DEVELOPMENTAL EVALUATION OF THE COMMUNITY NURSE NETWORKER

A DEVELOPMENTAL EVALUATION OF THE COMMUNITY NURSE NETWORKER PILOT

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Abstract

The Community Nurse Networker (CNN) pilot project represents an innovative collaboration between primary care, public health and municipal stakeholders, including a local neighbourhood resident planning team in a priority neighbourhood in Hamilton, Ontario. This pilot linked primary care to ongoing community development work. The goal of the CNN pilot was to address issues beyond physical health, and to consider issues related to the social determinants of health, or where people, live, work, and play. This developmental evaluation study used a qualitative descriptive approach (Sandelowski, 2000, 2010). Multiple perspectives and sources were used to describe the implementation of the CNN pilot, the following were collected and analyzed: Interviews (N=5), a focus group (participants = 11), documents (N=90), and a survey (N=1). The implementation of the pilot was described by the following foci: (a) conceptualization of the CNN's roles and activities, (b) perceived barriers and enablers in implementing the CNN pilot, (c) perceived impacts of the intervention, and (d) perceptions surrounding the value of a nurse in the CNN position. The CNN pilot is a unique intervention, demonstrating how primary care can be a leader within the community, engaging with health and social services organizations and hard to reach populations. The findings of this study supported the ongoing development of the CNN position. It provided an example of a nurse-led intervention, with an integrative approach to primary care, community development, social, and health services. This study illustrates the potential for strengthened partnerships between primary care and the community within priority neighbourhoods.

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List of Abbreviations

CNN	Community Nurse Networker
DE	Developmental Evaluation
HFHT	Hamilton Family Health Team
HiREB	Hamilton Integrated Ethics Board
LPT	Local Planning Team
MOHLTC	Ontario Ministry of Health and Long-Term Care
PHN(s)	Public Health Nurse(s)
PHS	Public Health Services
RNAO	Registered Nurses' Association of Ontario

Introduction

Navigating the Canadian health and social care system and accessing its programs and services remains a challenge for most of the population (Hutchison, Levesque, Strumpf, & Coyle, 2011). Canadians living in poverty, recently immigrated, experiencing health and social barriers – in other words priority populations are falling through the cracks of the health and social care system and failing to navigate existing services (Browne et al., 2012; Hutchison et al.). Without intervention the inequities experienced by priority populations are at risk for increasing (Loignon et al., 2015). There is an urgent need to develop ways to improve priority populations' system navigation. Interventions based in primary care are identified as having the potential to address health inequities; however, there is lack of description as to how these interventions should be developed and what role, if any, nurses play in their implementation (Browne et al.). Research describing these interventions will inform health care providers, leaders and policy makers in developing strategies to improve system navigation.

In April 2010 a landmark seven part investigative report, entitled *Code Red*, was published in Hamilton, Ontario. This report examined differences in social determinants of health and health outcomes across Hamilton neighborhoods (DeLuca, Buist & Johnston, 2012). It revealed gradients between neighborhoods in regard to health and wealth. Priority or code red neighborhoods where identified as areas with numerous barriers affecting the social determinants of health (DeLuca et al.). Gradients in neighbourhood's social determinants of health were demonstrated by varying rates of literacy, education, employment, income rates and higher lone-parent status and showed higher emergency department usage, hospitalizations, health care costs, and differences in neighbourhood residents' health status (DeLuca et al.). An example of the effect of these disparities was revealed by variances in life expectancy (Buist, 2010). Individuals who resided within an urban downtown Hamilton, Ontario neighborhood had a life expectancy of 65.5 years (Buist). Compared to an 86.3 year life expectancy for residents living away from the urban core, this amounted to a 21 year disparity in life expectancy. Neighbourhoods that were separated by kilometres were "worlds apart" (Buist).

Code Red shed light on health inequities within Hamilton, revealing an undeniable link between poverty and health status (Buist, 2010). Poverty was the greatest predictor for health, when accounting for differences across social determinants (Buist). One neighbourhood known as McQuesten was identified as a priority neighborhood within Hamilton. McQuesten is a vibrant community with numerous assets; however, poverty is an ongoing issue faced by neighbourhood residents (Mayo, 2012). Residents often present to the Hamilton Family Health Team's (HFHT) primary care practice situated in the McQuesten neighborhood with complex needs stemming from social determinants of health such as food insecurity, precarious housing, and low income. Despite the presence of numerous programs and services seeking to address residents' needs, and the City of Hamilton's investment in neighborhood development, health inequity persists within priority neighbourhoods such as McQuesten. This state of affairs served as the stimulus for the Community Nurse Networker (CNN) pilot. The HFHT in collaboration with the City of Hamilton and the McQuesten community Local Planning Team (LPT) developed the CNN to link primary care with ongoing neighborhood development work, considering the social determinants of health in addressing local need, improving access to and navigation of primary care and community resources.

System Navigation in Ontario

System navigation for the purpose of this thesis will refer to the navigation of the primary health care and social services system, including community programs. Primary care will be defined according to Starfied (1998), as the first point of access to health care services, providing resources and care for all new health care needs and problems in a person-centred manner. System navigation remains a challenge for Ontario residents (Ontario Ministry of Health and Long-Term Care [MOHLTC], 2012). In Ontario's Action Plan for Health Care a need for improved primary care system navigation was identified (MOHLTC). Emergency Department (ED) and hospital re-admission usage rates in a four year period were used to demonstrate the need for improved system navigation: more than 271, 000 ED visits could have been avoided by receiving treatment within the primary care setting and greater than 100, 000 Ontario residents were re-admitted to hospitals within 30 days of discharge from hospital (MOHLTC). These rates point to gaps within system navigation. With the acknowledgment of the scarcity of resources, prioritized spending, and identified inefficiencies without Ontario's health care system there is an impetus to discover ways to improve how Ontario residents navigate primary care (MOHLTC).

Nursing Significance

Nurses are the largest group of health professionals within Ontario (Registered Nurses' Association of Ontario [RNAO], 2012). Nurses, both Registered Nurses (RNs) and Registered Practical Nurses (RPNs) practicing within primary care number 4, 285 according to College of Nurses of Ontario membership data from 2010 (RNAO). The presence and capacity of nurses within primary care make them uniquely positioned to support system navigation (RNAO). A recent innovation aimed at improving system navigation is that of the primary care nurse navigator (Besner et al., 2007; Holtz, Morrish & Krein, 2013; Manderson, McMurray, Piraino & Stolee, 2012). This emerging nursing role has yet to be fully explored or defined (RNAO; Sofaer, 2009). The need for improved system navigation and the potential of nurse navigators make exploration of this role a priority within Ontario. Knowledge regarding how nurse navigators are implemented will provide insight to decision-makers and policy-makers who are considering ways to improve system navigation.

Community Nurse Networker

McQuesten is a priority neighbourhood in Hamilton, Ontario. It was the site of the CNN pilot a unique initiative that formally linked neighborhood development work undertaken by the City to primary care (City of Hamilton, 2013). Implementation of the pilot in the McQuesten community occurred in September of 2013, the expected duration was one year with the potential for second year. In terms of funding, the City of Hamilton, HFHT, and Hamilton Community Foundation funded the CNN pilot for one year as follows: $25,000 provided by the City of Hamilton, $50,000 from the HFHT, and $25, 000 from the Hamilton Community Foundation (City of Hamilton). During the course of the pilot's conception and implementation, a pilot stakeholder group was struck, consisting of individuals from each partner association (the HFHT, City of Hamilton Public Health Services [PHS], Hamilton Community Foundation, and the McQuesten LPT). The group for the purpose of this thesis will be titled the CNN pilot group.

The CNN was a public health nurse (PHN), a registered nurse, seconded to the HFHT. The CNN was co-located within a HFHT primary care practice site and a community centre located within the McQuesten neighbourhood. The pilot's initial objective was to support system navigation within the McQuesten community; addressing barriers associated with the social determinants of health, and linking primary health care to community development. The CNN was considered an example of a nurse navigator working to improve system navigation. Whether the CNN role can be characterized solely as a navigator or as working beyond the scope of a navigator was explored as the CNN pilot unfolded. This pilot project provided an opportunity to explore the implementation of a navigator deployed within a primary care and community setting.

Research Team and Aims of the Research

This thesis study is one part of a larger research project. The aims of this project are to explore system navigation in primary care and richly describe the CNN from multiple perspectives. This larger research study is composed of a scoping literature review of system navigation in primary care and two complementary studies to describe the implementation and impacts of a system navigator intervention located in a priority urban neighbourhood. This thesis is one of the complementary studies. This initiative is led by a research team consisting of two graduate nursing student researchers and two thesis supervisors. The full research and implementation team will be defined as a joint knowledge user/research team.

Thesis Objectives

This study seeks to explore the implementation process of the CNN pilot and the value of a nurse within the position. The objectives of this study are:

- Describe the implementation of the CNN pilot
- Identify what helped and what hindered the implementation of the CNN pilot
- Capture and describe the perceived impacts of the CNN pilot
- Explore the value of having a nurse as the Community Networker

This study will inform future decision- and policy-makers seeking to develop and implement system navigator interventions. It will add to and enhance what is known about system navigation and the role of nursing in system navigation. This thesis study will also seek to provide insight into the CNN pilot's implementation so as to promote the health and well-being, of McQuesten's residents and those of Ontario.

CHAPTER 1: LITERATURE REVIEW

This study uses a developmental evaluation approach to explore: **the conceptualization, implementation of the Community Nurse Networker (CNN) pilot, and the value of having a nurse as the CNN.** Within the literature *Networker* is rarely used; the majority of literature uses the term *Navigator* when describing interventions with similar objectives as that of the CNN pilot. In order to describe how the CNN position fits as a navigator, promoting system navigation within the McQuesten neighbourhood and primary care practice, the origins of the navigator role and the implementation of navigators within primary care will be reviewed.

Navigator Origins

Navigators were first implemented within the Harlem community of New York in 1990; where, a gap was identified between breast cancer diagnosis and access to treatment for local black women (Freeman, Muth, & Kerner, 1995; Freeman, 2006). Freeman et al. used community volunteers to assist patients with navigation, coining the term *Patient Navigator*. These navigators were implemented to address the identified gap in treatment for women who were experiencing barriers to diagnosis, service access, and treatment (Freeman et al.; Freeman). The use of navigators resulted in minimized screening costs and improved outreach (Freeman et al.; Freeman). Navigators were attributed to a 31% increase in 5-year cancer survivorship within the Harlem neighborhood (Freeman).

Oncology

The implementation of navigator interventions spread widely throughout oncology (Dohan & Schrag, 2005; Paskett, Harrop, & Wells, 2011; Wells et al., 2008). Navigators are associated with a variety of cancer pathologies, including: breast, colorectal, cervical, prostate, and lung (Freeman, 2006; Freund et al., 2008; Hunnibell et al., 2012). They work in all stages of cancer care: prevention, screening, treatment, and survival (Dohan & Schrag). The uptake of navigators within oncology is reflected by the number and frequency of syntheses present within the literature (Wells et al.; Paskett et al.).

Wells et al.'s (2008) literature review identified descriptive and outcome-focused studies using the search terms 'navigator' or 'navigation' and 'cancer' (p.2001). The search was conducted in 2007, identifying 42 articles for review (Wells et al.). This review's inclusion criteria were specific and studies using different terminology may have been missed. Due to the increase in research activity in cancer navigation, Paskett, Harrop and Wells (2011) repeated the search using the same search strategy as Wells et al. including literature published from 2007 to 2010. This updated review identified 52 articles for review, highlighting the amount of literature produced within a three year span (Paskett et al.).

Paskett, Harrop and Wells' (2011) literature review centred upon patient navigation in regard to cancer screening, diagnosis, treatment, clinical trials, or survivorship (Paskett et al., 2011). Data revealed that the majority of navigators focused upon "populations at higher risk for not receiving adequate cancer care services due to cultural, economic, geographic, or social disparities" (Paskett et al., p.239). Navigators were integrated throughout the continuum of cancer care (Paskett et al.). Paskett et al. describe two types of interventions implemented by

navigators: instrumental and relationship. Instrumental interventions are those that centre upon specific tasks or issues involving logistics, for instance, booking appointments (Paskett et al.). Relationship interventions support the development of a relationship between patient and provider (Paskett et al.). Overall, Paskett et al. describe navigators within oncology as goal-oriented and recommend that navigator interventions focus upon an identified outcome of interest. This review also identified the need to describe navigator interventions from the provider perspective.

In the United States, cancer navigator programs are supported by legislation in the form of the Patient Navigator, Outreach, and Chronic Disease Prevention Act (2005). This act supports the implementation of trained patient navigators to support individuals with cancer and chronic diseases by providing grants to fund navigator programs (Wells et al., 2008). This may explain why there was an increase in studies describing navigators. Navigators within the oncology setting are implemented in a variety of ways. Despite their pervasiveness, there is a lack of concrete definition surrounding who should be a navigator and what they should do (Dohan & Schrag, 2005; Paskett et al., 2011; Wells et al., 2008). This small sample of literature describes the roots of the navigator role. It highlights how even in the setting where navigators were first conceptualized there is ongoing development.

Primary Care

> Primary care will be defined by Starfield's (1998) definition:
> that level of a health service system that provides entry into the system for all new needs and problems, provides person-focused (not disease-oriented) care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere by others. (Muldoon, Hogg & Levitt, 2006, p.410).

Navigators have spread from oncology (Ferrante, Cohen & Crosson, 2010) to primary care. Navigators in primary care are diverse in terms of their roles and activities. This section will focus upon literature in which the roles of navigators are associated with specific disorders (Brownstein et al., 2007; Norris et al., 2007), and activities (Ferrante et al.; Manderson, McMurray, Piraino & Stolee, 2012). Additionally, two cross-cutting themes will also be considered: the use of navigators to address barriers and who is fulfilling the role of the primary care navigator.

Disorder Specific. Within the literature there are examples of primary care navigators who focus upon clients with specific disorders (Brownstein et al., 2007; Jolly et al., 2015; Norris et al., 2007; Shlay et al., 2011). A common theme among these navigators is their association with chronic disease (Brownstein et al.; Jolly et al.; Norris et al.). In a large systematic review exploring the use of navigators in chronic disease management, researchers were able to publish two systematic reviews with differing foci; hypertension (Brownstein et al.) and diabetes (Norris et al.). Both systematic reviews utilized methodology as outlined by the Cochrane Collaboration to explore the effectiveness of navigators (Brownstein et al.; Norris et al.). Jolly et al. describe the development of a chronic kidney disease patient navigator program. This study provides insight into how a navigation program was developed; however, no impacts or outcomes were shared.

Hypertension. Brownstein et al. (2007) identified 14 studies and 6 companion articles detailing navigators addressing hypertension within the community. These selected articles were heterogeneous, having differences in "populations, settings, outcomes, and interventions" preventing meta-analysis (Brownstein et al., p.437). Authors established positive outcomes (e.g., increases in appointment keeping, adherence to medications and improved blood pressure control) that were associated with navigators supporting hypertension (Brownstein et al.). These navigators had consistent roles and activities including: (a) providing health education, (b) ensuring community members received services necessary for blood pressure control, (c) directly providing services, (d) supporting participants socially through a variety of means and (e) serving as an interface for participants and the health care and social service system (Brownstein et al.). This systematic review highlighted directions for further research regarding navigators within primary care, emphasizing a need for evaluation of navigators and their roles (Brownstein et al.).

Diabetes. Norris et al. (2007) utilized 18 articles of which 8 were Randomized Controlled Trials to power their systematic review exploring primary care navigators and diabetes. Norris et al. emphasized the variety of roles and activities associated with primary care navigators who focused upon diabetes, identifying how the level of involvement of navigators ranged from direct provision of services and care, to assuming a facilitator or liaison role. Navigators were associated with a decreasing inappropriate health care use and increasing patient knowledge (Norris et al.). Findings were limited by the complexity and specificity of the described interventions. Many of the articles involved multi-component interventions, making it difficult to associate outcomes with navigator interventions. Additionally, many of the included studies did not describe how the navigator intervention was evaluated. This systematic review reinforces Brownstein et al's. (2007) call for the evaluation of navigator interventions Norris et al.). It also suggested that there is a need to explore whether setting influences navigator interventions with Norris et al. hypothesizing that an established infrastructure may be necessary for successful navigator interventions.

Activity Specific. Primary care navigators' were also associated with specific activities (Ferrante, Cohen & Crosson, 2010; Manderson, McMurray, Piraino & Stolee, 2012). These activities included, but were not limited to: coordination of services and referrals, transitions within the health care system, and prevention of adverse events (Dromerick et al., 2011; Egan, Anderson & McTaggart, 2010; Ferrante et al., 2010; Manderson et al.).

Coordination of services and referrals. Ferrante, Cohen, and Crosson (2010) described the use of primary care navigator to support the coordination of social services and complex referrals for primary care patients. These activities were defined by Ferrante et al. using Sofaer's (2009) description of patient need within a complex system: (a) choosing, understanding, and using health coverage, applying for insurance if uninsured (b) choosing, understanding, and using health services and/or providers (c) making treatment decisions (d) managing care received by multiple providers. This cross-case comparative study evaluated the barriers and facilitators associated with implementing a navigator within four primary care sites servicing a community (Ferrante et al.). Each location was considered a case (Ferrante et al.). This study provided

insight into the implementation of a navigator in different models of primary care, including a solo-physician and small group practices consisting of two and more physicians (Ferrante et al.).

Location of the navigator was important. The co-location of the navigator with primary care services allowed the navigator to interact with patients and provided access to other members of the team (Ferrante, Cohen & Crosson, 2012). This study also discovered that defining the role and activities of the navigator, prioritizing who the navigator will interact with, and how all members of the primary care team were integrated with the navigator were integral factors to successful implementation (Ferrante et al). This study was limited by the specific context; the implementation of a social worker as a navigator in four primary care practice sites in the United States. This study highlighted the need for navigator interventions to consider physical and organizational structures when designing navigator interventions.

Care Transitions. A common activity associated with navigators operating within the primary care setting was assisting with health care system transitions (Manderson, McMurray, Piraino & Stolee, 2012). Transitions in this context referred to patients who are moving within the health care system; for instance, from an acute in-hospital tertiary care location to a community primary care practices or from one primary care provider to another. Manderson et al.'s systematic review described how navigators were used to support chronically ill geriatric patients who were transitioning to primary care or across primary care providers. Manderson et al. excluded those studies focusing upon cancer care, mental health, children, or homeless populations. A total of 15 articles were selected with outcomes being organized into three general categories: economic, psychosocial, and functional, which was defined by patient quality of life and capabilities (Manderson et al.).

Manderson, McMurray, Piraino and Stolee (2012) found mixed support for navigators. Two articles showed navigator interventions to have limited effects and five showed improvement in quality of life, functionality, and economic outcomes (Manderson et al.). Authors assert that methodology and country of origin could be mitigating factors as both studies were derived from the United Kingdom or Canada where health care is universal (Manderson et al.). In these studies, navigators were involved with patient's navigation during care transitions (Manderson et al.). Authors also highlight what they term an "investment effect," where effects could become apparent in the longer term, pointing to the need for extended evaluation time (Manderson et al., p.123). Positive outcomes were demonstrated in a variety of ways, from improved mental health, decreased hospital stay, to increased self-management; notably, one study showed $1000 dollar savings on average in patients who received the navigator intervention (Manderson et al.). The variety in effects attributed to navigators support the need for further exploration of the primary care navigator, with specific attention to the navigator's context and length of evaluation time (Manderson et al.).

Within the literature, there are also examples of navigators who support the transition of patients with high acuity disorders, like a psychiatric crisis, to primary care (Griswold et al., 2010). In a Randomized Control Trial, Griswold et al. explored the use of navigators in assisting psychiatric patients' transition to primary care. Griswold et al. focused upon whether those who received the services of a navigator were more likely to access primary care and what factors, if any, influenced this transition. This study found support for the use of navigators who performed

the following activities: patient education, information sharing, and follow-up including mobile and home-visits (Griswold et al.). Trained navigators were shown to be an effective means of connecting individuals to primary care; those within the navigator intervention group were 62.4% more likely to connect to primary care ($p<0.001$) (Griswold et al.). These results were limited by researchers' ability to track patients within primary care; researchers were able to assess patient's initial connection to primary care but were unable to monitor for subsequent primary care access (Griswold et al.). This highlighted the need to collect and monitor utilization data throughout navigation, not just from the perspective of the navigator, but the primary care setting.

