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Access and Enrollment of Immigrants in Primary Care in Ontario: which immigrants are getting in and which are not?

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Acronyms and Abbreviations

ACG: Adjusted Clinical Groups

ADG: Aggregated Diagnosis Group

AHAC: Aboriginal Health Access Centers

CAPE: Client Agency Program Enrollment.

CCM: Comprehensive Care Model

CHC: Community Health Center

CHW: Community Health Workers

CIC/LID: Landed Immigrant Database Canada from Immigration and Citizenship

CIHI: Canadian Institute for Health Information

CIHR Canadian Institutes of Health Research

CMA: Census Metropolitan Area

COPD: Chronic Obstructive Pulmonary Disease

CSDH: Commission on Social Determinants of Health

DAD: Discharge Abstract Database

ED: Emergency department

FHG: Family Health Group

FHN: Family Health Network

FHO: Family Health Organization

FHT: Family Health Teams

GTA: Greater Toronto Area

HR: Hazard ratio

ICES: Institute of Clinical Evaluative Sciences

IOM: International Organization of Migration

LHIN: Local Health Integrated Network

LID: Landed Immigrant Database

MHLTC: Ministry of Health and Long Term Care

NACRS: National Ambulatory Care Reporting System

OECD: Organization for Economic Co-operation and Development

OGP: Other Groups

OHIP: Ontario Health Insurance Plan

PEM: Patient Enrollment Model

PHC: Primary Health Care

PMC: Primary Medical Care

REB: Research Ethics Board

RPDB: Registered Persons Database

RUB: Resource Utilization Bands

SDH: Social Determinants of Health

SEP: Socio-economic Position

THAS: Telephone Health Advisory Service

UK: United Kingdom

US: United States

WHO: World Health Organization

e.g. for example

et al. and others

vs. versus

Abstract

Research in Canada and abroad has shown that newcomers face multiple obstacles in their search for health care during their resettlement and integration to the host society. In Ontario, primary care services are organized in three main models based on the remuneration scheme to physicians: fee for service, capitation, and salaried. During the Primary Care reforms in early 2000s, the province introduced new models of primary care practices to enhance the quality of care through the expansion of comprehensive multidisciplinary care, applying more preventive measures and enhanced chronic disease management strategies. Along with these innovative reforms, the province promoted an enrollment system with a family doctor in the primary care practices.

This research examined the access of immigrants to the enrollment system in Ontario. A review of the literature contrasting a PMC and PHC approaches showed that the latter has more potential to address social determinants of health of immigrant populations. Taking into account the organization of health services in the province, immigrants can receive primary care services mainly through PMC practices (FFS and capitation-based), but also through PHC-type of models, such as Community Health Centers. The analysis of enrollment in primary care was conducted using a secondary analysis of administrative data. The main findings have shown that immigrants' enrollment in primary care services has increased over time, but the levels of enrollment remain lower compared to long-term residents. Moreover, compared to long-term residents, immigrants have less access to the most comprehensive models of care, which represents an important inequity. In exploring the perceptions of immigrants in two major cities of the province, most of the participants perceived that important factors, such as information, knowledge, language barriers, cultural issues; are affecting their capacity to understand and navigate the system. Hence, it takes a long time for them to make sense and learn how to connect and use the system.

Summary of the Thesis

This research is oriented to study critical aspects of health care as they directly affect immigrant populations. The purpose is to contribute informing policies and strategies aimed at improving access and use of primary care services, in Ontario. Though the project focused on primary care services to immigrants in this Canadian province, it built upon evidence and experiences from across Canada and internationally. Therefore, the results can inform approaches to designing and implementing new primary care strategies across Canada.

The results also have national and global implications, as most of the results have provided important evidence of the existing inequities among immigrants in accessing and benefiting from the enhanced models of primary care in Ontario. The reforms in primary care in the province in the last 20 years have introduced several initiatives that enhanced the comprehensiveness and quality of health care services. However, as the results of this study show, immigrants, particularly recent immigrants are not receiving the benefits of those improvements.

The research project was composed of three main components: a) a systematic scoping study to examine primary care models, b) a secondary analysis of administrative data to examine enrollment differentials in primary care services, and c) a qualitative study to explore immigrants' perceptions. The first component was a systematic scoping review of primary care models to deliver health care to immigrant populations internationally. The second component was a secondary analysis of administrative databases of immigrants' enrollment in primary care in Ontario. And the third component was a qualitative study among foreign-born, to explore immigrants' perceptions on enrollment in primary care services, conducting semi-structured interviews in two major cities of the province.

Systematic scoping review of primary health care models to deliver health care to immigrant populations

A systematic scoping review of studies was conducted to examine primary care models providing health care to immigrants, at international level. Studies were categorized into two models, primary medical care (PMC) and primary health care (PHC). Categories of access barriers and preventive interventions were used to analyze the potential of PMC and PHC approaches to address health care inequities.

From 1385 articles, 39 relevant studies were identified. In the global context of immigrant populations, the PMC model was found to be more oriented to implement strategies that improve quality of care of the acute and chronically ill, while PHC models focused more on health promotion and strategies to address cultural and access barriers to care, and preventive strategies to address social determinants of health. Based on the reviewed literature, PHC models seem to be better equipped to address social determinants of health, and thus have more potential to reduce immigrant populations' health inequities.

Immigrants' enrollment in primary care in Ontario: a secondary data analysis

As part of the Primary Care reforms in 2003, Ontario introduced a patient enrollment system aimed at enhancing primary care services. A population-based retrospective cohort study was conducted to examine enrollment differentials in primary care services by type of primary care practice comparing immigrants and long-term residents in Ontario from 2003 to 2012.

For the purpose of this study a closed cohort of Ontario residents between 1985 and 2003 was created, using linked health administrative and immigration databases. Levels of enrollment for traditional and more comprehensive capitation-based practice between 2003 and 2012 were

compared by immigrant status, using descriptive measures. Logistic regression modelling was used to assess the odds of enrollment on primary care practices.

The overall enrollment in primary care practices increased gradually in Ontario after 2004, until 2012, when two thirds of the cohort (67%) was enrolled. The immigrants' enrollment level remained consistently lower than that of long-term residents over the study period. By 2012, enrollment of immigrants in capitation-based models was significantly lower compared to long-term residents (17.3% vs. 25.4%). In particular, enrollment in Family Health Teams in 2012 considered the most comprehensive care model was three times lower in immigrants relative to long-term residents (5.6% vs. 18.0%; OR = 0.40, 95% CI 0.40 to 0.41).

These results could also have implications and relevance for equitable primary care access for immigrant populations in other Canadian provinces and territories, as well as in countries planning health care reforms.

Immigrants' perceptions on enrollment in primary care in services in Ontario: a qualitative study

A qualitative study was conducted to examine recent immigrants' perceptions on access and connection with the patient enrollment system in Ontario. The study utilized thematic analysis approach to scrutinize qualitative data obtained through semi-structured interviews in two major cities of the province; London and Ottawa.

A framework method was used to analyze and discuss the perceptions and experiences of recent immigrants on contacting and registering with a family doctor. The Andersen-model was used to guide the analysis and identify specific barriers. These barriers were grouped into three categories or levels: patient level, provider level and system level.

The majority of the interviewee (14 out of 15) considered that being registered with a family doctor is important or very important for them and for their family. The most frequent difficulties expressed by the participants were lack of information or knowledge about how the system works (12 out of 15), language and communication barriers (9 out of 15), and no availability of family doctors in the area (8 out of 15).

Despite differences in sociocultural background and beliefs, registering with a family doctor to receive continue health care is perceived as important for the majority of the participants in this study. However, participants perceived that some obstacles are preventing them from properly accessing and benefiting from these services. According to most of the participants, the process of understanding and integration to the new social environment and adjustment to a new and complex health system is a key issue and it takes time and effort for them to adapt and assimilate. In their views the health system is still not responding properly to their needs/demands and many immigrants get frustrated and give up in their attempt to connect and receive its benefits; which may partially explain why after living years in Canada, some immigrants still don't understand the Canadian health system.

This thesis project produced several papers, for publication in peer reviewed journals. These papers are:

1. Primary Health Care Models Addressing Health Equity for Immigrants: A Systematic Scoping Review. (Published in J Immigrant Minority Health, 2016. doi:10.1007/s10903-016-0531-y)
2. Impact of health care reform on enrollment of immigrants in primary care models in Ontario, Canada (submitted to Family Practice)
3. Connecting and enrolling in primary care in Ontario: what are immigrants experiences and perceptions? (in preparation to be submitted to Canadian Family Physician)

Dedication

To the memory of my mother, Josefina Moliner

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CHAPTER ONE

Primary care of Immigrants and Enrollment in

Primary Care in Ontario

Introduction

Migration is an ancient human phenomenon that is still significant one in our modern world. As human society evolved and turned into a more complex organization, migration became an inherent part of the human society. Settling in a new country and society is a distressful process and impose numerous challenges for both the person that migrate as well as for those who accompany them. Immigrants are diverse and complex groups that also impose challenges to the host society, but in many ways they contribute to shaping that society, making it progressively more multifaceted and dynamic.

In that context, immigrants' health is also an important social and public health issue; and it has been extensively studied. The healthy immigrant effect is the most prominent hypothesis that has been recurrently investigated and consistently observed.¹⁻³ Overall this notion states that immigrants are healthier than native-born population when they arrive, but that healthy status at arrival deteriorates over time, converging to that of the native population.⁴ Commonly, upon arrival, immigrants are self-reported healthier, have lower prevalence of chronic diseases and lower levels of mortality compared to native population.^{5, 6} This decline may be due to the process of convergence and resettlement stress that can have negative effects on access and use of health services among the newcomers.⁷⁻¹⁰ Convergence is a process through which, immigrants are exposed to the health risks encountered by the residents and as a consequence experience a decline in their health levels to the more mediocre national average.⁷

Health care of Immigrants

Health conditions and health care of immigrants and refugees represent major public health challenge worldwide. From the population health perspective cultural, social and economic

factors have been well established as essential determinants of health.^{11, 12} However, health care can also influence the health conditions of the population, including immigrants.¹³⁻¹⁵ Consequently, there is concern that the challenges encountered by new immigrants in accessing and effectively using primary care services may have negative consequences in the decline of their health. Yet some studies suggest that low access or poor quality of care may contribute to the deterioration of immigrants' health status over time.⁴

Globally, the health care of immigrants has been the subject of numerous studies¹⁶⁻¹⁹ and the majority of the literature has described multiple barriers for immigrants to access and use health care services.^{20, 21} These barriers can be grouped into 3 main categories (each author uses different schemes of categorization): Individual level (e.g. education, health literacy, language proficiency, socio-economic conditions, ethno-cultural factors, legal migration status), b) provider level (e.g. cultural competence and communication skills, quality of care, discrimination), and system level (e.g. availability and organization of services, insurance coverage, cost of services).

Different strategies are used to deliver health care to immigrants, as it is for the general population, and many of them are based on traditional primary care approach,²² which is focused in a medical or professional-based organization of services (medical doctor, nurse or inter-professional teams), and is curative oriented although includes preventive practices as well. But other health-care strategies also include a community-health approach and integrate elements outside the health system or the traditional medical services. This approach provides immigrants with the required health care when needed, but also create conditions and services that help them to attain and maintain good health conditions. The latter strategies are related to the primary health care (PHC) approach as stated in the Alma Ata Declaration principles and may be better

equipped to address social determinants of health.²³ These principles convene a broader conception of health care, incorporating social and community health strategies and actions beyond the health care system, in an attempt to satisfy specific social and cultural needs. This approach encompasses intersectoral actions and community participation as central pillars to their interventions aiming for positively impact on people's daily living and working conditions.

The differences in these two approaches have been recognized^{24, 25} and both have been used in providing health care to immigrant populations. However, these approaches use different strategies to address immigrants' health care needs, and each put different emphasis on health outcomes (illness, individual risk factors) or determinant factors of the health status (cultural, social conditions, education). Although there is a global tendency towards more immigrant-sensitive health care systems,^{26, 27} yet, most of the health-care services are based on traditional primary care models.

Primary Care of Immigrants in Ontario: the Research Problem

The health care of immigrants is also a key Canadian public health issue since immigration is an essential component of Canada's history and identity. For immigrants, characteristics such as country of origin, length of time in Canada, language ability, and socio-economic status appear to influence their health transitions and can be important factors in the decline of their health situation.²⁸⁻³⁰ Numerous strategies have been developed to improve access and quality of health care of Canadians, including immigrants.^{31, 32} Examples of those strategies have been implemented and supported by multicultural projects such as Metropolis Canada (http://canada.metropolis.net/index_e.html) and Access Alliance (<http://accessalliance.ca/>) that

works from the social determinants of health perspective, promoting health and well-being, and supporting activities to address immigrant's health care needs.

Enrolling or rostering (both terms are used interchangeably to indicate the same concept) in health care services is a mechanism that allows patients to connect with health care providers to receive continuous health care. Patient enrollment has been recognized as an important feature of a high-performing primary care system, and a key component of innovative primary care models emerging in Canada and other developed nations.³³ As part of the national's Primary Care Reform initiatives, Ontario introduced the patient enrollment system in primary care practices which formalize a continued relationship between the physician and the patient.³⁴ Patient enrollment model (PEM) involves a dual commitment between patient and physician, a mutually beneficial relationship. These benefits include continuity of care; information sharing, permanent access to care and accountability.¹⁸

The number of people attached to a patient enrollment model has substantially increased in Ontario since 2003. This is considered a major achievement for the reforms of the primary care system in providing timely access to continuous and comprehensive primary health care to the Ontarian population.³⁵ However, there is no information on the situation of immigrants in Ontario regarding the levels of attachment to patient enrollment model. Although progress has been made in improving access and quality of primary care services, inequities in accessing those services still remain among immigrants.³⁶ Specific groups of immigrants such as those in the lowest levels of income, and those with low official language proficiency may experience more difficulties in accessing or connecting to the patient enrollment model compared to their counterparts.

With that in mind, we sought to explore how immigrants are accessing and benefiting from the enrollment system. In identifying what factors are influencing their contact and access those services, we intended to provide more evidence that might contribute to address and reduce those inequities. Recent advances in data linkage in Ontario have allowed to securely and confidentially link individual information of immigrants and administrative data on health services use.^{12, 37} This represents a unique opportunity for research since database linkages have created a powerful tool to address many data gaps, which can help to better understand immigrants' health-care practices and the relations to their health transitions.

The goal of this research was to examine access to primary care services in Ontario among immigrants to determine the level of enrollment in primary care services. The study also explored some individual and contextual factors that may influence this process and may represent important sources of vulnerability and obstacles for connecting and accessing primary care services. In addition, we explored beliefs, attitudes, and perceptions of immigrants living in Ontario, regarding the enrollment with a family doctor, in order to gain a more comprehensive understanding of this problem.

Theoretical Framework

This research built on three conceptual frameworks. First, it draws on the conceptual framework for immigrants' determinants of health proposed by Bierman et al. as the overarching framework.³⁸ This framework considers the complexities of the migration process and health conditions of immigrants (Appendix A). The framework looks at the interplay of multilevel factors (macro or socio-political, meso or community, and micro or individual levels), pre-

migration and post-migration factors and the immigrant's integration context that intersects with their individual, family, community, and society level resources and challenges.

Second, taking into account the different experiences to provide primary care to immigrants, the conceptual approach from Muldoon et al. was used to examine the two main approaches of health care: a) the traditional primary care or 'primary medical care' (PMC) and b) the Primary Health Care (PHC). PMC refers to 'family doctor-type' services delivered to individuals, whereas PHC include both services to individuals and population level 'public health-type' functions.²⁵ This research examined and contrasted these two approaches in the context of immigrant populations through a literature review.

And third, for the study of enrollment in primary care services, this research is guided by the behavioural model of health services utilization developed by Andersen (1995).³⁹ The Andersen model outlines the influences of predisposing characteristics (e.g., demographic information, social structure, health beliefs), enabling resources (personal/family and community characteristics), and need (e.g., perceived and evaluated) in predicting health service access and utilization (Appendix B). This model was used to examine and discuss the main factors related to access and enrollment in primary care, both in the secondary data analysis and the qualitative study.

Objectives and Organization of the Research Project

Bearing in mind the situation and context described above this study sought to examine access to primary care services in Ontario among immigrants to determine the level of enrollment in primary care services. Thus the specific research questions are:

1. What are the main approaches to provide primary care to immigrant populations?

2. What are the strengths and limitations of those approaches?
3. How are immigrants accessing and enrolling in primary care services in Ontario?
4. Are immigrants in a disadvantaged position regarding access and use of primary care services compared to Canadian born or long-term residents?
5. What are the knowledge and perceptions of recent immigrants on the access to the enrollment system in Ontario?

The specific objectives of this study were:

1. Identify the main models to deliver primary care to immigrants, and explore their strengths and limitations to address immigrants' health-care needs.
2. Determine the levels of enrollment of immigrants in primary care in the province.
3. Compare the levels of enrollment to long-term residence in the province and identify the main factors influencing the enrollment levels.
4. Explore the perceptions and experiences of recent immigrants accessing and registering with a family doctor.

In responding to the research questions the research project was divided into three main components: a) a systematic scoping review of primary care models for immigrants, b) a secondary data analysis of enrollment, and c) a qualitative study to explore immigrants' perceptions and experiences with the enrollment system (Figure 1).

Figure 1. Relationship between research questions, hypothesis and study component

Research strategy/ component	Research questions	Hypothesis
Systematic scoping review	What are the main approaches to provide primary care to immigrant populations?; and what are their	Two broad models of health care: primary medical care (PMC) and primary health care (PHC) can be used in providing health care to

	strengths and limitations? (Research questions 1 and 2)	immigrants but PHC is better suited to address immigrants.
Empirical study of enrollment in primary care: secondary data analysis of linked administrative databases	What are the levels of enrollment of immigrants in primary care services in Ontario?; and what factors are affecting the enrollment in these services? (Research questions 3 and 4)	Enrollment in primary care is lower among immigrants compared to long-term residents Immigrants are in a disadvantaged position to access more comprehensive primary care services.
Qualitative study: semi-structured interviews	What are the perceptions and experiences of recent immigrants on accessing a family doctor? (Research question 5)	Recent immigrants experience lack of knowledge about the health system. Several barriers (cultural, language, trust) continue to affect immigrants access to primary care services.

In order to present the results of the three studies and how they are related, the thesis was structured in five chapters:

1. Background and research problem and overall structure of the project
2. Literature review: Systematic scoping review of primary care models of immigrants
3. Study of enrollment: Secondary data analysis of enrollment in primary care services
4. Qualitative study: Immigrants' perceptions and experience with the enrollment system
5. Final chapter: Integrated analysis, conclusions and contributions and future research

Methodology

This research used a mixed methods approach to address the research questions. The research project consisted of three components; a) a systematic scoping review of primary care models to deliver health care to immigrant populations, and the ability of these approaches to address the social determinant of health, and their potential to impact health care inequities; b) a secondary analysis of linked administrative datasets to examine immigrants' enrollment to primary care

practices in Ontario, and explore the main factors affecting their access and enrollment to these practices; and c) a qualitative piece, consisting of interviews with recent immigrants to explore their perceptions and attitudes regarding barriers and facilitators accessing and connecting to primary care services.

Systematic Scoping Review of Primary Care Models of Immigrants

A systematic scoping review approach, aimed at examining relevant health care delivery models for immigrants, was used,⁴⁰ for the first component of the research project. The central research question that guided this review was: *what are the strengths and limitations of the two primary care models, in delivering health care to immigrants to address their health needs?*

To conduct the scoping study, the framework proposed by Arksey & O'Malley (2005)⁴¹ was adopted, and a critical appraisal of the relevant literature in the selection of studies step was added. A search strategy was used to explore electronic databases pertinent to public health and population health (MEDLINE, Web of Science, EMBASE, Proquest Nursing and Allied Health and Cochrane Collaboration). In addition, a hand-searching of journals relevant to migrants' health was carried out. Also, several international resources or organizations relevant to migrants' health and health care were purposefully hand searched. The timeframe for the search included the earliest data available according to each database up to November 30, 2013.

A review of the references and documents was performed to determine the most relevant studies or documents and exclude those that would not address the research question. Finally, a synthesis of results was made by sifting, charting and sorting material according to key issues and themes, in order to interpret and report the results. A critical appraisal of the literature was used to

identify the final papers, and a framework method approach⁴² was followed to organize and synthesize the data and to discuss the results.

Secondary Data Analysis of Enrollment in Primary Care Services

The quantitative study was a secondary data analysis, using linked administrative databases. A population-based retrospective cohort was created for this study. This research benefited from research capacities of the Institute of Clinical Evaluative Sciences (ICES) in linking anonymously population-based health information on an individual patient basis and ensuring privacy and confidentiality of individual information. For the study, a closed cohort of Ontario residents between 1985 and 2003 was created, from a linkage of health administrative datasets and a national immigration database.

The study performed two types of analysis, first a descriptive exploration of immigrants' enrollment in primary care practices, over time, between 2003 and 2012 and a cross-sectional analysis of the enrollment in 2012. Univariate and bivariate statistical procedures to describe the rates enrollment in primary care services by population characteristics (age, gender, immigrant status/class, country or region of origin, ethnic group, length of stay in Canada, language ability/proficiency, education, health literacy, enrollment in a primary care, income, employment status, area of residence or neighborhood), and by type of practice: Fee for service-based or capitation-based models.

This was followed by a multivariate analysis (logistic regression) to identify the main predictors of enrollment to primary care services, controlling for individual or contextual factors. In addition, a survival analysis (using Kaplan-Meier method and Cox regression model) was carried out to examine how long it takes for immigrants to get enrolled in a primary care service.

The data sources for this study were existing linked datasets at ICES, specifically, the following health administrative datasets (CAPE, RPDP, OHIP, DAD and NARCS) linked to the Landed Immigrant Database (LID).

Immigrants' perceptions and experience with the enrollment system: a qualitative enquiry

The qualitative enquiry used semi-structured interviews and thematic analysis of data to explore immigrants' perspectives on the enrollment system. A framework analysis approach⁴² was utilized to explore perceptions and experiences of recent immigrants in Ontario on enrolling in primary care services. For this purpose, a purposive sampling procedure was used to recruit immigrants in two cities of Ontario with significant immigrant's attraction: Ottawa and London. A total of 15 interviews were completed. A semi-structured interview guide was developed to capture the data, which included socio-demographic information (age, gender, education, and migration background), experience and main perceived obstacles in accessing and enrolling in primary care services, and perceptions of the importance of the enrollment in primary care services. All interviews were recorded and transcribed verbatim for content analysis.

Ethics

This research project received full ethics approval from the Research Ethics Boards of the University of Ottawa in Ottawa, Ontario. Additional research approval was obtained for the secondary data analysis from the Research Ethics Board of the Ottawa Hospital Research Institute in Ontario, Canada (REB Protocol No. 20130715-01H), as well as the Bruyère Continuing Care Research Ethics Board, REB Protocol # M16-14-006

CHAPTER TWO

Systematic Scoping Review of Primary Care Models to Deliver Health Care to Immigrant Populations

Published paper

Primary Health Care Models Addressing Health Equity for Immigrants: A Systematic Scoping Review

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Abstract To examine two health care models, specifically “Primary Medical Care” (PMC) and “Primary Health Care” (PHC) in the context of immigrant populations’ health needs. We conducted a systematic scoping review of studies that examined primary care provided to immigrants. We categorized studies into two models, PMC and PHC. We used subjects of access barriers and preventive interventions to analyze the potential of PMC/PHC to address health care inequities. From 1385 articles, 39 relevant studies were identified. In the context of immigrant populations, the PMC model was found to be more oriented to implement strategies that improve quality of care of the acute and chronically ill, while PHC models focused more on health promotion and strategies to address cultural and access barriers to care, and preventive strategies to address social determinants of health. Primary care models may be better equipped to address social determinants of health, and thus have more potential to reduce immigrant populations’ health inequities.

Keywords: primary care, primary health care, immigrants, health equity, health determinants, refugees

Background

Immigrants face multiple obstacles during its settlement and integration process in the host country. Among the several factors involved in that process, one of the key challenges is access to health-care services. Effective and timely access to quality primary care is a critical resource for immigrants populations.⁴³ Numerous studies from Canada and other major migrant-receiving countries, reveal that immigrants on average, arrive in better health than the general population.⁴⁴ Their health status, however, tends to decline and converge with that of the native population during the process of integration.^{10, 44, 45} In this study we consider immigrants broadly, as defined in Box 1; to include several migrant groups such as refugees, refugee claimants, and undocumented migrants.

Box 1: Key definitions

- *Immigrants*: Individuals who moved from their country of origin into a new country for the purpose of settlement. This IOM-based definition includes those who arrive and stay through an irregular migration process.⁴⁶
- *Model or arrangement of care*: organization or array of health services provided to individuals or communities by health service providers for the purpose of promoting, maintaining, monitoring or restoring health.⁴⁷
- *Primary medical care (PMC)*: Basic or general health care focused on the point at which a patient ideally initially seeks assistance from the medical care system. It is the basis for referrals to secondary and tertiary level care.⁴⁷ It refers to “*the ‘family doctor –type’ services delivered to individuals.*”²⁵
- *Primary health care (PHC)*: based on WHO definition: “*essential health care based on practical, scientifically sound, and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-determination.*”²³ It is a broader approach “*to health policy and service provision that includes both services to individuals and population level ‘public health–type’ functions.*”²⁵ This is also equivalent to other terms such as Community-oriented primary care and Comprehensive primary health care.⁴⁸⁻⁵⁰

After arrival, immigrants confront challenges accessing and receiving health care in the host country.^{20, 51-53} Impaired access to health care is an important source of distress for immigrants during their process of settlement and integration to a new society, as they strive to understand and navigate a new and unfamiliar culture and system.⁵⁴ To connect and build a relationship with health care practitioners, it is critical to develop trust and good patient provider interactions.⁵⁵ Hence, access to continue health care helps newcomers cope with the distress, and receive appropriate care when needed.

