease management: A case study.* Canadian Respiratory Conference, Virtual, April **2021**. Poster Presentation.

III) Local Conferences *(N=7)*

Sibbald S.L., **daSilva M.**, Misra V., Ferrone M., Licskai C. *A framework to support the progressive implementation of integrated team-based care for the management of COPD: A collective case study.* Association of Family Health Teams of Ontario 2022 Conference, Toronto, ON, October **2022**. Concurrent Session.

daSilva M., Misra V., Ferrone M., Licskai C., Sibbald S.L. *A framework to support the progressive implementation of integrated team-based care for the management of COPD: A collective case study.* Health and Rehabilitation Sciences Graduate Research Conference, Virtual, February **2022**. Poster Presentation.

daSilva M., Sibbald S.L. *Exploring the impact of context on spread of team-based methods for chronic disease management.* Health and Rehabilitation Sciences Graduate Research Conference, Virtual, February **2022**. Poster Presentation.

daSilva M., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care.* Family Medicine Forum, Virtual, November **2021**. Poster Presentation.

daSilva M., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care in chronic disease management: A case study.* London Health Research Day, Virtual, May **2021**. Poster Presentation.

daSilva M., Sibbald S.L. *Exploring sustainability of team-based care in chronic disease management.* Health and Rehabilitation Sciences Graduate Research Conference, Virtual, February **2021**. Poster Presentation.

daSilva M., Misra V., Sibbald S.L. *Exploring successful implementation of team-based care in chronic disease management: A case study.* Trillium Primary Health Care Research Day, Virtual, October **2020.** Poster Presentation.

IV) Presentations *(N=2)*

Crichlow G., **daSilva M.,** Dong M., Joshi A., Martin J., Thirunavukkarasu A. *Research paradigms.* Sibbald Lab Team, Western University, London, ON, February **2022**. Oral Presentation.

daSilva M. *The story of the best care COPD evaluation: A brief overview*. Sibbald Lab Team, Western University, London, ON, October **2021**. Oral Presentation.