Cross-Cutting Themes. The use of navigators to address barriers is a cross-cutting theme within navigator literature (Brownstein et al., 2007; Dohan & Schrag, 2005; Ferrante, Cohen & Crosson, 2012; Jolly et al., 2015; Manderson, McMurray, Piraino & Stolee, 2012; Norris et al., 2007). According to Dohan and Schrag this is a defining feature of navigators. This aligns with the origins of navigators; where patient navigators were used to address Harlem's underserved black women's disparate rates of breast cancer treatment following diagnosis (Freeman et al., 1995). This theme is present within many of the previously described studies regarding navigators who are disease and activity specific. For populations with chronic diseases such as those described by Brownstein et al. and Norris et al., many faced a variety of barriers to care or services Similarly, Manderson et al. highlighted how navigators support care transitions in populations experiencing and/or are at increased risk of experiencing barriers to care (Manderson et al.). The identification of this theme emphasizes the need to explore how navigators address barriers.

Within the literature regarding primary care navigators, navigator positions are assumed by a variety of individuals, from health care professionals (Egan, Anderson & McTaggart, 2010; Ferrante, Cohen & Crosson, 2010; Sofaer, 2009) to volunteer lay persons or lay persons (Brownstein et al., 2007; Dromerick et al., 2011; Jolly et al., 2015; Norris et al., 2007). The use of health care professionals appears to be a purposeful choice, the rationale being that navigators require professional expertise (Egan et al.). Nurses are the most often used professional to fill navigator roles, although social workers and occupational therapists are also found within the literature (Sofaer; Ferrante et al.; Egan et al.; Manderson, McMurray, Piriano & Stolee, 2012; Paskett, Harrop & Wells, 2011). Ferrante et al. identified that the navigator role was seen as having limitations compared to the role of a social worker; the social worker who assumed the navigator position shared their belief that in their social work role they were able to provide more services. The use of a health care professional as a navigator could require greater clarity surrounding the role and activities of the navigator.

Lay persons who assumed navigator roles were often chosen from the community or population of interest, due to the belief that they had similar experiences and faced similar barriers as those accessing the navigator intervention (Freeman et al., 1995; Norris et al., 2007; Paskett, Harrop & Wells, 2011). While not licensed health care professionals, these navigators are referred to by a variety of titles including: Lay Health Worker (LHW), Community Health Worker (CHW), volunteers, lay health advisors, promotores, and lay-persons (Brownstein et al, 2007, Norris et al., 2007). These navigators were often specifically trained to perform activities and supervised by health care professionals (Brownstein et al., 2007; Jolly et al., 2015; Paskett et

al.; Shlay et al., 2011). The characteristics and impacts of non-professional navigators are an active area of research. For the purpose of this review, they are briefly highlighted to indicate their narrow scope when enacting navigator roles.

The increasing prevalence of navigators within the community and primary care and their diversity in terms of characteristics, roles, and abilities, points to a need for sensitivity when using the term navigator (Brownstein et al., 2007; Paskett et al.; Shlay et al., 2011). The title of navigator is not protected as it is not a professional designation. There is a lack of consistency in terms of navigators' roles and activities. The use of the term navigator or the description of navigation responsibilities in future may require an awareness of the scope of the position, including its roles and activities. There is a need for clarification of the roles and activities of navigators, and how navigation and system navigation is defined.

Summary of Navigator Literature Review

Navigators were first introduced by Freeman et al. (1995) as a way to address identified breast cancer disparities within the women of Harlem, New York. Since their introduction, navigators are now prevalent within oncology, with legislature supporting their presence in health care within the United States of America (Paskett, Harrop & Wells, 2011; Wells et al., 2008). The use of navigators within primary care has increased (Manderson et al., 2012). They are associated with specific disorders and activities (Brownstein et al., 2007; Jolly et al., 2015; Manderson et al, 2012; Norris et al., 2007). Cross-cutting themes within the literature describing primary care navigators are the use of navigators to address barriers and navigator characteristics (Egan, Anderson & McTaggart, 2010; Ferrante, Cohen & Crosson, 2010; Sofaer, 2009). Despite the pervasiveness of navigators, there is a need for clarity surrounding how they are defined and evaluated (Dohan & Schrag, 2005; Sofaer, 2008).

Studies where primary care navigation interventions are features had positive outcomes with improvements in the following areas: health behaviors (e.g., adherence to medications, improved self-management), health outcomes (e.g., improved quality of life, blood pressure) and access to the health care system (e.g., improved primary care access) (Brownstein et al., 2007; Griswold et al., 2010; Manderson et al., 2010; Norris et al., 2007). With the presence of such promising findings there is an even greater need to understand how the use of navigators can be optimized within primary care, including the development and implementation of navigator interventions. Navigator characteristics (e.g., having a professional designation, education level), the types of activities performed by navigators, and how interventions are implemented are poorly reported upon within the literature (Brownstein et al., 2007; Norris et al., 2007; Sofaer, 2009). Given these gaps, this thesis aims to describe how a system navigator is implemented within primary care. This includes describing the roles and activities of the CNN as a system navigator, what helped and hindered the implementation of the position within the community, perceived impacts of the intervention, and the value of having a nurse professional within the position.

CHAPTER 2: STUDY CONTEXT, RESEARCH QUESTIONS, AND METHODOLOGY

Introduction

There is a need for research surrounding both the development and implementation of navigators within primary care (Brownstein et al., 2007; Manderson et al. 2012; Norris et al., 2007; RNAO, 2012). The Community Nurse Networker (CNN) pilot presents an opportunity to explore how a system navigator, the CNN, develops. The engagement of multiple stakeholders including: the Hamilton Family Health Team (HFHT), McQuesten Local Planning Team (LPT), and City of Hamilton, combined with identified needs and barriers within the McQuesten community, and the pilot's focus on the social determinants of health, create a unique context (City of Hamilton, 2012; Mayo, 2012). Describing the development and implementation of the CNN intervention, including the decision to have a nurse as the Community Networker, within this context is the overall purpose of this thesis.

Context

This study was situated in the McQuesten community, an urban priority neighbourhood within the City of Hamilton, Ontario, Canada. It focused on the CNN's two locations of operations within the McQuesten neighbourhood: St. Helen's Community Centre and a primary care practice located within the neighbourhood.

The McQuesten Neighbourhood. The McQuesten neighbourhood rests within Ward 4 of the City of Hamilton (Mayo, 2012). McQuesten is home to 7,000 residents; its boundaries coincide with Statistic Canada's Census Tract 5370071.00 (Mayo). The majority of McQuesten's population consists of youths and adults; with 31% less than 20 years of age and 40% between ages 35 and 64 years (Mayo).

McQuesten has a relatively high rate of lone parents compared to the City of Hamilton (Mayo, 2012). McQuesten youth are two times more likely to be culturally diverse and 2.5 times likely to be living in poverty (Mayo). This could be reflective of McQuesten's status as an arrival destination for immigrant or newcomer populations (Mayo). Compared to the City of Hamilton as a whole, McQuesten has a greater than average number of newcomers. The seniors of McQuesten, while proportionally less than the City of Hamilton are younger than the city average and more likely to be living in poverty (Mayo).

McQuesten Local Planning Team (LPT) and Community Centre. The LPT holds monthly meetings within St. Helen's community centre. Meetings are open to the public. The LPT consists of elected representatives who are McQuesten residents and form the LPT executive council. In addition to the executive council, services providers engaged in the community are also members of the LPT. Representatives from service provider agencies/organizations often attend monthly meetings. Examples of service provider organizations engaged in McQuesten are: City Kidz, Kiwanis Boys and Girls Club, City of Hamilton, Hamilton Police Services, McMaster School of Nursing, Good Shepherd, Mohawk College, Hamilton Community Foundation, and Wesley Urban Ministries (See Appendix A for visual representation of stakeholders and structure of the LPT; Mayo, 2012). The LPT provides a platform for service providers and neighborhood residents to dialogue about local issues,

providing leadership and organization to local initiatives. The LPT also provides an opportunity for community residents to assume representative roles and develop their leadership, advocacy, and communication skills. The LPT is supported by the Social Planning and Research Council of Hamilton through the presence of a community developer that works with the LPT.

St. Helen's community centre has multiple functions with designated space for a variety of uses. Services and programs are available for all life stages. Children and adults of all ages are able to access the centre, either through the Ontario Early Years Centre, and Kiwanis Boys' and Girls'Club or through the Senior's Centre. The Senior Centre provides diverse programming for seniors and is part of St. Matthew's House. Additionally residents can access food assistance programs within the community centre. The CNN had designated space within the community centre for the duration of the CNN pilot.

The Primary Care Setting. The primary care practice located within the McQuesten neighbourhood is part of the Hamilton Family Health Team (HFHT). The HFHT is the largest family health team within Ontario (HFHT, 2013). Family health teams are specific models of primary care practice defined by the provincial government. The following characteristics are associated with a family health team: an interdisciplinary team, with regular and extended hours, affiliated with an existing family health team, and encouraging patient enrollment (Health Force Ontario, 2013). Through a central office, core services and multiple practices are coordinated. The HFHT practice site within the McQuesten neighbourhood provides primary care to community residents and this is where the CNN was co-located.

Research Questions

The scope of this thesis was limited to considering the CNN pilot intervention from the perspective of community and pilot stakeholders. *Community stakeholders* were defined as having a vested interest in the community, either as community residents or because they were providing service to the community (e.g., service providers who were members of the McQuesten LPT). *Pilot stakeholders* were individuals who were selected by consensus by the thesis committee as being invaluable in describing the implementation of the CNN pilot. CNN pilot stakeholders consisted of community stakeholders and a blend of representatives from the pilot group or representatives from the HFHT, and City of Hamilton who were involved in developing the CNN pilot intervention.

The overarching question that this study seeks to address is: How has the CNN intervention developed, according to community and pilot stakeholders from the early implementation phase [April 2013 – August 31, 2013] to six months post-implementation or the implementation phase [September - March 2014]? Within this question three sub-questions are contained:

1. How was the CNN pilot intervention conceptualized?
    a. How the intervention was initially described (e.g., a job posting describing the CNN position, an advertisement for the CNN intervention)?
    b. What were the perceived roles of the CNN? How were these roles enacted by the CNN (i.e., what were the activities of the CNN)?

2. How was the CNN intervention implemented within the McQuesten community?
   a. What were perceived barriers and enablers in implementing the CNN intervention?
   b. What were the perceived impacts of the CNN intervention?

3. What was the perceived value of having a nurse fulfill the CNN position?

Study Approach

A developmental evaluation (DE) approach was used in this thesis study. DE was chosen because it supports complexity and uncertainty (Patton, 2006, 2011). Given the rich context and novel nature of the pilot this approach allowed the emergent nature of the pilot to be embraced. DE sensitized the researcher to uncertainty and emergent contextual factors, supporting the overall purpose of the project – to describe the CNN position as it developed (Patton, 2011). As a DE this study's approach was subject to change in response to the context. It evolved in tandem with the CNN intervention.

During the course of this study, it became apparent that further structure was needed to support the rigourous collection and analysis of data The rationale for qualitative description as described by Sandelowski (2000) was as follows: it provides a "comprehensive summary" in "everyday terms," (p.336) and is well suited for obtaining "straight answers" for knowledge-users (p. 337). Qualitative description provided the methodological backbone of this thesis study (Sandelowski 2000, 2010).

In keeping with qualitative description an "eclectic" range of sampling, data collection, and analysis techniques were used (Sandelowski, 2000, p. 337). Multiple data sources, including organizational documents, participants, and a practice survey were incorporated. Multiple data types were chosen to support "within method" triangulation, using different types of data collected with the same method, to assist in providing a rich summary of the how the CNN pilot developed (Jick, 1979, p.603). Data triangulation promoted study rigour; findings from different data types were compared in an ongoing manner to confirm authenticity and credibility (Whittemore, Chase, Mandle, 2001). Participants and documents were purposefully sampled (Sandelowski, 2000). Variables were not pre-selected as a way to support sampling.

Data collection and analysis were performed simultaneously; as uncertainties and emergent contextual factors arose they were explored in an ad-hoc fashion. Inductive content analysis was used to analyze data. A conceptual framework was used to organize data as the complexity of the CNN pilot unfolded. NVivo 10 was used as a data management tool. An important consideration for DE is that the evaluator (author) is involved on an ongoing basis with the innovation team (CNN pilot group) (Fagen et al., 2011; Patton, 2011). Further, as a DE study, as data were collected and analyzed key findings were disseminated to the pilot group.

This study was organized into three phases: (a) *Phase One – Early Implementation;* focused on describing the context of the CNN pilot and events during early implementation (from April 1, 2013 to August 31, 2013); (b) *Phase Two – Implementation;* explored the CNN pilot intervention as it was implemented within the McQuesten community (from September 1, 2013 to March 31, 2014); (c) *Phase Three – Dissemination*; described the formal and informal dissemination activities that occurred throughout the thesis study.

Conceptual Framework

A conceptual framework was used to organize study findings with respect to perceptions and findings related to the CNN's roles, the barriers and facilitators to the CNN pilot's implementation, and impacts of the pilot. The lack of a conceptual framework a priori corresponds to qualitative description's assertion that "no commitment" to theory is necessary (Sandelowski, 2010, p. 80). McLeroy, Bibeau, Steckler, and Glanz's (1988) ecological perspective on health promotion programs was incorporated to organize study findings due to the perception that the CNN pilot was similar to a health promotion program. This framework provided a way to describe the complexity of the CNN pilot's implementation by considering how the CNN pilot may be operating and influencing different levels, from inter- and intra-personal to public policy (McLeroy et al.). The following definitions, summarized in Table 1: McLeroy et al.'s (1988) Ecological Framework were used to organize study findings.

Table 1: McLeroy et al.'s (1988) Ecological Framework

Level	**Definition Employed**
Intrapersonal	Characteristics associated with the individual (e.g., knowledge, attitude, skill, and history)
Interpersonal	Factors associated with individual or group interactions and or relationships (e.g., decision making, receiving emotional support, learning about resources)
Community	The connections between organizations, groups, informal networks, service providers, and community residents within the boundaries of McQuesten.
Organizational	Defined as having organizational characteristics, with processes both formal and informal describing how they operate (e.g., policies and procedures)
Public Policy	Local, regional, provincial, and national policies

Ethics

This thesis study had ethics approval from the Hamilton Integrated Ethics Board (HiREB). HiREB ensures that study participants involved in studies occurring within St. Joseph's Health Care, Hamilton Health Sciences, and McMaster's Faculty of Health Sciences, are safeguarded; protecting their rights, and well-being. Ethics were approved by HiREB December 12, 2013. Two types of consent forms were developed. The first was directed at community stakeholders (e.g., community residents and service providers operating within the community); the second was for members of the HFHT organization. This was because there were different risks associated with the different types of data collected. For community stakeholders the risks were limited to their involvement in a focus group/stakeholder interview, because of the level of connectedness within the community it was highlighted that participants were at risk of being identified.

For the HFHT organization, in addition to participants potentially being involved in a focus group/stakeholder interview, there was also the potential for participants to be observed during meetings. While the risks were similar, for HFHT participants there were additional measures that were implemented to protect participants' rights; for instance, if there was an individual who did not want to participate or have the researcher (author) present at an organizational meeting where the CNN pilot was a focus, the researcher would not attend the meeting.

Data describing to the McQuesten HFHT primary care practice site, and HFHT organizational documents were also collected. For data describing the HFHT primary care practice site, these data did not have any patient identifiers and were limited to aggregated data e.g., percentage of patients with diabetes. All collected data was anonymized, stripped of participant identifying descriptors, and replaced with a code. These data were encrypted and kept on a computer that was password protected. A master list, with participants identifying information (e.g., name, means of contact, and years of residency within the neighbourhood) and their code was also created. Passwords were shared only with the author and thesis supervisor. Data will be stored for 10 years, after which it will be destroyed.

Data Collection

Phase One: Early Implementation

The *Early Implementation* phase was defined as the events occurring from April 1, 2013 to August 31, 2013. In order to collect data describing this phase the following sources were sampled using a variety of recruitment strategies: (a) an adaptation of Martin-Misener et al. (2011) Primary Care Health Team Survey (b) documents from CNN pilot stakeholders that was produced prior to the implementation of the CNN within the McQuesten community (documents from April 1, 2013 to August 31, 2013) and (c) the CNN's documentation of their activities within the community.

Primary Care Health Team Survey. An adapted form of a Primary Care Health Team Survey (Martin-Misener et al., 2011) was used to describe the context and make-up of the HFHT primary care practice located within the McQuesten neighbourhood (see Appendix B for the adapted survey). The survey was organized by six themes:

1. Resources and Organizational Structure;
2. Population and Community Characteristics;
3. Services and Inter-Organizational Collaborations;
4. Governance, Accountability and Values;
5. Team Dynamics;
6. Health Impacts and Outcomes.

Adaptations were made through consultation with expert stakeholders. Examples of how the survey was adapted included: removing questions that were not relevant and changing questions to align with the local context. Consent was obtained from the HFHT Clinical Director. It was completed by the site Manager, with the author in attendance. Completion was further assisted by a HFHT Practice Facilitator.

Documents. Documents from CNN pilot stakeholders were purposively sampled. The following were criteria for document inclusion: document(s) described the early implementation

of the CNN, or provided organizational context of the involved stakeholders within the CNN pilot such as the HFHT Work Plan. Strategies used to collect documents included: approaching individuals within the CNN pilot stakeholder groups (e.g., LPT and HFHT) and requesting access to relevant documents once consent had been obtained by the document's author. In addition documents that were available publicly were also identified and included such as LPT Meeting Minutes. Only documents from April 2013 to August 31, 2013 (inclusive) were selected.

CNN documentation. The CNN was responsible for documenting all of their activities (e.g., providing resources to residents, and connecting residents to resources) and perceived impacts and outcomes related to these activities situated within the McQuesten community. Client-based activities performed by the CNN within the McQuesten HFHT primary care practice site were documented within a separate database and excluded. This was due to restrictions relating to feasibility and scope. The focus of this study was on the development and implementation of the CNN pilot from the community and pilot stakeholder perspectives and did not require insight into HFHT client interventions via collection of HFHT primary care practice site documentation.

For Phase One, Early Implementation, CNN documentation that was produced from April 2013 to August 31, 2013 was considered for inclusion. Access to documentation describing the CNN's community interventions was gained retrospectively; consent was obtained from the HFHT Clinical Director. The CNN's documentation was organized according to calendar days and activity duration (e.g., April 1, 2013, 9:00 am to 11:00 am – Meeting with Service Providers to discuss Recreation Programming). Documentation was purposively sampled; entries rich in description or providing insight into the tasks, activities, impacts and outcomes associated with activities were selected. Due to the development of the CNN's documentation approach, the number of entries selected varied month by month. As documentation became more comprehensive the number of entries sampled decreased.

The following chart summarizes collected data describing the early implementation of the CNN pilot. Multiple data types are described, including the number of sources (n). For CNN documentation, a source was defined as a documentation entry made by the CNN.

Table 2: Early Implementation Data Collection

Source Type	**Description [(n) Number of Sources]**
Primary Health Care Survey	• Survey completed by Practice Manager of a McQuesten HFHT practice and HFHT Practice Facilitator [n=1]
Documents	• LPT Meeting Minutes from June, July, August 2013 [n=3] • HFHT Work Plan [n=1] • CNN Pilot Stakeholder Meeting Minutes [n=2] • Neighbourhood Development Strategy - Community Networker (CN) Pilot Project (CM13001(b)) (Ward 4) [n=1]

CNN Documentation	• June 2013 [n=4] • July 2013 [n=6] • August 2013 [n=3]

Phase Two: Implementation

The *Implementation* phase was defined as the events occurring from September 1, 2013 to March 31, 2014. Data sources describing implementation were collected. The following sources were collected using a variety of recruitment strategies: (a) documents, (b) a focus group and interviews, and (d) CNN documentation.