In spite of efforts to address and overcome barriers in access and use of health care services among immigrants, inequities remain.^{56, 57} “Health inequities are when inequalities in health are deemed avoidable, remediable, and unfair.”⁵⁸ The definition and measurement of health inequity require a normative decision about social justice and fairness, which is a dynamic concept that also changes depending on the context.⁵⁹ Contributing factors for immigrants health inequities include forced migration, limited official language proficiency, country of origin and education level, and other determinants of health.⁴³

Two broad approaches have been used globally to provide primary care to immigrant populations (and the population in general); primary medical care (PMC) and primary health care (PHC)^{25, 60}. Both involve health services and the two commonly coexist in health systems. PMC is a medically oriented model and PHC is a community-oriented model.^{24,61} We used the framework described by Muldoon et al.²⁵ to distinguish the two approaches in providing health care to immigrants’ populations. In this framework, PMC (called just Primary care), “describes a narrower concept of ‘family doctor –type’ services delivered to individuals”; and PHC “describes an approach to health policy and service provision that includes both services to individuals and population level public health –type functions” (See Box 2)

Box 2. Models of primary care: Primary Medical Care (PMC) and Primary Health Care (PHC): Differences and similarities

<u>Characteristic</u>	<u>Primary Medical Care</u>	<u>Primary Health Care</u>
Key concept	‘Family doctor –type’ services delivered to individuals	Include both services to individuals and population level ‘public health–type’ functions
Differences	<ol style="list-style-type: none"> 1. Person-focused (not disease-oriented) care 2. Care over time 3. Sustained partnership with patients. 	<ol style="list-style-type: none"> 1. Essential services/Universal accessibility 2. Nucleus of country’s health care system 3. Integral part of overall social and economic development of the country 4. Provided at a cost the community and country can afford/better use of resources 5. Brings health care as close as possible to where people live and work 6. Services provided to community as a whole 7. Services organized and adapted to needs of population served 8. High-quality services 9. Teamwork and interdisciplinary collaboration 10. Services decentralized to community-based organizations 11. Provided by health care professionals who have the right skills to meet the needs of individuals and the communities being served.
Similarities	<ol style="list-style-type: none"> 1. First contact of care 2. Accessibility 3. Comprehensiveness 4. Coordination of care. 	

Source: Adapted from Muldoon et al. 2006.

PHC experiences are more common in developing countries, while PMC is the focus of health services in developed nations.^{62, 63} These two models of primary care are also coexisting in Canada: a community-oriented approach, and a professional approach,⁴⁸ and a set of attributes have been defined to characterize these models.⁶⁴ As immigrants represent an important segment

of Canadian and other developed societies, implementing more comprehensive health care approaches can be helpful in responding to their needs and addressing the existing health care inequities among immigrants.

Experiences of health care for immigrants have been reported in the literature. However, to our knowledge, no previous research has compared these two approaches on their capacities to respond to immigrants' health care needs, neither examining the strategies to address the barriers of access to primary care services nor examined their potential to tackle health inequities.

The goal of this review was to examine how these two primary care models, PMC and PHC deliver interventions that address immigrants' health and health care needs. Specifically the objectives were to scrutinize how these two approaches a) implemented strategies to address barriers to care; b) implemented health promotion and disease prevention interventions; and c) have the potential to reduce health care inequities in immigrants.

Conceptual Framework and Methodological Approach

Overall, three levels of care are well recognized: primary, secondary and tertiary⁴⁷. To examine the strengths and weakness of the health system to respond to immigrants' needs, this research uses the conceptual framework that distinguishes two main approaches in providing health care at primary level: Primary Care and Primary Health Care (PHC)^{24, 25}. In spite of the recognition of the differences between Primary Care and PHC,^{24, 60} there is still some confusion and an interchangeable use of these approaches in the policy context and the scientific literature, regarding the organization of health care services at primary level of care. In general, both approaches involve professionally and institutionally driven health services and shares some important attributes, but PHC expand its actions outside the health service facilities to include

social and community-based services that determine the direction of health strategies and its impact.⁶¹ Primary care is the traditional biomedical model of health services at primary level that is medical professional-focused, while PHC extend their actions beyond the health services and is more community oriented.^{25, 60}

Primary care is a model of health care historically rooted in the regionalization of health services in the UK in early 1920s,⁶⁵ and refers to the level of health services “that provides entry into the system for all new needs and problems, provides person-focused care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care provided elsewhere by others.”⁶⁶ Essential attributes of primary care are: first contact, continuity, comprehensiveness, and coordination of care.^{25, 67}

On the other hand, PHC is a broader public health strategy that was coined by the World Health Organization, whose core principles were articulated in Alma Ata Declaration in 1978; and consist of “*essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible through their full participation and at a cost that the community and country can afford.*”²³ This strategy encompasses combined actions of the health system and other sectors and social organizations to address the health needs of the population. According to that definition PHC aims to target social, political, and economic environments that are key determinants of health for populations, as well as for individuals.

In summary, primary medical care refers to an arrangement of primary care provider-type of medical services delivered to individuals, while PHC refers to a community-oriented model that includes both services delivered to individuals (or primary care services) and population level

public health-type functions, which considers community engagement and intersectoral involvement in achieving the health goals of the population.²⁵

For this study we also draw on Bierman's conceptual framework on migration and health³⁸, to identify the main factors and the specific barriers for immigrants at the resettlement stage. These barriers were grouped into three categories or levels: patient level (e.g. ethno-cultural, language, education, income), provider level (e.g. availability and organization of services, providers' cultural competence and communication skills, quality of services) and system level (e.g. policy, regulations, insurance, social services and support).

Therefore, based on known factors identified in previous research as relevant obstacles to access health care for immigrants,^{51, 68, 69} were categorized according to the type of barrier described or addressed. Thus the main groups of barriers were: insurance coverage or eligibility to receive service, cultural issues, language or communication issues, organization of services and quality of care, geographic access, economic burden or costs of services, education and health literacy, social networks and support, patient-provider relationship, and other factors.

Given the critical importance of health promotion and prevention strategies, a third conceptual model was used to identify health promotion and disease prevention.⁷⁰ An effective health system should take into account comprehensive actions interventions across the spectrum of the health-illness process looking at maintaining, improving or recovering the health of the people.⁷¹
⁷² Hence health care measures must go from health promotion and disease prevention, to medical care and to rehabilitation when necessary. Health promotion and disease prevention are among the essential public health functions to achieve superior health goals⁷³. Although these functions

can be distinguished theoretically, they are strongly connected and can hardly be separated in practice.⁷⁴

Health promotion is the process of enabling people to increase control over, and to improve their health. It entails actions not only directed at strengthening the skills and capabilities of individuals, but also actions oriented towards changing social, environmental and economic conditions so as to alleviate their impact on public and individual health. It means enabling people to increase control over the determinants of health and thereby improve their health status⁷⁵. Disease prevention involves interventions aimed at avoiding the development of any disease at any point of its natural history. According to this model, primary prevention seeks to prevent the onset of specific diseases via risk reduction: by altering behaviour or exposures that can lead to disease, or by enhancing resistance to the effects of exposure to a disease agent. Secondary prevention includes procedures that detect and treat preclinical pathological changes and thereby control disease progression. And tertiary prevention seeks to soften the impact caused by the disease on the patient's function, longevity, and quality of life.⁷⁶ Following this framework, the strategies used to provide health care were classified as health promotion strategy or as one of the main levels of disease prevention, following the model of stages of prevention,⁷⁰ as follows:

1. Health Promotion: actions that enable people to increase control over, and to improve their health. Entails actions on individuals, and their social and physical environment.
2. Primary prevention: measures seeking to prevent the onset of specific diseases.
3. Secondary prevention: procedures that detect and treat preclinical pathological changes and thereby control disease progression.

4. Tertiary prevention: measures seeking to soften the impact caused by the disease once it has developed; helping with the patient's function, longevity, and quality of life.

Methods

A systematic scoping review approach was adopted for this study.⁴⁰ This approach was chosen to capture a broad range of research models and studies, while still ensuring a minimum quality in the reports. The Arksey and O'Malley's scoping review framework⁴¹ was used. The five-stage framework includes: (i) identifying the research question; (ii) identifying relevant studies (including a quality assessment in this step); (iii) selecting studies; (iv) charting data; (v) collating, summarizing, and reporting results.

The quality and validity of the studies were assessed using validated tools^{77,78} to select the most relevant documents. A thorough analysis was followed to scrutinize the studies, identify and organize the findings on the application of interventions to address important barriers in access to care, as well as health promotion and disease prevention strategies; by these primary care experiences. In the final step, a critical analysis was carried out to summarize and discuss the strengths and weaknesses of these studies to provide effective primary care to immigrant populations and their potential to address health care inequities.

Identifying relevant literature

The research question that guided this review was: what are the strengths and limitations of the two main primary care approaches in delivering strategies to address immigrants' health care needs and providing interventions to tackle barriers to primary care?

To identify relevant publications, the search strategy included terms in three domains: primary care or primary health care, immigrants, and model of care, following the selection criteria defined in Box 3. The search terms were: ‘primary care’ OR ‘primary health care’ AND ‘immigrant’ OR ‘migrant’ and ‘model of care. Medical subject heading (MeSH) terms and key words derived from those domains were used, as the search tactic to identify pertinent literature to respond the research questions (see details in Appendix C).

Box 3: *Inclusion and exclusion criteria*

Inclusion criteria. Papers were included if:

- Study focused on a health care strategy for immigrant populations.
- A primary care delivery model or strategy to provide health services for a specific disease or health problem is presented and discussed.
- Type of study: review, research paper or a policy document
- Published from January 1, 1990, to November 30 , 2013

Exclusion criteria. Papers were excluded if:

- Published in other languages than English or French; or no abstract available in those languages
- Deemed “poor” in quality appraisal (score less than seven when applying a validated tool)

With the assistance of a librarian, an electronic search was conducted in several bibliographic databases. The databases MEDLINE, EMBASE, PsychINFO and EBM Reviews were searched systematically, through OvidSP engine, Web of Science through Web of Knowledge platform, whereas Cochrane Library, CINHAL, Global Health databases were searched through their own search engines. The electronic searches included English language articles, published from January 1, 1990, to November 30, 2013. (Appendix C)

In addition, key journals, websites and references were purposefully and manually searched. Four relevant journals on migration domain were hand searched: “Journal of Immigrant Health/

Journal of Immigrant and Minority Health,” “International Journal of Migration,” “Health and Social Care,” “Immigrants & minorities,” “Ethnicity and Health.”

Relevant international resources and organizations on migrants’ health and health care evidence were also manually searched using the same search terms, for studies or reports published between January 1, 1990, and November 30, 2013. These resources were: the International Organization of Migration (IOM), the World Health Organization (WHO), the Social issues/Migration/Health OECD iLibrary, the McMaster Health Systems Evidence & EVIPNet and the Commonwealth Fund websites.

An iterative screening process was followed to assess whether the references met the inclusion criteria. All references were imported into Endnote X7 software for proper manipulation and scrutiny for pertinence.

Quality Appraisal

For the selection of relevant documents a critical appraisal was performed using validated tools, in order to assess a minimum quality of the study. To that end, the studies were classified in three categories: quantitative, qualitative and systematic review.⁷⁷ To apprise other types of publications that don’t fit the qualitative research category (conceptual papers, technical or policy reports, and other grey literature), a special quality assessment tool was developed, based on published appraisal guidelines.⁷⁹⁻⁸¹ A 10 items checklist for each type of study was adapted based on the key attributes to assess the quality of the evidence (see Appendix D). If seven or more items were responded positively, then the study was deemed of good quality and considered for further analysis, otherwise they were excluded. Full texts of selected documents were reviewed for data extraction and charting using an Excel spreadsheet.

Data Extraction and Charting

For the data extraction and further analysis relevant information about the experience was identified, including type of research/study design, country or region, study goal, main outcomes. Also, the health problem or service provided, the type of barrier to care addressed and the nature of preventive intervention applied (health promotion/ disease prevention), were identified.

First, all selected papers or documents were categorized into one of the two health care approaches: PC or PHC, based on the differences described in Box 2. Following Muldoon et al. distinctive elements: when family doctor –type measures delivered to individuals inside health services carried out then the study was classified as PMC; and when included public health interventions beyond the health services to reach out the communities and/or involved other social services (e.g. legal services, food or school programs, transportation, etc.), then the experience was considered as PHC.

Data Analysis

The content of all selected documents was summarized and categorized for further analysis. We used a framework synthesis approach⁴² to organize and synthesize the data and to discuss the results. For the purpose of describing and discussing the results, we focused on three dimensions of the health services described as follows: a) type of health service provided, b) type of barriers addressed; and c) type of preventive measures applied (see details in Appendix E).

To describe the type of health problems targeted or service delivered four categories were considered: a) provision of essential primary medical or clinical care, b) specific health problems or medical condition (Cardiovascular disease, HIV, etc.), c) mental health care, and d) preventive care (see Box 4).

Box 4: Type of services or health problems

1. Primary medical care/clinical care: general primary care services, either traditional (chronic care, immunization, screening, perinatal and child care, emergency, etc.) or enhanced (integrated care, multidisciplinary care, patient-oriented care, home-based care, mobile units).
2. Specific health problem or medical condition: CVD, HIV/AIDS, Oral health, vision care
3. Mental Health care: depression, stress and other mental disorders.
4. Preventive care: Maternal or child care, reproductive care, cancer screening, health promotion and education

For the type of barrier or facilitator to access nine categories were identified:^{51, 68, 69} 1) insurance coverage or eligibility to receive service, 2) cultural issues, 3) language or communication issues, 4) organization of services and quality of care, 5) geographic access, 6) economic burden or costs of services, 7) education and health literacy, 8) social networks and support, and 9) patient provider relationship.^{17,82, 83} (see

Box 5: Barriers or Facilitators

1. Insurance and eligibility to care: insurance status and eligibility to receive health care services, legal status, and right to health.
2. Cultural barriers: refers to relevant aspects affecting access and use of services such as perceptions about health and health care, distrust, stigmatization and discrimination, isolation.
3. Linguistics and communication barriers: low ability to speak the official language and communication difficulties.
4. Organization of services/Quality of care: lack of knowledge of the health system, no regular source of care, long waiting lists, shortage of services, low quality of care,
5. Geographic barriers: unavailability of services, long distances from health services, lack or difficulties with transportation.
6. Financial barriers: economic issues such a low income and costs of some health services
7. Education and Health literacy:
8. Social barriers: social networks and support, community participation
9. Interpersonal relations: Patient-Provider relationship

Adapted from Derose 2011; Access Alliance 2005, McKeary 2010

Box 5).

Finally, we classified each study according to the type of strategies included to provide those services as: a) health promotion strategy (HP); or b) primary (PP), c) secondary (SP) or d) tertiary (TP) prevention strategy; following the model of

stages of prevention.⁷⁰ (see Box 6). The WHO-CSDH framework of actions on social determinants of health,⁸⁴ was used to assess the potential of each model in tackling health inequities.

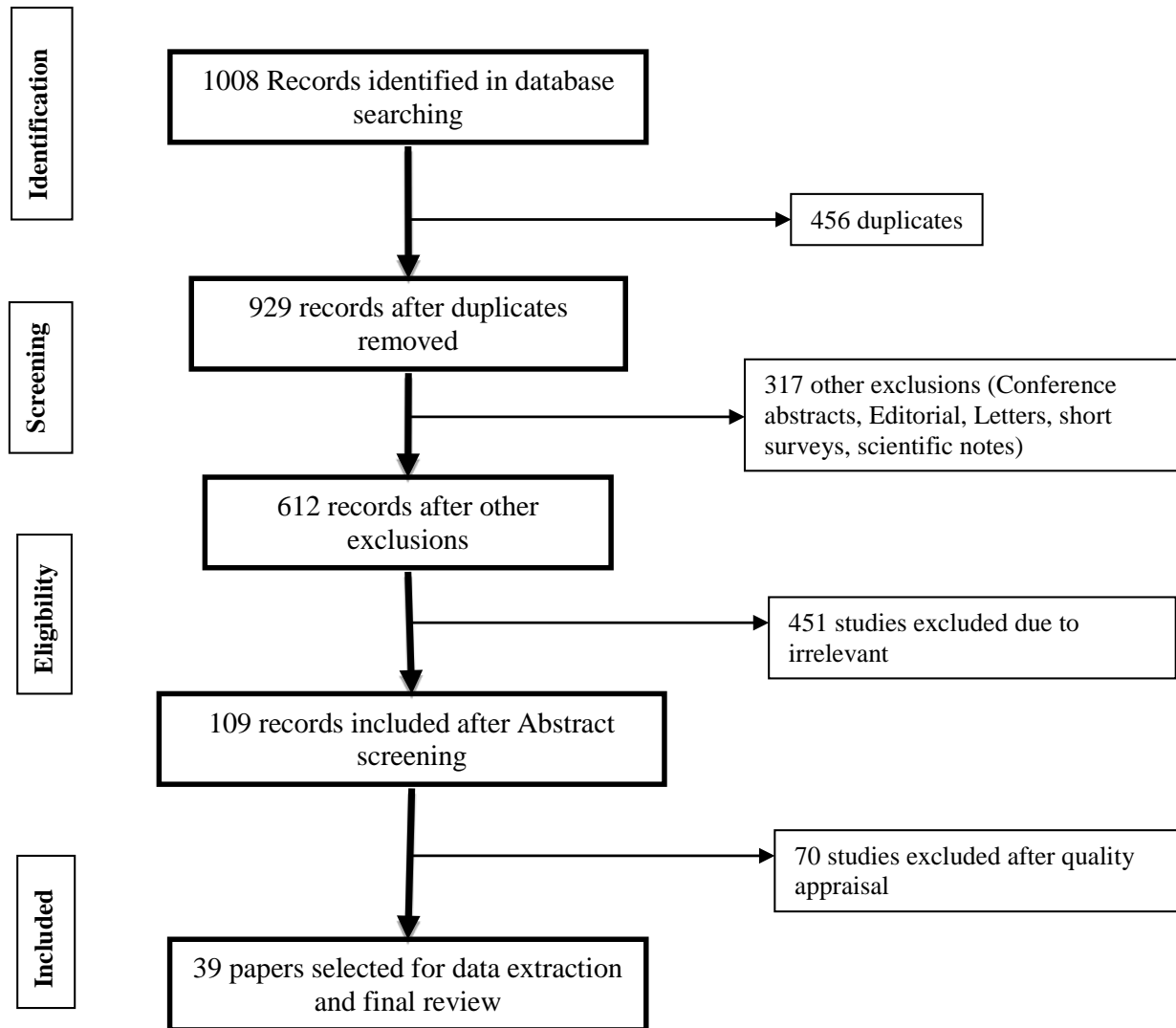
Box 6: Preventive strategies

1. Health Promotion (HP): strategies that enable people to increase control over, and to improve their health. It entails strategies on individuals, and their social and physical environment.
 2. Primary prevention (PP): measures seeking to prevent the onset of specific diseases
 3. Secondary prevention (SP): procedures that detect and treat preclinical pathological changes and thereby control disease progression
 4. Tertiary prevention (TP): measures seeking to soften the impact caused by the disease once it has developed; helping with the patient's function, longevity, and quality of life
- Source AFMC primer on population health*

Results

We identified 1008 citations from the databases and 377 from the manual search. After removing duplicates and other non-pertinent documents (books, conference reports), 612 studies remained. All abstracts were scanned for further assessment to determine whether they met the inclusion/exclusion criteria. The abstract assessment yielded 109 documents for full review and quality appraisal (Figure 1). A total of 39 documents were selected for data extraction and further analysis.

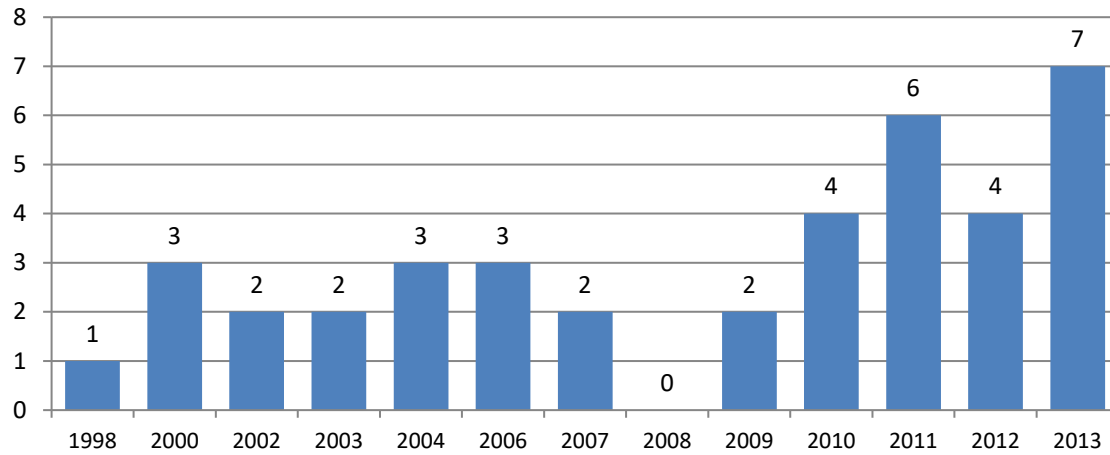
Figure 1. Flowchart of the selection process



Bibliometric Analysis of the Literature

A total of 39 documents were identified as relevant for the analysis of health-care strategies for immigrants. The number of relevant publications related to immigrants' health care has grown significantly in the last five years (Figure 2).

Figure 2. Number of relevant publications by years of publication



The journals that provided more references after screening were BMC Public Health (6), Journal of Immigrant and Minority Health (5), Social Science & Medicine (3), Journal of Health Care for the Poor and Underserved (3). However after the quality assessment, the CMAJ, the Journal of Health Care for the Poor and Underserved, Journal of Immigrant and Minority Health, and the Journal of Rural Health provided two publications each that were relevant for further analysis (Table 1). Also the WHO Library provided two relevant documents for the study.

Table 1. Number of publications by sources (journal or institution)

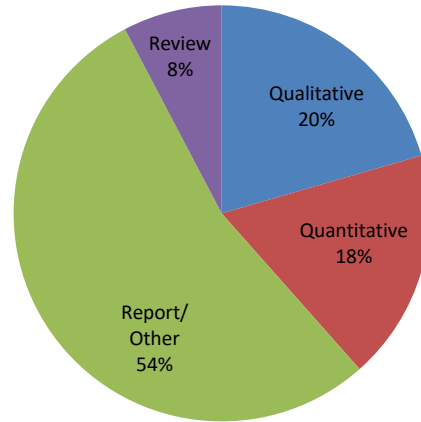
Journal/Source publication	Number
CMAJ	2
Journal of Health Care for the Poor and Underserved	2
Journal of Immigrant and Minority Health	2
Journal of Rural Health	2
WHO Library	2
Ethnicity & Health	1
Am J Orthopsychiatry	1
Ambulatory Pediatrics	1
American Journal of Industrial Medicine	1
Aust N Z J Public Health	1

BMC Family Practice	1
BMC Public Health	1
Community Mental Health Journal	1
Culture, Medicine and Psychiatry	1
Ethnicity & Health	1
Family and Community Health	1
Global Health Promotion	1
Health Affairs (Millwood)	1
Health Promotion Practice	1
International Journal for Equity in Health	1
Journal of Advanced Nursing	1
Journal of General Internal Medicine	1
Journal of Gerontological Social Work	1
Journal of Immigrant Health	1
Journal of Nursing Management	1
Journal of Nursing Scholarship	1
Journal of Psychosomatic Obstetrics and Gynecology	1
Journal of Public Health Dentistry	1
Migration Initiatives - IOM	1
Preventing Chronic Disease	1
Primary Health Care Research & Development	1
Public Health Nurs	1
Scandinavian Journal of Primary Health Care	1
The Commonwealth Fund	1
Total	39

Most of selected documents fell in the category of other reports (54%), which included mixed methods (most frequent with 8 studies), theoretical discussions, policy reports and other type of publications. They were followed by qualitative studies (20%) and quantitative (18%). Three reviews were included in the analysis.

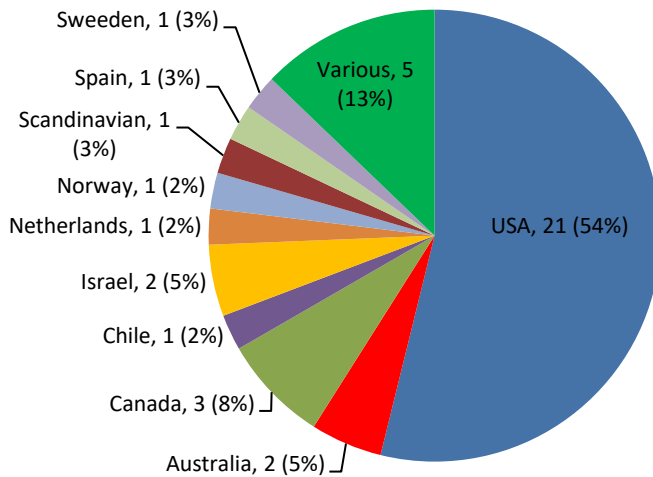
Figure 3. Number of relevant publications by type of study or document

Type of study	Number
Case study	1
Mixed	8
Policy report	3
Program report	8
Qualitative	7
Quantitative	7
Review	3
Theory/ Discussion paper	2
Total	39



Most of the documents were published in English (53, 96%) and only one was in French.

Figure 4. Distribution of the relevant publications by country



Characteristics of the Studies

Out of the 39 studies in the review, 17 were categorized as PMC and 22 as PHC. A summary of selected studies is presented in Table 2, and more details can be found in Appendix F.

Table 2. Summary of the characteristics of the studies included in the review.