Documents. Document sampling and collection approaches were the same in this phase as in Phase One – Early Implementation; however, only documents created within the Implementation phase were included. See Table 2: Implementation Data Collection for details on the type and number of documents included.

Focus groups and Interviews. Individual interviews (n = 5) and one focus group (n =11 participants) were conducted. Individuals were purposively sampled according to the following criteria: English speaking and involved in the implementation of the CNN pilot and/or serving the McQuesten community (e.g., as a health or service provider, or as an engaged community resident). Individuals were recruited by the author. Consent was obtained prior to interviews and the focus group. Strategies for recruitment were attending public LPT meetings consistently and presenting information about the study, leaving flyers, and contact information. Interviews were conducted using a semi-structured interview guide with open-ended questions focusing on perceptions of the implementation of the CNN and the research questions posed by this study (Britten, 1995). An interview guide was used during individual and group interviews (see Appendix C).

During recruitment it became apparent that there was a cohesive community stakeholder group. This group consisted of: McQuesten LPT members, community residents, and service providers engaged in the community. In order to capture existing relationships and cohesiveness among community stakeholders a focus group was conducted (Kitzinger, 1995). Community stakeholders meeting the selection criteria were recruited and consent was obtained by the author. The focus group was approximately 50 minutes in duration. It was audio-recorded and transcribed verbatim. Focus group participants' schedules were accommodated such that an agreed upon time and location were determined. Light refreshments and a small incentive (valued at 15 dollars) were provided to all focus group participants.

Individual interviews were used to support an ethical approach, gather comprehensive perceptions surrounding the implementation of the CNN pilot, and to facilitate a deeper exploration of individual's perceptions. Individual interviews were offered as an option to accommodate individuals who were unable to participate in the focus group, and/or at the request of a recruited individual to promote equitable access. Interviews were also performed following a consensus decision of the author and thesis committee that a recruited individual's insight was invaluable to describing the implementation of the CNN pilot. An individual interview was not required and/or requested by selected individuals; thus, only individuals who were selected

following consensus were interviewed. They were also identified during Phase One, as well as on an ad-hoc basis (e.g., emergent key stakeholders, whose role during implementation became more prominent). Five semi-structured interviews, 45-90 minutes in duration, depending on participant availability were conducted with participants receiving a small incentive, valued at 15 dollars. All interviews were audio-recorded and transcribed verbatim.

CNN documentation. Documentation sampling and collection approaches were the same in this phase as in *Early Implementation*; however, only documentation generated within the Implementation phase were included. See Table 2: Implementation Data Collection for details.

The following chart summarizes the number of sources that were included during *Phase Two - Implementation*.

Table 3: Implementation Data Collection

Source Name	**Description [Number of Sources (n)]**
Documents	• LPT Meeting Minutes and Zine [n=5]
Focus Group and Interviews	• Community stakeholder focus group with 11 participants [n=1] • Semi-structured interviews with pilot stakeholders [n=5]
CNN Documentation	• From September 2013, including Summary relating to June to September [n=13] • October 2013 [n=12] • November 2013 [n=13] • December 2013 [n=7] • January 2014 [n=17] • February 2014 [n=11] • March 2014 [n=15]

Data Analysis

As data was collected it was analyzed, such that analysis and collection occurred concurrently and iteratively. With analysis informing and directing further collection (Thorne, 2000). A limited amount of quantitative data was gathered from the Primary Health Care Survey in the form of descriptive statistics. These data were used to add context to the description of the primary care practice site. Given the limited amount of quantitative data, from herein data analysis will refer to qualitative data only. Data was analyzed using inductive content analysis. Inductive content analysis aligns with a qualitative descriptive approach; additionally, it is an appropriate strategy given the lack of knowledge surrounding system navigators (Sandelowski, 2000; Elo & Kygnäs, 2008).

Data was managed using NVivo 10. This software was used to organize data and supported data analysis. Data analysis was guided by Elo and Kyngäs's (2008) approach to inductive content analysis. Data was first prepared by the author and involved checking each transcript for accuracy and ensuring that all data sources (organizational documents, CNN

documentation) were uploaded onto NVivo 10. The author then read through each data source multiple times, in order to immerse herself within the data (Elo & Kyngäs, 2008). The unit of analysis was defined as of 5 to 7 words across all sources. Due to the diversity and number of sources, it was decided that only manifest content (words as they were written in documents and transcripts, as opposed to non-verbal cues such as nodding, or crossing arms) would be analyzed in order to maintain consistency across sources.

Following preparation data was then organized. The following processes were used in this phase of analysis: open coding, grouping, categorizing, and abstracting (Elo & Kyngäs, 2008). A coding structure was not established a priori. Open coding was defined by using designations to describe potential trends within the data, these designations were often composed of words used by participants or found within documents e.g., the CNN helped to connect residents to a primary care practitioner (Elo & Kyngäs). These designations were then grouped using NVivo and categories were proposed, consistently incorporating the language of the sources in order to stay close to the data e.g,, the previous example was grouped under connecting (Elo & Kyngäs; Sandelowski, 2000, 2010). Categories were continuously reorganized and proposed as data were collected with a goal to create master categories e.g., connecting (category) was perceived as being related to managing resources (master category) (Elo & Kyngäs). Categories were defined by Elo and Kyngäs' summary of Cavanagh (1997) as a way to "provide a means of describing the phenomenon to increase understanding and to generate knowledge" (p.111). The final stage of analysis, abstracting, occurred when master-categories were reduced to broad generalizations or themes and sub-themes e.g., managing resources was seen as theme in activities performed by the CNN (Elo & Kyngäs). During data analysis, emergent coding structures were reviewed in an ongoing basis by the author's thesis supervisor. Data was analyzed to provide a comprehensive summary of the implementation of the CNN pilot and the value, if any, associated with having a nurse fulfill the position.

Phase Three: Dissemination

As a DE, an ongoing consideration of this study was to ensure that it would provide value to those involved, in this study the focus was on providing value to the CNN pilot group (Gamble, 2008). The intention was that preliminary findings from data collection and analysis would be disseminated to members of the CNN pilot group, giving insight into areas of uncertainty or perceived barriers to implementation. This was achieved by sharing relevant findings, which were selected and agreed upon by author and thesis committee consensus, in an ongoing manner with the CNN pilot group. Dissemination activities also included: being present at community and pilot stakeholder meetings to offer insight if requested, and disseminating findings within the community.

How preliminary findings were disseminated was a process that developed over the course of the study. In the study's early stages, findings were offered to members of the CNN pilot group as they emerged. These preliminary findings were shared following discussion and consensus among members of the thesis supervisory committee, in order to ensure that findings were valuable and appropriate. Further, when disseminating preliminary findings it was made clear that these insights were emergent, and had not yet been fully analyzed. Over time the CNN pilot stakeholders began to request information relating to the implementation of the CNN pilot.

The author regularly attended stakeholder meetings including: monthly LPT meetings, monthly HFHT meetings related to the CNN pilot, and ad-hoc CNN pilot meetings. This served to assist with disseminating findings. Second, it provided stakeholders with the opportunity to learn about the study and ask questions. This led to the development of stronger relationships between the researcher and stakeholders; in turn, facilitating data collection and improving communication.

A summative presentation and flyer describing study findings from a community perspective were disseminated at a monthly LPT meeting. This flyer was a lay summary of findings, and was approved by committee members prior to dissemination. The author's contact information was included on the flyer in order to provide follow up to community stakeholders, in case there was need for more copies of the summary, or questions regarding the study.

Strategies to Support Rigour

This study's rigour was determined by its qualitative descriptive methodology. The following criteria were used to describe rigour: authenticity, credibility, criticality, and integrity (Whittemore, Chase & Mandle, 2001). Authenticity was defined as capturing an accurate representation of participants' voices; credibility was defined as obtaining an insider perspective (Milne & Oberle, 2005). Authenticity and credibility are inter-related; therefore, strategies that supported these criteria will be grouped together (Milne & Oberle). Authenticity and credibility were supported by: purposive sampling, a semi-structured approach to interviews and the focus group, transcript checking, and data triangulation (Milne & Oberle; Neergard, Olesen, Andersen & Sondergaard, 2009).

Criticality was defined as the incorporation of critical appraisal into research decisions and integrity was defined as researcher awareness of potential bias (Milne & Oberle, 2005). Similarly criticality and credibility are inter-related and strategies supporting these criteria were grouped (Milne & Oberle). Strategies supporting criticality and credibility were as follows: the use of an audit trail, which was facilitated by NVivo 10, supervisory committee oversight and their ability to review anonymized coding structures, author reflection, journaling, and member-checking (Milne & Oberle).

CHAPTER 3: FINDINGS

This chapter presents findings gained from a DE approach incorporating qualitative descriptive methodology. Multiple strategies were used to capture, describe and organize study findings. These strategies included: the use of a conceptual framework, semi-structured interviews and a focus group guide (see Appendix C for full interview and focus group guides), a Primary Care Health Team Survey (adapted from Martin-Misener et al., 2011, see Appendix B for the survey), purposive sampling of documents as well as interview and focus group participants, descriptive statistics, inductive content analysis, and the use of NVivo 10 as a data management tool.

This chapter starts by first describing the primary care practice site in which the CNN was co-located. While the community context was described in previous chapters using publicly available sources, the characteristics of the primary care practice site will be described to gain an understanding of the full context of the CNN pilot intervention. After this, research findings will be presented in response to the broad question; how has the CNN pilot intervention developed? This is composed of the following sub-questions:

1. How was the CNN pilot intervention conceptualized?
    a. How the intervention was initially described (e.g., a job posting describing the CNN position, an advertisement for the CNN intervention)?
    b. What were the perceived roles of the CNN? How were these roles enacted by the CNN (i.e., what were the activities of the CNN)?

2. How was the CNN intervention implemented within the McQuesten community?
    c. What were perceived barriers and enablers in implementing the CNN intervention?
    d. What were the perceived impacts of the CNN intervention?

3. What was the perceived value of having nurse fulfill the CNN position

As previously defined, *community stakeholders* refers to community residents and service providers engaged within the community. Additionally, *pilot stakeholders* were defined as individuals who were selected by consensus by the thesis committee as being invaluable in describing the implementation of the CNN pilot. These findings will describe how the CNN pilot intervention developed, using pilot and community stakeholders' perspectives, documents (organizational and CNN documentation), and survey data. This will support further analysis within the following discussion chapter to explore emergent themes and how this DE can assist future system navigation interventions.

Characteristics of the McQuesten Community and Primary Care Practice Site

This section will describe the characteristics of the community and the primary care practice site. An adapted Primary Health Care Survey (see Appendix B; Martin-Misener et al., 2011) was used to describe its context. This survey was completed with consent from the HFHT and in collaboration with the Practice Site Manager, Practice Facilitator, and the author during the *Implementation* phase.

McQuesten's primary care practice site provides care for 3, 619 rostered patients (according to MOHLTC, December 2012; reported December 2013). It is funded by a blend of sources including the HFHT (MOHLTC), physician contributions, and in-kind donations (e.g., medical equipment such as vital sign machines). The primary care practice site is a part of the HFHT; its clients are able to access FHT resources like interprofessional team members (e.g., mental health counsellors, and social workers. At this location, during the time the survey was completed, there were 9 on-site health-care providers; excluding administrative support staff (e.g., practice manager, receptionists, and practice facilitator). The designation and description of these providers is summarized in the table situated below.

Table 4: McQuesten Primary Care Practice Site Health Care Providers

Provider(s) Present at Primary Care Site Location	**Number**	**Comments**
Family Physician	1	
Mental Health Counsellor	2	Funded by the HFHT
Psychiatrist	1	Funded by a blend of HFHT and physician contribution, available part-time
Nurse Practitioners (NP)	3	Two NPs worked part-time during the week, and the third worked once a month
Pharmacist	1	Available part-time
Respiratory Educator	1	Available part-time
Registered Nurse	1	

The McQuesten primary care practice site's roster is large. The MOHLTC (2012) defines 1,650 as a target roster for a solo full-time physician. The magnitude of McQuesten's primary care practice site may be mitigated by the number of other health care professionals working within the practice. The large number of rostered clients points to a busy practice that is well accessed.

Using the practice's electronic health records, *Practice Solutions*, it was possible to obtain aggregate data around clients' age, [mean age of the population = 42 years (SD = 21.5) years] as well as health status (e.g., presence of chronic disease and mental health) and income level of clients. These data describe clients of the McQuesten primary care practice (Table 5).

Table 5: McQuesten Primary Care Practice Client Characteristics and Contextualizing Local Data

Client Characteristic	**Mean Percentage**	**Related Contextualizing Local Data (SPRC, 2012)**
Clients with Diabetes	15.67%	Closest community grocery store is a 30 minute walk
Clients with Depression	10.97%	Rate of psychiatric emergency room visits were 21 persons per 1000
Clients with History of Receiving Ontario Works	7.71%	McQuesten's median income is $18,628 with 28% of its population living on incomes below the poverty line
Clients with History of	1.91%	12% of the McQuesten youth aged 15 to

Ontario Disability Support Program		24 years have activity limitations (an indicator for disability)

These data highlight a primary care practice that is well accessed by its patients. It describes a client population with complex needs that align with those of the McQuesten neighborhood.

Conceptualization of the CNN Pilot Intervention

Initial Descriptions of the CNN Pilot Intervention

In order to describe how the CNN pilot intervention was conceptualized data was purposively sampled. Two documents, the *CNN Pilot Proposal* (City of Hamilton, 2013) and *McQuesten Zine* (September 2013) describing the implementation of the CNN intervention were selected. These documents are summarized in the following table.

Table 6: Document Summary of Initial CNN Descriptions

Source	Key Content
CNN Pilot Proposal - General Issues Committee of the City of Hamilton (April 2013)	• CNN will work with McQuesten neighbourhood residents and clients of a primary care practice within the neighbourhood to improve the health and social outcomes of individuals and families • CNN will work closely with neighbourhood local planning team (LPT) and community service organizations • CNN will use abilities to address issues related to; physical and mental health, social determinants of health, community development, advocacy, and evaluative research
McQuesten Zine (September 2013)	• CNN will "listen and help" improve clients' health, "connect" clients to programs and services, "build relationships" between the client and community, "advocate" for clients, and work with clients to "make changes" to improve existing programs and services • A picture of the person assuming the CNN position was included

CNN Pilot Proposal. Prior to the CNN pilot's implementation, the CNN Pilot Proposal was made public on April 2013 via the General Issues Committee of the City of Hamilton. This document provided a general overview of the CNN pilot intervention. The City's General Issues Committee was the intended audience. The CNN pilot was described as working with residents of the McQuesten neighbourhood and clients of its primary care practice to "improve the health and social outcomes of individuals and families" (City of Hamilton, 2013, p. 1). The CNN would work with individuals and families identified as potentially finding benefit from having the CNN's support in voicing their needs, and developing and putting into action a plan to address these voiced needs (City of Hamilton, 2013). This document also described the CNN as working closely with the LPT, the primary care practice, and community service organizations engaged

within the McQuesten neighbourhood. This position was seen as unique, calling upon a nurse's clinical knowledge and abilities to address: needs related to physical and mental health, social determinants of health, community development, advocacy, and evaluative research.

McQuesten Zine. The CNN pilot was featured in the September 2013 edition of the McQuesten Zine. This document was selected for this study. Community residents were its primary audience. The Zine was publicly circulated within the McQuesten community and provided details on how the CNN position was anticipated to improve health and social outcomes. The Zine described how the CNN will "listen and help" improve clients' health, "connect" clients to programs and services, "build relationships" between the client and community, "advocate" for clients, and work with clients to "make changes" to improve existing programs and services. New information regarding the CNN position was featured in the Zine, including the CNN's role in improving programs and services and involvement in advocacy. How the CNN could be accessed was also featured in the Zine, i.e., the McQuesten community centre, LPT meetings, and the primary care practice located within the neighbourhood. In addition, a photograph of the CNN was presented within the post to assist in identifying her.

Navigator versus Networker

In analyzing how the CNN pilot intervention was initially described, it emerged that the title used to refer to, and describe, the Community Nurse Networker (CNN) varied. The following titles were associated with the CNN: Clinical Nurse Networker, Community Networker, Community Nurse Navigator, Networker, Navigator, Nurse Networker, and Nurse Navigator. There were two terms that were used in the majority of instances where the CNN was referred to as something other than the CNN or Community Nurse Networker – these were navigator or networker. Study participants were questioned to explore their perceptions surrounding these terms.

Participants described a lack of clarity on whether the title had been changed from Community Nurse Networker to Community Nurse Navigator. Participants perceived differences between the two titles: navigator and networker. A navigator was seen as dedicated to getting people through the health and social system. One community resident defined a navigator: "A person that helps you find your way…especially if you are having -- going through a crisis of some sort or having difficulties." This theme was supported by other participants, with the additional description from a community resident that a navigator was "like a compass." Some participants also revealed that navigators were limited in that they navigate only what exists. Comparatively, networkers were consistently perceived as being more than a navigator. A networker was seen as someone who not only has an awareness of what is within the system, but is able to identify what the system's needs are and as one service provider described, the networker knows "what you need to pull in." Further, as one service provider summarized, a networker "is growing a network."

Perceived Roles of the CNN

In order to explore how the CNN pilot intervention developed sources were analyzed to describe the CNN's perceived roles. Within the initial description of the CNN pilot intervention

it was stated that the CNN would work with McQuesten community residents and clients within a primary care practice site located within McQuesten. In keeping with this description, community stakeholders' expected that the CNN would have roles depending on the context in which the CNN was operating i.e., whether the CNN was interacting with clients, the community, or organizations. This section will describe the CNN's *client*, *community*, and *organizational* roles, as well as *limitations* associated with the CNN's roles which are summarized in the following table.

Table 7: Perceived Roles of the CNN by Level of Interaction

Level of Interaction	**With Clients (Client Level)**	**Within the Community (Community Level)**	**With Organizations (Organizational Level)**
Definition	Referred to individuals and families	Referred to the community as a whole	Referred to organizations engaged within the community (e.g., HFHT, City of Hamilton)
Context	The community (i.e., St. Helen's Community Centre) and the Primary Care Practice Site	McQuesten Community	HFHT
Role	Assist clients to identify needs and work with clients to develop a plan to address voiced needs.	Assist the community in addressing identified needs within a health context.	Assist organizations to be connected to each other and the McQuesten LPT
Role Aspects (How participants perceived this role to work)	• Help clients in greatest need (e.g., clients facing multiple barriers) using case management and conducting home visits • Solve problems, add to knowledge to address problems • Facilitate clients' access to programs and services • Connect clients to programs, services and the community	• Assessing need within the McQuesten community • Supporting community mobilization • Build capacity and connections within the community (e.g., by connecting service providers to the community)	• Share resources from other agencies and community programs with staff from the primary care practice • Consider how organizations can be connected with each other and the community

CNN's Client Level Roles. When interacting with clients, the CNN's roles appeared to depend on the setting. Differences were identified depending on whether the CNN was interacting with clients within the primary care practice site as opposed to the community centre.

Primary care practice. At the primary care practice, helping clients/practice staff, problem solving, case management, and conducting home visits were seen as aspects of the CNN's client level role. The term "helper" was used to describe the role of the CNN by one service provider. The CNN was seen as supporting clients in desperate need, while also helping the practice in general by acting as another pair of hands and eyes. This was supported by a health care provider's comment, "[the CNN] role is mostly helping the people who fail at everything. And that is what we have in this area, people who land in the lowest socio-economic areas." Problem-solving was another aspect of the CNN's role within the primary care practice site. This was defined as working with clients to address issues, as well as adding to the knowledge of the problem within the primary care practice, in order to address it better. The CNN's role in problem-solving was described by a health care provider: "We use [the CNN] now as one more extension on people that are, are again, incapable of solving just the regular problems of living…incapable of following through on the normal things of lab tests, x-rays." Case management and conducting home visits, while mentioned by participants in relation to helping clients were not well described.

Within the community. Aspects of the CNN's role with clients within the community setting were: facilitating access to and connecting clients with programs, services, and the community; building relationships with clients; and providing clients with resources. One example how the CNN facilitated access and connected clients with a community program was provided by the CNN herself, when she described how she connected two mothers from the community centre who both wanted to visit the Ontario Early Years Centre. The CNN's perceived role in building relationships with clients was not well described, although it was identified by the CNN herself (within their documentation and interview) as a role while interacting within the community. The CNN's role in providing resources was well reported by participants. The CNN defined this role within the community: "I work with families, clients at the community centre who drop in… connecting them to resources, programs, providing health information education and linking them to community services, programs."

CNN's Community Level Roles. Multiple participants agreed on the following aspects of the CNN's community level roles: assessing community need, mobilizing and connecting the community, increasing capacity, and service coordination. Participants' descriptions of these roles were limited. Assessing community need was described by a pilot stakeholder as follows: "[the CNN's role is to] figure out what are the gaps, what are the needs, unmet needs in the community…looking at it from social determinants and health model." Community mobilization was defined by the CNN as "essentially getting things moving…mobilizing the action plans and the goals of the Planning Team [referring to the McQuesten LPT] and the community." The CNN's role in connecting at the community level was referred to by both the CNN and community stakeholders. This was described by one community service provider as "making the connections to existing service providers and [also to] encourage them to come in as partners too, if the community deems it appropriate to deliver those kinds of programs and services." The CNN was also seen as "working with the planning team…to bring in that resource to our

community." The CNN's role in building capacity was perceived by the CNN as working to become obsolete, so that their position was no longer needed within the community. Service coordination within the community was poorly reported by community and pilot stakeholders.

CNN's Organizational Level Roles. At the organizational level, the CNN was perceived as having a role in exploring how organizations (e.g., Hamilton PHS, the City of Hamilton, and agencies within the Hamilton Family Health Team) "can connect to other agencies and the Planning Team [referring to the McQuesten LPT]." While there were limited instances where the CNN's role at the organization level was discussed, it was identified that the CNN had shared resources from other agencies and organizations within the community with staff within the primary care practice.

Limitations to the CNN's Roles. Insight into the CNN's roles was gathered by asking participants what the role of the CNN should not be. Community stakeholders thought that there should be limitations on what the CNN should work on. The majority of focus group participants, consisting of community residents and service providers reported that the CNN should focus upon "needs identified by neighbours [referring to McQuesten community residents] in which a health concern has been identified." Examples and comments were not provided by community stakeholders describing the CNN being involved in addressing needs without a health concern. This limitation was further clarified in that the CNN should not become a service-provider; rather, the CNN role should be focused upon bringing in services and resources to the community by building connections, with LPT approval.

The CNN's roles were also perceived as having a time limit. Participants shared their expectation that the CNN should work to become obsolete. The expectation was that the CNN should build and support community capacity, such that the community would be able to address issues without CNN intervention in future. This was a frequently reported theme by community stakeholders as well as by the CNN. For example, the CNN explained: "My goal is to become obsolete so that this is not a permanent role necessarily…the idea is that I am building within the community so that I can then leave."

Enactment of the CNN's Roles

This section will describe the CNN's enactment of the client, community, and organizational level roles in order to continue to describe the development of the CNN pilot. Sources were analyzed for themes in the types of activities done by the CNN. The following themes were identified from most commonly reported to least: *communication, managing resources, assessing and addressing need, developing and maintaining the position, building capacity, emotional support oriented*. These findings are summarized within the following table.

Table 8: Summary of CNN's Activities (Activity themes ordered from most commonly to least)

Activity Themes	**Aspects of the Theme (Examples of the types of activities performed)**
Communication	• Attending communication events (e.g., meetings, community events) • Communication associated activities (e.g., facilitating discussion, contacting stakeholders) • Using communication tools (e.g., Telephone, E-mail)
Managing Resources	• Connecting (e.g., connecting organizations and clients to resources such as community services, and programs, developing connections between clients and organizations) • Requesting resources (e.g., having resources requested from the CNN, and when the CNN requests resources) • Sharing resources (e.g., with clients, with service providers within the community, sharing expertise)
Assessing and addressing need	• Assessing need (e.g., through client interviews and home visits, following up with clients, observing) • Addressing needs identified by the community (e.g., recreational programming in the summer, using the McQuesten Action Plan to identify services and programs that could be linked to the McQuesten neighbourhood)
Developing and Maintaining the Position	• Developing the CNN position (e.g., building trusting relationships within the community, establishing a safe environment, increasing awareness of the CNN pilot, and refining documentation) • Maintaining the CNN position (e.g., administrative tasks, sustaining communication)
Building Capacity	• At the client level (e.g., encouraging residents to find their voices) • Reducing barriers (e.g., assisting clients to fill out forms) • Advocating (e.g., advocating for change and for the community)
Providing emotional support	• Being there (e.g., for community residents, community stakeholders, and at the community centre)

Communication. Communication was the most commonly reported theme in the CNN's activities. This theme centred upon the upon the communication process and was exemplified by: the CNN's participation in face to face meetings and community events; using communication tools (e-mail, telephone); and activities associated with communicating e.g., listening, discussing, and contacting people.

The CNN's participation in meetings was the most commonly reported aspect of communication. Meeting varied in terms of purpose e.g., discussing matters related to the community or focusing upon service providers and agencies engaged in the community. The majority of meetings occurred within the *Implementation* phase (from September 1, 2013 to March 31, 2014). There was an increasing presence of multiple stakeholders at meetings (e.g., representatives from service provider agencies, organizations, and community residents). This trend was identified within the *Implementation* phase and was most often associated with meetings that were community centred and specific to community-driven initiatives (e.g., youth recreation programming within the McQuesten neighbourhood and developing a youth employment strategy). The use of communication tools (e.g., telephone and e-mail) was also well reported. The types of communication performed by the CNN were diverse and included: listening, discussing, contacting, informing, following up, dialoguing, debriefing, sending feedback, presenting, and describing. These activities associated with communication were not equally reported, listening, discussing, and contacting being the most common communication oriented activity.

Management of Resources. The term resource was used in a broad sense and encompassed physical resources (e.g., sharing brochures with the primary care practice) and non-tangible resources (e.g., sharing information about how to get resources or connecting a client to a health-care provider). This activity theme was characterized as involving the exchange and/or provision of resources; including connecting providers (of both services and health care), community residents, and clients to resources and to each other, sharing of resources, and the CNN's requesting of resources.

Connecting was the most frequent way that resources were managed by the CNN. This was most commonly reported within the *Implementation* phase. Connecting was composed of: developing connections between the CNN and community stakeholders (i.e., service and health care providers, community residents, organizations, and agencies operating within the neighbourhood and community residents), and developing connections among stakeholders. The CNN developed connections across levels (e.g., between community residents and organizations) and within the same level (e.g., between organizations). There was evidence that the CNN developed connections between themselves and stakeholders, and inter-organizationally (e.g., between HFHT and Y on Wheels). There were no findings indicating whether connections were developed intra-organizationally or within stakeholder groups (e.g., connecting different individuals within the same organization who were doing similar work). There was limited description describing the CNN connecting community residents. There were more instances where connections were developed between stakeholders (e.g., connecting a Public Health Dietician with the Niwassa Community Kitchen) compared with the number of instances where connections were developed between the CNN and stakeholders (e.g., the CNN connecting with Youth Outreach Workers).

Sharing of resources was frequently reported within the management of resources theme. This type of activity was characterized by the CNN sharing resources with clients, service providers, and organizations engaged within the community. Resources were most often shared with service providers and organizations operating within the community and were primarily information based. Examples included: information about where resources could be obtained

(e.g., contact information, community directories); available programs and organizations operating with the McQuesten community, including the CNN position itself (e.g., HFHT programs); and relating to information about specific populations (e.g., seniors, youth, and Ontario Works and disability clients). To a lesser extent, the CNN also shared resources through in-services (e.g., the CNN performed an in-service for the Hamilton PHS outlining HFHT programs and the CNN pilot) as well as physical resources (e.g., Active for Life kits, aerochambers, bus tickets, and toothbrushes).

Assessing and Addressing Need. Assessing and addressing need was described at the client and community level. At the client level this was characterized by assessing clients' needs through interviewing and visiting clients at their homes, as well as observing, and using validated research tools (e.g., the Hope Scale, World Health Organization's Quality of Life Survey). At the community level, similar strategies were employed by the CNN to assess community need, such as: observing, exploring the context of the community and using local data (e.g., McQuesten Neighbourhood Action Plan, McQuesten Neighbourhood Profile).

How the CNN addressed need at the client level was not well described by participants. At the community level, examples of how the CNN addressed need were provided. This was associated with CNN's involvement in engaging in service coordination, developing programming, supporting community initiatives and community mobilization. Service coordination involved matching appropriate service providers with an identified community need, such that the providers' mandates aligned with the need and partnerships were encouraged between providers and the community. Examples of community programming developed by the CNN to address community need were: the CNN's proposal of additional recreational programming and the development of the Clothing Closet, a designated space where clothing donations for all ages are accepted, organized, and available for people to access depending on their need. The CNN also addressed community need by supporting existing community initiatives and community mobilization. This was achieved by supporting discussion related to identified community needs (e.g., facilitating discussion), assisted in establishing committees and agendas within the LPT and other service provider organizations to actively address community needs (e.g., development of employment strategy).

Development and Maintenance of the CNN Position. This theme was primarily described by the CNN. The CNN developed the position by building trusting relationships within the community, establishing a safe environment for clients to access the CNN, increasing awareness of the CNN pilot, and refining documentation. The CNN described how building trusting relationships appeared to facilitate clients' use of the CNN pilot. The CNN also worked to create a safe environment, giving clients a place where they could share their stories while also protecting their personal health information. The CNN's promotion of the CNN pilot among service providers was thought to increase awareness of the pilot and the role of the CNN within the community and primary care practice site. Increasing service providers' awareness of the pilot was seen as a way to develop future relationships between providers and the CNN, promoting client referrals and access. The CNN's involvement in refining their documentation system was perceived as developing the CNN position. Activities associated with maintaining the position were less commonly reported. Maintenance activities were often administrative e.g.,

schedule management and documenting. Sustaining open communication was also associated with maintaining the position.

Building Capacity. The term, "building capacity" was used by the CNN to describe her activities within the community. Building capacity was defined according to the Community Health Nurses of Canada [CHNC] (2011): interacting with individuals, families, groups, organizations, populations, communities, and systems, to "build on strengths and increase skills, knowledge and willingness to take action in the present and in the future" (p.18). Many of the activities documented by the CNN contained elements of capacity building; however, activities associated with this theme were those where capacity building was the primary goal and/or the activity was labeled using language associated with capacity building (e.g., empowering and advocating). Capacity building occurred at the intrapersonal and community level.

At the intrapersonal level, capacity building was not well described. Community stakeholders described it as, "help[ing] residents find their voice." Examples of the CNN building capacity at this level included: encouraging community residents and clients to address issues and share their opinions, developing residents' personal skills, and helping to empower them to take action. One of the ways this was accomplished was through advocacy. For example, the CNN advocated for community residents to participate and assume leadership positions within the LPT in order to develop personal skills (i.e., leadership skills, interpersonal skills). For the most part, the CNN directed her capacity building activities towards members of the McQuesten LPT.

Capacity building at the community level was also not well described. It involved the CNN advocating at a broader level. This was led by the CNN's awareness and call for change to issues surrounding transportation, access to services, and navigation of the health care system. The CNN advocated for changes in these areas, as they requested programming changes within the community, e.g., advocating for the municipal recreation fee assistance program to follow the same policy as that of another program.

Providing Emotional Support. These activities included direct provision of support, and instances where the CNN provided support indirectly through her presence. While not well described, multiple examples were identified within a variety of sources, including: CNN documentation, stakeholder interviews and the focus group, and documents. Support was provided at an intrapersonal level (e.g., community residents, clients), organizational level (e.g., organizations operating within the neighbourhood and involved in the LPT), and community level (e.g., community centre). Providing support was associated with a variety of terms; for instance in the McQuesten Zine (a local newsletter disseminated throughout the neighbourhood) the CNN described their role for residents as "Listen and help you boost your health." Many of the terms used to describe CNN activities were often interchangeable (e.g., supporting and helping). Emotional support activities were described as being there.

'Being there' was used to capture the CNN's presence at the intrapersonal level (e.g., interacting with community residents, LPT members, service and health care providers operating within the neighbourhood) and at the community level. The CNN's provision of emotional support was most commonly reported at the intrapersonal level. For example, the CNN was able

to help community residents register for community programs by assisting them to complete and fill out the necessary forms. The CNN's provision of emotional support at this level was further described by focus group participants, "She [referring to the CNN] helped me with lots of stuff," while another participant stated, "she is very helpful with everything that she does for every person."

The CNN's provision of support at the community level was defined by the CNN's actions beyond the individual: This was reported by residents and in CNN documentation. Examples at this level were not well described. Descriptions were diverse and included the CNN's involvement at community meetings and being present at community events (e.g., the McQuesten Senior Group's Yard Sale). One of the ways that the CNN was able to offer support at the community level was through her presence and involvement with the Clothing Closet. The CNN's support in developing and maintaining this community initiative was seen as assisting the community in getting a project off the ground that was discussed but not actualized.

Implementation of the CNN Pilot Intervention

In this section, the implementation of the CNN pilot will be described. Implementation will be informed by perceived barriers, enablers, and impacts associated with implementing the CNN pilot]. For clarity, *community stakeholders* were defined as individuals who reside in the community and/or service providers who are engaged in the community. *Pilot stakeholders* were defined as individuals who were selected by consensus agreement by the thesis committee as being invaluable in describing the implementation of the CNN pilot.

Perceived Barriers and Enablers

Barriers and enablers were perceived as occurring within the *Early Implementation* (April 1, 2013 – August 31, 2013 and *Implementation* (September 1, 2014 – March 31, 2014*)* phases of the CNN pilot. Barriers and enablers were identified at different levels, as described by McLeroy, Bibeau, Steckler, and Glanz's (1988) ecological framework, with the exception of public policy. These findings were summarized in the following table.

Table 9: Perceived Barriers and Enablers to Implementation of the CNN Pilot According to McLeroy, Bibeau, Steckler and Glanz's (1988) Ecological Framework

Level	Barriers	Enablers
Intrapersonal	• Community and pilot stakeholders' lack of trust in the CNN (e.g., primary care clients missed or canceled appointments with CNN, lack of trust in the CNN pilot) • Community stakeholders' belief that the CNN pilot was not resident-centred in its approach	• The CNN's experience level (e.g., previous relationships with community stakeholders) • Intrapersonal traits of the CNN (e.g., CNN's person- and community-centred perspective) • Experience and intrapersonal traits of pilot stakeholders (e.g., familiarity with system navigation)

Level	Barriers	Enablers
Interpersonal	• Stakeholders' differing perceptions regarding the selection and hiring of the CNN • Difficulty accessing the CNN (i.e., Perceived inconsistency in the CNN's hours of operation)	• Consensus-based decision making between community and pilot stakeholders • The CNN's interpersonal traits (e.g., positive attitude towards others), provision of resources, and accessibility
Community	• Lack of tangible resources within the community (e.g., insufficient space for the CNN within the community centre and primary care practice) • Changes in the LPT's leadership and community stakeholders' expectations of the CNN pilot • Cost of implementing and maintaining community initiatives	• CNN's co-location within the community and primary care practice • LPT's ongoing support of the CNN pilot
Organizational	• Establishing organizational involvement (i.e., what partnering organizations ongoing involvement would look like and how it would be sustained) • Organizational documentation practices (i.e., an ongoing challenge during CNN pilot implementation)	• Organizational support (e.g., being supportive of the pilot, providing access to resources). Most described organizations were: o HFHT o PHS

Intrapersonal

Perceived barriers and enablers at the interpersonal level will be presented. These barriers and enablers were seen as influencing *Early Implementation* and *Implementation*.

Barriers. Lack of trust and the belief that the CNN pilot was not resident-centred in its approach were two themes in intrapersonal barriers. Lack of trust was a commonly reported by community and pilot stakeholders. Lack of trust in the person assuming the CNN position and the pilot as a whole were identified by community stakeholders. An example of how lack of trust in the CNN impacted the pilot's implementation was described by a service provider. The provider associated primary care clients' lack of trust in the CNN with instances where clients would initially agree to meet/schedule appointments with the CNN, only to later cancel or miss these scheduled appointments. Lack of trust appeared to be related to the perception that the CNN would be unable to overcome what was described by residents as organizational marginalization. Community residents saw themselves as being marginalized by organizations, believing that answers to questions and processes that would address health-related issues were

being kept "hidden" by organizations. There were also instances where community stakeholders were perceived as lacking trust in the CNN pilot as a whole. This was identified within the *Early Implementation phase*. This was described by a pilot stakeholder: "I think at the outset there was a bit of nervousness on, with some of the people working in the McQuesten neighbourhood… Little mistrust I think at the beginning."

There was some agreement among community stakeholders that the CNN pilot was not resident-centred. The CNN's approach to community development in particular was perceived as not incorporating the neighborhood's community vision described by the motto, "Nothing about us, without us." The CNN was perceived as being "fast" while working in her community role, there was the perception that the CNN was not involving residents or facilitating their input while developing community initiatives. The perception that the CNN's approach was not resident-centred was described by one community stakeholder: "it's her [the CNN's] idea instead of allowing their [the residents'] ideas to come forward."

Enablers. Experience level and intrapersonal traits were perceived enablers. The CNN's experience was reported by multiple participants as enabling the pilot. The CNN's previous relationships with community stakeholders and background as a PHN were the most frequently described aspects of the CNN's experience. The CNN described her experience: "I think already having had relationships with stakeholders in the community was very helpful." Pilot stakeholders who saw the CNN's experience as an enabler described it as enhancing her suitability in assuming the position: "She [the person who filled the CNN position] just came with all the right experience… she had done the clinical work. She'd done the systems work. She'd done some enhanced training that made her particularly suited."

Intrapersonal traits of the CNN were also commonly described by participants as enabling the CNN pilot. Participants identified a number of diverse traits; the most frequently referenced were the CNN's person- and community-centred perspective, knowledge, and skill. Her person and community-centred perspective was described by a community service provider: "As soon as she [the CNN] meets someone new she is there trying to find out and get to know them. But also look at what are their strengths and what can they bring to this community." The CNN was also described as being knowledgeable about the community and its resources, "Knowledge of the existing resources in the community is very, very important." Participant's referred to the CNN's skill on multiple occasions, the CNN's skills were referred to as "broad," with one community service provider describing, "the ability to reach out," as an important skill.

The previous experience and intrapersonal traits of pilot stakeholders were also identified as enabling the pilot. Stakeholders' familiarity with system navigation, community development, and having experience working in priority neighbourhoods were identified as benefiting the pilot. Stakeholders' experience was derived from education and previous employment history. In addition to experience, stakeholders' willingness to be involved with the pilot was associated with supporting the implementation of the pilot. Examples of pilot stakeholder willingness were: stakeholders who volunteered their involvement in order to support the pilot's implementation and stakeholders who advocated for the pilot's implementation as a partnership of the Hamilton PHS, HFHT, and the LPT.

Interpersonal

Perceived *barriers* and *enablers* influencing *Early Implementation* and *Implementation,* at the interpersonal level will be discussed in this section.

Barriers. Barriers at the interpersonal level were associated with pilot and community stakeholders' perceptions during *Early Implementation*. For example, stakeholders' had differing perceptions regarding the selection and hiring of the CNN. This process occurred during *Early Implementation*; candidates were interviewed for the CNN position and the successful candidate was hired by the HFHT to fill the position. In *Early Implementation*, interactions between community and some pilot stakeholders were impacted by community stakeholders' perception of their level of involvement in the selection and hiring process of the CNN. Some community stakeholders' perceived their involvement as being insufficient. Despite pilot stakeholders' attempts to involve community stakeholders, there was the perception that there was a lack of community consultation. These perceptions were seen as potentially affecting the speed of implementation. This was described by one pilot stakeholder, "So it took longer, there were some additional meetings. There were some additional steps added that the Family- HFHT hadn't expected."

Difficulty accessing the CNN was reported by community stakeholders. Stakeholders stated that these difficulties were associated with the CNN's presence within the community centre; perceiving inconsistencies in the CNN's hours of operation. The following describes a residents' view:

> "She [the CNN] is supposed to be here (day of the week) and (day of the week's) mornings and she is not always here. And, and sometimes she might be here for half an hour and then leave."