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>	<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
Primary Health Care (PHC) models						
Abreu M. et al. 2009 (USA)	Theory Discussion paper/ Other	Latino Immig.	Report results of a health insurance program that employs local community leaders as case managers, using culturally specific methods of outreach and education.	Primary /clinical care	medical	HP, PP, SP 1, 2, 3, 7, 8
Ahmed SM. et al. 2000 (USA)	Theory Discussion paper/ Other	South Asian Immig.	Describe cultural aspects and the acculturation process relevant to establishing rapport and providing competent bio-psychosocial care to individuals and families.	Primary /clinical care	medical	HP, PP 2, 3, 7
Blewett L.A. et al. 2004 (USA)	Qualitative study	Latino Immig.	Report an on-site visits program in three communities and document successful strategies to meet immigrants' health needs.	Primary /clinical care	medical	HP, PP, SP 2, 3, 4, 7, 8
Carrillo J.E. et al. 2011 (USA)	Theory Discussion paper/ Other	Latino Immig.	Report on a health collaborative program with a population-based health-care model aimed to improve the health of residents in a large immigrant community.	Primary /clinical care	medical	HP, PP, SP, TP 2, 3, 4, 7, 8
Chin J.J. et al. 2006 (USA)	Theory Discussion paper/ Other	Asian- Pacific Islanders Immig.	Report findings of an evaluation of a community-based intervention to reduce disparities in care for immigrants with HIV/AIDS.	Specific health care: HIV/AIDS		HP, PP, SP 1, 2, 3, 4, 7
De Jesus Diaz-Perez M. et al. 2004 (USA)	Theory Discussion paper/ Other	Mexican Immig.	Describe a program developed to improve access to health care among immigrants.	Primary /clinical care	medical	HP, PP, SP 2, 4, 5, 7
Fowler N. 1998 (Canada)	Theory Discussion paper/ Other	Immig. in general	Report a local experience of a primary health care program in an urban area.	Primary /clinical Preventive Health promotion and education	medical care; care:	HP, PP, SP, TP 2, 3, 4, 8

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>		<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
Frank A.L. et al. 2013 (USA)	Theory Discussion paper/ Other	Immig. workers	Report experiences to address health care access for immigrant workers in the agroforestry-fishery sector, and the workforce providing care to these workers	Primary /clinical Preventive Health promotion and education	medical care; care:	HP, PP, SP	1, 2, 3, 4, 8
Isaacs S. et al. 2013 (Canada)	Theory Discussion paper/ Other	Immig. in general	Describe how broker organizations support a community-based network of services to address primary care needs of recent families of immigrants with children	Primary /clinical care	medical	HP, SP	2, 8
Isralowitz R.E. 2000 (Israel)	Theory Discussion paper/ Other	Elder Ethiopian Immig.	Describe a model community-based eye care including the impact of eye glasses on the quality of life in a cohort of elderly immigrants.	Specific health care: Vision care		HP, PP, SP	4, 7, 8
Kaltman S. et al. 2011 (USA)	Theory Discussion paper/ Other	Immig. in general	Assess the effect of a behavioural health program and its implications for adaptation and implementation of evidence-based mental health programs for vulnerable immigrant populations.	Primary care/clinical Mental health care	medical care;	HP, SP	1, 4, 6, 8
Kim M.J. et al. 2002 (USA)	Theory Discussion paper/ Other	Korean Immig.	Describe an interdisciplinary primary health care project designed to make culturally sensitive primary care and mental health services, available to underserved immigrants.	Primary /clinical care; Mental health care	medical	HP, PP, SP	2, 3, 4, 7, 8
Kirmayer L.J. et al. 2011 (Various)	Review	Immig. in general	Identify risk factors and strategies in the approach to mental health assessment and to prevention and treatment of common mental health problems for immigrants in primary care.	Mental Health care		HP, PP, SP	2, 3, 4, 8
Levin-Zamir D. et al. 2011 (Israel)	Theory Discussion paper/ Other	Ethiopian Immig.	Describe the impact of a cross-cultural program for promoting health among immigrants in a developed country.	Primary /clinical care	medical	HP, PP, SP, TP	2, 7, 8, 9

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>	<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
Lyberg A. et al. 2012 (Norway)	Qualitative study	Immig. women	Examine midwives and public health nurses perceptions of managing and supporting prenatal and postnatal migrant women in a developed country.	Preventive care: Maternal or child care	HP, PP, SP, TP	2, 3, 7
McElmurry B.J. et al. 2003 (USA)	Theory Discussion paper/ Other	Latino Immig.	Describe the development and implementation of an urban outreach health program for immigrants; and the advocate partnership roles of - community-health nurses in primary health care delivery.	Primary medical /clinical care; Preventive care: Health promotion and education	HP, PP, SP	2, 4, 8
Morrison S.D. et al. 2007 (USA)	Theory Discussion paper/ Other	Immig. and Refugees	Describe the scope of available human services resources relating to nutrition, physical health, and behavioural health for new and recent immigrants.	Primary medical /clinical care; Preventive care: Health promotion and education	HP, PP, SP, TP	2, 3, 6, 8
Priebe S. et al. 2011 (Europe)	Qualitative study	Immig. in general	Assess the difficulties of professionals experience in providing health care to immigrants and their perceptions of good practice to overcome problems or limit their negative impact on the quality of care.	Primary medical /clinical care	HP, PP, SP, TP	2, 3, 4, 7, 8
Ramos R.L. et al. 2006 (USA)	Theory Discussion paper/ Other	Latino Immig.	Describe the development of a program based on the utilization of promotores in community-based organizations to improve the provision of HIV prevention services to recent immigrants and the less acculturated.	Preventive care: health promotion and education on HIV/AIDS	HP, PP, SP, TP	2, 3, 7, 8
IOM, (International) 2013	Theory Discussion paper/ Other	Immig. in general	Describe the main global strategies and initiative for health care in each world region.	Primary medical /clinical care; Preventive care: health promotion and education	HP, PP, SP, TP	1, 4, 7, 8, 9

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>	<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
WHO, 2010 (International)	Theory Discussion paper/ Other	Immig. in general	Report the results of the 2010 Global Consultation on Migrant Health that was convened in the 2008 World Health Assembly Resolution on the Health of Migrants.	Primary medical /clinical care; Preventive care: health promotion and education	HP, PP	2, 3, 4, 8
Sin et al. 2004 (USA)	Theory Discussion paper/ Other	Chinese Immig.	Assess the health needs of an immigrant working population in a large metropolitan city and its utilization of health care services.	Primary medical /clinical care	HP, PP	1, 2, 6

Primary Medical Care (PMC) models

Aragones A. et al. 2010 (USA)	Quantitative study	Latino Immig.	Assess the effectiveness of a multilevel intervention in increasing the rate of colorectal cancer screening among immigrants.	Preventive care: Cancer screening	HP, PP	2, 3, 7, 9
Baarnhielm S. et al. 2000 (Sweden)	Qualitative study	Turkish Immig.	Explore structures of illness meaning and understanding among somatising immigrant women from a poor and low status in contact with local health care services	Primary medical /clinical care; Mental Health care	HP, PP	2, 3, 9
Belue R. et al. 2012 (USA)	Quantitative study	Immig. children	Examine the relationship between medical home participation and receipt of preventive care among immigrant children.	Preventive care: Child care	HP, PP, SP	1, 4
Cabieses B. et al. 2012 (Chile)	Quantitative study	Immig. in general	Explore health care provision entitlement and use of health care services by immigrants in a developing country and compare them to the native-born	Primary medical /clinical care	PP, SP	1, 6
De Jonge A. et al. 2011 (Netherlands)	Quantitative study	Immig. women	Assess whether midwives adjust their care if women are undocumented and have no health insurance.	Preventive care: Maternal care	HP, PP, SP	1, 4

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>	<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
Gould G. et al. 2010 (Australia)	Theory Discussion paper/ Other	Immig. in general	Describe a multidisciplinary primary health care clinic for newly arrived humanitarian entrants in regional and report health problems and issues during the initial period of operation.	Primary medical /clinical care	HP, PP, SP	2, 4, 6, 8
Guruge S. et al. 2010 (Canada)	Qualitative study	Portuguese Immig.	Report the experiences of immigrant women who used a mobile health clinic for their reproductive health care.	Preventive care: Reproductive care	HP, PP, SP, TP	2, 4, 9
Jensen N.K. et al. 2013 (Europe)	Qualitative study	Refugees	Investigate how general practitioners experience providing care to refugees with mental health problems.	Mental health care	SP, TP	3, 4, 9
Ku L. 2007 (USA)	Review	Immig. children	Examine common misconceptions regarding immigrants and the nation's health care problems, and describes potential policies to improve or weaken children's access to insurance and health care.	Primary medical /clinical care for children	PP, SP,TP	1, 3, 6
Kwong K. et al. 2013 (USA)	Quantitative study	Chinese Immig.	Describe a culturally relevant intervention of a collaborative depression care model to integrate mental health and primary care services for depressed low-income immigrants in a community health centre.	Mental Health care: depression	SP, TP	4
Lofvander M. et al. 2002 (Scandinavian)	Review	Immig. in general	Examine regional studies concerning transcultural issues in primary care by reviewing the literature.	Primary medical /clinical care	HP, PP, SP, TP	2, 4
Singh-Franco D. et al. 2013 (USA)	Quantitative study	Immig. in general	Determine the effect on surrogate endpoints for cardiovascular disease, through a retrospective chart review of patients seen by a multidisciplinary team that provided primary care services in a mobile clinic.	Primary medical care/clinical care; Specific health care: CVD; Preventive care: health promotion and education	HP, PP, SP	4, 5, 6

<i>Authors, date (Country)</i>	<i>Type of study</i>	<i>Target group</i>	<i>Study goal</i>	<i>Type of care or service¹</i>	<i>Type of Prevention strategy²</i>	<i>Target Barriers³</i>
Tapp H. et al. 2013 (USA)	Theory Discussion paper/ Other	Latino Immig.	Describe a collaborative research project that identified and addressed challenges faced by both immigrant patients and their primary health care providers, to establish best practices in a network of health service to the community.	Primary medical /clinical care	HP, PP, SP	1, 2, 3, 4, 5
Taylor V.M. et al. 2009 (USA)	Quantitative study	Vietnamese women	Provide information about Pap testing barriers and facilitators to be used developing cervical cancer control intervention programs for immigrant women.	Preventive care: cancer screening, health promotion and education	HP, PP, SP	2, 7, 9
Telleen S. et al. 2012 (USA)	Qualitative study	Latino Immig. children	Examine the social context, structural, and behavioural factors within an immigrant community that contribute to increased access and use of oral health services by children of immigrant families.	Primary medical /clinical care; Specific health care: oral health; Preventive care: health promotion and education	HP, PP, SP, TP	2, 4, 9
Han, G.S. et al. 2006 (Australia)	Qualitative study	Korean Immig.	Analyze GPs' views on the health of immigrants and the complex process of providing and seeking effective and satisfactory medical care, in an immigrant community.	Primary medical /clinical care	HP, PP, SP, TP	2, 3, 9
WHO, 2003 (International)	Theory Discussion paper/ Other	Immig. in general	Provide an overview of some of the key challenges for policy-makers in addressing the linkages between migration, health and human rights.	Primary medical /clinical care	HP, PP	1, 4, 6

¹ Type of health care/ services provided

Primary medical/clinical care: basic primary care services, including acute or chronic care, immunization, screening, perinatal and child care, emergency, etc.

Specific health care: health care for specific health problem or medical condition, such as CVD, HIV/AIDS, oral health, vision care, etc.

Mental health care: health care for mental disorders such as depression, stress or other condition.

Preventive care: Specific preventive strategies, such as maternal or child care, reproductive care, cancer screening, health promotion and education interventions.

² Type of Interventions/Actions +

HP: Health Promotion actions on social determinants of health

PP: Primary Prevention

SP: Secondary Prevention

TP: Tertiary Prevention

³ Target Barriers/Facilitators*

1. *Insurance/ eligibility:* insurance status and eligibility to receive health care services, legal status, and right to health.

2. *Cultural barriers:* refers to relevant aspects affecting access and use of services such as perceptions about health and health care, preference for specific health care option, distrust, stigmatization and discrimination, isolation.

3. *Language/ Communication barriers:* low ability to speak the official language and communication difficulties.

4. *Organization of services/Quality of care:* lack of knowledge of the health system, no regular source of care, long waiting lists, shortage of services, low quality of care.

5. *Geographic access*: unavailability of services in the area, long distances from health services, lack or difficulties with transportation.
 6. *Economic issues/ Costs of services*: economic issues such a low income and costs of some health services.
 7. *Education/ Health literacy*: low health education, lack of information on health risks.
 8. *Social networks/support*: social networks and support, community participation.
 9. *Patient-Provider relationship*: Patient-Provider relationships, provider’s cultural sensitivity, trust between patient and provider.
- * Adapted from Derose 2007¹⁷; Access Alliance 2005⁸², McKeary 2010⁸³ + Adapted from *AFMC Primer on Population Health*, 2010⁷⁰

Regarding the type of immigrant population involved, 14 studies targeted immigrant populations in general, including refugees; 24 studies focused on specific immigrant groups (Hispanic, Chinese, etc.) and one focused only on refugees. The immigrants groups more represented were Hispanic/Latinos (8) and Asians (Chinese and Koreans) (6). Three studies were dedicated to immigrant women and three to children. The majority of the studies (62%) were conducted in North America with 24 studies (21 in the US and 3 in Canada); followed by Europe (6), Australia (2) and other countries (2). Only one study from a former low-middle income country was identified (Chile). Five studies involved several countries.

Table 3. Type of care or services provided, by type of health care approach.

Type of service	PMC (n=17)		PHC (n=22)	
	No.	%	No.	%
Primary medical/ clinical care	11	64.7	17	77.3
Preventive care	7	41.2	8	36.4
Mental health	3	17.6	3	13.6
Specific illness or medical conditions	2	11.8	2	9.1

Both health care approaches have similar distribution on the type of health care problems or service provided. More than 60% of the type of services for both PMC and PHC were classified as primary care measures, including general medical care for acute or chronic conditions, prenatal care, immunization, disease screening, emergency care and other services (Table 3). The

next category was preventive services, with approximately 40% of the studies in both approaches reporting on preventive strategies for specific health problems, such as oral health,⁸⁵ CVD,⁸⁶ cancer screening;^{87, 88} or preventive care for particular subgroups like children⁸⁹, or perinatal care.^{90, 91} Mental health services (general mental care, or care for specific mental disorders such as depression) were provided in less than 20% of studies (3 studies in each model).⁹²⁻⁹⁷

Targeting barriers to primary care for immigrant populations

Regarding how the two approaches addressed barriers to care, there were differences (see Table 4). For PHC approaches, the main barriers addressed were those related to socio-cultural issues, as nearly all of those studies (20 out of 22) included strategies to tackle social barriers, such as attention to cultural norms and to religious background,^{94, 98-101} the utilization of safety net models¹⁰² and the use of interpreters and cultural brokers.¹⁰³

Seventeen studies described strategies promoting social networks and support (78%), such as the involvement of ethno-cultural community leaders and organizations,^{94, 99, 104} as well as implementing other social programs and services that helped immigrants with their integration.^{96, 101, 105, 106} Followed closely behind were strategies to address barriers concerning language and communication problems were reported by 14 studies, including the use of language services,^{94, 99} and a similar number described strategies for organizing services and quality of care issues (e.g. laboratory services, emergency care), as well as those that promote education and improvement of health literacy.¹⁰⁷⁻¹⁰⁹

Table 4. Type of barriers or facilitators addressed, by type of health care approach.

Type of barrier or facilitator*	PMC (n=17)		PHC (n=22)	
	No.	%	No.	%
Insurance/ eligibility	6	35.3	6	27.3
Cultural barriers	9	52.9	20	90.9
Language/ Communication barriers	6	35.3	14	63.6
Organization of services/ Quality of care	12	70.6	14	63.6
Geographic access	2	11.8	1	4.5
Economic/ Costs of services	5	29.4	4	18.2
Education/ Health literacy	3	17.6	12	54.5
Social networks/support	2	11.8	17	77.3
Patient-Provider relationship	7	41.2	2	9.1

* Adapted from Derose 2007¹⁷; Access Alliance 2005⁸², McKeary 2010⁸³

Among the PMC approaches the top strategy was organization of services and quality of care (71%), such as multidisciplinary and coordination of care,^{86, 102} integration of services,¹¹⁰ collaborative model of care,⁹⁷ medical home model.¹¹¹ This was followed by strategies to address cultural barriers (53%) (language, health beliefs) patient-provider relationship (41%),^{88, 92, 112} and plans to improve access to insurance and entitlement to care, with six studies;^{86, 113, 114} and tactics to tackle economic costs associated with care, with five studies.^{85, 115} (Table 4).

Implementing Health Promotion and Disease Prevention Strategies

All of the PHC studies included strategies of health promotion, compared to only 71% of the PMC studies (Table 5). The health promotion strategies of PHC approaches encompassed educational activities aimed at achieving positive lifestyle attitudes and practices to improve health, and interventions to address other social determinants of health. Examples of those strategies were interventions to improve general education levels of the targeted population,^{94, 105, 116, 117} or their health literacy;^{107, 108, 118, 119} as well as wide health promotion programs using

community health workers.^{86, 99-101, 109} With regard to primary prevention, all the PHC models encompassed typical primary prevention strategies, such as immunization, disease screening, perinatal care,¹¹⁶ among others. In contrast, only 88% of the PMC models employed primary prevention strategies as part of their bundle package of services; and were more consistently providing tertiary prevention strategies.

Table 5. Type of prevention strategy, by type of health care approach

Type of preventive strategy+	PMC (n=17)		PHC (n=22)	
	No.	%	No.	%
Health Promotion (HP)	12	70.6	22	100
Primary Prevention (PP)	15	88.2	22	100
Secondary Prevention (SP)	14	82.4	19	86.4
Tertiary Prevention (TP)	8	47.1	8	36.4

+ Adapted from *AFMC Primer on Population Health*, 2010⁷⁰

Discussion

These findings reveal that the organization of services or strategies to deliver health care to immigrant populations at the entrance of the health system can be either through a PMC or a PHC approach. Both models can address newcomers' health needs, but they differ in the scope of their actions and the potential impact on immigrants' health transitions.

Most of the health care experiences, either PMC or PHC, involved the application of a bundle of basic medical care actions and services, including acute and chronic care, as well as preventive measures, such as immunization, perinatal care or disease screening. But some of the experiences in both approaches are focused on specific health problems such as mental health care (a critical issue for this population during their integration process); or treatment or prevention of specific

conditions (e.g. cardiovascular diseases, HIV infection, etc.). Hence both approaches can provide either a broad range of health-care services or deliver more focused interventions for specific health problems.

Tackling Barriers to Care

Regarding strategies to address immigrants barriers to care, the PHC approaches were more consistent than PMC in developing strategies to challenge cultural barriers, such as language and communication difficulties, social support, and educational programs,^{94, 98-101} while only half of the PMC approaches addressed directly those obstacles. These barriers represent critical challenges for immigrants and refugees when trying to obtain health care in the host country.^{83,}

120, 121

The PMC models, however, were more consistent than PHC in implementing strategies to improve the organization and quality of clinical medical care, and patient-provider relationships; which has been the focus of many primary care reforms.^{122, 123} In addition, several PMC models also integrated strategies to address cultural barriers, including measures to improve language and communication. These innovative features are making PMC models more immigrant-friendly and accessible; and offer improved quality of care,^{124, 125} which is one way to improve health equity for immigrant populations.

Focusing on Health Promotion

Concerning the application of preventive interventions, all PHC approaches included health promotion and primary prevention strategies as part of their organization of services, while among the PMC approaches only 70% and 88%, respectively included health promotion and primary preventive interventions. Consistent with the access barriers addressed, PHC models

were significantly more consistent in developing and implementing health promotion strategies through culturally oriented health care interventions and educational programs; and promoting a social environment to encompass and foster social support; and the development of community networks in organizing primary care to immigrant populations.

The main type of preventive strategies in PMC approaches included immunization, prenatal care (primary prevention) and disease screening (secondary prevention) interventions, but some of these models also covered health promotion strategies or actions on social determinants of health.^{87, 89, 92, 110, 112} These type of interventions are essential to protect health and can be critical in helping immigrants in their health transition process as they are exposed to new social and physical environments, and sometimes under adverse circumstances⁹ for which many of them are not prepared.¹²⁶

This make evident the progress of primary care reforms in meeting the health care needs of vulnerable populations; as several PMC models geared to specific subpopulations or minority groups (such immigrants) have introduced strategies aimed to address specific social and cultural needs.^{127, 128} Thus there has been a progressive shift in the PMCs models, moving from a ‘conventional’ primary care towards an ‘enhanced’ primary care driven by several primary care reforms in the last decade.^{32, 129} However, PMC models have some limitations in dealing with social issues that represent important determinants of health, in particular those factors outside the health system (social and cultural conditions), which are vital for immigrants and refugees; and can yield significant health care inequalities.^{82, 130}

Although a stakeholder's consultation was not conducted in this review, a recent Delphi consensus study primary care practitioners involved in providing care to immigrants and

refugees in Canada,¹³¹ language interpretative communication services, comprehensive health care, intersectoral collaboration and community engagement and support, were rated among the top five preeminent practices to provide appropriate quality of care to these populations. This reinforces the importance of those factors to meet immigrants' care needs.

Addressing Health Care Inequities

Abundant research has identified inequities in health care for immigrants,^{20, 130, 132} but in spite of that and of substantial efforts to address and overcome those barriers, health care inequalities in access and use of health services remain.^{56, 57, 133} In the cases of language and cultural barriers, immigrants may benefit from community outreach and culturally appropriate services.¹³⁴ The reviewed studies describe the characteristics of the strategies and provide some information on the results, but none of the reports evaluate the effectiveness of the model or strategies studied. However we used the results presented to assess how these models or strategies are prepared to address inequities in health care to immigrants.

Using the WHO CSDH framework to assess interventions that address health inequalities,⁸⁴ we can see that experiences using the PHC approach were prominent in implementing strategies to address *contextual factors* (i.e. socio-economic and political context) and *structural mechanisms* (e.g. social position, education, income, occupation, ethno-cultural factors), which may have a significant impact on immigrants health inequities. For example, PHC approaches were better able to implement strategies to impact cultural and social values through comprehensive experiences of social and community health services for immigrants^{94, 96, 99-101, 108, 111} as well as education and health literacy programs, than PMC models.^{107, 109, 116} Those structural factors have also been reinforced by international organizations and global consultations on migrants' health and health care as part of migrants-sensitive health care systems.^{27, 135}

PHC approaches were also better able rolling out strategies to alter key *intermediary factors* such as material circumstances (housing, financial capacity for consumption) that can have a meaningful influence on how immigrants deal with the new environment as well as psychosocial circumstances that can act as significant stressors during their settlement process. Also, some health programs based on the PHC approach have developed strategies of intersectorality and social participation to address those negative effects. Among the relevant strategies are establishing partnership with organization outside the health sector, such as legal services, food distribution, and transportation, to implement a comprehensive health care program.¹⁰⁵ Experiences of Community Health Centers have also provided evidence on intersectoral collaboration to support.^{99, 100} Research in Canada and the US has acknowledged that Community Health Centers are serving disadvantaged populations, including a great number of immigrants.^{136, 137} A large proportion of immigrants and refugees in urban areas of Ontario, are receiving health care from Community Health Centers.^{138, 139} Nevertheless the effectiveness and the real impact of these models of care on reducing health inequities in these populations still need to be assessed. Some PMC approaches, however, have also put into practice strategies on intermediary determinants, such as behaviours, biological, and psychosocial factors,^{92, 140} as well as for some material circumstances (cost of services), at individual level.^{110, 115}

Bearing in mind the role of the health system as intermediary factor by acting upon the differential exposure and sources of vulnerability for immigrants and refugees populations; both approaches developed strategies to address the quality of health services. Focus on professional medical services is a key feature of PMC models and they have demonstrated significant improvements in the quality of care and patient provider relationships.^{86, 88, 91, 112} But PHC

approaches have also considered relevant organizational measures to enhance the quality of care.
94, 104, 106

Another intermediary factor considered relevant in shaping population health and potential contributor in reducing health inequalities is social capital.^{141, 142} Research in the last three decades has explored the influence of social factors and social networks on the health status of individuals and populations.^{143, 144} Furthermore, numerous studies also support the importance of social capital in the integration of immigrants into the new society.¹⁴⁵ In line with that, PHC approaches were more consistent in providing strategies to strengthen social networks and social cohesion to help immigrants families to deal with the integration challenges, including health services.^{109, 111, 117, 118}

Finally, another key feature of PHC models is the inclusion of community health workers or health promoters, who have an essential role as educator and health broker; and also as a connector between the community and the health services. Several examples of PHC have provided evidence in that direction.^{100, 102, 109, 117}

In summary, this review reveals that both approaches have strengths and limitations in providing health care to immigrant populations; while PMC has stronger resources to enhance the quality of medical services, PHC is more robust in reaching social and cultural needs of immigrant populations. Also, both approaches can develop ways to reduce health inequities in health care to these populations; however these results also suggest that models based on the PHC approach are more suited to address critical determinants of health and have more capacities to contribute in reducing health care inequities. PHC has the potential to bridge the gaps between the health services and the community to address social determinants of health of immigrants.

These results are consistent with the growing evidence that health systems grounded on the PHC principles can be effective in tackling health inequalities and in effectively addressing social determinants of health.¹⁴⁶ Global examples of PHC (also called comprehensive PHC) have been documented and they demonstrate how strategies acting beyond the health services to address social and cultural needs of vulnerable groups can produce enhanced health benefits, and a comprehensive primary care models can contribute to achieve high standards of health.^{50, 147} The New Zealand experience of PHC is an example of strategy reaching vulnerable population, such as the indigenous people.¹⁴⁸ This experience provides publicly funded services particularly population health approaches and first-contact care for a wide range of health problems. By including a “collaborative health promotion and disease and injury prevention by all sectors” and an “active involvement of consumers and communities at all levels” among their key principles this strategy stays close to the Alma Ata Declaration values.¹⁴⁹ The Cuban experience on primary care is another example of strong intersectoral coordination and community involvement in a primary health care system¹⁵⁰. The Cuban health system brings the health care process as close as possible to where people live and work, and it constitutes the first element of a continuing health care process.¹⁵¹ The model maximizes community and individual self-reliance and participation in the planning, organization, operation and control of primary health care, making fullest use of local, national and other available resources.