Another resident elaborated on the importance of the CNN's availability, "I think the consistent hours is critically important to establish a base with the people that are here." The ability for community residents to reliably and consistently access the CNN was critical for the implementation of the CNN pilot.

Enablers. How pilot and community stakeholders worked together to overcome perceived barriers and the CNN's interactions with community stakeholders were seen as enabling the pilot's implementation. For example, there was the perception that consensus-based decision making between community and pilot stakeholders enabled the implementation of the CNN pilot. One pilot stakeholder described how consensus and compromise supported the pilot's implementation:

> "The compromises were a longer process than what was expected... And at the same time, the compromise from the LPT was to honour the, the position that the HFHT was taking…in order to keep it [the CNN pilot] moving."

The CNN's interpersonal traits, provision of resources, and accessibility were thought to be interpersonal enablers by a variety of participants. The CNN's positive attitude towards others and helpfulness were the most frequently reported interpersonal traits. A community stakeholder shared their perspective on the benefit of the CNN's positivity:

> "There are people who use the food bank who get kind of discouraged or crushed, she's kind of like a fresh happy face you know she comes out, "Hi everybody, how is everything going?"…It's not so bad then, someone is talking to me [referring to those

waiting for the food bank], someone is paying attention to me and that makes a difference for some people in this community."

The CNN was perceived as being "helpful". This enabled the CNN pilot as the CNN was identified as someone who could help residents "find their voice" and access community resources.

The CNN's ability to provide tangible resources to community stakeholders during interactions was thought to enable the pilot. Examples of these interactions were: the CNN's ability to connect community residents' without a primary care practitioner to the HFHT and gathering warm clothes in the winter for residents. The benefit of the CNN's perceived effectiveness was described by a pilot stakeholder, "She has just gotten really out there and, and had some quick wins… so people hear that and they think wow that's pretty good".

The ability for community stakeholders to access the CNN was also thought to support the pilot's implementation. The CNN's accessibility was attributed to the CNN's mobility (e.g., their presence at the community centre and primary care practice) and their flexibility in interacting with community stakeholders (e.g., ability to schedule meetings or have informal face to face meetings). The importance of accessibility was summarized by a community stakeholder: "It's all about the people and the way you interact with the people."

Community

Perceived *barriers* and *enablers* affecting the CNN pilot's *Early Implementation* and *Implementation* at the community level will presented in the following section.

Barriers. Themes within perceived barriers at the community level were: lack of tangible resources within the community, changes in the LPT's leadership, community stakeholders' expectations of the CNN pilot, and the cost of implementing and maintaining interventions within the community. These community barriers were agreed upon by some participants but were not well described.

Lack of tangible resources was a theme identified by study participants. This theme was associated with the CNN's co-location within the McQuesten community centre and McQuesten primary care practice site. Both locations were thought to have insufficient space for the CNN. They were described as "cramped," with no room for the CNN to have private conversations with clients. Additionally, both locations were seen as having insufficient space designated for the CNN's use. Lack of resources was also related to the community centre's lack of WiFi access, preventing the CNN from accessing all of the technological tools (e.g., electronic documentation, educational resources) necessary for the pilot's implementation.

The duration of the LPT's executive positions and a lack of clarity surrounding the LPT's expectations of the CNN pilot were thought to affect the implementation of the CNN pilot. LPT executive positions are one-year terms. LPT changes in leadership were perceived as acting as a barrier in the pilot's progress with one pilot stakeholder stating, "It takes some time for the individuals to learn their roles and be effective … So I think one of the difficulties or one of the barriers to this success has been, at the same time as a coincidence, yeah, leadership change in the LPT." Participants also identified that the LPT's expectations of the CNN pilot appeared to differ from the other pilot partner organizations. One pilot stakeholder associated the LPT's expectations as affecting the implementation of the pilot:

> "Ah, the other barrier has been to some extent the Planning Team…to know what they wanted or help understand what it was they wanted out of this particular role. And to some extent as I understand it they had some higher expectations or different expectations"

The cost of community initiatives was identified as a barrier within the *Implementation* phase. This was exemplified by the CNN's involvement with the Clothing Closet. This initiative was supported by the CNN through their collection, maintenance, and supervision of donations. The time and efforts associated with the CNN's activities associated with the Clothing Closet was perceived as preventing the CNN from performing other roles and responsibilities that were more specific to the CNN's role i.e., activities more focused on improving health. There was some disagreement among community stakeholders about the value of this work, as one participant described how the CNN's involvement within the initiative could serve as a vehicle for the CNN to connect with individuals.

Enablers. Community level enablers were associated with the CNN's co-location within the community and the primary care practice and the LPT's ongoing support of the CNN pilot. The location of the CNN within the community centre was frequently reported by participants as enabling the implementation of the pilot. The presence of the CNN within the community centre was perceived as promoting accessibility due to the centre's proximity to the primary care practice, neighbourhood schools, and presence of community resources within the centre (e.g., Food bank, Ontario Early Year's Centre). The community stakeholder focus group participants were asked whether there were other locations, if any, that the CNN could be located. Participants were in agreement that the CNN needed to be in the community centre. A community residents' rationale was as follows: "It needs to be where you've got all the community accessible…So yeah, here is the prime location [referring to the community centre]." There was little mention by community stakeholders regarding the CNN's presence within the primary care practice site; however, pilot stakeholders were in agreement that both of the CNN's locations enabled the pilot's implementation. The benefit of the CNN's co-location was described by a pilot stakeholder:

> "Being in both environments can develop relationship in both and the needs are different so with (community primary care practice site) you are really talking about the individuals. And in the community you are talking about more systems and…development."

The McQuesten LPT was described as enabling the CNN pilot through its ongoing support of the pilot. The LPT supported the pilot by continuously informing and updating community members of the CNN pilot's implementation and ongoing development. Pilot updates were shared with the community through the LPT meeting. Updates shared in meetings were also captured within LPT meeting minutes, which were publicly available. The McQuesten Zine (a public community newsletter printed and disseminated by the LPT) was also a way for pilot updates to be shared. An example of the LPT sharing CNN pilot updates was from the June LPT meeting minutes (2013), where the name of the person who would fill the CNN position and their start date were outlined.

Organizational

Perceived *barriers* and *enablers* affecting the CNN pilot's *Early Implementation* and *Implementation* at the organizational level will presented in the following section.

Barriers. Identified themes in organizational barriers were associated with establishing organizational involvement and documentation practices. At the organizational level barriers were not well described by participants. During *Implementation,* establishing what partnering organizations (i.e., Hamilton PHS and HFHT) ongoing involvement would look like and how it would be sustained was an identified barrier. A pilot stakeholder participant described the Hamilton PHS's involvement: "It's taken some time to figure…how does public health continue to fit into this role?" Another challenging question associated with Hamilton PHS' involvement raised by a participant was as follows: "Is this [PHS involvement with the CNN pilot] the business of public health?" Pilot stakeholders did not express how this challenge could be addressed. This barrier was not identified by community stakeholders; therefore, there was no insight into community stakeholders' preferences with respect to partner organizations involvement.

Documentation practices at the HFHT were not a barrier, so much as an ongoing challenge during CNN pilot implementation. There were several instances where the CNN's ability to document was limited due to lack of security related to documentation. Additionally, the process of developing the CNN's documentation system was identified by the CNN herself as a challenge, "So, initially…we weren't sure exactly how to do the documentation…" The CNN went on to further describe, "So that was some barrier, it took a lot of time to sort that one out and I'm not sure it's still entirely resolved." The difficulty in developing a mobile electronic documentation was attributed to: the logistics of accessing patient records, encrypting the documentation, and ensuring data security, and developing appropriate document fields in order to capture the CNN's interventions and follow-up.

Enablers. Organizational support was a perceived enabler to implementation. Support was described by a variety of ways, from being supportive of the pilot, to providing access to resources, both information centred (e.g., knowledge of programs and services offered by HFHT, expertise in program and community development) and tangible (e.g., the use of office space within HFHT's building). Participants' description of organization support was sparse. There was the perception that it enhanced the implementation of the CNN pilot. A diverse number of organizations were identified as enabling the pilot through their support. Examples of organizations were service provider agencies and schools located within the neighbourhood. The most described and commonly referenced organizations were the HFHT and Hamilton PHS.

One pilot stakeholder described the benefit of the HFHT to the CNN pilot as follows: "Having an organization like the HFHT that is so very, it's huge and has a lot of resources that other teams wouldn't." In terms of support, it was perceived that the HFHT had been part of the implementation of the pilot "all along." The type of support and resources associated with PHS was different compared to the HFHT, one pilot stakeholder described PHS's involvement, "I think that when you think of their resources that, the leverage that the city brings to the table in my mind is going to be different than probably any other organization." Further, the participant went on to describe PHS' resources as a lack of bias, "I see us [PHS] as being more in the middle…we bring something that's, that has less bias than the other organizations to the table." The participant's description of bias appeared to be related to how organization's offer resources,

for example: "community agencies will have another bias towards community agencies." Bias in this context appeared to be related to developing initiatives, and how community agencies may have a tendency to perceive their agency as the best fit. Thus, PHS was seen as being able to provide insight into the local landscape and how other organizations could be involved during the ongoing implementation of the pilot.

Perceived Impacts of the CNN Pilot

The author incorporated McLeroy, Bibeau, Steckler, and Glanz's (1988) ecological framework to organize perceived impacts of the CNN pilot. Findings are summarized in the following table.

Table 10: Summary of Perceived Impacts of the CNN by Level According to McLeroy, Bibeau, Steckler and Glanz's (1988) Ecological Framework

Level	Summary
Intra-Personal	• Increased knowledge of, and access to, community resources
Inter-personal Processes	• Promoted community members' system navigation by building trusting relationships • Promoted service providers to work together to identify and address shared issues
Community	• Coordinated services (e.g., for children with individualized learning plans and youth seeking employment) • Mobilized community goals (e.g., Enhanced community health and well-being) • Enhanced community connectedness between people (e.g., community residents, service-providers, health-care providers) and between people and resources (e.g., services, information, primary care physicians) • Emphasize community assets, promoted community development (e.g., supporting the development and coordination of the Clothing Closet)
Organizational	• ***Hamilton Family Health Team (HFHT):*** potentially affected broad organizational practices (e.g., staffing and program development), improved client flow and access within the McQuesten primary care practice site (e.g., client referrals within the primary care practice) • ***Hamilton Public Health Serviced (PHS)*****:** potentially supported increased involvement and collaboration between PHS and primary care
Public Policy	• Supporting policy development activities (e.g., CNN's involvement with the local Navigation Community of Practice [CoP], potentially influencing Health Links policy development)

Intrapersonal

A wide variety of individuals (e.g., community residents, LPT members, and service providers working within the community) attributed intrapersonal impacts to the CNN pilot intervention. Perceived impacts at the intrapersonal level were; increased *knowledge of, and access to community resources*.

Knowledge of Resources, Access to Resources. The CNN was perceived as impacting individuals' knowledge of and access to community resources (e.g., community programs, activities, and physical resources available in the community, such as clothing, transit vouchers, and medical equipment). This impact was not limited to community residents; instances of the CNN affecting service providers who were engaged within the community, students, and professionals working outside of the community were also reported by participants. Examples of individuals impacted were: staff within the primary care practice within the community, staff at schools located within the community and surrounding area, staff from the City of Hamilton, including Hamilton PHS, HFHT, LPT members, community residents, as well as University students and faculty.

Interpersonal

The CNN pilot was perceived as impacting *community stakeholders' system navigation* and supporting *service providers' ability to work together within the community*.

Community Stakeholders' System Navigation. Community stakeholders' ability to navigate health and social services was seen as being enhanced by the CNN pilot. This was described by community service providers, with community residents in agreement:

> "[The CNN] is part of the team, she is an integral part of the McQuesten community planning team" and further, "what [the CNN] has been doing is very important in establishing that base relationship that will allow the health care issues to come forward, again, it's a trust or it's a relationship thing."

The CNN was perceived as a trusted resource, able to support people dealing with health issues, and facilitating system navigation. An example of how the CNN enhanced community residents' system navigation follows:

> "She [the CNN] helped me; I have a little girl staying with me. She [the CNN] told me about the programs that were happening, the after school programs. It helped me out actually, not having her in the house for that time, having her somewhere safe."

Community Stakeholders' Ability to Work Together Within the Community. The CNN pilot was also seen as impacting how service providers work within the community, promoting service providers to work together. One service provider described the CNN as building a sense of excitement among providers, "there's a big buzz amongst the service providers now about working together." Further, there was the perception that the CNN was impacting how providers addressed issues within the community. The CNN was seen as supporting the identification of shared issues among providers and facilitating ways for providers to sit down together to address these issues.

Community

The CNN pilot was perceived as having a broad impact at the community level. These impacts were organized according to four themes: service coordination, community mobilization, connectedness, and need.

Service Coordination. This theme was identified in multiple references by participants, but had few examples. Further, study participants did not describe service coordination in detail. The CNN pilot was seen as improving how the HFHT and schools within McQuesten coordinate children with Individualized Education Plans (IEPs). These children in addition to having IEPs often have relevant medical histories that require ongoing communication between schools and their primary care providers. The CNN was perceived as enhancing communication between the HFHT and schools, potentially improving service coordination for these children. Another example of the CNN supporting service coordination was associated with the CNN promoting ongoing discussion surrounding coordinating of services for youth seeking employment.

Community Mobilization. The CNN pilot was perceived as supporting community mobilization. Community mobilization was described as "getting things moving…mobilizing the action plans [referring to the McQuesten Neighbourhood Action Plan] and the goals of the planning team and the community." The McQuesten Neighbourhood Action Plan identified a need to enhance community health and well-being through the promotion of physical activity (City of Hamilton, 2012, p.37). Action Team 3, a committee of the McQuesten LPT, was responsible for addressing this need. The CNN pilot supported community mobilization through her involvement with Action Team 3; attending Action Team 3 meetings, facilitating discussion, and coordinating meetings with a blend of stakeholders (e.g., community LPT members and committee members, school stakeholders, city consultants) regarding youth recreation programming within McQuesten.

Community Connectedness. The CNN pilot was perceived as developing community connectedness. This concept emerged from study findings and refers to the development of connections within the community. The CNN was associated with building two types of connections: (a) linking people with one another (e.g., connecting residents who were both interested in accessing the Early Years Centre, service providers from different organizations with shared goals) and (b) linking people with programs and/or services (e.g., connecting residents with a primary care physicians, and/or community-based services like the Senior Centre). Connectedness was well reported within CNN documentation and by study participants. This study was unable to capture the exact number of connections that were developed. The impact of these connections was diverse. They ranged from addressing acute health related issues, for example the CNN connected a young mother experiencing their first psychotic break to emergency psychiatric services, to supporting community development. One example of how connectedness supported community development was the CNN's ability to link neighbourhood youth to the LPT. This was perceived as promoting the incorporation of a youth voice within LPT meetings. Linkages between McQuesten neighbourhood school staff representatives and the McQuesten youth population were the most frequently described benefit of the CNN's development of community connectedness.

Community Assets/Needs. At the community level, the CNN was perceived as emphasizing community assets to address community needs. Community needs were first identified by the CNN through a variety of ways (e.g., McQuesten Neighbourhood Action Plan,

speaking with community residents, and observation). The CNN worked with the community to build upon community assets to address perceived needs. For example, the need for a community initiative geared towards collecting and providing donated clothes/bedding was an idea present with the community. The CNN was able to support the development of a Clothing Closet by marshalling community assets (e.g., space within the community centre for the initiative to be located, engaged residents) by assisting with the collection of donations, coordinating donations, and assisting in the supervision of the area where the donations were kept. This initiative offered a space where cloth items, including clothing for all ages, were accepted, organized, and available for community access. Addressing the social determinants of health of the McQuesten community residents was another identified community need. Although the CNN was seen as having an impact on the determinants of health this was poorly described by participants. One health care provider noted: "The community networker I think is doing a lot…it's not limited to health services it's the whole, it's all the determinants of health."

Organizational

The CNN pilot was perceived to have an impact at the organizational level. This was commonly reported by study participants in relation the *HFHT* and *Hamilton's PHS*.

Hamilton Family Health Team. Perceived impacts on the HFHT organization were associated with potentially affecting broad organizational processes including staffing and program development. The CNN pilot was also perceived as impacting client flow within the McQuesten neighbourhood primary care practice site, part of the HFHT organization.

The implementation of the CNN pilot was perceived to be an innovative example of how a nurse could be deployed in the community, stimulating the HFHT to consider how future staff are deployed or re-deployed within the organization. The CNN pilot was also attributed to stimulating thought on the qualifications of staff and their perceived capacity to address identified needs. As one stakeholder remarked:

> "it [the CNN pilot] might change the way that we deploy staff and what kind of staff we deploy…there's lots of thinking about how do we re-deploy people to kind of get out there and find out what people really need and help them get it."

References were made by study participants indicating that the CNN pilot was perceived to have impacted program development within the HFHT. These references were few; however, they indicated that the CNN pilot activities were both influenced by primary care and had influence on future and ongoing program development within the HFHT. This reciprocal benefit was described as follows: "[the CNN pilot] has informed other people's thinking [referring to members of the HFHT organization]. But I think other people's thinking has informed what we're, what we're doing as well [referring to the CNN pilot]."

At the primary care practice, one of the perceived impacts of the CNN was associated with improved client flow and access within the practice. Clients who were referred to the CNN had multiple needs. By referring these clients to the CNN the primary care practice was able focus on clients with time sensitive health outcomes. A description of this perceived impact was provided by a health care provider:

> "There's just a floundering situation [referring to the CNNs' clients], didn't, didn't, couldn't, couldn't, wouldn't, whatever the word if things that should have been done were not done. And with this we wasted precious time right. Some things are critical".

Hamilton PHS. The perceived impact of the CNN pilot on Hamilton PHS was limited and poorly described by study participants and within documents. There were indications that the CNN pilot was perceived to be an example of increased involvement and potentially supporting future interactions between PHS and primary care. Participants' perceived impact of the CNN pilot on Hamilton PHS was described as follows:

> "Is this the type of work [referring to the CNN pilot] that we think we [the Hamilton PHS] should be involved in, in the future. And the preliminary perspective based on what we have seen is- yes, it fits. We have a vision of having more influence and collaborative work with the primary care."

Public Policy

The CNN pilot was not perceived as directly impacting public policy. The CNN pilot was seen as supporting local and regional programs and services policy development activities. Impacts at this level were associated with the CNN's involvement in the local city-wide *Community of Practice* (CoP) for Hamilton navigators and *Health Links* a provincial program with regional programming aimed at supporting the coordination of Ontario residents with complex health needs (MOHLTC, 2014).

Hamilton Navigators' Community of Practice. During the implementation of the CNN pilot, a CoP for Hamilton system navigators was developed. References to the CoP by study participants occurred during the later implementation period. Although few participants discussed the CoP due to the emergent nature of this group these findings are included. The basis for the Hamilton Navigator CoP was the belief that system navigation was occurring in isolation; a CoP would allow best practices to be developed and shared. While the CNN pilot was not the sole consideration for the development of the CoP, it was cited as an example of navigation that was occurring within Hamilton by participants. The CNN's involvement with the CoP included: attendance to meetings and participation in a CoP committee focused on developing the community of navigators and its infrastructure. These activities were described as potentially supporting the ongoing development of the CoP and future best practices for system navigators.

Health Links. Health Links is a provincial initiative seeking to "provide coordinated, efficient and effective care to patients with complex needs" (MOHLTC, 2014). According to Hamilton's Local Health Integrated Network (LHIN), the focus of Health Links is coordination; having all of the providers involved in the care of complex needs patients working together to create care plans (LHIN, 2014). Study participants were asked what impacts, if any, could be associated with the CNN pilot and Health Links. This question was posed to participants who were familiar with Health Links. While responses were limited, exploring the potential interaction between Health Links and the CNN pilot was considered necessary to capture the context of the pilot's implementation. Among participants familiar with Health Links there was some agreement that the CNN pilot may have positively impacted Health Links at the local level. One participant described the CNN pilot as a model of "a wraparound approach to care planning" that considers clients from a holistic perspective, incorporating the social determinants

of health. The implementation of the CNN pilot exposed policy makers to a model of care coordination, potentially impacting ongoing Health Links policy development. A health care provider described the CNN pilot's potential impacts on Health Links: "I think we are influencing Health Links…through this project we are having an opportunity to influence their [Health Links decision-makers] thinking."