Strengths and Limitations

This review is the first study to examine the two main primary care models in relation to immigrant populations and barriers to health care; and their potential to reduce health inequities. However the analysis has some limitations. None of the studies reported effectiveness of their interventions or measured the impact on inequities in health care to immigrant populations.

Also these results are limited to the search terms “model of care,” “primary care,” and “primary health care,” which may not have identified all models or bundles of primary care services to immigrants, under other descriptors. To enhance the relevance of the findings, we included the most common related terms in the health services research literature, to capture a wide variety of organization and arrangement of services or strategies to provide primary care to immigrants. Also, as the use of the concepts of primary care and primary health care in the published literature is mixed, we also expanded to other related terms from medical institutional care to community health care, to grasp the wide spectrum of services delivered at the first level of health care. Finally, this review is restricted to the literature published in English.

Policy Implications and Future Research

Based on these results it's critical that new health care approaches consider further improvements on the quality of care to immigrant populations, by promoting and developing comprehensive strategies and programs that go beyond the health care sector itself, to address socio-economic conditions on which these groups live and work. As evident in some studies, many programs have not fully addressed immigrants' health needs; therefore it's imperative to implement innovative strategies that target social and cultural factors, by engaging immigrants' organizations and community groups to effectively address this subpopulation needs, especially of those in most disadvantaged conditions (refugees, low-income families).

However, it is also critical to continue generating evidence to support the policy decision-making process that respond to and help to improve immigrants' health transitions in the new society. First in a broad general requisite, more knowledge translation efforts should be implemented between the research and policy communities, to address the mixed up in concepts of 'primary

care' and 'primary health care' in the literature, to make clearer the scope of each health care strategy of the program. That distinction may help to further understand the strengths and limitations of each approach. Lastly, although these results show the benefits of applying either an enhanced primary care model or a PHC approach, additional research is needed to comparatively assess the effectiveness of primary health care vs primary care approach in addressing health care inequalities.

Conclusions

This review shows that immigrants populations receive a variety of primary care services in the settlement country. These services use a traditional PMC or a PHC model. Both approaches can be helpful in providing essential health care and in addressing immigrants' health needs. However, the PHC approach demonstrated greater strengths in providing services to address many social determinants of health and critical conditions that affect immigrants in their settlement process; and thereby it is better suited for this population and could contribute further to reduce health inequities among immigrants. Despite the differences identified in this study, the two approaches have important strengths, and could act synergistically in responding to newcomers' health-care needs.

Promoting integrated PHC strategies health systems in the host country can effectively contribute to reduce health inequalities among immigrants and refugees, ensuring high quality of medical and clinical care, as well as actions on social determinants of health that are critical for newcomers in their new social context and their communities. Therefore public health policies and strategies should take into account the strengths and limitations of both approaches in the process of designing and implementing programs and plans to more effectively address immigrants health needs.

CHAPTER THREE

Immigrants' Enrollment in Primary Care in Ontario: a Secondary Data Analysis

Manuscript abstract

Impact of Health Care Reform on Enrollment of Immigrants in Primary Care Models in Ontario, Canada

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Abstract

Objectives: In 2003, Ontario introduced a patient enrollment system aimed at enhancing primary care services as part of health care reform. This study examined enrollment differentials in primary care services by type of practice between immigrants and long-term residents in Ontario from 2003 to 2012.

Methods: This is a population-based retrospective cohort study, in which a closed cohort of Ontario residents between 1985 and 2003 was created, using linked health administrative and immigration databases. Levels of enrollment for traditional and more comprehensive capitation-based practice between 2003 and 2012 were compared by immigrant status. Logistic regression modelling was used to assess the odds of enrollment on primary care practices.

Results: Overall enrollment in primary care practices increased gradually after 2004, until 2012, when two thirds of the cohort (67%) was enrolled. The immigrants' enrollment level remained consistently lower than that of long-term residents over the study period. By 2012, enrollment of immigrants in capitation-based models was significantly lower (17.3% vs. 25.4%). In particular, enrollment in Family Health Teams, considered the most comprehensive care model was three times lower in immigrants compared to long-term residents (5.6% vs. 18.0%; OR = 0.40, 95% CI 0.40 to 0.41).

Conclusions: Immigrants' rates of enrollment in new comprehensive primary care models were consistently lower than long-term residents. This has implication on equitable primary care access for immigrant populations and could be relevant for other countries planning health care reforms.

Keywords: primary care, primary health care, patient enrollment, access to care, immigrants, health equity, Ontario

Background

Health is largely driven by socio-economic conditions in which people live and work.¹⁵ Immigrant populations face many challenges and frank disruptions in living conditions during their migration process; for example, loss of regular health services. The health of immigrants upon arrival is better compared to the native populations, but this health advantage declines over time.^{9, 152, 153} Disrupted access to health care services may be a factor in immigrants' decline in health status.¹⁵⁴

As revealed by the literature review, the PMC approach is the focus of most developed nations in providing primary care services. Despite its limitations to address social determinants of health, this approach is critical to ensure that people receive appropriate health care at the first step of the health system. Over the last 20 years, there have been important developments in the provision of primary care services, aimed at improving the quality of care and introducing important strategies to address the health needs of the population. Among those improvements is the introduction of a more comprehensive and multidisciplinary model of care for chronic diseases,¹⁵⁵ including more preventive interventions (disease screening, patient education and counselling), as part of the emerging model of patient-centered care.¹⁵⁶ Another important strategy is incorporation of sensitive care strategies, in which health care providers receive training on cultural issues and are equipped with or supported by communication resources to provide culturally oriented care,^{157, 158} such as language interpretation services¹⁵⁹ and cultural brokers,¹⁶⁰ to enable communication and facilitate the curative process.

Another innovative feature is enrollment. Enrolling in health care services is a mechanism that allows patients to connect with health care providers to receive continues health care. Patient

enrollment has been recognized as an important feature of a high-performing primary care system.³³ Enrollment is a key component of innovative primary care models emerging in Canada,³³ the United States,¹⁶¹ the United Kingdom,¹⁶² the Netherlands,¹⁶³ Norway,¹⁶⁴ Denmark,¹⁶⁵ Australia¹⁶⁶ and New Zealand,¹⁶⁷ Depending on the jurisdiction and socio-political context, the enrollment can be formal (signed agreement by both patients and providers) or informal.

There is rich evidence on the benefits of enrollment systems, both for patients and for the health care system.^{168, 169} Continuity of care is enhanced by patient enrollment,¹⁷⁰ and thereby better health outcomes can be achieved.¹⁷¹ A better patient-provider can be achieved through a continuous relationship based on trust and mutual knowledge.¹⁷² More on the benefits are discussed later.

Enrollment mechanisms have been implemented in many provinces across Canada.³³ Overall, the majorities of the primary care practices fall into the PMC approach, although there are important experiences of PHC, being the Community Health Centers are the most relevant and extended nationally.⁴⁸ In Ontario, a patient enrollment system has widespread, reaching systemwide implementations.

Research across Canada ^{173, 174 175} and in Ontario in particular ^{176, 177} has shown that immigrants still faces important challenges accessing an using health services.¹⁷⁸ Therefore, this chapter focuses on the study of enrollment in primary care practices in Ontario, to compare the levels of enrollment among immigrants compared to non-immigrants in the province.

Models of Primary Care Services in Ontario

In Ontario, primary care services are provided under different primary care models.¹ The primary health system in the province has undergone important transformations in more than a decade, and multiple initiatives were implemented to enhance access and the quality of care, particularly at the primary care system.¹⁷⁹ Most of the initiatives to reform primary care services were changes to the main remuneration schemes: fee for service and capitation; and including supplementary financial incentives.¹⁷⁹

In 2003, a fee-for-service group of practice was launched, the Family Health Group, and in 2005 the Comprehensive Care Model was implemented to improve the services in solo practice. Simultaneously in early 2000s a blended capitation model was initiated, the Family Health Networks, and a few years later another capitation model was introduced, the Family Health Organizations (Figure 2 and Appendix G).

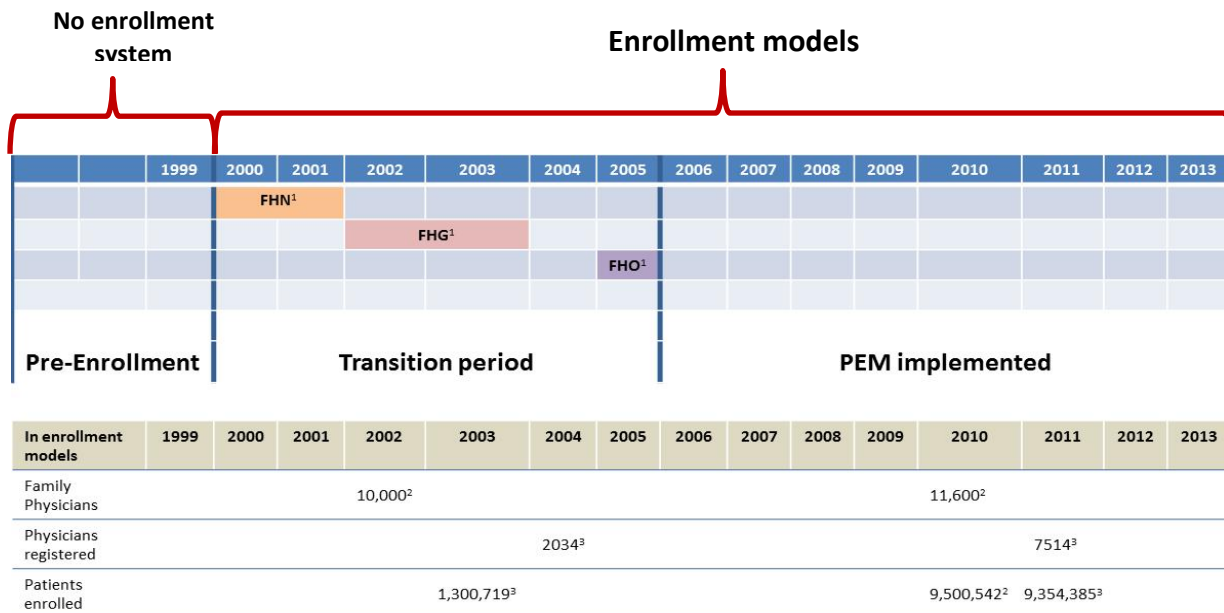
In 2005 a new form of practice was created, the Family Health Teams. Practitioners in Family Health Networks and Family Health Organizations models were eligible to join in a Family Health Team. The Family Health Teams are primary care practices to provide comprehensive and coordinated inter-professional primary care, supported by the Ontario Ministry of Health and Long-term Care facilitating an inter-professional collaboration to provide better quality of care.¹⁸⁰ A central defining element of Family Health Teams is their ability to offer enhanced access to inter-professional, team-based care by enrolling patients either to an individual family physician or to a group. Services are delivered by a range of providers, including physicians, nurses, nurse practitioners, social workers, dietitians, pharmacists, and other providers,

¹ Family Practice Models Ontario.

http://www.healthforceontario.ca/en/Home/Physicians/Training_%7C_Practising_Outside_Ontario/Physician_Roles/Family_Practice_Models

depending on local need. Family Health Teams also focus on chronic disease management and health promotion and disease prevention activities, working closely with other health care and community-based organizations, and act as a “patient navigator” to help guide patients through the health care system.¹⁸¹

Figure 2: Evolution of primary care models and enrollment system in Ontario, 2002-2013.ⁱⁱ



FHN: Family Health Networks
 FHG: Family Health Groups
 FHO: Family Health Organization

The reformed models can enroll patients; in capitation models it is required, while in the FFS practices enrollment is not mandatory. Physicians in the new capitation models receive bonus payments and incentives for enrolling patients and to enhance access to preventive and multidisciplinary services.¹⁷⁹ Thus capitation models are encouraged to offer a more comprehensive package of health care services, that includes preventive measures (screening,

ⁱⁱ Sources:

a. Glazier, R. H., et al. (2012). "All the right intentions but few of the desired results: lessons on access to primary care from Ontario's patient enrolment models." *Healthc Q* **15**(3): 17-21.
 b. Kralj B, Kantarevic J. Primary care in Ontario: reforms, investments and achievements. *Ontario Med Rev* 2012;79(2):18-24.
 c. Fleming M. Ontario Patient Rostering. CHSRF: Picking Up the Pace. Available from: www.chsrf.ca/Libraries/Picking_up_the_pace_files/Mary_Fleming.sflb.ashx

education and multidisciplinary care), and to provide care to more vulnerable populations; whereas FFS models do not have those incentives.

Benefits of Enrollment in Primary Care

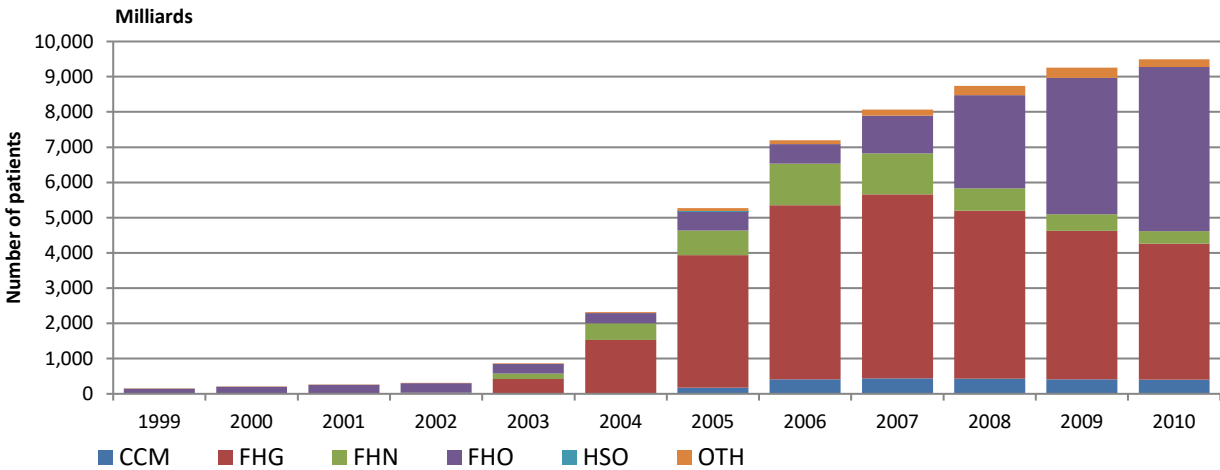
As already stated, a central pillar of the new models was a patient enrollment system. The patient enrollment model (PEM), consists of a formal voluntary patient registration with a primary care physician who participates in any of the Ontario primary care models (Appendix H).³⁵ The patient enrollment model formalizes a continuing relationship between the physician and the patient; it involves a dual commitment from both the patient and physician, which benefits both parts. Among the benefits of enrollment to a regular source of health care are: continuity of care, information sharing, permanent access to care and accountability.³⁴

Being enrolled to an enhanced primary care practice can improve access, coordination, continuity, comprehensiveness and quality of care.^{169, 170, 182} Continuity of care is a key element of good primary care, that is associated to better coordination and integration of care, patient-centered care and case management.^{170, 183-185} Enrollment ensures that patients are able to access health care through the same health care provider over time benefiting from the continuity of services, supporting both individuals and families in order to make the best decisions for their health, including health promotion, disease prevention and chronic disease management. In this model, patients receive evidence-based preventive care that is responsive to individual needs, which is delivered by skilled professionals. Also, this model guarantees that health care is expanded beyond the primary care physician during regular business hours, as patients can use after hour clinics and Telephone Health Advisory Service.

In addition, enrollment allows sharing health data and health information among service providers for preventive care and specific disease management. All that can result in better health outcomes for patients with chronic conditions.¹⁸⁶⁻¹⁸⁸ Enrollment also increases physician-patient accountability and encourages physician accessibility to patients. For physicians, the financial consequences of negation are reduced as patients are not seeking care outside their primary care group.³⁴ Continuity of care can also be beneficial to the health care system as it may contribute in reducing emergency department visits and hospitalizations.^{189, 190} Finally, an enrollment system has positive returns to primary care services as it reduces health system costs, and improves the efficiency by which public funding and physician compensation are administered.¹⁹¹

Since 2003 the overall number of people enrolled in these reformed practices has increased, and by 2010 nearly 10 million residents were registered to a family physician in any type of practice, representing approximately 70% of the population in Ontario.³⁵ (Chart 1)

*Chart 1: Patient enrollment, by type of practice and year (number). * Ontario 1999-2010*



* Enrolled as of December 31st, every year
 Source: ICES. CAPE database (Original and Updated dates)
 CCM: Comprehensive Care Model
 FHG: Family Health Group

FHN: Family Health Network
FHO: Family Health Organization
HSO: Health Service Organization
OTH: Other

However, little is known on how immigrants are getting access to that system, how they are enrolling in relation to Canadian-born or long-term residents in the province, or if they have adequate access to primary care practices providing more comprehensive services. Moreover information on the main factors influencing immigrants in accessing and benefiting from this system is limited.

The goal of this study was to examine the levels of enrollment in primary care practices in Ontario and compare the levels of enrollment between immigrants and long-term residents in different types of primary care models. Furthermore, we seek to begin to identify the main predictors for non-enrollment. Given the known issues of access to primary care services of immigrants in Canada,¹⁷³ we hypothesized that immigrants may have lower levels of enrollment than long-term residents.

Methods

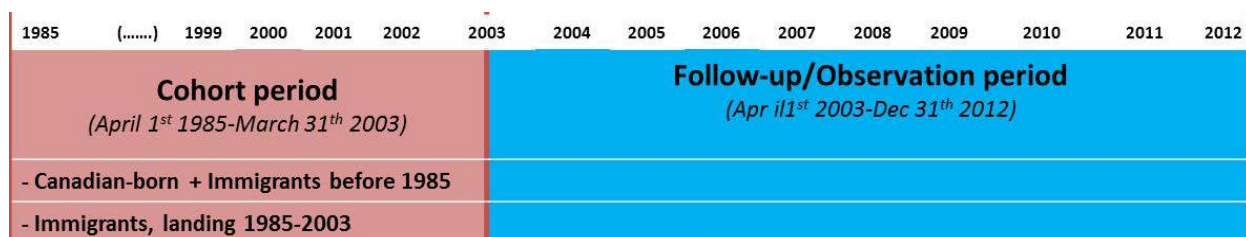
This study was a secondary data analysis, using linked administrative databases to examine the levels of immigrants' enrollment in primary care practices in Ontario between 2003 and 2012. A population-based retrospective cohort was created for this study.

Study population: A closed cohort of 9,231,840 Ontario residents between 1985 and 2003 (March 31, 2003) was created, from a linkage of health administrative datasets and a national

immigration databaseⁱⁱⁱ, and accessed through the Institute for Clinical Evaluative Sciences (ICES). To create the cohort, all adults age 18 years or older, eligible for coverage under the province’s health insurance plan on March 31, 2003, were included in the study if they had a valid health card number.

For the purpose of the study, two comparison groups were defined: a) foreign-born people who had been granted permanent residence in Canada, and landed or moved to Ontario between 1985 and March 31, 2003, were considered as *immigrants*; and b) the rest, which included any Canadian-born resident and all international migrants who landed in Canada and moved to Ontario, before 1985; were considered as *Long-term residents* (see Figure 3).

Figure 3: Study timeframe and comparison groups for the analysis



Data sources: Several administrative datasets were used for this study. The datasets were probabilistically linked in order to obtain the required information and set of variables to respond the research questions. The Registered Persons Database (RPDB) was the core dataset to which other databases were linked. The RPDB offered OHIP eligibility, the demographic information all Ontario residents. This database also provides information on neighborhood income level by postal code according to census data.¹⁹² The other databases were:

ⁱⁱⁱ The Registered Persons Database (RPDB), a registry of all people eligible for health coverage in Ontario, has been probabilistically linked to the Canadian Landed Immigrant Database (LID) maintained by Immigration, Refugees and Citizenship Canada.

- *Landed Immigrant Database (LID)*: provides individual information of every landed immigrant in Canada (age/ date of birth, gender, migrant class, country of origin, landing date, and other socio-demographic variables) at the time of arrival.
- *Ontario Health Insurance Plan (OHIP)*: database provides data on health services use; capturing information on provision of care to patients related to primary care visits and other activities such as physical exams, immunizations, screening and diagnostic procedures, consultations for medical care, etc.
- *Client Agency Program Enrollment (CAPE)*: database tracks patient enrollment to individual family physicians or primary care practice.
- *Composite databases* provide data on specific health conditions (hypertension, COPD, diabetes, etc.) that was used to summarize morbidity information in order to assess people's needs for primary care or long-term care (e.g. chronic conditions, comorbidity).

Study variables: Socio-demographic variables (age, gender, and place of residence) were obtained from the RPDB. Neighborhood income quintiles were determined by linking 2006 census data to the patients' residential postal code. Rurality was assessed using the Rurality Index of Ontario.¹⁹³

The LID provided information collected at the time of application for immigrant status on education level, intended occupation, language ability, immigration category, gender and date of birth. Patient comorbidity was determined by using the Aggregated Diagnosis Group (ADG) scores, from the John Hopkins Adjusted Clinical Groups (ACG) case mix system.¹⁹⁴ Physician billing claims to OHIP linked with the hospital Discharge Abstract Database and the National Ambulatory Care Reporting System (NACRS) from the Canadian Institute for Health Information; were used to identify patient diagnoses for 2002. Two measures were used to assess

the levels of morbidity: the Aggregated Diagnosis Groups (ADG) a proxy measure of Comorbidity; and the Resource Utilization Bands (RUB) as a proxy measure of use of health services. The ADG scores are grouped into 4 categories according to the number of diagnoses: 0 = no diagnosis, 1-5 = 1 to 5 diagnosis, 6-9 = 6 to 9 diagnosis, and 10 + = 10 or more diagnosis. The RUB includes six categories: 0 = Non-user, 1 = Healthy User, 2 = Low Morbidity, 3 = Moderate Morbidity, 4 = High Morbidity, 5 = Very High Morbidity. These case-mix adjustment system have been extensively used as measures of population morbidity,¹⁹⁵ and has been found to be a good predictor of health care utilization in United States⁶⁶ and Canada.¹⁹⁶

The enrollment status was determined when a person was formally registered to a primary care physician practising in a patient enrollment model, using the first recorded date of enrollment and the practice registered every year afterward (as people can change practice), according to the CAPE database as of December 31, 2012.

The type of model or practice was described using the following individual categories: Family Health Networks (FHN), Family Health Organizations (FHO), and the Family Health Teams (FHT) which are capitation-based models; and the Comprehensive Care Model (CCM), the Family Health Group (FHG), and Other Groups (OGP) for other types of practice, which are FFS-based practices (Appendix G). For this study we considered two main categories: 'FFS-based models,' which includes the reformed and traditional solo-practice fee for service practices (e.g. Comprehensive Care Model, Family Health Group, and others); and 'capitation-based,' which includes the enhanced capitation models (Family Health Organization, Family Health Network), as well as the inter-professional Family Health Teams, as this last model is comprised of capitation practices.

Figure 4: Study variables

Study Variables	Definition/categories	Database
Main outcome		
Enrollment in primary care	Formal enrollment in a primary care model according to the established procedures by the Ontario MHLTC. First enrollment was used as main outcome measure.	CAPE, CHC
Date of enrollment	Date when the person was first rostered with a family doctor	CAPE, CHC
Type of primary care model	Type of primary care practice in which the person is enrolled. Individual categories: Fee for Service (FFS), Comprehensive Care Model (CCM), Family Health Group (FHG), Family Health Network (FHN), Family Health Organization (FHO)	CAPE, CHC
Covariates		
Socio-demographics		
Age group	Age grouped into four categories: 18–34, 35–49, 50–64, 65+	RPDB, OHIP
Gender	Men/ Women	RPDB, OHIP
Place or region	Current place of residence, using the 14 LHINs created by the Ontario MHLTC.	RPDB, OHIP
Area of residence/ Rurality	Three categories were created using the Rurality Index of Ontario: Urban, Suburban, Rural	
Education	Higher level of educational attainment, into 4 categories: < High School (not completed high school), High School (Completed high school), Some Post-Sec. Education (Completed some post-secondary education), and Post Sec Education (Completed post-secondary education)	RPDB, OHIP
Income level	As income data at the individual level was not available, neighborhood income was used as a proxy measure for socio-economic status. The neighborhood income level was determined using postal code in a census metropolitan area according to census data. Neighborhood income quintile was used as income categories.	RPDB, OHIP
Immigration related variables		
Immigrant status	Whether the person is foreign or Canadian born	CIC/LID
Immigrant class/ category	Migrant class and categories according to CIC categories: Economic Class, Family Class, Refugees and Other Immigrants*	CIC/LID
Date of arrival	Landing date	CIC/LID
Length of stay in Canada	Time living in Canada since arrival (derived from the landing date). Proposed categories: Less than 3 years, 3 - 4 years, 5 - 9 years, and 10 or more years.	CIC/LID
Region of origin	Regions of the world were grouped into the following categories: Africa, India and Middle East, Asia and Pacific, South and Central America, United States, Europe and the UK (Derived from country of origin)	CIC/LID
Maternal language	Maternal language or first language learned. English, French, other	CIC/LID
Canadian official	Ability to use the Canadian official languages at arrival: English, French, Both	CIC/LID

language ability English and French, Neither English nor French

<i>Health status / health care</i>		
Chronic conditions	Diagnostic of chronic conditions; multi-morbidity (diabetes, congestive heart failure, acute myocardial infarction, stroke, hypertension, asthma, chronic obstructive lung disease), cancer, dementia, and others in the multi-morbidity databases.	Composite databases
Co-morbidity	Level of comorbidity using the Aggregated Diagnostic Group (ADG) scores, from the John Hopkins Adjusted Clinical Groups (ACG) case mix system.	OHIP, DAD, NACRS
Use of health services	Use of health services using the Resource Utilization Band (RUB), from the John Hopkins Adjusted Clinical Groups (ACG) case mix system.	OHIP, DAD, NACRS

Statistical analysis. Univariate and bivariate descriptive analysis was conducted to determine the levels of immigrants' enrollment and the main primary care practices in which they are enrolled (e.g. FFS-based, capitation-based, Community Health Center). In the second stage a multivariate analysis (regression models) was carried out to identify risk factors for lack enrollment to primary care among new immigrants, and examine the role of time-related variables in enrollment among immigrants.

The descriptive analysis allowed computing the rates (per 100 populations) of enrollment among immigrants in primary care services, according to the main type of model: Fee for Service-based or capitation-based models. Results were presented and analyzed according to socio-demographic and health-related characteristics. Enrollment levels were calculated as the proportion of people enrolled from the total in each category, for each model of care. Cross tabulated analyses were conducted to assess the levels of enrollment according to socio-demographic characteristics (age, gender, income, rurality and comorbidity). Rate ratio was used to determine the relative difference between the study groups (immigrants and long-term residents) for each category. The overall enrollment as well as enrollment by model type was assessed over time, from 2003 to 2012, and a cross-sectional analysis for enrollment in 2012

(fiscal year 2012, ending March 31, 2013) was performed to compare the two study groups at that point in time. A specific analysis on enrollment in capitation-based models was also carried out to assess the gap between the two groups on this type of model, which are the most comprehensive primary care practices.

Multivariate analyses comprised two types of modelling procedures logistic regression and a survival analysis. Logistic regression modelling was performed to examine the association between the enrollment in 2012 and the study variables, as explanatory variables. First, simple logistic regression models were fitted to examine bivariate relationship between the main outcome (enrollment status) and each explanatory variable, from which the crude OR was obtained. Then, multivariate logistic regression modelling was used to examine the effect of immigrant status (study group) on enrollment, controlling for the other factors as covariates. For these analyses three models were fitted. Predisposing factors age, gender, area of residence, immigrant class, and region of origin, were entered in the first model. Enabling factors income, education category, length of stay, maternal language and Canadian Official Language ability were entered in the second model. A full model was fitted by entering the need factor variable (comorbidity). The health resource utilization variable was not included as covariate for these analyses, due to the high level of correlation with comorbidity ($r=.81$).

The modelling process was carried out independently for both types of models, for 'any model' of care and for 'capitation-based models.' Finally, a complementary analysis was performed for the immigrants group to examine the characteristics of the enrollment in this specific population. A similar modelling process was carried out to examine the association of enrollment with length of stay in Canada as main exposure, controlling for migration-related factors as covariates.

Survival analysis was used to describe the evolution of the enrollment over time and compare the average time to enrollment between the two groups. For this analysis ‘time until enrollment’ was the main outcome. The Kaplan-Meier survival function was used to plot the survival curves that described the probability of enrollment over time for both groups, and the Cox Proportional Hazards model was used to estimate the hazard functions for time to enrollment, both the bivariate models and the multivariate model adjusting for the study covariates. For this analysis, a total of 46,669 records were excluded since they were already enrolled (had a rostering date prior April 1, 2003).

Significance for all the statistical analyses was defined at a two-tailed p-value of less than 0.05. All analyses were performed using SAS statistical software, Enterprise Guide version 6.1 (SAS Institute, Inc., Cary, NC).

Ethics. For the secondary data analysis the research protocol was approved by the Research Ethics Board of the Ottawa Hospital Research Institute in Ontario, Canada (REB Protocol No. 20130715-01H). In addition, ethics approval was obtained from the Bruyère Continuing Care Research Ethics Board, REB Protocol # M16-14-006.

Results

The baseline characteristics of the cohort are shown in Table 6. Immigrants represent 13% of the cohort; they are in average, younger than Long-term residents and have similar gender distribution. The majority of the immigrants live in urban areas and the largest proportion is concentrated in the major metropolitan areas of the province, mainly around the Greater Toronto Area region, 80% of immigrants have settled down in the Central LHINs, where 42% of the

long-term residents live (Table 6 and Figure 5). Immigrants are located in the lower division of the income quintile distribution.

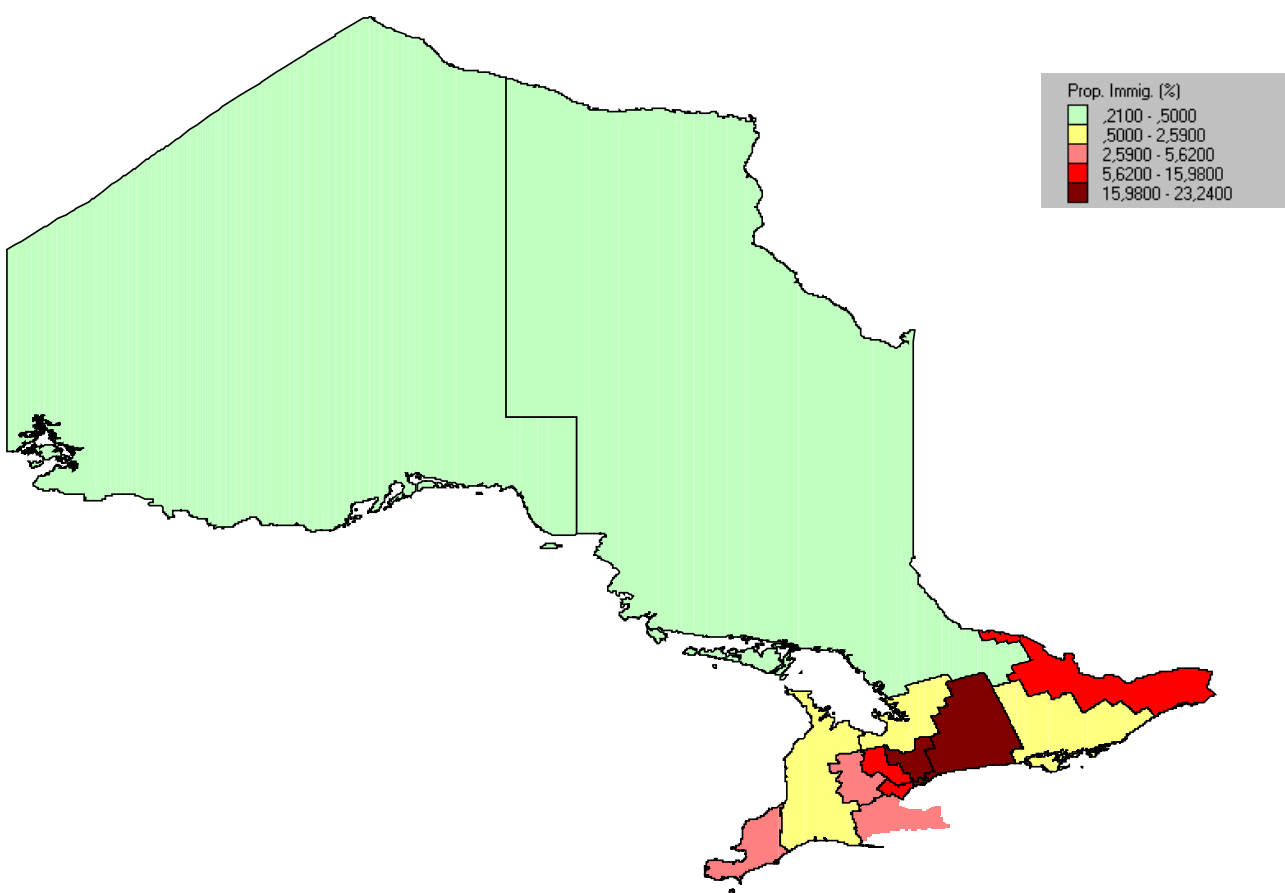
*Table 6. Cohort profile: Ontario residents, adults 18 and older. Ontario 1985-2002**

Characteristics	Immigrants (n= 1161126)			Long-term residents (n= 8070714)		
	Proportion (%)	95% Conf. Interval from to		Proportion (%)	95% Conf. Interval from to	
Age group						
Median age (yrs.)	SD: 14.47			SD: 17.66		
18–34	38.2	38.2	38.3	28.5	28.5	28.6
35–49	40.5	40.4	40.6	31.4	31.4	31.4
50–64	13.1	13.0	13.2	22.3	22.3	22.4
65+	8.1	8.1	8.2	17.7	17.7	17.7
Gender						
Women	50.95	50.86	51.05	51.34	51.30	51.37
Men	49.05	48.95	49.14	48.66	48.63	48.70
Area of residence						
Urban	96.42	96.39	96.46	67.46	67.43	67.49
Suburban	2.83	2.80	2.86	22.23	22.21	22.26
Rural	0.66	0.64	0.67	9.27	9.25	9.29
LHIN						
Erie-St. Clair	2.59	2.56	2.62	5.68	5.66	5.69
South West	2.56	2.53	2.59	8.16	8.14	8.18
Waterloo Wellington	3.27	3.24	3.30	5.63	5.62	5.65
Hamilton Niagara Haldimand Brant	4.76	4.72	4.80	11.95	11.93	11.97
Central West	10.03	9.98	10.09	4.68	4.66	4.69
Mississauga Halton	12.88	12.82	12.95	7.14	7.12	7.16
Toronto Central	17.46	17.39	17.53	8.96	8.94	8.98
Central	23.24	23.16	23.31	10.42	10.40	10.44
Central East	15.98	15.91	16.04	11.17	11.15	11.19
South East	0.55	0.54	0.57	4.45	4.43	4.46
Champlain	5.62	5.58	5.66	10.12	10.10	10.14
North Simcoe Muskoka	0.50	0.49	0.51	3.64	3.62	3.65
North East	0.30	0.29	0.31	5.63	5.62	5.65

North West	0.21	0.20	0.22	2.32	2.31	2.33
Income category (quintile)						
Q1 (poorest)	32.15	32.07	32.24	17.66	17.64	17.69
Q2	23.13	23.05	23.21	19.81	19.78	19.84
Q3	18.49	18.42	18.56	20.35	20.33	20.38
Q4	15.30	15.23	15.36	20.58	20.55	20.61
Q5 (richest)	10.88	10.82	10.94	21.24	21.22	21.27

* Data for the fiscal year 2002, April 1, 2002- March 31, 2003) SD: Standard deviation

Figure 5: Proportion of immigrants by LHIN (percentage). Ontario, 2002



Health-related characteristics of the cohort are presented in Table 7. The presence of major chronic diseases was significantly higher among long-term residents (75%) compared foreign-born (47%). Overall, immigrants in the cohort had lower levels of morbidity compared to long-term residents, based on the presence of comorbidity and specific chronic conditions. As shown,

nearly half (48%) of the long-term residents had an ADG score of 6 or higher, while 44% of immigrants registered that degree of comorbidity. Consistent with the comorbidity scores, the health resource utilization pattern has shown that long-term residents with higher needs were the highest users of health services.

Table 7. Health-related variables at baseline, by study group. Ontario 2003

Characteristics	Immigrants (n= 1161126)			Long-term residents (n= 8070714)		
	Proportion	95% Conf. Interval		Proportion	95% Conf. Interval	
	(%)	from	to	(%)	from	to
Selected chronic conditions						
AMI	0.39	0.38	0.41	1.28	1.28	1.29
Asthma	5.62	5.58	5.67	9.94	9.92	9.96
CHF	0.63	0.62	0.65	2.27	2.26	2.28
COPD	2.17	2.14	2.19	6.52	6.51	6.54
Diabetes Mellitus	5.59	5.55	5.63	6.93	6.91	6.95
Hypertension	12.49	12.43	12.55	21.40	21.38	21.43
Mental health disorder	20.58	20.51	20.65	26.56	26.53	26.59
Comorbidity (ADG score)						
0	14.88	14.8	14.9	9.19	9.17	9.21
1 to 5	41.15	41.1	41.2	42.59	42.55	42.62
6 to 9	36.57	36.5	36.7	39.21	39.18	39.24
10 +	7.40	7.4	7.4	9.01	8.99	9.03
Resource utilization (RUB score)						
0 Non-users	14.88	14.81	14.94	9.19	9.17	9.21
1 Healthy users	6.45	6.4	6.5	5.95	5.93	5.97
2 Low morbidity	17.90	17.8	18.0	16.71	16.68	16.73
3 Moderate	47.14	47.1	47.2	50.79	50.75	50.82
4 High	12.35	12.3	12.4	13.50	13.47	13.52
5 Very High	1.28	1.3	1.3	3.86	3.85	3.88

AMI: Acute Myocardial Infarction, CHF: Congestive health failure; COPD: Chronic Obstructive Pulmonary Disease

Characteristics of the Immigrants

The largest proportion of immigrants came from Asia Pacific regions (45%) followed by Europe (22%); and 51% of them were living in Canada less than 20 years (Table 8). Less than 4% of the

foreign-born were not educated, more than half (52%) attained at least a secondary level of education; and one fifth of them had a University or Postgraduate education (22%) at arrival. Excluding English, the most common mother tongues were those from India and south Asian regions (19%), followed by Chinese (16%) and South-East Asians & Pacific (10%). When landing near 40% of immigrants reported limited ability to communicate in any of the two Canadian official languages.

*Table 8. Migration-related characteristics of immigrants in the cohort. Ontario residents, 18 or over 1985-2002**

Characteristics	Immigrants (n= 1161126)		
	Proportion (%)	95% Conf. Interval from	to
Immigrant class/category+:			
Economic Class	42.93	42.84	43.02
Family Class	39.36	39.27	39.45
Refugees	16.47	16.40	16.53
Other Immigrants	1.24	1.22	1.26
Education category++			
High School or less	56.18	56.09	56.27
Post Sec. education	20.54	20.46	20.61
University degree	18.28	18.21	18.35
Post-Grad Education	5.01	4.97	5.05
Length of stay in Canada			
Less than 3 years	8.55	8.50	8.60
3 – 4 years	12.68	12.62	12.74
5 – 9 years	30.68	30.60	30.77
10 or more years	48.09	48.00	48.18
Region of origin			
Africa and Middle East	15.19	15.12	15.25
Asia and Pacific	45.12	45.03	45.21
South and Central America	15.21	15.15	15.28
United States	2.24	2.21	2.26
Europe and the UK	22.25	22.17	22.32
Maternal language group+++:			
English,	17.08	17.01	17.15

French	0.34	0.33	0.35
Chinese	16.38	16.32	16.45
India & South Asia	18.90	18.83	18.97
Arabs & Mid. East	7.14	7.09	7.19
SE Asians	10.29	10.23	10.34
Spanish	4.79	4.75	4.83
Other languages	25.07	24.99	25.15

Canadian official language ability (at arrival)

English	58.94	58.85	59.03
French	0.84	0.83	0.86
Both English and French	1.98	1.95	2.00
Neither English nor French	38.24	38.15	38.33

* Data for the fiscal year 2002, April 1- 2002- March 31, 2003)

++ Education category:

- High School or less: None, Secondary or less
- Post Sec. education: Formal Trade Certif./Apprentice, Non-University Certif. or diploma; or Some University - No Degree
- University degree: Bachelor Degree, or Some postgrad. Education - No Degree
- Post-Grad Education: Master Degree or Doctorate

+++Maternal language group:

- English
- French
- Chinese: Mandarin, Cantonese and other Tibetan languages
- India & South Asia: all India's languages
- Arabs & Mid. East: Arabic, Persian, Hebrew and other Middle East languages
- SE Asians: Tagalog, Indonesian and other South East Asia and Pacific languages
- Spanish
- Other languages

+Immigrant class/category:

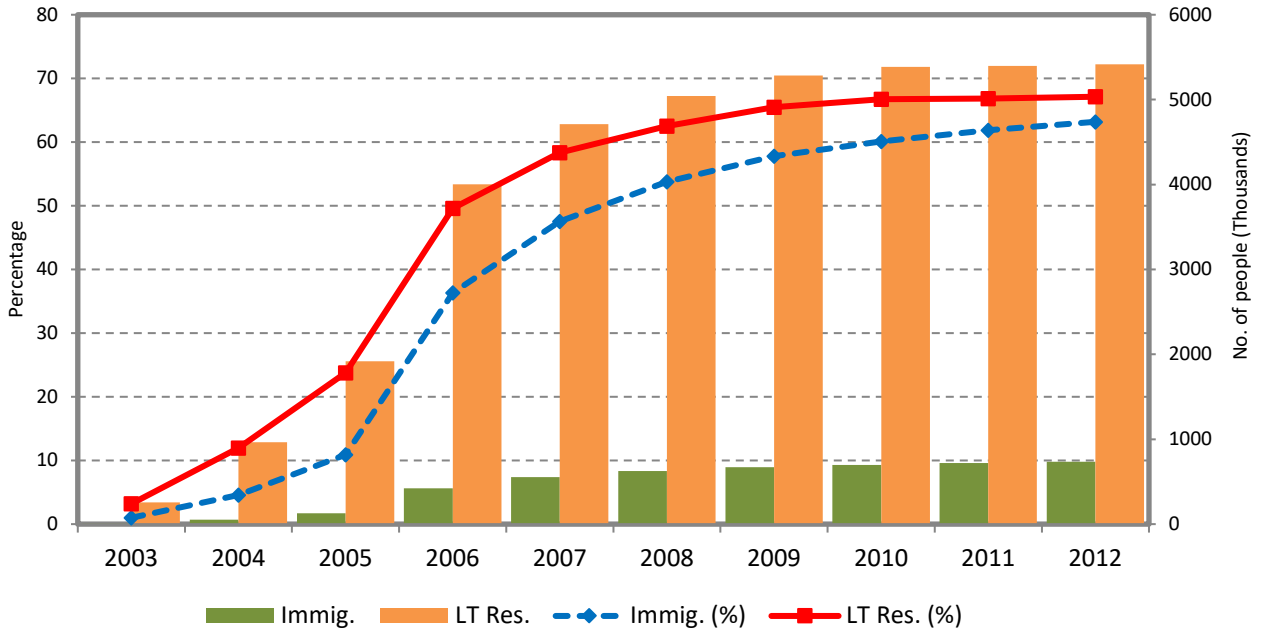
- Economic Class: Include Skilled workers, Live-in Caregivers, Provincial nominees, Business immigrants such as entrepreneurs, Investors and Self-employed
- Family Class: include Parents and Grandparents; Spouses and Partners
- Refugees: include Government-assisted Refugees, Landed in Canada Refugees and Privately Sponsored Refugees
- Other Immigrants: Humanitarian and Compassionate/Public Policy Consideration.

Enrollment over Time

At the beginning of the study period (2003), only 3% of the population was registered in a primary care practice. Enrollment has grown after 2003 and the fastest increase occurred between 2004 and 2006, when the overall proportion of people registered in the system doubled that from the previous year, from 11% to 22% between 2004 and 2005; and from 22% to 48% between 2005 and 2006. Since then the rate of enrollment slowed down, and by 2012 three thirds of the cohort was enrolled in a primary care practice (Chart 2). However, some differences were observed in the enrollment process between immigrants and long-term residents, particularly

during the first five years of the study period. Overall, immigrants stayed behind 1-2 years of long-term residents in getting registered in a primary care practice, but the gap in enrollment was closing towards the end of the study period (Chart 2).

*Chart 2: Enrollment by years and study group (number and proportion of people enrolled).
Ontario, 2003-2012*

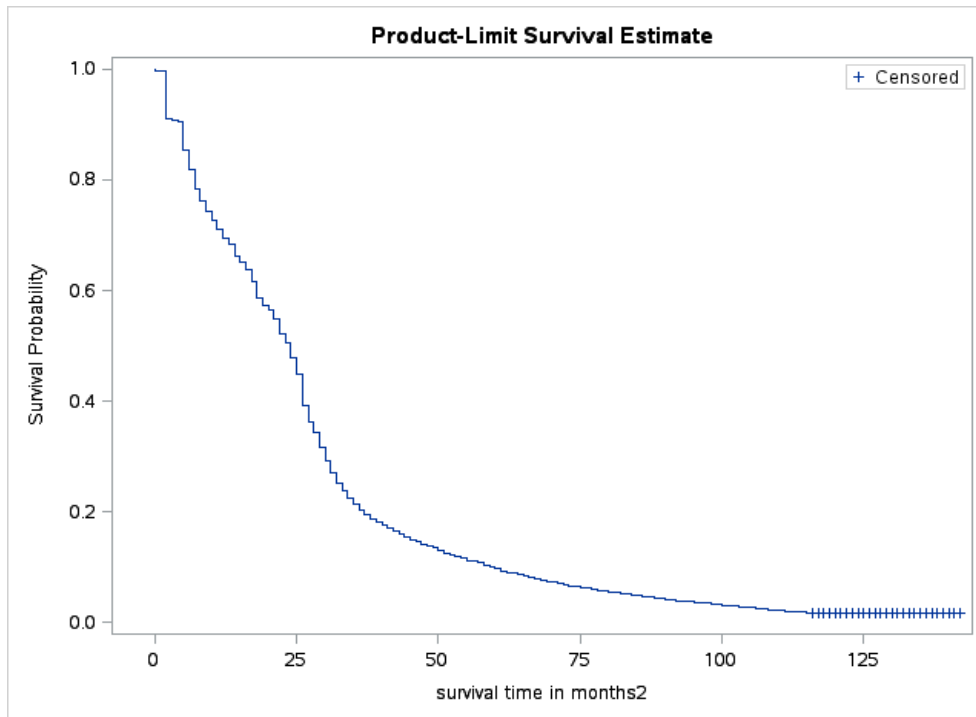


Time to Enrollment in Primary Care: a Survival Analysis

In order to explore further the enrollment process and estimate how long it took for immigrants to get enrolled, a survival analysis was carried out to examine the differences in ‘time to enrollment,’ comparing immigrants and long-term residents. The following section presents the results of that analysis.

Out of the 7,736,333 people from the cohort considered for this analysis, 7,604,689 were enrolled at the end of the follow-up time, over a period of 142 months (see Appendix I). The largest numbers of enrollments occurred during the first 30 months of the observation period. As revealed by the survival function, after 24 months (two years) 40% of the people in the cohort were still not enrolled in a primary care practice, and after 60 months (five years) around 15% is still unenrolled (Chart 3).

Chart 3: Probability of enrollment in primary care over time

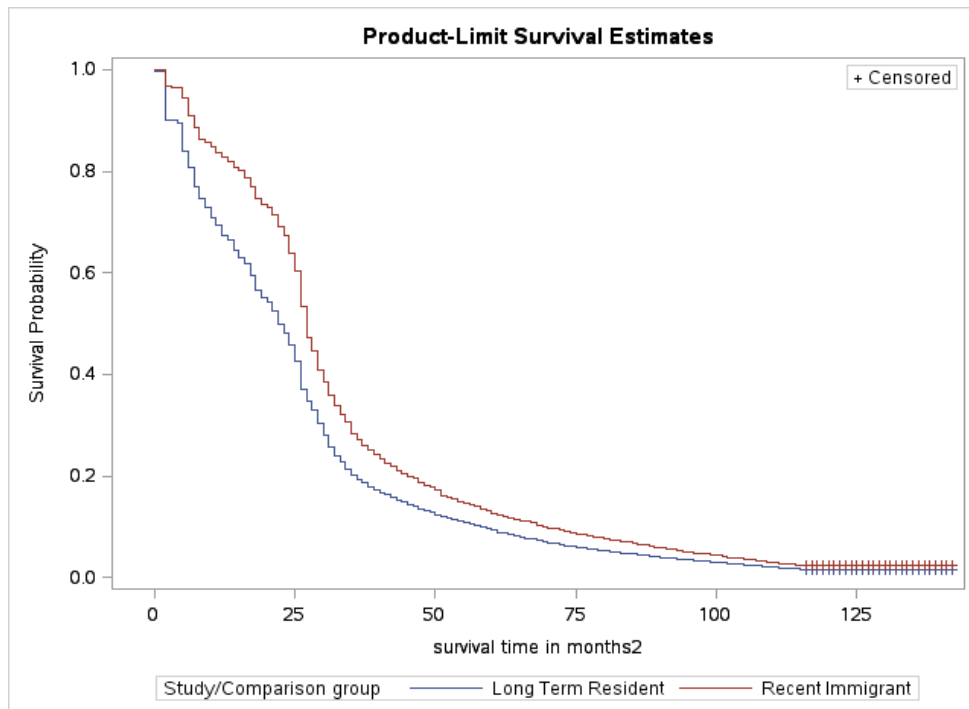


Time to Enrollment by Study Group

Although a similar pattern is observed in both groups, there are some differences in the time to get enrolled. Immigrants got enrolled in a primary care practice on average after 34 months (median 27), which is significantly different from long-term residents who were enrolled in average at 27 months (median 22; $p < .0001$).

According to these results, immigrants remain unenrolled significantly longer than the long-term residents in Ontario. After two years (24 months), 70% of immigrants are still looking for a primary care practice to be registered with, while only 50% long-term residents are likely to be in that situation. After five years, the gap has narrowed, as 11% of long-term residents continue to be unrolled while 17% of immigrants continue to look for a primary care practice (Chart 4).

Chart 4: Probability of enrollment in primary care over time, by to study group



Univariate and multivariate Cox regression modelling results for time to enrollment are presented in Table 9. All variables were significantly associated with the time to enrollment.

Unadjusted hazard ratio (HR) showed that immigrants were 34% less likely to get enrolled at any time during the follow-up period compared to long-term residents [HR: 0.76; 95%CI: 0.76-0.77; p<.0001].