Value of a Nurse

The pilot stakeholders' decision to have a nurse within the Community Networker position was purposeful. Exploring the perceived value of a nurse, the benefits, if any, and whether another profession, or lay person could have assumed the position was explored to provide evaluative insight into the implementation of the CNN pilot intervention.

Benefits, if any, of a Nurse as the Community Networker

The benefit of a nurse within the CNN position was well described and agreed on by study participants. When the value of a nurse was described by participants the following themes emerged: *broad knowledge and abilities, employment background,* and a *positive public reception*. There was some agreement that the position should be exclusively filled by a nurse. In addition to the value associated with a nurse, the *cost of a nurse* was another theme that was identified by focus group participants when discussing having a nurse in the CNN position.

Nurses' Broad Knowledge and Abilities. The broad knowledge and abilities of a nurse were identified by multiple participants as adding value to the CNN position. A nurses' knowledge was described by one participant as follows: "[A nurse has] a foundational knowledge around community and medicine." This was expanded to include nurses' understanding of a broad range of health, social issues, and resources (e.g., knowledge of local resources, such as hours of operations of neighbourhood food banks). The knowledge and abilities of a nurse were thought to be related to the training that a nurse receives. This is exemplified by the following statement made by a community resident:

> "I feel really strongly that it needs to be a nurse…And why I say that is because of not just the social, but there's a lot of physical and mental problems…I'm making a statement here. But I think a nurse navigator has a better understanding of these issues because they've been trained in these issues."

The abilities of a nurse were also perceived as adding value to the CNN position. Nurses' ability to assess, consider social determinants of health, use research, make referrals, and connections were seen as valuable by participants. In particular, nurses' assessment abilities were frequently reported as bringing value to the CNN position. Assessment abilities were described by participants as a nurses' ability to pull it all together. For example, nurses were attributed with the ability to assess situations appropriately. One service provider described nurses' assessment abilities: "If you're a nurse, you're processing all the time."

Nurses' Employment Background. A nurses' employment background was a common theme that emerged when the value associated with a nurse was discussed by participants. Some nursing backgrounds were perceived as being more or less beneficial, to the value of a nurse in the CNN position. Acute care, community/home care, public health, mental health nurses, and extended class nurses (e.g., nurse practitioners) were nursing backgrounds considered by

participants. Participants did not believe that nurses' with certain backgrounds/experience levels should be prevented from assuming the CNN position; rather, some were considered as having greater challenges compared to others. Acute care nurses and community/home care nurses were seen as having a greater challenge fulfilling the CNN position. This was attributed to a perceived lack of knowledge about community resources and connections within the community; characteristics which were seen as requirements for the CNN position.

Mental health nurses with experience working within a community setting and extended class nurses, specifically, nurse practitioners (NP) were seen as a good fit for the CNN position; potentially bring greater value to the CNN position. The value of mental health nurses was not well described by participants. Participants saw the additional capabilities of NPs as valuable to the CNN position; specifically, NP's ability to write prescriptions, requisition laboratory work, and order diagnostic tests. According to one health care provider, a NP would be "hands on, [have clients] sorted out right then and there." An NP's suitability for the CNN position was also discussed within the community stakeholder focus group. Participants' agreed that a NP would only be a benefit or of value, if there was an identified need within the community that could only be filled by an NP.

Public health nurses (PHNs) were identified as the best fit for the CNN position. Participants agreed that PHNs brought the most value to the position. PHNs were described as the "most complete package." PHNs were perceived as having a broad knowledge of community resources, understanding of the social determinants of health, clinical abilities and medical understanding, training in prevention, and were considered to be well connected within communities. The value associated with PHNs stemmed from a belief that PHNs would facilitate the greatest impact as they would support an "upstream" approach incorporating prevention. Additionally, PHNs were seen as having access to broad strategies that could be effective within a community setting.

Nurses' Positive Public Reception. Nurses were also perceived as having a unique positive reception by the public, adding value to the position. One health care provider described reception: "people are treated according to what hat they wear," referring to people's awareness of professional designation (i.e., a nurse wears a metaphorical nursing hat when they interact with patients). A nurses' relationship with a client was perceived as being affected by how a nurse is received. For example, a client may be unwilling to connect with certain providers based on their perception of their ability to address issues. They may refuse to see one type of provider, for example a social worker, but choose to accept a nurse. Nurses were perceived as having a positive reception due to public trust and the belief that nurses' care and are able to address health related issues.

Cost of a Nurse. The cost of a nurse was seen as impacting the value of having a nurse within the CNN position. This topic emerged within the community stakeholder focus group. While this topic was not well discussed, it points to the perceived value of a nurse and the perceived cost in having a nurse in the role. According to a service provider participant, "there are different people, different roles, different professions that can take on different pieces of that navigator role, recognizing the cost of a nurse." Participants were able to agree that the cost of a

nurse was worth it if the nursing "piece" was being used and if there was a community identified need for a nurse.

Value of a Different Profession or Lay-Person as the Community Networker

Study participants were asked to consider whether other health professionals or non-professionals could do assume the CNN position. Participants considered: *Social Workers* (SW), *Physician Assistants* (PA), *Paramedic Navigators* and *lay persons* as options for fulfilling the CNN position.

Social Workers (SWs). SWs were the second most referenced professional aside from nurses. There was a lack of clarity surrounding having a SW within the position. SWs were perceived as unable to address health-related issues, a characteristic that was seen as important to the community and the CNN position. This was described by a participant: "There's a lot of physical and mental problems and I'm not sure a social worker… would necessarily have those skills of being able to identify the emotional or physical problems." The value associated with a SW was also not well reported. Some participants were in favor of having a SW in the CNN position. This was based on the belief that the current CNN was not yet fully utilizing her health specific knowledge and abilities stemming from her occupation as a nurse. The SW was seen as an option when the health aspect was removed from the CNN position: "[The CNN] could be a social worker…Because we haven't used that health aspect to the maximum […] to date [the CNN] could have been either one. It could have been a social worker or a nurse."

Physician Assistants (PAs). PAs were regarded with mixed opinions concerning their ability to assume the CNN position. Some believed that certain PAs would be up to the task, while others would not. There was also the perspective that PAs may be able to assume a portion of the CNN's work. This was associated with their experience level and background of the PA. Participants identified that a PA's experience would determine their suitability. An experienced PA was perceived as being potentially suitable, while new graduate PAs were seen as inappropriate. PAs were seen as able to assume the clinical portion of the CNN position, having sufficient clinical expertise and the potential to navigate at the individual level. This was attributed to the PA's training "They're like 100% clinically trained." The implementation of a PA was limited to operating in a primary care clinic. PAs were not seen as possessing the necessary knowledge, skills and abilities to address the community aspect of the CNN role; specifically, they were seen as unable to perform the service coordination and community development necessary within the CNN intervention.

Paramedic Navigators. Paramedic navigators were mentioned as a potential option for those who might be able to assume the CNN position. Paramedic navigators are an example of another initiative within Hamilton aimed at improving system navigation (Rogers, 2011). They were perceived as still developing. Paramedic navigators were perceived as having the potential to assume the CNN position in future, due to their experience and connections within communities. These navigators were thought to lack the depth of knowledge required for an effective CNN and were seen as being able to assume a portion of the CNN position. This was

associated with the amount of education received by a paramedic and their focus on emergency medicine.

Lay Persons. Participants were asked to consider whether lay persons could add value or be effective in assuming the CNN position. With respect to non-professionals there was consistency, with participants being in agreement that pieces of the CNN position could be performed by non-professionals. How this could be implemented and what it would look like was not well described.

CHAPTER 4: DISCUSSION

The previous chapter described the conceptualization and implementation of the CNN pilot, as well as the value of nurse within the CNN position. These findings captured an intervention that was still developing. In this chapter, findings will be discussed in relation to current literature, implications, and future implications for primary care system navigators and their implementation within priority neighbourhoods. Study limitations will also be discussed and will be followed by a conclusion.

Conceptualization of the CNN Pilot: Developing the CNN

Conceptualization of the CNN pilot was primarily informed by exploring how participants and sources described the CNN's roles and how these roles were enacted. This exploration revealed that there was the perception that the CNN's roles should have limitations; further, that there was a lack of clarity surrounding whether the CNN was in fact a *navigator* or a *networker*. The implications of these findings and their impact will be highlighted.

Perceived Roles and Boundaries of the CNN. The CNN was perceived as having roles engaging clients, the McQuesten community, service providers and their organizations. The CNN's roles were associated with different aspects, ranging from helping clients and assessing community need to considering how to increase and improve organizations' engagement within the community. There was a consistent emphasis on developing a network of community and service providers, promoting connectedness, accessibility, and capacity. The CNN's approach was similar to that of the Sooke Navigator (Anderson & Larke, 2009). The Sooke Navigator was implemented within a rural setting, its purpose was to improve community access to mental health and services, while also connecting primary care and community-based providers (Anderson & Larke). Key features of the Sooke Navigator intervention, which aligned with the CNN pilot, were its focus on building connections and improving accessibility (Anderson & Larke). These similarities suggest that the development of a network of social and community services by supporting both the network users' (e.g., community residents) capacity in accessing and navigating the network and strengthening and creating linkages within the network (e.g., service provider involvement) may be a defining characteristic of system navigators.

The role of the CNN and the Sooke Navigator in network development is novel among primary care navigators. The majority of navigators described by the literature had narrowly defined roles. Navigators were often described as operating solely at the client level with a specific focus; for example, navigators who were associated with specific-disorders (Brownstein et al., 2007; Norris et al.). These navigators' roles centred on the following: providing educational and emotional support, assisting clients to access to specialty care and services, and use of diagnostic tools such as sphygmomanometers (Brownstein et al.; Norris et al.). Navigators who were tasked with specific activities; for instance, coordinating services and referrals (Ferrante, Cohen & Crosson, 2010) and assisting clients to make care transitions (Manderson, McMurray, Piraino & Stolee, 2012; Griswold et al., 2010) were another example of navigators with specific roles. The CNN enacted many of these described roles and activities while interacting with clients, however, the CNN also operated at the community and organizational level, to promote the development of a network within the neighbourhood. The role of the CNN in supporting community development and mobilization was a unique feature of the CNN

intervention. Given the need for improved system navigation, empowering primary care navigators to incorporate roles beyond the client level (e.g., promoting community capacity) may be an important consideration in future interventions seeking to improve system navigation within priority neighbourhoods.

Community stakeholders perceived that the CNN's roles should have boundaries. In particular, it was highlighted that the CNN should not become a service provider; establishing a need for the CNN to remain sensitive to clients' perceptions when working at the client level. Stakeholders outlined a need for the position to remain community-centred and focused upon health and health-related issues when enacting their roles. The identification and discussion of these boundaries among pilot stakeholders led to the further development of the CNN pilot and the roles of the CNN. This was comparable to boundaries described by Andersen and Larke (2009) in the Sooke Navigator pilot, where it was found that the navigator needed to remain "therapeutic, but not psychotherapeutic" (p.22) as the navigator was not meant to replace service providers involved in the psychiatric care of clients (Anderson & Larke). This phenomenon was further described by authors Andersen and Larke as an avoidance of "service drift" (p.26). Community-based primary care navigator interventions seeking to engage priority neighbourhoods could benefit from an ongoing examination of boundaries and service drift during implementation. The Community Based Participatory Research Conceptual Logic Model (Hicks et al., 2012) reinforces this approach of ongoing communication, acknowledging relational dynamics, and dialoguing, as supportive when establishing sustainable community-based research interventions to promote health equity.

A theme during this study was the confusion regarding the CNN's title and whether the CNN was a networker or a navigator. These labels were not seen as interchangeable. Each was seen as having distinct features. Participants' lack of certainty describing the CNN's title supports the current gap in literature regarding how navigators are defined and whether they have specific characteristics (Dohan & Schrag, 2005; Manderson, McMurray, Piraino & Stolee, 2012). Community stakeholders saw navigators as having a defined role compared to a networker, describing navigators as a "way-finder," assisting clients as they journey through the system. Networkers were seen as growing a network. The lack of consistency surrounding CNN terminology speaks to an overarching need for clarification of the CNN's role. A clear definition at the client, community, and organizational level would support ongoing development of the intervention and performance indicators (Lowe et al., 2012). When developing navigator interventions, sensitivity to how navigators are titled and characterized is necessary to support the ongoing development of the role and position. Clear terminology and position descriptions will facilitate comparisons across interventions and allow firm conclusions about their impact, supporting future researchers and those involved in developing system navigator intervention including front-line staff, managers, and community residents.

How the CNN enacted her roles was characterized by six common themes: communication, managing resources, assessing and addressing need, developing and maintaining the position, building capacity, and providing emotional support. The breadth of these activities exceeded that of navigators located within primary care in other studies (Anderson & Larke, 2009; Ferrante, Cohen & Crosson, 2010; Jolly et al., 2015) The CNN's involvement in community engagement is a unique feature of the CNN pilot, contributing to their role in developing a network. The CNN was seen as mobilizing community action plans and supporting

community development. This was consistent with the initial design of the CNN pilot. These features may also be linked to the conception of primary health care used by the CNN pilot and attention to the social determinants of health. Consideration of the scope and conceptualization of primary care are significant factors in the planning and designing phase of future system navigator interventions.

Implementation of the CNN Pilot: Developing the CNN Pilot

There was a lack of description surrounding what helps or hinders the implementation of system navigator interventions within primary care and their perceived impacts in this literature. This gap could be related to the emergent nature of the primary care navigator. Findings describing the implementation of the CNN pilot focused upon perceived barriers, enablers and impacts. They were organized utilizing McLeroy, Bibeau, Steckler, and Glanz's (1998) ecological model which considers intrapersonal, interpersonal, community, organizational, and public policy levels' influence in health promotion programs. The following discussion will consider implications at these levels.

Intra- and Interpersonal Barriers, Enablers, and Impacts. This section will discuss implementation at the intra- and inter-personal level. While intra- and interpersonal barriers found in this study (e.g., community stakeholders' mistrust in the pilot's resident-centred approach) were not raised in other navigation studies, they were consistent with theoretical models describing the implementation of community-driven interventions. Sandoval et al.'s (2012) adapted Community-Based Participatory Research Model, acknowledges intra- and inter-personal barriers by highlighting socio-economic and cultural contexts, as well as historic collaboration as factors influencing successful community-based interventions. When designing community-based interventions, consideration of whether stakeholders have collaborated previously could provide insight into how individuals work together. This was not explored fully in this study; however, future community-based studies seeking to describe implementation could benefit from assessing for historical collaborations among stakeholders.

The characteristics of the person who filled the CNN position and consensus-based decision making were identified as themes within intra- and interpersonal enablers. The CNN's experience and intrapersonal traits (e.g., broad knowledge base, person and community-centred approach) were commonly identified by participants as enabling implementation of the pilot. Literature describing primary care navigator implementation says little in regard to how navigators are chosen and what, if any, attributes were considered desirable in a navigator candidate. This study serves to highlight the importance of considering intrapersonal traits when choosing a navigator. Further study is needed to determine whether specific traits support the implementation of navigator interventions. At the interpersonal level, consensus-based decision making was seen as enabling implementation. Martin-Misener et al. (2012) highlight "open communication and decision making" as enabling trust and collaboration among primary care, public health, and the community organizations (p.12), supporting this study's findings. The incorporation of consensus-based decision making should be considered when seeking to engage a variety of stakeholders.

Impacts at the intra- and interpersonal level revolved around knowledge of and access to community resources, community members' ability to navigate the system, and service

providers' ability to work together. The impact of the CNN on community members' knowledge level and behaviors was consistent with findings within primary care navigator literature (Brownstein et al., 2007; Egan, Anderson & McTaggart, 2010; Norris et al., 2007). Primary care navigator studies described impacts at the patient/client level such as clients gaining disease-specific knowledge (e.g., regarding diabetes or hypertension) and supporting behavioral changes like improved appointment keeping (Brownstein et al.; Egan et al.; Norris et al.). The CNN's impact on service providers was a unique feature of the CNN pilot. Exploration of the long-term impact of the CNN on service providers is beyond the scope of this study. Further study is needed to establish any associated outcomes. Additionally, a study exploring whether the impacts of the CNN on service providers are sustained post-CNN intervention could provide insight into the overall impact of the CNN at the inter- and intra-personal level.

Community Barriers, Enablers, and Perceived Impacts. This section will focus on discussing implementation at the community level. Themes in community level barriers were: lack of tangible resources, changes in LPT leadership, and the cost of maintaining and sustaining community initiatives. These barriers were consistent with literature describing primary care navigators. Ferrante, Cohen and Crosson (2010) identified lack of resources as a barrier within their evaluation of a primary care navigator, describing how the navigator operated within several primary care practices often without designated space. Lack of resources was seen as affecting the navigator's ability to communicate and collaborate effectively with the health care team (Ferrante et al.). Changes in local community leadership were seen as a challenge during CNN pilot implementation. This theme was not identified within the literature describing primary care navigators and may be specific to the context of the pilot. The cost of maintaining and sustaining community initiatives is a common theme within literature describing community-based interventions (Rosenthal et al., 2014; Sandoval et al., 2012). Cost is not often described as a barrier to implementation, instead it seen as a consideration for future implementation and development of the existing intervention. The awareness of the cost of maintaining and sustaining initiatives may be related to the CNN pilot's dependence on one navigator and the roles and responsibilities associated with the position. When developing primary care navigator interventions, considering the sustainability and feasibility of the intervention would assist in ensuring the most effective use of resources.

Participants identified the co-location of the CNN in the community centre and primary care practice site and the community's involvement in the pilot as enablers. Location was also seen as influencing implementation in Ferrante, Cohen and Crosson's (2010) study describing a primary care navigator intervention. Co-location of Ferrante et al.'s navigator within multiple primary care practices was associated with facilitating navigator "collaboration" and "integration" within primary care practices (p.742). The CNN's co-location within the community centre was novel among navigator interventions described within the literature. Community engagement is a shared feature of innovative nurse-led interventions focusing on addressing health inequities (Andersen & Larke, 2009; Nelson, Wright, Connor, Buckley & Cumming, 2009). Andersen and Larke highlight developing a community-based steering committee in their navigator intervention, describing how this group supported knowledge exchange and implementation. Navigator interventions seeking to promote accessibility at a community level should consider location of the navigator, and whether there is an existing community-based group when planning implementation. Thought should be given to connecting

with community-based groups or developing a community steering group if sufficient resources are available.

Impacts at the community level centred upon improved cohesiveness and engagement within the community. The CNN pilot was perceived as: coordinating services, mobilizing community goals, increasing connectedness within the community, enhancing community assets, and promoting community development. These themes were consistent with the literature. The CNN was perceived as having a broader community impact than other primary care navigators. For example, Griswold et al.'s (2008) navigator intervention was associated with improving clients' access to primary care. The CNN was also perceived as improving clients' access to primary care; however, this was achieved by developing connections between people and resources. These connections were beyond facilitating clients' access to primary care, they encompassed connecting community residents to each other, service providers, and community resources. The CNN's impacts on community needs and community development illustrate the intervention's broad impact. Primary care navigator interventions should consider scope – the CNN pilot demonstrates that a broad scope has the potential to influence community level impacts. Decision-makers and researchers should assess whether community level impacts are warranted when designing interventions.

Organizational Barriers, Enablers, and Perceived Impacts. This section will describe implementation at the organizational level. Participants' description at this level was sparse. This may have been influenced by the study's focus on describing the pilot from both a community and provider perspective. Future studies could benefit from exploring implementation at the organizational level in primary care navigator interventions.

HFHT and the City of Hamilton's PHS were involved in the implementation of the pilot. How these organizations maintained their involvement during the implementation of the pilot was identified an area of development by pilot stakeholders. During implementation, organizational representatives questioned whether their involvement in the CNN pilot aligned with their organizational objectives. As new community-based interventions develop, partner organizations need to continuously establish rationale for their involvement, as well as determine their role and contribution. Although Andersen and Larke (2009) described barriers to gaining consistent participation from service organizations and non-government organizations, there is need to further explore barriers and enablers for organizations participating in community-based navigator interventions.