Table 9. Results of Cox proportional modelling for overall enrollment in primary care; uni and multivariate hazard ratios and 95% confidence intervals

Variables	Univariate model				Adjusted model			
	Age- adjusted	95% Conf. Interval		<i>p</i> -value	Age- adjusted	95% Conf. Interval		<i>p</i> -value
	HR	from	to		HR	from	to	
Gender	1.00	Ref.: Men						
Women	1.114*	1.113	1.116	<.0001	1.061*	1.059	1.062	<.0001
Immigrant status	1.00	Ref.: Long-term residents						
Immigrants	0.768*	0.766	0.770	<.0001	0.806*	0.805	0.808	<.0001
Area of residence	1.00	Ref.: Urban						
Suburban	1.191*	1.189	1.190	<.0001				
Rural	1.042*	1.039	1.050	<.0001				
Income category (quintile)	1.00	Ref.: Q5 (richest)						
Q1 (poorest)	0.835*	0.833	0.837	<.0001	0.869*	0.867	0.871	<.0001
Q2	0.900*	0.898	0.902	<.0001	0.921*	0.919	0.923	<.0001
Q3	0.942*	0.939	0.944	<.0001	0.956*	0.954	0.958	<.0001
Q4	0.974*	0.972	0.976	<.0001	0.984*	0.981	0.986	<.0001
Co-morbidity	1.00	Ref. 10+						
0	0.555*	0.553	0.557	<.0001	0.593*	0.591	0.596	<.0001
1 to 5	0.898*	0.896	0.901	<.0001	0.942*	0.94	0.945	<.0001
6 to 9	0.979*	0.976	0.982	<.0001	1.00	0.998	1.003	0.727

* Significantly different from reference group (p< 0.05)

HR: Hazard ratio

Overall, immigrant women were more likely to get enrolled [HR: 1.11; 95%CI: 1.11-1.12; p<.0001], as well as those living in suburban areas [HR: 1.19; 95%CI: 1.19-1.19; p<.0001]. A gradient is evident for income and comorbidity at the bivariate level. Relative to the richest quintile of income, immigrants in the other quintiles were less likely to get enrolled, and the odds

increased as the level of income increases. Similarly, the probability of getting enrolled over time increases as the level of comorbidity increase.

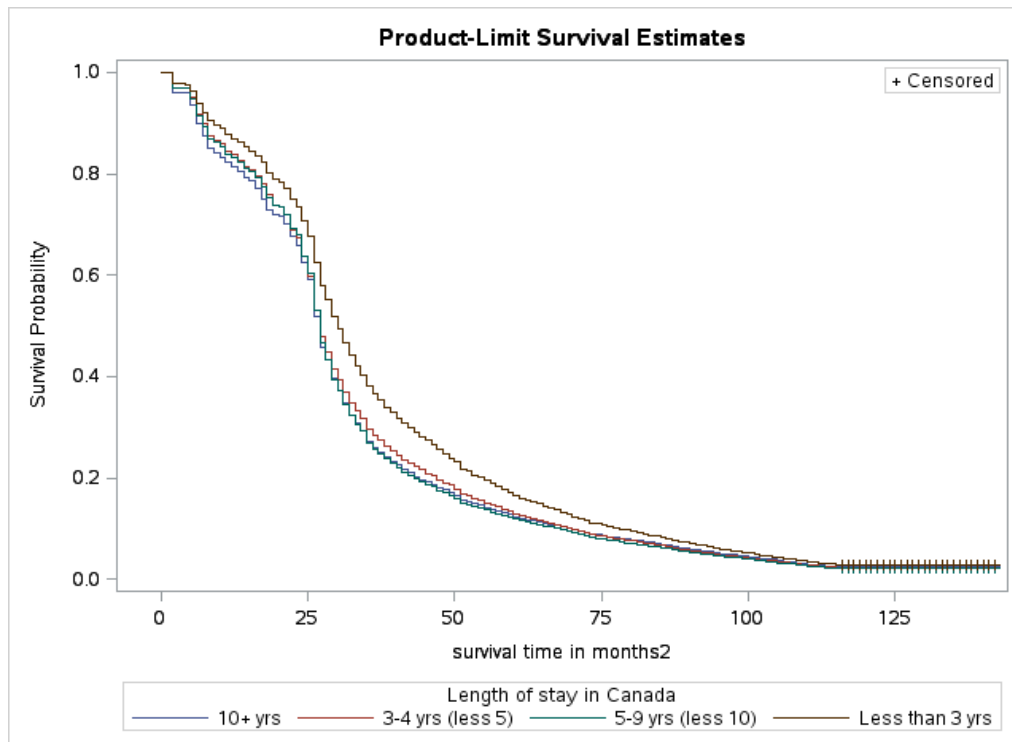
After adjusting for all the covariates (age, gender, income and morbidity), immigrants still had lower odds of enrollment in primary care practices [HR: 0.81; 95%CI: 0.80-0.81; $p < .0001$]. In the fully adjusted model the gradient of enrollment by income level and comorbidity remains, but the HR for the comorbidity score of 6-9 is no longer significant [HR: 1.00; 95%CI: 0.99-1.00; $p = .727$] (Table 9).

Time to Enrollment among Immigrants

Among immigrants, the probability of enrollment over time by length of stay in Canada showed a clear gradient, as those immigrants in the cohort who were living in Ontario less than 3 years remained unenrolled longer than the rest of the immigrants. After two years (24 months) almost 80% of the most recent immigrants were still unenrolled, and 36 months later (5 years after) 19% of that group remained in the same situation. By the end of the observation period, 3% of the recent immigrants were still unattached ($p < .0001$) (Chart 5). Immigrants living in Canada between 3 and 5 years had a longer period of waiting to get registered in a primary care practices, although this group was closer to immigrants living in Ontario 5 years or longer.

The results for the Cox regression analysis among immigrants are presented in the Table 10. According to the unadjusted HR for the length of stay in Canada, immigrants under 3 years since arrival had the lowest probabilities of getting enrolled in the period of the study [HR: 0.82; 95%CI: 0.82-0.83; $p < .0001$]; and the probability of enrollment increases with a longer length of stay on the country.

Chart 5: Probability of enrollment in primary care among immigrants by length of stay in Canada.



At the univariate level, the enabling and need factors income, education, the ability to speak one of the Canadian Official Languages, and comorbidity also revealed a gradient for enrollment during the follow-up period, as the probabilities of enrollment were higher as the levels of income and education increases. Also those immigrants with higher scores of comorbidity were also more likely to get enrolled during the period studied.

In the fully adjusted model, the length of stay continue to have a significant effect on the enrollment with a gradient pattern observed at the univariate level, as well as the income level and the ability to communicate in any of the Canadian Official Languages. However, similar to the analysis for the entire cohort, the adjusted HR for the comorbidity score of 6-9 was no longer significant [HR: 0.99; 95%CI: 0.99-1.01; p=.797] (Table 10).

Table 10. Results of Cox proportional modelling for enrollment in primary care among immigrants, uni and multivariate hazard ratios and 95% confidence intervals

Characteristics	Univariate model				Adjusted model			
	Age-adjusted HR	95% Conf. Interval		p-value	Age-adjusted HR	95% Conf. Interval		p-value
		from	to			from	to	
Length stay	1.00	<i>(Ref.: 10+)</i>						
Less than 3 years	0.82*	0.82	0.83	<.0001	0.95*	0.94	0.96	<.0001
3 – 4 years	0.97*	0.96	0.97	<.0001	0.99*	0.98	0.99	0.0002
5 – 9 years	1.01	1.00	1.01	0.058	1.00	0.99	1.00	0.4203
Gender	1.00	<i>(Ref.: Men)</i>						
Women	1.09	1.082	1.091	<.0001	1.05*	1.045	1.05	<.0001
Income category (quintile)	1.00	<i>Ref.: Q5 (richest)</i>						
Q1 (poorest)	0.84*	0.84	0.85	<.0001	0.86*	0.86	0.87	<.0001
Q2	0.87*	0.86	0.88	<.0001	0.89*	0.88	0.90	<.0001
Q3	0.91*	0.90	0.91	<.0001	0.92*	0.91	0.93	<.0001
Q4	0.96*	0.95	0.97	<.0001	0.96*	0.95	0.97	<.0001
Co-Morbidity	1.00	<i>(Ref.: 10+)</i>						
0	0.59*	0.59	0.60	<.0001	0.61*	0.61	0.62	<.0001
1 to 5	0.94*	0.93	0.95	<.0001	0.97*	0.96	0.98	<.0001
6 to 9	0.99*	0.98	0.99	0.003	0.99	0.99	1.01	0.797
Canadian official language ability	1.00	<i>(Ref.: Neither English nor French)</i>						
English	1.09*	1.08	1.09	<.0001	1.042*	1.04	1.05	<.0001
French	1.04*	1.02	1.07	0.0005	1.009	0.99	1.03	0.4542
Both English and French	1.05*	1.03	1.06	<.0001	1.001	0.99	1.02	0.9153
Education category	1.00	<i>(Ref.: Post-Grad Education)</i>						
High School or less	0.96*	0.95	0.97	<.0001				
Post Sec. education	0.99*	0.98	0.99	0.016				
University degree	0.97*	0.96	0.97	<.0001				
Immigrant class/category:	1.00	<i>(Ref.: Refugees)</i>						
Economic Class					1.11*	1.09	1.11	<.0001
Family class					1.01*	1.09	1.10	<.0001
Other Immigrants					1.07*	1.05	1.09	<.0001
Region of origin	1.00	<i>(Ref.: US)</i>						
Africa and Middle East					1.00	0.98	1.01	0.5309
Asia and Pacific					0.94*	0.93	0.96	<.0001
South and Central America					0.83*	0.81	0.84	<.0001
Europe and the UK					0.95*	0.93	0.96	<.0001

* Significantly different from reference group (p< 0.05)

HR: Hazard ratio

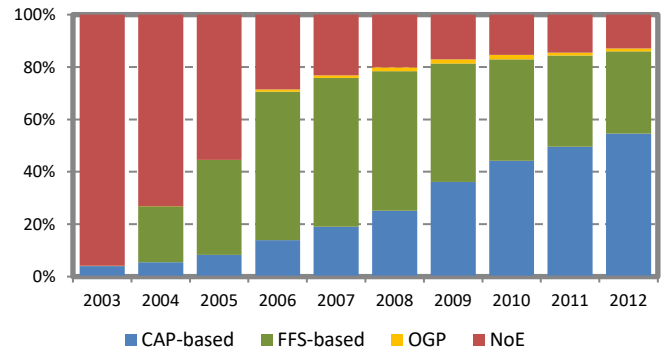
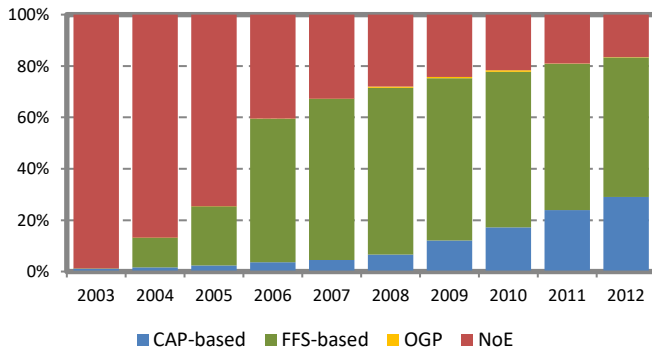
Enrollment by Type of Model

As observed, the enrollment levels increased progressively over the study period. Initially, traditional FFS-based practices attracted the majority of the people looking to be registered, and the enrollment in these models increased rapidly during the initial years of the observation period. A decline after 2008 was observed when enrollment in capitation-based models grown progressively (Chart 6). This pattern was more notable among long-term residents, as since 2010 the proportion of people enrolled in capitation-based practices from this group, surpassed that in FFS-based models, showing a rapid switch from the traditional FFS practices to the reformed capitation-based models.

Chart 6: Proportional distribution of enrollment overtime, by type of practice and study group (percentage). Ontario, 2003-2012

Immigrants

Long-term residents



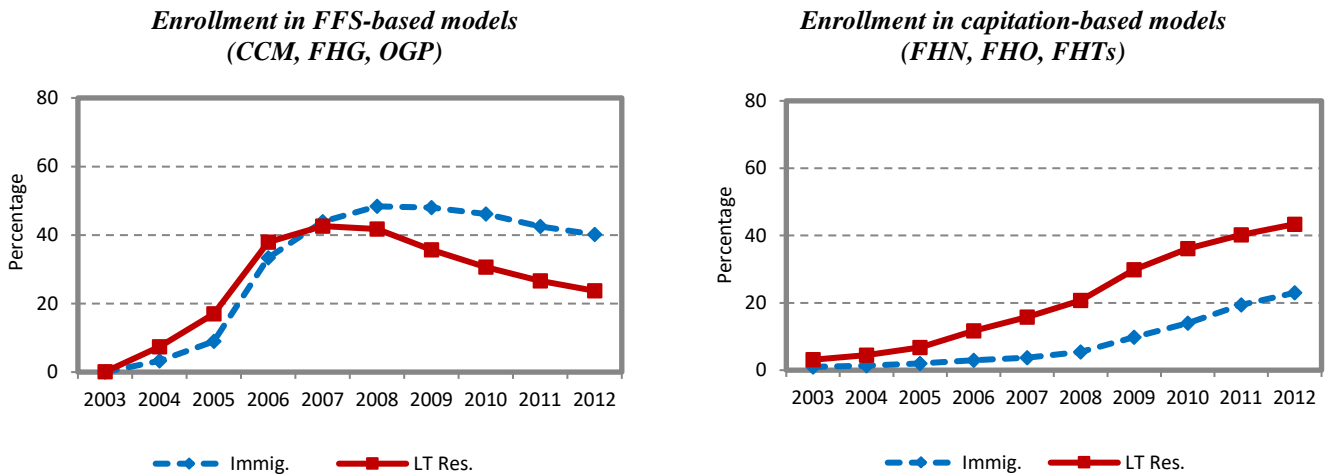
CAP-based: capitation-based practices (FHN, FHO, FHTs)
 FFS-based: traditional FFS-based practices (CCM, FHG, OGP)
 OGP: Other group or type of primary care practice

In contrast a very slow progression was observed for enrollment of immigrants in the novel capitation-based models, and they remained predominantly registered in traditional FFS practices. As a result, a growing gap had grown between the two groups regarding the enrollment

in capitation-based models, although the distance was closing towards the end of the study period (Chart 7).

In addition to the difference in the overall enrollment, this evolution reveals further disparities in the levels of enrollment between the two study groups, as the long-term residents were moving more quickly into the enhanced capitation-based models, whereas the immigrants continued to be mostly enrolled in the traditional FFS-based practices.

Chart 7: Enrollment into primary care practices over time, by type of model and study group (percentage). Ontario, 2003-2012



FHN: Family Health Network, FHO: Family Health Organization
 CCM: Comprehensive Care Model
 FHG: Family Health Group
 FHT: Family Health Team
 OGP: Other enrollment Group

Enrollment in 2012

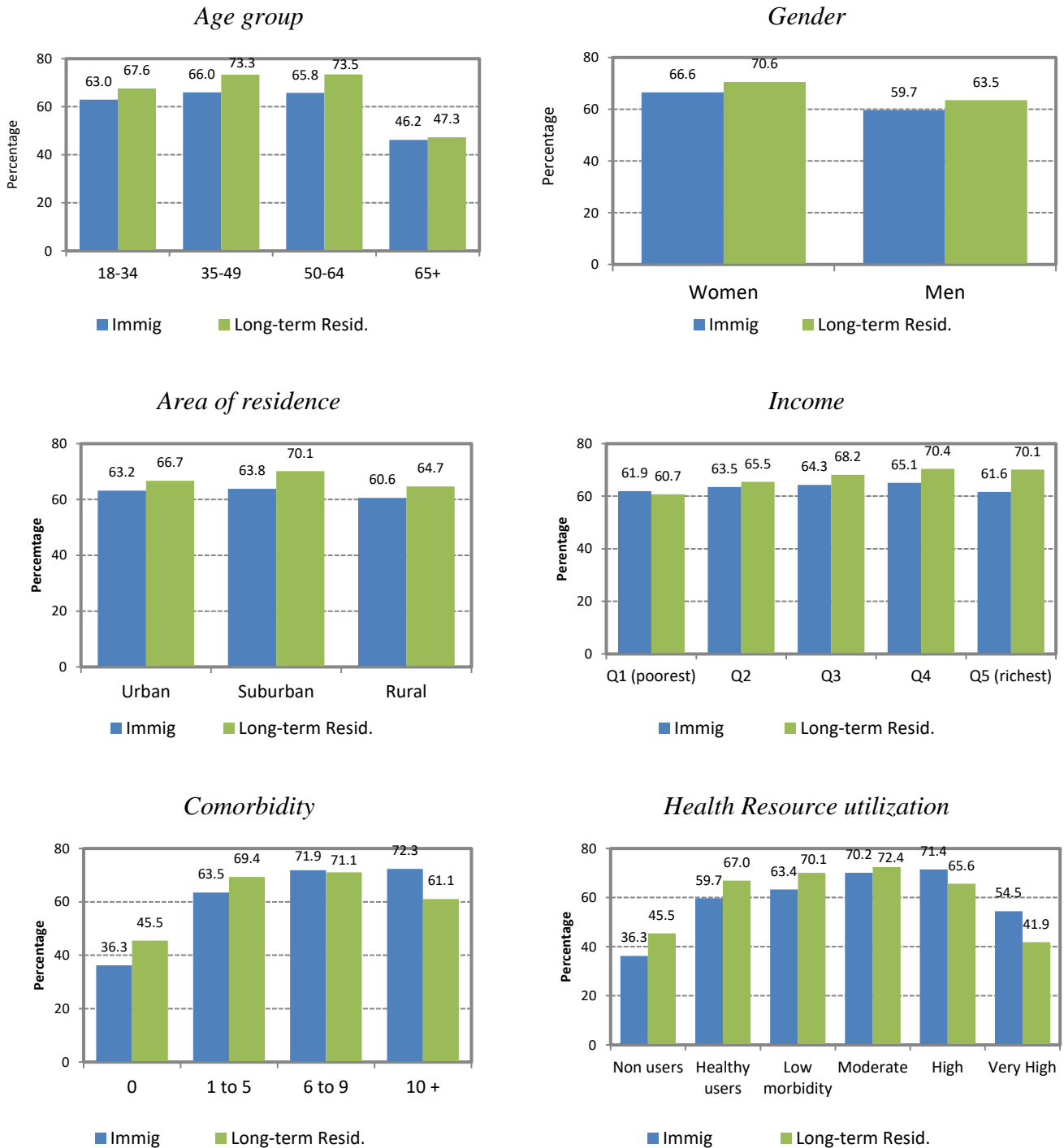
In 2012, a total of 6,150,765 people in the cohort were enrolled (67%), and 733,657 of them were immigrants (63% of all immigrants), which represents 12% of all enrolled (see Appendix J). A larger proportion of long-term residents were enrolled in any type primary care practice, related to immigrants: 67% vs. 63%. This difference was consistently observed across all socio-

demographic characteristics: age, gender, area of residence and income level; as well as by health-related measures, based on the ACG scores (see Chart 8).

Overall, adults between 35 and 64 years of age had the highest enrollment rates (72%). Women showed significantly higher levels of enrollment than men: 70 vs. 63%, in both study groups. Enrollment in suburban zones (70%) was highest compared to urban (66%) and rural (65%) areas. A clear gradient was observed according to the level of income, as enrollment levels were higher as the neighborhood income increased. However, among immigrants, the levels were slightly lower in the richest quintile compared to the fourth one. This pattern was more evident among long-term residents, showing a larger interquintile gap (Q5/Q1) of 1.2 vs. 1.0 in immigrants (Chart 8).

A gradient was also observed according the level of comorbidity (ADG scores), for each study groups, as the levels of enrollment were higher as the morbidity scores increased, and those with higher health needs had higher levels of enrollment. This pattern was more evident for the immigrants group. However, among long-term residents, the rates are lower for those with the highest comorbidity level and very high resource's users (RUB scores).

Chart 8: Overall enrollment (in any model) by study group and socio-demographic variables (percentage). Ontario 2012



Source of data: Appendix J

By region of residence (based on the LHIN's structure), the overall enrollment levels were highest in the South West (71%), Hamilton Niagara (70%) and North Simcoe Muskoka (69%) LHINs. These were also the ones with the highest enrollment levels for long-term residents, whereas the Central West (68% each), Central (67%) and North Simcoe Muskoka (66%) LHINs showed the highest levels among immigrants (see Table 11).

Table 11. Overall enrollment in any model, by LHIN. Ontario 2012

LHIN	Immigrants (n=1161126)			Long-term Residents (n= 8070714)			Total	
	Total	Enrolled	%	Total	Enrolled	%	Enrolled	%
Erie-St. Clair	30096	16892	56.1	458329	304429	66.4	321321	65.8
South West	29759	18759	63	658265	467353	71	486112	70.7
Waterloo Wellington	37995	23119	60.8	454736	320552	70.5	343671	69.7
Hamilton Niagara/ Haldimand Brant	55271	33739	61	964627	682817	70.8	716556	70.3
Central West	116490	79125	67.9	377380	260852	69.1	339977	68.8
Mississauga Halton	149609	92537	61.9	576254	399341	69.3	491878	67.8
Toronto Central	202704	122174	60.3	723507	430140	59.5	552314	59.6
Central	269794	179543	66.5	840701	576272	68.5	755815	68.1
Central East	185495	121549	65.5	901635	621033	68.9	742582	68.3
South East	6440	3872	60.1	358907	245125	68.3	248997	68.2
Champlain	65264	35026	53.7	816884	510781	62.5	545807	61.9
North Simcoe Muskoka	5828	3856	66.2	293382	203101	69.2	206957	69.2
North East	3471	1937	55.8	454753	284760	62.6	286697	62.6
North West	2464	1301	52.8	187406	107972	57.6	109273	57.6

Enrollment by Type of Model

In addition to differences in the overall enrollment between the two study groups, there were also important disparities according to the type of model, considering the two categories of models, FFS-based or capitation-based; as Immigrants were most likely to be enrolled in FFS-based models, while long-term residents were more likely to be attached to capitation-based models.

By the end of the study period, immigrants were 1.7 times (40% vs 24%, $p < .0001$) more likely to be enrolled in FFS-based models than long-term residents, and 50% less likely (23% vs. 43%, $p < .0001$) to be enrolled in capitation-based primary care practices. The gap was even larger for the enrollment in Family Health Teams, the most comprehensive model of care in the province, as immigrants were over 3 times less likely to be enrolled in these practices (5.6% vs. 18.3%; RR Immig/Long-term resid. = 0.31, $p < .0001$) (Table 12).

Table 12. Enrollment in primary care by type of model. Ontario 2012

Type of model or practice	Immigrants			Long-term Residents			RR
	Enrolled Number	Rate (x100)	95% Conf. Interval	Enrolled Number	Rate (x100)	95% Conf. Interval	(Immig./ long-term Res.)
Capitation (FHN, FHO)	201,131	17.3	(17.2-17.5)	2,045,937	25.4	(25.3-25.4)	0.7
Comprehensive Care Model (CCM)	49,692	4.3	(4.1-4.5)	184,403	2.3	(2.2-2.4)	1.9
Family Health Group (FHG)	415,671	35.8	(35.7-35.9)	1,660,932	20.6	(20.5-20.6)	1.7
Family Health Team (FHT)	65,773	5.7	(5.5-5.8)	1,454,369	18.0	(18.1-18.1)	0.3
Other type of practice	1,390	0.1	(0.0-0.3)	71,467	0.9	(0.8-1.0)	0.1
Total enrolled	733,657	63.2	(63.1-63.3)	5,417,108	67.1	(67.1-67.2)	0.9
<i>Capitation-based (FHN, FHO, FHT)</i>	<i>266,904</i>	<i>23.0</i>	<i>(22.8-23.1)</i>	<i>3,500,306</i>	<i>43.4</i>	<i>(43.3-43.4)</i>	<i>0.5</i>
<i>FFS-based (CCM, FHG, Other)</i>	<i>466,753</i>	<i>40.2</i>	<i>(40.1-40.3)</i>	<i>1,916,802</i>	<i>23.8</i>	<i>(23.7-23.8)</i>	<i>1.7</i>

Rate: # enrolled in category/Total people in the category x 100. RR: Rate ratio; Imm./ long-term Res

FHN: Family Health Network, FHO: Family Health Organization

As a result of the primary care reforms in Ontario, a group of blended capitation-based models were introduced and expanded across the province. These models included a series of enhanced measures aimed at improving the quality of health care to the population. Given the superior capacities of these models of primary care, this analysis focus in the enrollment on these particular models of care, looking at examining how immigrants were gaining access and getting enrolled in these novels primary care practices.

Table 13 displays the characteristics of the enrollment in capitation-based models compared to long-term residents. Overall, immigrants had lower levels of enrollment by all individual variables, both by socio-demographics as well as by health-related variables.

*Table 13. Enrollment in capitation-based models by socio-demographics and study group.
Ontario 2012*

Characteristics	Immigrants			Long-term residents			RR (Immig./ Long-term res.)
	Rate (x100)	95% Conf. Interval from to		Rate (x100)	95% Conf. Interval from to		
Age group							
18–34	22.9	22.6	23.1	43.1	43.0	43.2	0.53
35–49	24.8	24.5	25.0	47.2	47.1	47.3	0.52
50–64	23.2	22.7	23.6	47.9	47.8	48.0	0.48
65+	14.5	13.9	15.1	31.3	31.2	31.4	0.46
Gender							
Women	24.3	24.1	24.6	45.6	45.6	45.7	0.53
Men	21.6	21.3	21.8	41.0	40.9	41.1	0.53
Income quintile							
Q1 (poorest)	22.4	22.1	22.7	38.4	38.3	38.5	0.58
Q2	22.3	22.0	22.6	41.9	41.7	42.0	0.53
Q3	22.4	22.0	22.8	43.5	43.4	43.7	0.51
Q4	23.0	22.6	23.4	45.1	45.0	45.3	0.51
Q5 (richest)	27.2	26.7	27.6	47.2	47.1	47.3	0.57
Area residence/ Rurality:							
Urban	22.3	22.1	22.5	39.1	39.1	39.2	0.57
Suburban	41.2	40.4	42.0	53.0	52.9	53.1	0.78
Rural	46.0	44.4	47.7	52.2	52.1	52.4	0.88
Comorbidity (ADG scores)							
0	14.0	13.6	14.5	31.4	31.2	31.6	0.45
1 to 5	24.6	24.3	24.8	46.5	46.5	46.6	0.53
6 to 9	25.0	24.7	25.3	44.6	44.5	44.7	0.56
10 +	22.2	21.6	22.7	35.2	35.1	35.4	0.63
Resource utilization (RUB scores)							
Non-users	14.0	13.6	14.5	31.4	31.2	31.6	0.45
Healthy users	23.2	22.6	23.9	45.5	45.3	45.7	0.51
Low morbidity	24.3	23.9	24.7	46.9	46.8	47.0	0.52

Moderate	25.0	24.8	25.2	46.1	46.1	46.2	0.54
High	24.5	24.1	25.0	40.7	40.6	40.9	0.60
Very High	18.8	17.3	20.2	26.3	26.0	26.6	0.71

Rate: # enrolled in category/Total people in the category x 100 RR: Rate ratio; Imm./ long-term Res

Enrollment among Immigrants

As noted above, immigrants’ enrollment levels increased over the study period, and by 2012 nearly two thirds (63%) of all immigrants in the cohort were enrolled in at least one of the primary care practices. This proportion was significantly lower than that of long-term residents (67%). Consistent with the general pattern, enrollment levels were higher for immigrant adults between 35 and 64 years of age, for women, and for those living in and in the highest income level. Also, immigrants with higher comorbidity scores had higher enrollment levels (see Appendix K).

Immigrants coming from Latina America (66%) had the highest enrollment levels, while those arriving from the United States had the lowest (53%). Economic immigrants showed the highest levels of enrollment (64%), followed by Family class immigrants (63%). Over 60% of refugees were enrolled in at least one primary care practice, but this type of migrants had the highest levels of enrollment in capitation-based-based models (40%).

A clear gradient was observed for the length of residence, as those living in Canada for less than 3 years at the starting point of the study period (2003), had higher enrollment levels (65%) than those living 3 or more years, and the lowest levels were observed among those between 5 and 9 years since arrival (62%). As expected, immigrants with the ability to communicate in English when arrived had the highest levels of enrollment (64%), while those with difficulties to speak French had the lowest rates (57%). Immigrants with post-secondary education had the highest levels of enrollment (65%).

Enrollment by Model of Care

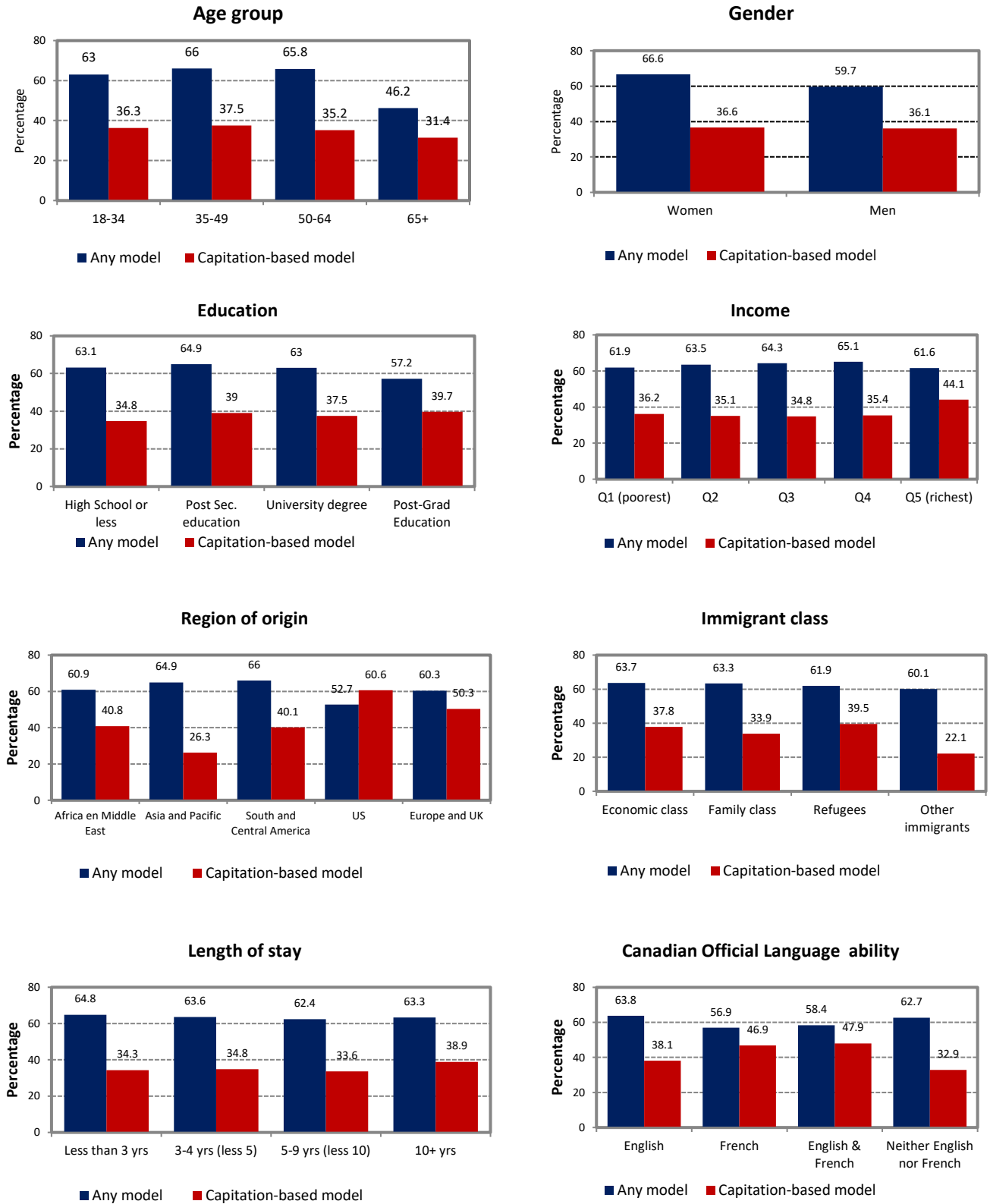
In addition, to differences in the overall enrollment between immigrants and long-term residents, there were also important disparities according to the type of model in which immigrants were enrolled according to immigrants' characteristics. Similar to the overall enrollment women and adult immigrants showed the highest levels of enrollment in any model or in capitation-based-based models (see Chart 9).

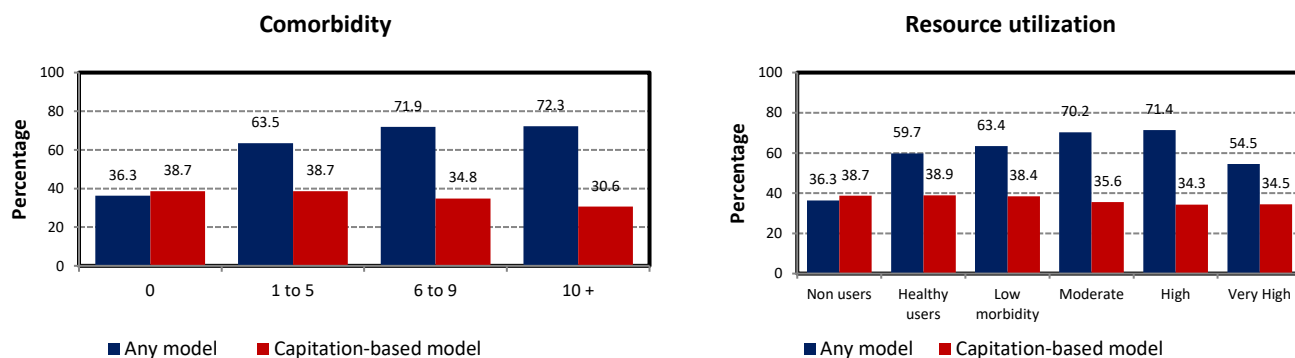
As anticipated, immigrants living in Canada more than 10 years had significantly higher levels of enrollment in capitation-based models compared to the rest of the immigrants. Immigrants in the highest income quintile and those with the highest education levels showed the lowest overall enrollment rates but had the highest levels of enrollment in capitation-based-based models.

After the Other immigrant category, Refugees had the lowest levels of overall enrollment, but had the highest enrollment levels in capitation-based models. Immigrants with poor ability to communicate in French or were not able to speak neither English nor French had the lowest levels of enrollment overall. However they showed the highest enrollment levels in capitation-based-based models.

As expected, a gradient was observed for enrollment in any model: the higher the needs, the higher the enrollment levels. However, a reversed gradient was observed for enrollment in capitation-based models, as those with higher needs, had the lowest enrollment levels (Chart 9). This suggests that those immigrants with higher health care needs were not benefiting from the higher quality of care provided through the enhanced capitation-based models.

Chart 9: Enrollment of immigrants in primary care by type of model. Ontario, 2012





Data source: Appendix K

Table 14 presents the distribution of immigrants' enrollment by LHIN and type of model. In the regions with the highest levels of enrollment for immigrants (Central West and Central), they are mainly registered in FFS-based practices. The highest levels of enrollment in capitation-based models were observed in Waterloo Wellington (50%), North Simcoe Muskoka (49%) and South East (41%).

Table 14. Enrollment among immigrants by type of model and LHIN. Ontario 2012

LHIN	FFS-based		Capitation-based	
	Number	%	Number	%
Erie-St. Clair	9184	30.5	7708	25.6
South West	7751	26.0	11008	37.0
Waterloo Wellington	4330	11.4	18789	49.5
Hamilton Niagara Haldimand Brant	12617	22.8	21122	38.2
Central West	64769	55.6	14356	12.3
Mississauga Halton	64938	43.4	27599	18.4
Toronto Central	75478	37.2	46696	23.0
Central	124816	46.3	54727	20.3
Central East	80848	43.6	40701	21.9
South East	1226	19.0	2646	41.1
Champlain	18157	27.8	16869	25.8
North Simcoe Muskoka	982	16.8	2874	49.3
North East	854	24.6	1083	31.2
North West	675	27.4	626	25.4

Examining Predictors of Enrollment: Bivariate and Multivariate Analyses

Overall Enrollment in Any Model

Table 15 provides the bivariate results on the relationship between enrollment status in any type model and capitation-based models and the explanatory variables. At the bivariate level, immigrants were 34% less likely than long-term residents of being enrolled in any primary care practice [OR=0.76, $p<.0001$, 95%CI=0.75-0.76] and even less likely (66%) to be enrolled in capitation-based models. A similar pattern is observed for the odds of enrollment in any model for all variables considered in the study, but the gap is more prominent for enrollment in capitation-based models.

In general women were more likely to be enrolled than men in any type of practice [OR=1.50, $p<.0001$, 95%CI=1.50-1.52]. Compared to residents in urban areas, those living in suburban zones were more likely to be enrolled [OR=1.31, $p<.0001$, 95%CI=1.31-1.32], while people living in rural zones were 4% less likely to be enrolled [OR=0.96, $p<.0001$, 95%CI=0.95-0.97].

With regard to the income level, a clear gradient is observed: the higher the level of income, the higher the odds of being enrolled in any model of care. A similar gradient was observed for both health-related variables (Table 15).

Table 15. Bivariate associations between enrollment in any model and capitation-based models and the explanatory variables, for all members of the cohort. Ontario 2012

Characteristics		Any model				Capitation-based models			
		Crude	Age-	95% Conf.		Crude	Age-	95% Conf.	
		rate	adjusted	Interval		rate	adjusted	Interval	
		(%)	OR	from	to	(%)	OR	from	to
Gender	Men	63.0	1.00	(Reference)		38.5	1.00	(Reference)	
	Women	70.1	1.51*	1.51	1.52	43.0	1.18*	1.17	1.18
Study group	Long-term residents	67.1	1.00	(Reference)		43.4	1.00	(Reference)	

	Immigrants	63.2	0.76*	0.76	0.76	23.0	0.34*	0.34	0.34
Income quintile	Q5 (richest)	69.5	1.00	(Reference)		45.8	1.00	(Reference)	
	Q1 (poorest)	61.0	0.67*	0.67	0.68	35.1	0.65*	0.65	0.65
	Q2	65.2	0.82*	0.82	0.82	39.0	0.75*	0.75	0.75
	Q3	67.7	0.91*	0.90	0.91	41.1	0.80*	0.80	0.80
	Q4	69.9	0.98*	0.98	0.99	43.0	0.85*	0.85	0.85
Area of residence	Urban	66.1	1.00	(Reference)		36.3	1.00	(Reference)	
	Suburban	70.0	1.31*	1.31	1.32	52.8	2.33*	2.32	2.34
	Rural	64.6	0.96*	0.95	0.97	52.2	2.41*	2.40	2.43
Comorbidity	0	43.7	1.00	(Reference)		28.1	1.00	(Reference)	
	1 to 5	68.6	1.86*	1.85	1.87	43.9	1.37*	1.36	1.37
	6 to 9	71.2	2.64*	2.62	2.65	42.3	1.34*	1.33	1.35
	10 +	62.3	2.67*	2.65	2.69	33.9	1.15*	1.14	1.16

* Significantly different from reference group (p< 0.05)

Table 16 shows the multivariate logistic regression analysis results for enrollment in any model of care. All predisposing factors were significantly associated with enrollment for all models performed. Immigrants were 20% less likely to be enrolled when adjusting for predisposing factors [OR=0.80, p<.0001; 95%CI=0.80-0.81]. The odds of being enrolled were slightly lower (13%) [OR=0.87, p<.0001; 95%CI=0.86-0.87] when adding enabling factors (income, area of residence), while the full model showed no changes [OR=0.87, p<.0001; 95%CI=0.87-0.88].

The pattern of gradient observed in the bivariate analysis, remained in the multivariate models for the enabling and need factors.

Table 16. Multivariate logistic regression for enrollment in any model. Ontario 2012

Characteristics		Predisposing factors			Predisposing + enabling factors			Full model		
		Age-adjusted	95% Conf. Interval		Age-adjusted	95% Conf. Interval		Age-adjusted	95% Conf. Interval	
		OR	from	to	OR	from	to	OR	from	to
Gender	Men	1.00	(Reference)		1.00	(Reference)		1.00	(Reference)	
	Women	1.49*	1.49	1.50	1.50*	1.49	1.50	1.36*	1.35	1.36

Study group	Long-term residents	1.00	(Reference)		1.00	(Reference)		1.00	(Reference)	
	Immigrants	0.80*	0.80	0.81	0.87*	0.86	0.87	0.87*	0.87	0.88
Income quintile	Q5 (richest)				1.00	(Reference)		1.00	(Reference)	
	Q1 (poorest)				0.72*	0.72	0.73	0.72*	0.72	0.73
	Q2				0.85*	0.84	0.85	0.85*	0.85	0.86
	Q3				0.92*	0.92	0.93	0.92*	0.92	0.93
	Q4				1.00	0.99	1.00	1.00	0.99	1.00
Area of residence	Urban				1.00	(Reference)		1.00	(Reference)	
	Suburban				1.24*	1.23	1.25	1.26*	1.26	1.27
	Rural				0.94*	0.94	0.95	0.97*	0.96	0.97
Comorbidity	0							1.00	(Reference)	
	1 to 5							1.73*	1.72	1.74
	6 to 9							2.22*	2.21	2.24
	10 +							2.11*	2.09	2.13

* Significantly different from reference group ($p < 0.05$)

The results of the multivariate analysis of enrollment in capitation-based models are shown in table 17. The multivariate analysis of enrollment confirmed that immigrants had lower odds of being registered in capitation-based models for 2012 than long-term residents [unadjusted OR = 0.34, 95% CI 0.34 to 0.34].

After controlling for covariates (age, gender, income, area of residence and morbidity), immigrants continue to have lower odds of being enrolled in capitation-based models relative to long-term residents [OR=0.40, 95% CI 0.40 to 0.41] (Chart 10).

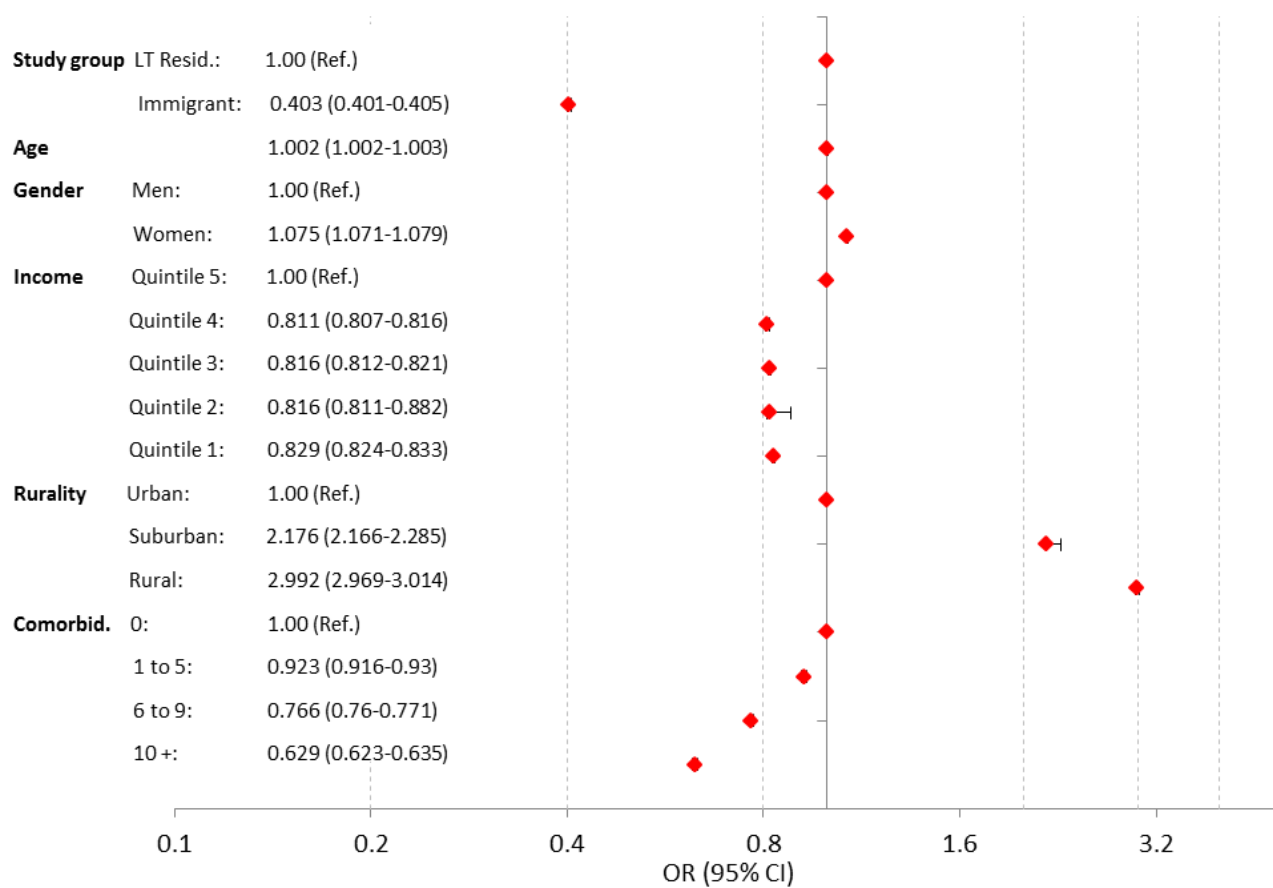
Consistent with the descriptive results, the odds of being enrolled in capitation-based models decrease as the comorbidity scores increase, showing an inverse gradient compared to the overall enrollment in any type model (see Table 17 and Chart 10).

Table 17. Multivariate logistic regression for enrollment in capitation-based models. Ontario 2012

Characteristics		Predisposing factors			Predisposing + enabling factors			Full model		
		Age-adjusted OR	95% Conf. Interval		Age-adjusted OR	95% Conf. Interval		Age-adjusted OR	95% Conf. Interval	
			from	to		from	to		from	to
Gender	Men	1.00	(Reference)		1.00	(Reference)		1.00	(Reference)	
	Women	1.17*	1.17	1.17	1.18*	1.18	1.18	1.08*	1.07	1.08
Study group	Long-term residents	1.00	(Reference)		1.00	(Reference)		1.00	(Reference)	
	Immigrants	0.35*	0.35	0.35	0.44*	0.44	0.44	0.40*	0.40	0.41
Income quintile	Q5 (richest)				1.00	(Reference)		1.00	(Reference)	
	Q1 (poorest)				0.74*	0.74	0.75	0.81*	0.81	0.82
	Q2				0.80*	0.79	0.80	0.82*	0.81	0.82
	Q3				0.82*	0.82	0.82	0.82*	0.81	0.82
	Q4				0.85*	0.85	0.86	0.83*	0.82	0.83
Area of residence	Urban				1.00	(Reference)		1.00	(Reference)	
	Suburban				2.04*	2.04	2.05	2.18*	2.17	2.19
	Rural				2.18*	2.16	2.19	2.99*	2.97	3.01
Comorbidity	0							1.00	(Reference)	
	1 to 5							0.92*	0.92	0.93
	6 to 9							0.77*	0.76	0.77
	10 +							0.63*	0.62	0.64

* Significantly different from reference group (p< 0.05)

Chart 10: Adjusted odds ratio for enrollment in capitation-based models. Ontario, 2012



Enrollment among Immigrants

The following analyses are presented only for the immigrants in the cohort. Table 18 shows the bivariate results of the overall enrollment in any model and in capitation-based models. All variables were significantly associated to the enrollment at the bivariate level. These results reveal a similar pattern to that of the entire cohort, but with less intense effect for all variables, whether in any type of primary care practice or in capitation-based models.

Again, a gradient was evident for the odds of enrollment considering the enabling and need factors, either in any type of practice or in a capitation-based model. At the bivariate level, immigrants in the lowest income quintile and with the lowest levels of education were significantly less likely to be enrolled in any primary care practice and even less likely in a capitation-based model of care. Compared to immigrants in the richest quintile, those in the poorest were 21% less likely to be enrolled in any practice [OR=0.79, $p<.0001$; 95%CI=0.78-0.80] and 31% less likely to be enrolled in a capitation-based model [OR=0.69, $p<.0001$; 95%CI=0.68-0.70]. Similarly, compared to immigrants with a Postgraduate education, those with a High School or less were 4% less likely to be enrolled in at least in one primary care practice [OR=0.96, $p<.0001$; 95%CI=0.94-0.98], and 18% less likely to be enrolled in a capitation-based model [OR=0.82, $p<.0001$; 95%CI=0.80-0.83].

As expected, compared to immigrants with no comorbidity, those with higher levels of morbidity were more likely to be enrolled in any type of primary care practice. The odds of being enrolled in a capitation-based model were also higher for those with higher morbidity, but the gradient was reversed (Table 18). A similarly pattern was observed for the intensity of health care resources utilization.

Table 18. Bivariate association between enrollment in any model and capitation-based models and explanatory variables, among immigrants. Ontario 2012

Characteristics		Any model				Capitation-based models			
		Crude rate (%)	Age-adjusted OR	95% Conf. Interval		Crude rate (%)	Age-adjusted OR	95% Conf. Interval	
				from	to			from	to
Gender	Men	59.7	1.00	(Reference)		21.6	1.00	(Reference)	
	Women	66.6	1.41*	1.40	1.43	24.3	1.13*	1.12	1.14
Area of residence	Urban	63.2	1.00	(Reference)		22.3	1.00	(Reference)	
	Suburban	63.8	3.02*	2.95	3.10	41.2	3.02*	2.95	3.10
	Rural	60.6	4.01*	3.81	4.23	46.0	4.01*	3.81	4.23
Income quintile	Q5 (richest)	61.6	1.00	(Reference)		27.2	1.00	(Reference)	
	Q1 (poorest)	61.9	0.79*	0.78	0.80	22.4	0.69*	0.68	0.70
	Q2	63.5	0.88*	0.87	0.90	22.3	0.69*	0.68	0.70
	Q3	64.3	0.95*	0.93	0.97	22.4	0.70*	0.69	0.71
	Q4	65.1	1.02	1.00	1.04	23.0	0.73*	0.72	0.74
Educational category	Post-Grad Education	57.2	1.00	(Reference)		22.7	1.00	(Reference)	
	High School or less	63.1	0.96*	0.94	0.98	22.0	0.82*	0.80	0.83
	Post Sec. education	64.9	1.06*	1.03	1.08	25.3	0.98	0.96	1.01
	University degree	63.0	1.07*	1.05	1.10	23.6	0.93*	0.91	0.95
Comorbidity	0	36.3	1.00	(Reference)		14.0	1.00	(Reference)	
	1 to 5	63.5	1.50*	1.48	1.53	24.6	1.19*	1.17	1.21
	6 to 9	71.9	2.09*	2.06	2.13	25.0	1.13*	1.11	1.15
	10 +	72.3	2.43*	2.38	2.48	22.2	0.99	0.97	1.01
Length of stay in Canada	10+ yrs	63.3	1.00	(Reference)		24.6	1.00	(Reference)	
	Fewer than 3 yrs	64.8	0.98*	0.96	0.99	22.2	0.83*	0.82	0.84
	3-4 yrs	63.6	1.00	0.98	1.01	22.2	0.85*	0.84	0.87
	5-9 yrs	62.4	1.08*	1.07	1.09	21.0	0.83*	0.82	0.84
Immigrant class	Economic class	63.7	1.00	(Reference)		24.1	1.00	(Reference)	
	Family class	63.3	0.96*	0.95	0.97	21.5	0.85*	0.85	0.86
	Refugees	61.9	0.72*	0.71	0.73	24.4	0.96*	0.95	0.97
	Other immigrants	60.1	1.19*	1.14	1.25	13.3	0.52*	0.49	0.54
Region of origin	US	52.7	1.00			31.9	1.00		
	Africa and Middle East	60.9	0.87*	0.84	0.90	24.9	0.49*	0.47	0.50
	Asia and Pacific	64.9	1.10*	1.06	1.14	17.1	0.29*	0.28	0.30

	South and Central America	66.0	0.89*	0.86	0.92	26.5	0.48*	0.47	0.50
	Europe and the UK	60.3	0.75*	0.72	0.78	30.3	0.63*	0.61	0.65
Canadian official language ability	English & French	58.4	1.00	(Reference)		27.9	1.00	(Reference)	
	English	63.8	1.17*	1.13	1.21	24.3	0.74*	0.72	0.77
	French	56.9	0.91*	0.86	0.97	26.7	0.94*	0.89	0.99
	Neither English nor French	62.7	1.04*	1.01	1.08	20.6	0.59*	0.57	0.60
Maternal Language group	English	65.1	1.00	(Reference)		28.6	1.00	(Reference)	
	French	52.3	0.70*	0.65	0.76	28.5	1.23*	1.14	1.32
	Chinese	62.8	1.44*	1.42	1.47	11.4	0.34*	0.33	0.34
	India & South Asia	65.9	0.97*	0.95	0.98	17.5	0.50*	0.49	0.51
	Arab & Mid. East	59.2	0.80*	0.78	0.82	24.7	0.86*	0.85	0.88
	SE Asians	66.2	0.92*	0.91	0.94	25.1	0.78*	0.77	0.79
	Spanish	62.6	0.76*	0.74	0.78	29.9	1.04*	1.01	1.06
	Other Lang.	60.3	0.73*	0.72	0.74	28.2	0.98*	0.97	0.99

* Significantly different from reference group (p< 0.05)

According to migration related variables, relative to immigrants living in Canada ten years or more, those that arrived less than 3 years prior to the starting point of the study, were somewhat less likely to be enrolled in any practice [OR=0.98, p<.0001; 95%CI=0.96-0.99], and 17% less likely to be enrolled in a capitation-based model [OR=0.83, p<.0001; 95%CI=0.82-0.84].