Documentation practices were an ongoing challenge at the organizational level within the HFHT. Documentation practices impeded implementation of the CNN pilot. The process of developing a secure mobile electronic documentation system for the CNN's use within the pilot was time intensive, requiring greater resources than expected. Additionally, there were instances where the CNN was unable to document due to an inability to securely access the documentation system. Electronic documentation is seen as having the potential to improve navigator interventions, promoting knowledge exchange, and the collection and monitoring of data (Manderson, McMurray, Piriano & Stolee, 2014). This study highlights how electronic documentation systems may involve greater time and resources than expected; ultimately effecting intervention implementation.

Organizational resources and supports, particularly those from the HFHT and PHS were seen as promoting implementation. Informational resources (e.g., knowledge of programs and services) and tangible resources (e.g., use of office space) were both identified as enabling implementation. Participants commented on the role different organizations seemed to play in providing resources. The HFHT was seen as "huge" (in terms of their scale) offering numerous resources e.g. funding for the pilot, access to a laptop, and designated work space for the CNN. In contrast, PHS was seen as potentially providing insight into the local context, highlighting how other community organizations could be engaged. PHS was seen as a resource during pilot and community stakeholder discussions. They were seen as lacking bias and supporting decision-making during times of disagreement among stakeholders. The Ontario Public Health Standards (OPHS) describes the requirements of public health programs and services (MOHLTC, 2008). Public health is mandated to develop and implement population-based activities that promote health and address health inequities that acknowledge and address social determinants of health and include collaboration with community partners (MOHLTC). The partnering of PHS and the HFHT and LPT during the development and implementation of the CNN intervention aligns with public health's mandate, providing an example of the benefit of partnering. When designing community-based navigator interventions, partnerships among community stakeholders and public health should be considered.

Literature regarding navigator interventions and their impact on organizations is scant. This study revealed that the CNN pilot was seen as having impacts within and between organizations. Within the HFHT and PHS the pilot was associated with stimulating change and new ideas. For example, the CNN pilot was thought to influence staff and program development within the HFHT. At the local HFHT practice level, the pilot was associated with improving client flow and access to primary care. The CNN pilot's impact between organizations was linked with perceptions that the pilot provided an example of how organizations could collaborate, establishing a foundation for future collaborations between public health and primary care. Research suggests that collaboration between these primary care and public health can strengthen health care systems and address social determinants of health (Valaitis et al., 2012). This study illustrates that community-based interventions involving community stakeholders, primary care, and public health organizations may hold benefits for the community in which it is situated, but also for the organizations that are involved.

Policy and the CNN Pilot. This study did not capture any barriers or enablers for implementation at the policy level. Sources did not comment upon how policy at the local (including organizational), regional or provincial level may have influenced the pilot. Although policy was not identified, specific policies in place at the time of the pilot's implementation may have affected the development of the pilot. The MOHLTC (2006) encourages Family Health Teams to consider navigation when developing health promotion and disease prevention programs. Additionally, the MOHLTC's Action Plan for Health Care (2012) identified a need for improved system navigation, asserting that family health care is well positioned to support navigation. The duration and scope of this study may have been insufficient to distinguish the impacts of policy on the CNN pilot's development. Policy may play an important factor in developing navigator interventions. Further study is needed to explore how policy effects their implementation.

The CNN pilot was not directly associated with having perceived impacts at the policy level. This study pointed to an increased awareness of the potential for the CNN to impact policy development at the local/regional level. This awareness developed during the implementation of the CNN. In the initial description of the CNN pilot, policy development was not identified as an objective of the pilot (City of Hamilton, 2013). During implementation the CNN became increasingly engaged in the development of local/regional programs and services, notably the Community of Practice for local navigators and Health Links. The scope of the CNN appeared to broaden to include policy development. Consideration should be placed on whether the CNN intervention should have a role in policy development, given its unique position within the community and the PHS and HFHT. The CNN may have the opportunity to effect policy to address individual and community need, based on her experience within the pilot.

Value of a Nurse: Developing the Nurse as a System Navigator

Findings describing the value of a nurse in the Community Networker position addressed: the benefits associated with a nurse, cost of a nurse, and the potential value of different professions or a lay-person as the Community Networker. These findings and their implications for future research and interventions incorporating primary care navigators will be discussed in this section. Only interventions incorporating a single navigator will be discussed.

Benefits of Nurse as the Community Networker. Participants richly described the benefits of having a nurse in the CNN position. Nurses have frequently assumed navigator roles and are associated with positive outcomes for individuals, families, and the community (Ferrante, Cohen & Crosson, 2009; Manderson, McMurray, Nelson, Christensen, Aspros, McKinlay & Arcus, 2011; Piraino & Stolee, 2014; Sofaer, 2009). In this study, participants saw nurses as bringing a broad base of knowledge and abilities to the position. Nursing experience (e.g., whether a nurse had worked in an acute care setting or the community) was perceived as influencing a nurse's ability to assume a navigator position. PHNs were identified as ideal for the CNN position.

PHNs are a type of community health nurse. The Community Health Nurses of Canada (CHNC, 2011) defines a community health nurse as promoting, protecting and preserving the health of individuals, families, groups, communities and populations in the setting where they live, work, learn, worship and play (p.4). The Canadian Public Health Association (CPHA, 2010) provides insight into the foundations, roles, and activities of public health nursing practice. PHNs are registered nurses with baccalaureate degrees (CPHA). Their practice is rooted in health promotion, defined by the *Ottawa Charter for Health Promotion* as "enabling people to increase control over, and to improve, their health" (CPHA, p. 14). The foundations, roles, and activities of public health nursing practice were compared to the CNN pilot, demonstrating how PHNs are strong candidates for system navigator positions.

PHNs focus on a population with similar concerns or characteristics (CPHA, 2010). This study described McQuesten as neighbourhood with shared goals and complexities, exploring how the CNN engaged with residents and those providing services to the community. PHNs are directed by population health assessments (CPHA). Study participants, including the CNN herself, identified assessing community need as a key aspect of the CNN position, highlighting the use of validated research tools and local data such as the McQuesten Neighbourhood Action

Plan. The CPHA calls for PHNs to consider individuals/families, communities, and systems while practicing, which was similar to the CNN's roles at a client, community, and organization level. Last the CPHA asserts that public health nursing practice is composed of a consideration of the social determinants of health and primary prevention, or solving problems before they occur. The conception of the CNN pilot was based upon addressing issues stemming from the social determinants of health. Primary prevention was not explicitly described as a pilot objective. Aspects of the CNN pilot were in keeping with a primary prevention approach, including the CNN's focus on facilitating resident access to care and services, as well as connecting residents.

PHNs have roles in health promotion, disease and injury prevention, health protection, health surveillance, population health assessment, and emergency preparedness and response (CPHA). The CNN's activities were strongly associated with the roles of PHN in health promotion, population health assessment, and disease and injury prevention. Many of the CNN's activities were tied to health promotion and disease and injury prevention, for example: building capacity, working with residents to develop a plan to address health issues, and with the community to address identified health-related needs, and supporting community mobilization. The CNN's involvement in population health assessment was demonstrated by their involvement in service coordination and representation of the McQuesten community. To a smaller degree the CNN's activities were consistent with the remaining PHN roles previously described, of note, was the CNN's use of technology and documentation. This aspect spans multiple PHN roles.

This study demonstrates the congruency of the CNN position, an example of a system navigator, with the foundation, roles, and activities of a PHN. PHNs are well suited to assume navigator positions focused on addressing poverty and other determinants of health in priority populations (Browne, Doane, Reimer, MacLeod & McLellan, 2010; Cohen & McKay, 2010; Nelson, Wright, Connor, Buckley & Cumming, 2009). Future research is needed to explore the efficacy of PHNs in these positions. It will become increasingly important to establish how the community, primary care, and public health can collaborate when implementing navigator interventions. This study provides an example of how these organizations can work together to implement a system navigator intervention, highlighting the implementation of a PHN within primary care.

The cost of a nurse was an emergent theme in participants' discussions. Participants agreed that a nurse is worth the cost if there is an identified community need that can only be addressed by a nurse such as a health issue. Participants perceived that the CNN position was made up of different "pieces," referring to the CNN's roles at the client, community, and organizational level. They questioned whether different professions or people could fulfill these roles. Navigator literature describes different navigation models, including models with teams as navigators or individual navigators; this study considered only one type of model, those having a specific individual tasked to provide navigation or a navigator (Brownstein et al., 2007; Egan, Anderson & McTaggart, 2010; Ferrante, Cohen & Crosson, 2009; Jolly et al., 2015; Norris et al., 2007). These navigators are often professionals (e.g., social workers, occupational therapists, nurses), although lay-persons are also described as individuals who have undertaken navigator positions. The costs associated with lay-persons and other professions in these roles are poorly reported in the literature. Further research is needed to explore the benefits and costs of different navigator models.

Value of a Different Profession or Lay-Person as the Community Networker.

For many participants, the CNN position was one that could only be filled by a nurse. Participants were asked to consider other models of implementation (e.g., having a lay-person or another profession fulfill the CNN position), only social workers were seen as having the potential to assume the position. Social worker's skill level and ability to address health-related issues were areas of concern for participants. Ferrante, Crosson and Cohen (2009) discuss the value of having a social worker as a primary care navigator, highlighting their ability to coordinate social services, complex referrals, and facilitate knowledge exchange. Primary care physicians noted that having a nurse in the position may have improved outcomes, as nurses were perceived as having a greater impact on clients due to their abilities to coordinate services and interact with clients outside of the clinic (Ferrante et al.). In contexts where there are a larger number of medically complex patients a nurse was seen as potentially better suited (Ferrante et al.). Ontario social workers' scope of practice is described as focusing upon "individual, interpersonal and societal problems" (Ontario College of Social Workers and Social Service Workers [OCSWSSW], 2008). Community interactions are described; however, there is no explicit mention of considering the social determinants of health or community development (OCSWSSW).

There was limited discussion surrounding how physician assistants and paramedic navigators could assume the CNN position. A physician assistant's skills and experience was thought to impact their ability to assume the clinical piece of the CNN position. Physician assistants were not considered as candidates for assuming the CNN position in its entirety. Within primary care navigator literature physician assistants are not described. As unregulated providers in Ontario, physician assistants currently work under the supervision and delegation of a physician (Canadian Association of Physician Assistants [CAPA], 2009). Navigation models considering the incorporation of a physician assistant would have to assess the skill and experience level of the physician and the physician assistant. Given that the scope of a physician assistant does not include knowledge of community development and mobilization, the implementation of physician assistants in navigation interventions requires consideration (CAPA).

Paramedic navigators represent a local pilot project titled the Social Navigator Project (Rogers, 2011) and are not established as a recognized role or position. In Agarwal et al.'s (2015) randomized control trial protocol, the implementation of paramedics in a Community Health Assessment Program is described. This protocol describes how paramedics will work with seniors (aged 55 and older) in subsidized senior's housing using community-based health promotion and prevention approaches in an intervention directed at decreasing emergency calls and improving health outcomes and service use (Agarwal et al.). This study will provide insight into the effectiveness of paramedics in community interventions and speaks to the potential of paramedics in assuming activities associated with system navigation. The currency of this protocol highlights the innovative nature of system navigation. Their findings will support the ongoing development of system navigation by regulated health professionals.

In this study, lay-persons were seen as having the potential to assume a portion of the CNN's position. Scant description was provided regarding how a lay-person could be utilized within the position. In navigator literature, lay-persons or non-regulated health professionals are often referred to as Community Health Workers (CHWs). The roles and activities of CHWs vary

(Brownstein et al., 2007; Norris et al., 2007). They have been associated with patient care, support, coordination, and education. CHWs assist with self-care skills, proving instrumental support, and liaising with the health care system (Brownstein et al.; Norris et al.). A key difference between the roles and activities of the CNN discussed in this study and those of CHWs is the CNN's ability to assess clients' and community need and engage and support community development. CHWs are often supervised by a health care professional, frequently by a nurse (Adair et al., 2012; Brownstein, Hirsch, Rosenthal & Rush, 2011). The amount of training and education received by CHWs is also variable (Norris et al.) Future research is needed to explore the benefit of incorporating CHWs as primary care navigators and establishing what models, if any, are effective. Exploration of different implementation models, including the value of different health professionals and lay-persons may facilitate the growth of system navigation.

Study Limitations and Strengths

Study limitations and strengths were considered by examining the study's rigour and methodology.

Limitations and Strengths Related to Rigour. Limitations and strengths were associated with the study's rigour, which was described by the following criteria: authenticity, credibility, criticality, and integrity (Whittemore, Chase & Mandle, 2001). This study's authenticity and credibility, ensuring that participant's descriptions were consistent with their experience, were influenced by sample size, recruitment, inclusion criteria, multiple data types, and data triangulation (Milne & Oberle, 2005; Whittemore et al.).

Sample size was a limitation. In order to ensure that sample size was rigourous and sufficient to capture participants' perspectives, there was ongoing discussion between author and thesis committee surrounding source quantity. There is no concrete number for what constitutes a rigourous sample size for qualitative studies, suggested sizes range from 10 to 100 (Tuckett, 2004. 2005). Rigour in the choice of sample size was supported by the different types of data and their triangulation (Patton, 2002; Tuckett).Increasing the number of service providers and community residents may have strengthened the authenticity and credibility of this study. There was a lack of representation from health care and service providers at the primary care practice and from priority populations residing within the McQuesten neighbourhood within those sampled. This study's inclusion criteria specified that participants had to be English speaking. Given the demographics of the McQuesten community and the presence of newcomers this may have created a selection bias. Additionally, recruitment strategies were limited to the author's attendance to LPT meetings and interactions with attending community stakeholders and members of the CNN pilot group. Thus, sampling of community stakeholder was limited to who was attending and participating in LPT meetings. There may have been residents who were involved with the CNN pilot whose voices were unheard. These limitations could have been addressed by adding recruitment strategies that allowed for greater exposure to community residents (e.g., attending community events like the block party) and increasing the sample size through the addition of another focus group and more interviews.

Limitations were minimized by the study's use of multiple types of data, including semi-structured interviews, community stakeholder focus group, and documents, and data

triangulation (Jick, 1979; Patton, 2002). Multiple types of data allowed for categories and themes to be checked as they emerged (Patton). Data triangulation also supported member-checking; for instance, content shared in meetings describing the CNN's implementation that were captured in documents (e.g., meeting minutes) were often checked with community and pilot stakeholders' perceptions shared in interviews and focus group.

Criticality and integrity, or a clear process for the study, were affected by: study duration, involvement of stakeholders, audit trails, journaling, thesis committee oversight, member-checking, and data abstraction (Milne & Oberle, 2005; Whittemore et al., 2001). The length of the study was a limitation. Increasing the length of the study's phase to coincide with the end of the pilot could have led to the collection of richer perspectives from participants. This may have also supported the development of measures or indicators which could have enriched the description of the CNN pilot. The development of measures and/or indicators could further support the identification and description of study outcomes. This limitation was balanced by the inclusion of stakeholders, including the CNN herself, within the study. Their ongoing involvement provided insight into the development of the pilot and facilitated data collection. The author's use of an audit trail and journaling were also strategies employed to address these limitations.

Another limitation regarding study process was the lack of definition surrounding member-checking and data abstraction. The development of a method for member-checking would have strengthened this study's criticality and integrity. Findings were member-checked during the course of interviews, and the focus group, as well as through data triangulation. Greater definition surrounding frequency of member-checking and timing would have strengthened this study's rigour. When findings were reported there were many instances where there appeared to be a lack of agreement, scant findings, or a lack of description among themes and sub-themes. This study would have benefited from defining a priori, what would constitute a richly versus a poorly reported upon category, which would have strengthened rigour in terms of data abstraction.

Limitations and Strengths Related to Methodology. This study used a developmental evaluation (DE) approach in order to describe the development of the CNN pilot, including the value of having a nurse in the position. The design of this study was affected by the need to balance perspectives, develop relationships, and share evaluative findings in an ongoing manner. A limitation of this study's approach was the emergence of diverse and sometimes conflicting perceptions. In order to describe the development of the CNN pilot, capturing these conflicting views was necessary. This limitation may have been overcome by a larger sample size. The supervision of the thesis committee and involvement of the stakeholders helped to balance perspectives. Future studies seeking to incorporate a DE approach may benefit from considering how to address conflicting perspectives.

As a DE, it was necessary for the author to develop relationships within the community and CNN pilot stakeholders. This immersive approach was both a limitation and strength. The author's involvement with the community and stakeholders had the potential to bias findings. This limitation was addressed through the author's use of reflective journal practice and the supervision of thesis committee members. A more formal way of bracketing may have further addressed this limitation (Creswell, 2013). Immersion strengthened the study as it supported the author's establishment of relationships within the community and with pilot stakeholders,

facilitating the collection of rich insights and their dissemination. Although perceptions were shared, this study would have been further strengthened by the having more frequent opportunities for the author to share evaluative findings with pilot and community stakeholders. Future studies would benefit from establishing regular meetings between the evaluator and implementation team in an ongoing manner.

The intention of this study was to utilize a DE approach to capture the development of the CNN pilot intervention, including the value associated with having a nurse within the position. During the course of the study it became apparent that this approach appeared to model participatory action research elements. Elements such as researcher participation with community and pilot stakeholders, the pilot's objective to address health inequities, and the DE objective to develop and enhance the CNN intervention were in keeping with participatory action research concepts (Baum, MacDougall & Smith, 2006; Minkler, 2000). Patton (2011) acknowledges that DE is compatible with participatory action research. Their congruence was not a limitation; rather, lack of awareness of the participatory action research elements prevented the author from fully incorporating this viewpoint. Future researchers seeking to incorporate a DE approach should be aware of the opportunity to engage in participatory action for those involved. This is especially significant for researchers and policy-makers seeking to use this approach within priority neighbourhoods.

Conclusion

This DE used a qualitative description approach (Patton, 2011; Sandelowski 2000, 2010). It incorporated an ecological model, as described by McLeroy, Bibeau, Steckler, and Glanz (1988) to describe participants' perceptions of the implementation of the CNN pilot at different levels: intrapersonal, interpersonal, community, organizational, and public policy. This study sought to richly describe how the CNN pilot was conceptualized and implemented from the perspective of community residents and service providers. It explored: how the CNN pilot was initially described, what roles were associated with the CNN position, and how they were enacted. It identified perceived barriers, enablers, and impacts associated with the implementation of the CNN pilot. Lastly, this study considered the perceived value of having a nurse within the Community Networker position compared to other health professionals or lay-persons.

The CNN pilot intervention was shown to have broad effects across multiple levels, from intrapersonal to organizational. Areas for development within the pilot were identified at the community and organizational levels. This pilot was perceived to improve system navigation in a priority urban neighbourhood. The addition of a primary care navigator should be considered in similar priority neighbourhoods seeking to address system navigation issues. A PHN may be the ideal candidate to fulfill the position, depending on the needs of the neighbourhood. Implementation partners need to continuously communicate and evaluate their ongoing involvement in community-based interventions. This DE highlights areas for future research, and considerations for policy-makers and decision-makers seeking to implement a similar intervention. It provides an example of a PHN in a system navigator position, exemplifying an integrative approach to primary care, community development, and system navigation. It demonstrates the potential benefits of strengthened partnerships between primary care, the community, and public health.

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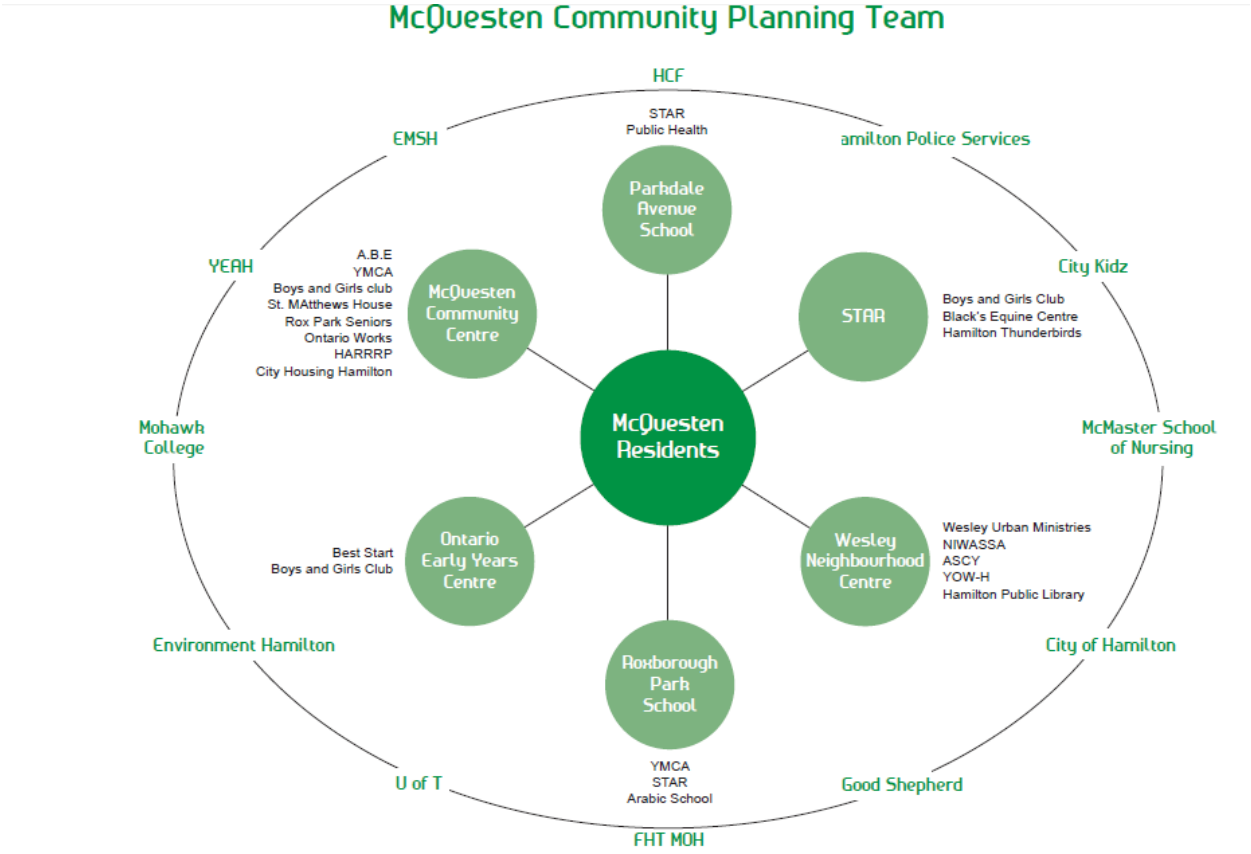
Appendix A

Visual Representation of McQuesten Community Planning Team Stakeholders and Structure Adapted from City of Hamilton (2012)



Appendix B
Primary Health Care Team Survey
Survey for Primary Healthcare Teams

The questions in this questionnaire all refer to your practice setting. Please select your response to each question based on your specific primary healthcare practice setting. In this questionnaire we use the term 'collaborative practice team' to refer to the health care team comprised of nurse practitioners (NPs), family physicians (MDs) and other health providers in a Primary Healthcare (PHC) setting.

Resources and Organizational Structure

1. In the following table please indicate the total number and full-time equivalent (FTE) of each type of health care provider employed in this practice setting, including the numbers who are located on-site and off-site. If a particular health care provider is not employed in this setting, please indicate this with a 0.

	Total number	**Number on-site**	**Number off-site**	**Number of FTEs**
Family Physician				
Nurse Practitioner				
Pharmacist				
Dietician				
Family Practice Nurse				
RN Clinic Nurse				
Physiotherapist				
Public Health Nurse				
Occupational Therapist				
Mental Health Worker				
Psychologist				
Office Manager				
Social Worker				
Clerical/Reception staff				
Psychiatrist				
Chronic Disease Management Registered Nurse (CDMRN)				
Other (specify)				

2. How would you describe this practice setting? (Please check only one.)

☐ Family Practice Office
☐ Community Health Centre
☐ First Nations Health Centre
☐ Federal Health Service
☐ Collaborative Emergency Centre
☐ Hospital-based Clinic
☐ Other (please specify) _____

3. Where is the practice team housed? (Please check only one.)

- ☐ In a building owned by the physician(s) in the practice team
- ☐ In rented offices in a commercial building for health professionals
- ☐ In rented offices in a commercial building for any type of business
- ☐ In a facility that is part of the publicly-funded health network (e.g., hospital, nursing home)
- ☐ In a building owned by the community
- ☐ Other (please specify) _____

4. At this practice setting, who has the *primary* responsibility for each of the following activities?
(Please check only one for each activity).

	No One	**NP**	**MD**	**Office Manager**	**Admin/Clerical Staff**	**Someone else. Please specify: _____**
a) establish on-call lists, staff schedules, vacation, etc.?						
b) organise meetings for case discussions?						
c) reception of patients?						
d) manage health records (opening new files, managing archives)?						
e) ensure the quality of care is evaluated?						
f) organize continuing education activities?						
g) develop practice policies and protocols for care (e.g., fee for non-insured services)?						
h) order supplies and equipment?						
i) manage financial affairs?						
j) develop policies for management, ownership and storage of patient records?						

5. Do any of the operating funds (overhead, administrative and clinical supplies) for this practice setting come from the following?

Physician contributions	☐ Yes	☐ No
Local Health Integrated Network and/or Public Health Unit	☐ Yes	☐ No
Provincial Government (MOHLTC)	☐ Yes	☐ No
Federal Government	☐ Yes	☐ No
First Nations Organization or Band	☐ Yes	☐ No
Private sources (pharmacies, industry partners, donations, etc.)	☐ Yes	☐ No
Other (specify)	☐ Yes	☐ No

6. What are the sources of funding for the technologies used in this practice setting? (Check all that apply.)

	Not Used	**LHIN and/or PHU**	**MOHLTC**	**Federal Government**	**Physician income**	**Other**
Cell phone/pager						
Computer						
Electronic Medical Records						
Fax machine						
Photocopier						
Other (specify)						

Population and Community Characteristics

7. Please describe the area in which this practice setting is located?

☐ Municipality of more than 100,000 people
☐ Municipality/town of 10,000 -100,000 people
☐ Municipality/town of less than 10,000 people

8. Please indicate a range of the TOTAL NUMBER of patients *regularly* served by providers in this practice setting to the nearest 500? *When estimating this number, please exclude patients who are transient, who have only been seen once, or who have been seen in the past but are no longer regular patients of the practice (those who have moved, changed provider or died).*

< 500	☐	2500 to < 3000	☐	5000 to < 5500	☐	7500 to < 8000	☐
500 to < 1000	☐	3000 to < 3500	☐	5500 to < 6000	☐	8000 to < 8500	☐
1000 to < 1500	☐	3500 to < 4000	☐	6000 to < 6500	☐	8500 to < 9000	☐
1500 to < 2000	☐	4000 to < 4500	☐	6500 to < 7000	☐	9000 to < 9500	☐
2000 to < 2500	☐	4500 to < 5000	☐	7000 to < 7500	☐	9500 to < 10,000	☐
						> 10,000	☐

9. Which statement BEST represents the population that your practice setting serves? <u>Check one only.</u>

☐ Anyone who needs services and shows up at the practice setting
☐ Regular clinic patients or patients registered in the practice setting
☐ The population in the neighbourhood, village or territory served by the practice setting

10. Do any of the following groups represent more than 10% of your practice population?

	Yes	No	Not sure/ Don't know
Aboriginal Peoples	☐	☐	☐
African Ontarians	☐	☐	☐
Children who are obese	☐	☐	☐
Cultural minorities	☐	☐	☐
Frail elderly living at home in the community	☐	☐	☐
Frail elderly living in LTC/residential facilities	☐	☐	☐
Homeless/"street" people	☐	☐	☐
Patients with permanent physical disabilities	☐	☐	☐
Patients with addictions	☐	☐	☐
Patients with mental health diagnosis (e.g., depression, anxiety, bipolar disorder, schizophrenia)	☐	☐	☐
Patients living in poverty	☐	☐	☐
Patients with type 2 diabetes	☐	☐	☐
Patients with HIV/AIDS	☐	☐	☐
Patients with literacy challenges	☐	☐	☐
Recent immigrants (6 months or less)	☐	☐	☐
Sports injuries	☐	☐	☐
Transient/seasonal populations	☐	☐	☐
Other (please specify):_____	☐	☐	☐

11. Does this practice site use any of the following approaches to reach out to the community/communities it serves?

	Yes	No
a) Home visits	☐	☐
b) Linkages with religious organizations/services	☐	☐
c) Linkages with sectors outside the health system (e.g., police, housing, education)	☐	☐
d) Involvement with neighborhood groups/leaders	☐	☐
e) Networking with provincial and local agencies involved with culturally diverse groups	☐	☐
f) Outreach services (e.g., taking services to a particular group)		
g) Websites	☐	☐
h) Other (please specify) _____	☐	☐

12. Does this practice setting use the following types of <u>data</u> to determine what programs and services are needed by the community/communities it serves?

	Yes	No
Clinical data from your practice	☐	☐
Community immunization rates	☐	☐
LHIN or Community Health Board community needs assessment data	☐	☐
Mortality/morbidity data (e.g., Statistics Canada, CIHI, Provincial Programs)	☐	☐
Public health communicable disease data (e.g., STDs, TB)	☐	☐
Public health data on health or occupational hazards	☐	☐
Other (please specify)	☐	☐

13. How does the team involve community members (patients, members of an organization) in planning and or evaluating services? (Check all that apply.)

- ☐ not done in this setting
- ☐ assessing community needs
- ☐ planning services
- ☐ evaluating services
- ☐ other (please specify)———————————————————

Services and Inter-Organizational Collaborations

14. To what extent is this practice setting currently accepting new patients for management and follow-up? (<u>Check one only).</u>

- ☐ The NP(s) and MD(s) accept new patients
- ☐ Only the NP(s) accepts new patients
- ☐ Only the MD(s) accepts new patients
- ☐ Neither the NP(s) or MD(s) accept any new patients
- ☐ Other (please specify) _____

15. Thinking about the services offered at this practice setting, identify which health care providers offer (Check all that apply.)

	MD	NP	FPN	Other (specify)	Not offered
early morning appointments?	☐	☐	☐	☐	☐
email advice to patients of the practice?	☐	☐	☐	☐	☐
telephone advice to patients of the practice?	☐	☐	☐	☐	☐
same day appointments for patients needing urgent care	☐	☐	☐	☐	☐
appointments within 24-48 hours for patients needing urgent care	☐	☐	☐	☐	☐
appointments within 48-72 hours for patients needing urgent care	☐	☐	☐	☐	☐
urgent episodic care services during weekday evenings (after 6:00 pm)?	☐	☐	☐	☐	☐
walk-in services during weekday evenings (after 6:00 pm)?	☐	☐	☐	☐	☐
on-call services during weekday evenings (after 6:00 pm)?	☐	☐	☐	☐	☐
regular booked appointments during evenings	☐	☐	☐	☐	☐
urgent episodic care services on weekends (Saturday or Sunday)?	☐	☐	☐	☐	☐
walk-in services on weekends (Saturday or Sunday)?	☐	☐	☐	☐	☐
on-call services on weekends (Saturday or Sunday)?	☐	☐	☐	☐	☐
regular booked appointments during weekends	☐	☐	☐	☐	☐
on-call services at night (between midnight and 8:00 am)?	☐	☐	☐	☐	☐
on-call services for urgent episodic care to patients of the practice in a long-term care facility?	☐	☐	☐	☐	☐
on-call services to specific patient populations of the practice (e.g., palliative care)	☐	☐	☐	☐	☐
home visits to frail elderly of the practice?	☐	☐	☐	☐	☐
follow-up patients of the practice while they are in hospital?	☐	☐	☐	☐	☐
follow-up patients of the practice after their discharge from hospital?	☐	☐	☐	☐	☐
primary or emergency care for patients of the practice in an emergency clinic/department?	☐	☐	☐	☐	☐
primary care for patients of the practice in long-term care facilities?	☐	☐	☐	☐	☐

16. What is the average scheduled time (in minutes) for each appointment type and health care provider?

	MD	NP	FPN	Other (specify)	Not applicable
Initial visit for new patient					
Brief visit (e.g., otitis media, recheck of BP)					
Complex care visit (e.g., patients with 2 or more comorbidities, frail elderly, mental health)					
Health maintenance (e.g., well-woman, postnatal, well baby/child)					
Urgent care visit					

17. When this practice setting is closed, are patients

	Yes	No
able to leave a message on an answering machine and get a return call from an MD, NP or RN when the practice setting reopens?	☐	☐
directed to go to another nearby primary care office or clinic?	☐	☐
directed to call Telehealth Ontario??	☐	☐
directed to go to local emergency departments for urgent matters	☐	☐

18. Not including when the practice is closed for holidays, on average, how often does the practice team send one or more patients directly to the ER, rather than seeing them in the practice setting? (Check only one.)

☐ Once per day
☐ A few times a week
☐ Weekly
☐ Monthly
☐ Every 6 months
☐ Once per year
☐ Never

18. Thinking about practice tools, at this practice setting, do you use

	Yes		No
	Electronic	**Paper**	
a reminder system to invite patients to have the recommended screening tests (e.g., Pap			
a checklist in the file concerning the preventive clinical practices (counselling, screening, immunization) according to best practice guidelines?			
a tool to assist providers with lifestyle counselling (e.g., smoking cessation or dietary tools)?			
a reference directory of programs and services offering support for lifestyle changes (e.g., smoking cessation programs)?			
a template/checklist in charts of patients with chronic diseases that includes important follow-up components listed in patient management guidelines (e.g., blood tests for diabetic patients)?			
other (please specify) _____ _____			

19. In this practice setting, do practice team members focus MOST (> 50% of clinical time) of their clinical activities or specialize in the following fields:

	MD	NP	FPN	Other specify
alternative medicine (acupuncture, osteopathy, etc.)?	☐	☐	☐	☐
behaviour change counselling?	☐	☐	☐	☐
cancer / cancer screening	☐	☐	☐	☐
cosmetic treatments	☐	☐	☐	☐
child and infant care?	☐	☐	☐	☐
delivery attendance and follow-up?	☐	☐	☐	☐
geriatrics?	☐	☐	☐	☐
health education?	☐	☐	☐	☐
mental health?	☐	☐	☐	☐
industrial medicine/occupational health?	☐	☐	☐	☐
obesity?	☐	☐	☐	☐
one or more chronic diseases				
i) COPD	☐	☐	☐	☐
ii) asthma	☐	☐	☐	☐
iii) hypertension	☐	☐	☐	☐
iv) heart failure	☐	☐	☐	☐
v) coronary artery disease	☐	☐	☐	☐
vi) arthritis	☐	☐	☐	☐
palliative care	☐	☐	☐	☐
plastic surgery/treatment of varicose veins	☐	☐	☐	☐
prenatal and or postnatal care	☐	☐	☐	☐
sports medicine?	☐	☐	☐	☐
travel health?	☐	☐	☐	☐
teen health	☐	☐	☐	☐
triage of walk-in patients	☐	☐	☐	☐
women's health (excluding obstetrical care)	☐	☐	☐	☐
other (specify)	☐	☐	☐	☐
other (specify)	☐	☐	☐	☐
other (specify)	☐	☐	☐	☐

Governance, Accountability and Values

20. How is governance enacted in this practice setting? (check ONE)

☐ Community board
☐ Local Health Integrated Network
☐ Provider-led private business
☐ Contract with Ministry of Health and Long-Term Care
☐ Other (Please specify) _____

21. What accountability mechanisms are used in this practice setting? (Please check all that apply).

☐ Job descriptions for all clinical and administrative people associated with the team's practice
☐ Written formal document that describes roles and accountabilities of the team
☐ Practice plan
☐ Practice specific policies and procedures
☐ Terms of reference for committees
☐ Other (Please specify) _____
☐ None

22. What information systems are used to guide program/service planning and evaluation? (Please check all that apply.)

☐ None
☐ Medical Service Insurance (MSI) billing
☐ MSI shadow billing
☐ Medical Information Systems (MIS) reporting
☐ Meditech
☐ EMR report (BP checks, flu shots, Pap tests)
☐ Other (Please specify) _____

23. In the following table, policy refers to some form of administrative statement, direction or role. Does the practice team in this setting have a policy for the following?

	Yes, written	**Yes, unwritten**	**No**
Risk management	☐	☐	☐
Patient safety	☐	☐	☐
Error reporting (e.g., medication)	☐	☐	☐
Quality improvement	☐	☐	☐

24. To what extent have the following organizations supported the development and optimal functioning of the practice team at this site?

	Very much	Some	No effect	Little	Very little
Ministry of Health and Long-term Care					
Public Health Unit/Local Integrated Health Integration Network					
College of Registered Nurses of Ontario					
College of Physicians and Surgeons of Ontario					
Professional Associations (e.g., Registered Nurses' Association of Ontario, Ontario Medical Association)					
Other primary care practice settings					
Other (specify)					

25. Do members of the practice team use any of the following mechanisms to support collaboration within the team? Please feel free to add comments to explain any of your answers.

	Yes	No	Comments
Informal or ad hoc exchanges	☐	☐	
Regular team meetings for organizational administration	☐	☐	
Regular team meetings for case management	☐	☐	
Pre-established care protocols for specific client groups or problems	☐	☐	
Shared vision for the practice	☐	☐	
Team building sessions or workshops	☐	☐	
Joint continuing education sessions	☐	☐	
Other (specify)	☐	☐	

Appendix C

Focus group and Individual Interview Guide (Primary Care)
CNN Role Conceptualization

How would you describe the role of the CNN? What activities do you associate with the CNN role?
Probes: Structural/Instrumentalities – are they any tools that you have observed her using?
How does the CNN's role and activities fit with your own role(s) and activities?
Probes: Structural/Instrumentalities: – another person to talk too
Processes – meetings are longer/shorter/more frequent
Outcomes – improved communication with the community
What factors do you think have influenced the development of the CNN role?
Probes: Structural/Instrumentalities - co-location of the CNN, e-doc
Processes – rounds, organizational newsletters, City of Hamilton neighbourhood strategy
Outcomes – increased use of primary care services
What things do you think influenced decisions made about the role of the CNN?
Probes: Who provided funding for the role, available space for the CNN in the community and Dr. Lummack's office?

CNN Structures, Processes, and Outcomes
What do you perceive to be barriers to the implementation of the CNN pilot?
What do you perceive to be facilitators to the implementation of the CNN pilot?
How do you think these barriers and facilitators will affect the maintenance of the CNN position?
How do you think factors influencing implementation and maintenance of the role can be addressed/improved upon?
What are the impacts of the CNN on primary care?
What are the impacts of the CNN on the McQuesten community?
When is the CNN role not necessary?
Do you see this position being implemented in another neighborhood?
If so, where and why.

CNN as a Nurse
What do you think is the value of having a nurse in the CNN position?
What other types of professionals do you think could fulfill this role, if any?
What value do you think they would add?

Focus group and Individual Interview Guide (Community)
CNN Role Development

How would you describe the role of the CNN? How would you describe her activities?
Probes: Structural –are there any tools that you have noticed that she uses?

How does the CNN's role and activities fit with your own role(s) and activities? Do the activities and the role of the CNN fit with the community planning team's work? If so, how?

Probes: Structural/Instrumentalities – another person to talk too
Processes – meetings are longer/shorter/more frequent
Outcomes – improved communication with primary care

CNN Structures, Processes, and Outcomes

What things do you think get in the way of the CNN starting to work in the McQuesten community?
What things do you think help her in starting to work in the community?
What do you think will either get in the way or help her to continue to work on the McQuesten Community?
What effect do you think the CNN's role had on: Dr. Lummack's office? The community? Individuals in the community?
Do you think the CNN position could work in another community?
If so, where and why?

CNN as a Nurse

What do you think is the value of having a nurse in the CNN position?
What other types of professionals do you think could fulfill this role, if any? (Probes: Social Worker, Occupational Therapist, Doctor, Physiotherapist)
What value do you think they would add?
Do you think the CNN role could be filled by a community member who is not a health professional?
Why or why not?