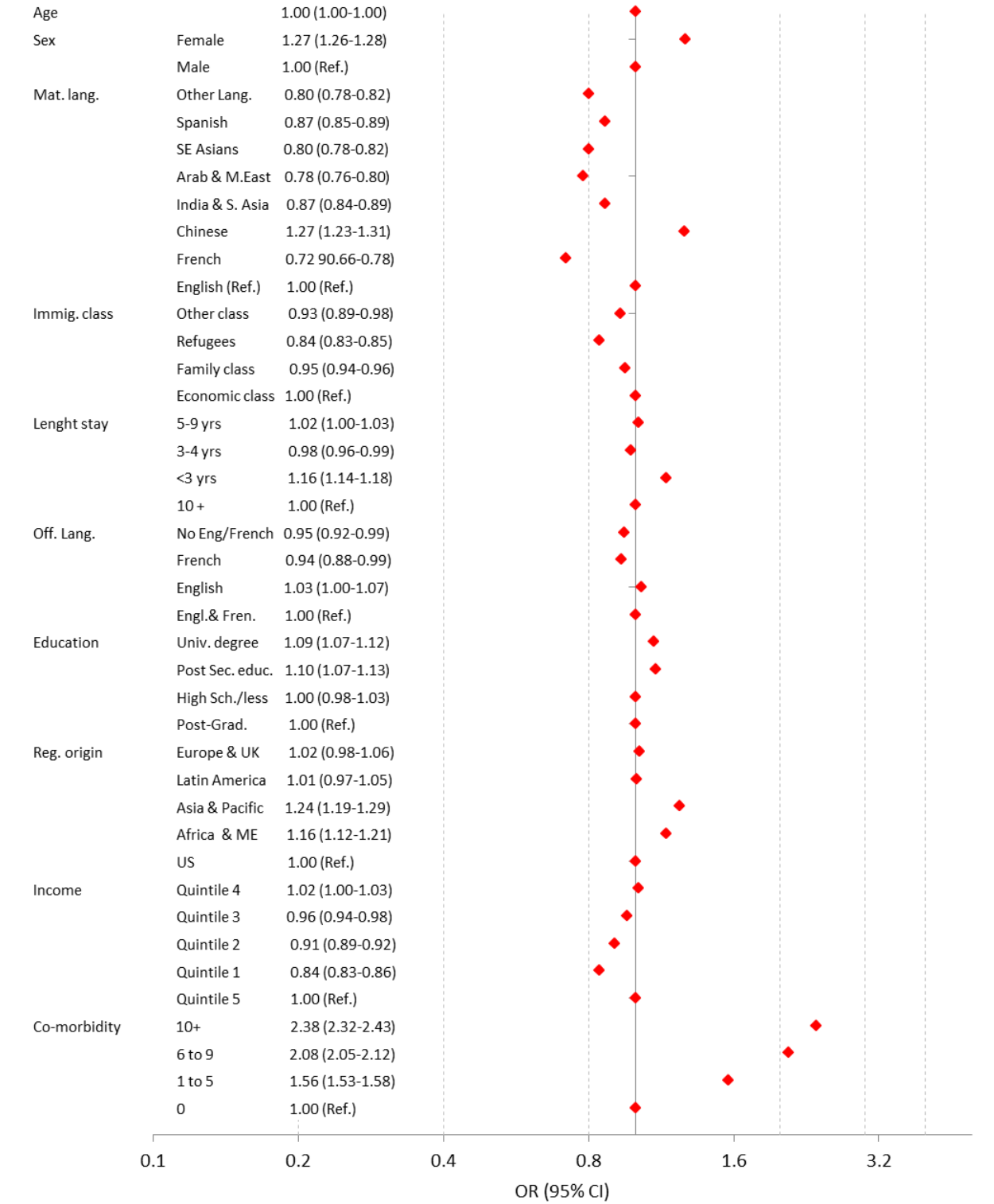
Compared to Economic immigrants, those in Other immigrants class were more likely to be enrolled in any type of primary care practice [OR=1.19, p<.0001; 95%CI=1.14-1.25], but this class of immigrants had the lowest odds of being enrolled in capitation-based models [OR=0.52, p<.0001; 95%CI=0.49-0.54]. Conversely, Refugees had the lowest odds of being enrolled in any primary care model [OR=0.72, p<.0001; 95%CI=0.71-0.73], but had the best odds of being enrolled in a capitation-based model [OR=0.96, p<.0001; 95%CI=0.95-0.97] among the other groups of immigrants, relative to the Economic class (Table 18).

Regarding the capability to communicate in one of the Canadian official languages, compared to immigrants with good ability in English or French, those with good ability speaking French had the lowest odds of being enrolled in any practice [OR=0.91, $p<.0001$; 95% CI=0.86-0.97], while those speaking English were 17% more likely to be enrolled [OR=1.17, $p<.0001$; 95% CI=1.13-1.21]. Immigrants with poor ability in either Canadian official language had relatively similar odds of enrollment that the reference group, but were 41% less likely to be enrolled in a capitation-based model [OR=0.59, $p<.0001$; 95% CI=0.57-0.60].

The results of the multivariate logistic regression of immigrants' enrollment in any model are presented in Appendix L. All the predisposing factors were significantly associated with enrollment in any model of care, except the region of origin, which remained nonsignificant in the rest of the models. In the second model where the enabling factors were added, the gradient pattern was observed for income, education and length of stay; but the education category of High School or less, European origin, English proficiency and Other immigrant class were not significantly associated to enrollment to any type of practice.

In the fully adjusted model, most of these categories continue to be significantly associated to the enrollment, but the gradient pattern for the length of stay in Canada disappeared, as immigrants with the shortest length of stay were 17% more likely to be enrolled compared to those living ten or more years in the country [OR=1.17, $p<.0001$; 95% CI=1.14-1.19]. Consistent with the descriptive results, immigrants with higher levels of comorbidity more than two times likely to be enrolled in any model of care [OR=2.39, $p<.0001$; 95% CI=2.33-2.45] (Chart 11).

Chart 11: Adjusted odds ratio for enrollment in any model, among immigrants. Ontario 2012

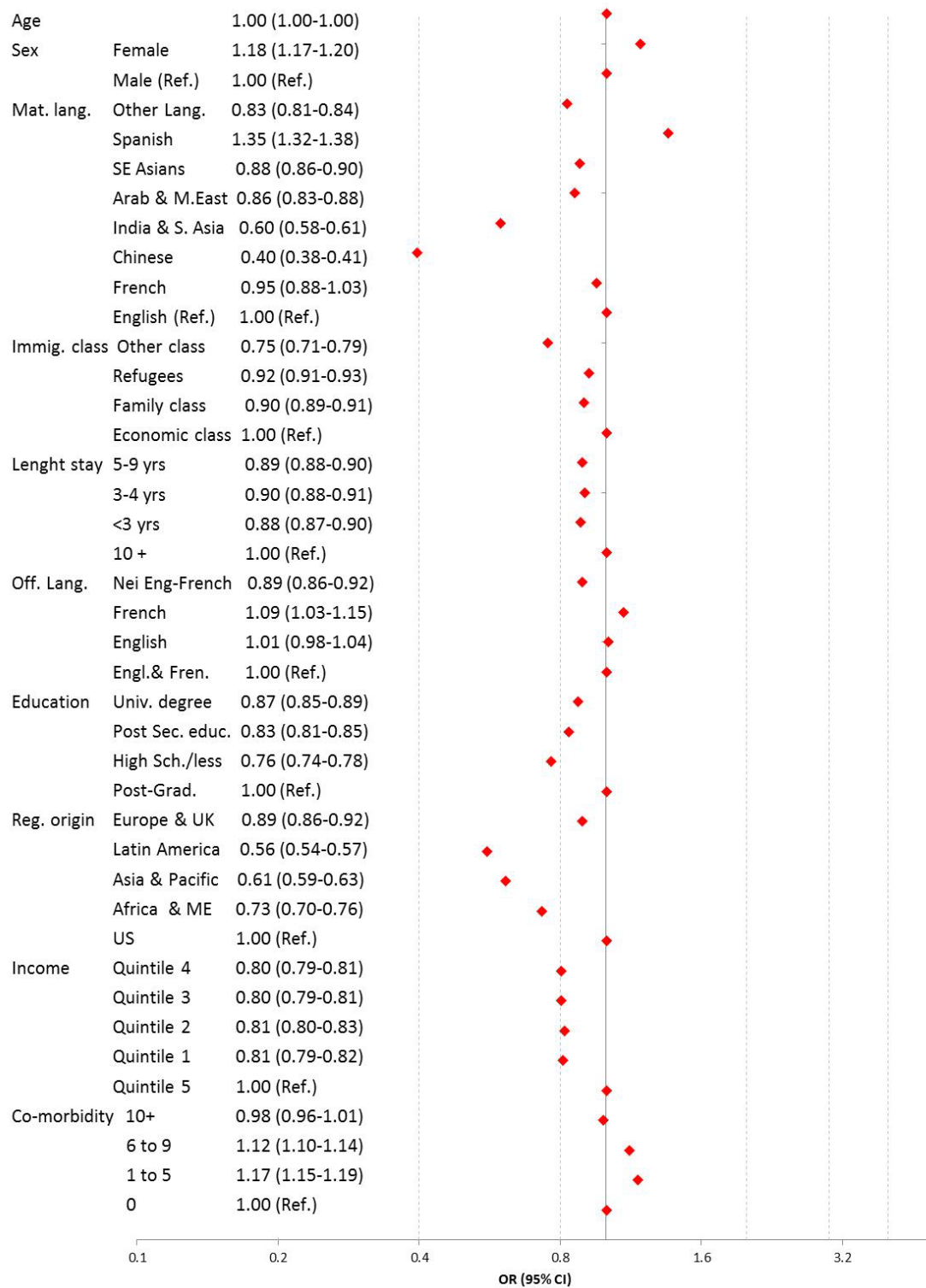


The multivariate logistic regression analysis of immigrants' enrollment in capitation-based models (Appendix M) showed that most of the variables were significantly associated with the enrollment in these models, except for proficiency in English, and English as maternal language. The gradient pattern for the enabling factors is not as clear here as it was in previous analyses, although it is still evident for education, which also remains in the fully adjusted model.

As expected, immigrants with poorer ability in any of the Canadian Official Languages had the lowest odds of enrollment in these models of care [OR=0.89, $p < .0001$; 95%CI=0.86-0.92]. Also, immigrants living less than 3 years in Canada also had the lowest odds of being enrolled, compared to those living in here ten years or more [OR=0.91, $p < .0001$; 95%CI=0.86-0.97].

In the fully adjusted odds of enrollment in these models, an inverse gradient for the health needs is observed, as those immigrants with the highest levels of comorbidity had the lowest odds of enrollment in capitation-based models, although these results are not statistically significant [OR=0.98, $p < .1349$; 95%CI=0.96-1.01]. (Chart 12)

Chart 12: Adjusted odds ratio for enrollment in capitation-based models, among immigrants.
Ontario 2012



Discussion

Enrollment in primary care in Ontario has gradually increased since the introduction of enhanced primary care models. Our findings reveal that although immigrants' enrollment in primary care services has indeed increased since 2003, but registering in any type of primary care practice remains consistently lower than long-term residents. This disparity in enrollment is most striking for capitation-based models, which are intended to provide higher quality of health care. Moreover, immigrants' enrollment in Family Health Teams, the most comprehensive model, showed only a slight increase since its inception in 2006, whereas a manifest increase is observed in the enrollment levels for long-term residents.

Consistent with results from previous research in Canada^{178, 197} and in Ontario in particular, immigrants are in a disadvantaged situation regarding attachment to a regular source of primary care.^{121, 139, 198} A population-based survey to examine access to primary care services in Ontario found that immigrants had significantly lower levels of attachment to a primary care practice (having a regular family doctor) compared to Canadian-born: long-term immigrants (+10 years) had three times lower levels, while among immigrants living in Canada less than 10 years, the gap was even larger, 13 times lower.¹⁹⁸

Another survey among patients attending primary care practices in Ontario reported similar access between immigrants and Canadian born, but there were differences in first contact and access and utilization across primary care models among recent immigrants (<5 years since arrival).¹²¹ A study using administrative data on enrollment found that newcomers were underrepresented in enhanced capitation models,¹³⁹ which is concordant with our findings. Our study provides stronger evidence regarding the differences between immigrants and long-term

residents. Unlike other reports, our study focuses on immigrants and compared to the population living in the province before 1985. This analysis shows large disparities, even after adjusting for some individual and socio-economic variables such as age, gender, neighborhood income and comorbidity, immigrants show a significantly lower probability of enrollment in these comprehensive practices. In the US context, researchers have documented access disparities between race, immigrants and access to health care.¹⁹⁹

These findings suggest that immigrants are not benefiting from higher quality of care provided by enhanced capitation models, which promote improved preventive interventions. Moreover, immigrants are not gaining enough access to the inter-professional model of Family Health Teams, where the quality of services was further enhanced to offer additional, flexible and multidisciplinary services based on individual and community needs.^{180, 181} According to the survival analysis, additional disparities were observed as immigrants remained unenrolled significantly longer than the long-term residents who were enrolling over six months earlier. These disparities could be related to known challenges to health services for newcomers to Canada, such as language and communication barriers and knowledge and navigation difficulties of the health care system.^{178, 200}

In general, but principally among immigrants, enabling factors such as income, education and ability to speak one of the Canadian Official Languages are important predictors of enrollment in primary care during the period studied. Having a higher need of medical care can also be an important predictor of enrollment. Hence, the immigrants at a higher risk of poor access to enrollment in any type of primary care practice are the Refugees, those in the lowest level of income, and those only speak French or had difficulties communicating in any of the official

languages. While, the immigrants at higher risk of poor access to enrollment in capitation-based models are those in the class of ‘Other Immigrants,’ those with the lowest level of education at landing, and those whose mother tongue is Chinese, and those with difficulties to communicate in any of the Canadian official languages.

Strengths and Limitations

The study has important strengths. It is a large population-based study using multiple data sources; and for the first time examine immigrants’ enrollment in enhanced primary care services over a long period of time, and compares the results with the long-term residents in the province. Also the linkage of administrative records to population-based data (census, complete individual immigration and health care records) provides a closer picture of the population coverage.

The study also has limitations. First, it relies largely on administrative data; however, as the collection of these data is based on administrative fee codes used for physician payments, the data were reasonably complete. Second, the classification of long-term residents includes immigrants who migrated to Canada before 1985. However, they represent a small fraction of the group, and these immigrants, by definition, are long-term residents. The study didn’t include refugee claimants and irregular migrants.

Another limitation is variation in the requirement for enrollment between models. In enhanced FFS and capitation models patient enrollment is encouraged, but in some capitation practices, physicians may choose not to enroll patients and instead see them strictly as FFS patients. In capitation models, this practice may have been more common when the patient is perceived as a frequent health-care user of physician services. The extent of such practice is unknown and as is

how the practice may affect immigrant enrollment. Finally, care provided in Community Health Centers (CHC) (fewer than 1% of the population¹³⁹) was not included because of limitations in administrative data to allow identification of such patients by physician billings. Therefore information for enrollment in Community Health Center is not available to be comparable with the enrollment in the other primary care practices. Another limitation is the use of the language ability measured at landing, as some immigrants may have improved their language ability during the period of study. However, according to previous studies,^{29,201} there is no evidence that supports a significant improvement of the language ability that could have had an impact in the levels of access to the patient enrollment model.

CHAPTER FOUR

Immigrants' Perceptions on Enrollment in Primary Care Services: a Qualitative Study

Manuscript abstract

Connecting and Enrolling in Primary Care in Ontario: what are Immigrant's Experiences and Perceptions?

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Abstract

Objective. In recent years, Ontario has begun registering individuals to interdisciplinary primary care health care teams. This paper explores immigrants' perspectives and experiences registering with a family doctor in primary care in Ontario.

Design. Qualitative design using semi-structured interviews.

Setting. Recent immigrants (living in Canada less than ten years), residing in large metropolitan areas of Ontario, London and Ottawa, which are important immigrant receiving cities in Ontario.

Participants. Fifteen recent immigrants from different gender, geographic and cultural backgrounds were purposively selected.

Methods. Face-to-face interviews were conducted with all participants. The interviews were audiotaped and transcribed verbatim. The interview guide was structured to collect information on: experience accessing and using primary care services after arrival, knowledge and experience registering with a family doctor. Other aspects explored were difficulties contacting and enrolling in a primary care practice, and their perception on the importance being enrolled in primary care. A framework analysis approach was used to identify codes for the data and thematic editing to distill participants' perspectives on the process of registering with a family doctor. The Andersen-model guided the analysis and discussion of identified barriers, which were grouped into three categories or levels: patient level, provider level and system level.

Findings. The majority of the interviewees (14 out of 15) considered that being registered with a family doctor is important or very important for them and for their family. Most of the participants had experiences with the primary care system, looking for enrolling with a family doctor. Ten out of 15 were actually registered with a family doctor. The most frequent difficulties expressed by the participants were lack of information or knowledge about how the system works (12 out of 15), language and communication barriers (9 out of 15), and no availability of family doctors in the area (8 out of 15). Cultural norms and health beliefs were the most relevant predisposing factors exposed, and previous health care experiences was an important aspect that affects newcomers' expectations when they start interacting with the new health care system. For many participants, language and communication barriers are critical factors to connect and effectively interact with the system and the health personnel. Some participants stated that education and literacy was an important individual enabling factor that affects how immigrants learn and understand the health system.

Conclusion. For most of the participants, the process of understanding and integration to the new social environment and adjustment to a new and complex health system is a key issue and it takes time and effort for them to adapt and assimilate.

Keywords: *immigrants, refugees, primary care, family doctor, Ontario.*

Background

Immigrants face multiple challenges during their settlement and integration process in the host country. Access and contact with health services are among the most critical challenges. Research in Canada and worldwide have shown that immigrants face several barriers accessing health care services.^{121 202, 203} Structural and socio-cultural factors are among these barriers.⁶⁹ Examples of these barriers include organization of services, and community-based enabling resources at the social level; and language proficiency, health literacy, cultural beliefs and attitudes, and personal practices at the individual level. A study of access to health care among immigrants in Ontario, found access obstacles at three levels: geographic, socio-cultural and economic.²⁰⁴ Another study of French-speaking immigrants in Alberta emphasized the role of language barriers when accessing and using health care services.²⁰⁵

Registering with a family doctor in primary care

In Ontario, enrollment in primary care is the process of registering patients to receive comprehensive and continuous primary care services.³⁵ Registering with a family doctor to receive continuous care can be an important mechanism for new immigrants to connect with the health system and it can positively affect their integration process.

In the early 2000s, as part of the national's Primary Care Reform initiatives, the Government of Ontario introduced the patient enrollment model (PEM) aimed at improving access to primary care services in the province. Patient enrollment model formalizes a continuing relationship between the physician and the patient —a dual commitment, which provides benefits two both sides.³⁴ Enrollment in primary care has increased in Ontario since 2003, and by 2010 nearly 10 million people have been registered in these models.³⁵

However in spite some progress in improving access to primary care services, several individual and contextual factors continue to affect immigrant's enrollment to primary care services in Ontario.²⁰⁶ The previous analysis of enrollment in primary care practices using administrative data, revealed that enrollment in primary care services has increased since 2003, but immigrants are lagging behind in enrolling in enhanced primary care models, compared to long-term residents. Exploring beliefs, attitudes and perceptions of recent immigrants, can be of great benefit in gaining a better understanding of this problem, as well as contributing to inform public health policies in addressing this problem.

This study aimed to gain a deeper understanding of recent immigrants' access to the enrollment system in primary care. The specific objective was to examine recent immigrants' perceptions and experiences accessing and registering with a family doctor in Ontario; and to identify the main factors affecting the access to this process of registration.

Perceived Barriers to Primary Care Among Immigrants

Immigrants' access to quality health care is often hampered by a variety of socio-economic and even environmental obstacles. Research is growing on immigrants' access and use of health services and several factors affecting access and use of services have been identified and studied. Overall two types of factors are structural or related to the central political or legal norms, and national organization or regulations; and social or those conditions that influence people's daily life and relationships with the society in which they live and work. A recent report from Médecins du Monde¹³³ on barriers to care among immigrants in Europe, identified three main obstacles: a) poor understanding or lack of knowledge of their rights and of the rules of the

system; b) administrative factors; i.e. gathering of all the documents required to obtain health care; and c) language barriers.

Studies in the United States have identified challenges that impede immigrants from accessing services. Those challenges can be present in different areas, and they are both structural and social.^{202, 203} The main structural factor is insurance coverage, followed by citizenship and legal status, have low-paying jobs or other jobs that do not offer health insurance, low levels of education; and financial costs of health coverage. Among the key social factors are immigrants' level of integration, linguistic difficulties/ language assistance (also influence job opportunities), a climate of fear and distrust; and group's cultural beliefs.²⁰⁷

Unlike the United States, the universality of the health care in Canada reduces structural obstacles accessing health services,²⁰⁸ yet some social barriers persist for immigrants. Canadian immigrants face additional barriers when dealing with the health care system.²⁰⁴ These may arise out of difficulties with the language, not understanding how the system works and having different expectations of care.²⁹ In particular, unfamiliarity with the system that may not be culturally or linguistically sensitive to their needs, represent an important obstacle. This is especially relevant for recent immigrants.¹²¹ In addition, affording services that are not covered may pose a great challenge, especially for those in low-income levels.

As stated, most studies have provided evidence about the general barriers and confirmed the key structural and social factors influencing that situation, but few have explored more deeply into immigrants' perceptions about the importance of having a regular primary care provider, for them and their family; as well as the difficulties that newcomers experience seeking and registering register with a family doctor.

Therefore, this study draws on Andersen Behavioural Model of Health Services Utilization³⁹ to explore recent immigrants' perceptions enrolling with a family doctor in Ontario. The Andersen Model conceives of health service access and use as a function of predisposing factors, enabling factors, and need factors. Predisposing factors refer to socio-cultural characteristics of individuals that exist prior to their illness. Enabling factors refer to aspects that facilitate of obtaining care, which are personal, family, and community resources that facilitate or hinder an individual's ability to obtain health care. Need factors refer to factors that imply the need for health care either individual, social, or clinical aspects. These three factors influence an individual's decisions about health service use and their satisfaction with health services.

Methods

This qualitative study utilized a thematic analysis methodology to explore immigrants' perspectives on the enrollment system in primary care. Semi-structured interviews were conducted to enquire on immigrants' perceptions (thoughts, attitudes and feelings) and experiences regarding the process of registering with a family doctor to receive health care services in Ontario.

A framework analysis approach⁴² was used to examine the perceptions and experiences of recent immigrants on contacting and enrolling in primary care services. The process consisted of six stages⁴²:

- Stage 1: Transcription
- Stage 2: Familiarization with the interview
- Stage 4: Developing a working analytical framework
- Stage 3: Coding

- Stage 5: Applying the analytical framework
- Stage 6: Charting data into the framework matrix

Study Sample

We sought to select a diverse representation of immigrants to Canada for this study. For that goal, a purposive sampling procedure was used to select recent immigrants (living in Canada less than 10 years) from two cities of Ontario with significant immigrant's attraction. Therefore participants were recruited in two large metropolitan areas of the province: London and Ottawa. Immigrant diversity was sought, thus participants' recruitment looked at a balance on gender, age, region of origin, and ethnic and sociocultural background.

Recruitment of Participants

For the recruitment process, immigrants' community leaders and organizations, namely the Catholic Centre for Immigrants in Ottawa, and the Cross Cultural Learner Centre in London, provided assistance to identify the participants, and also facilitated conditions for the interview process. In addition, for this process the Canadian Collaboration for Immigrant and Refugee Health CHIR (www.ccirhken.ca)^{iv} provided great support. Participants were included if they were residents of the province; had been living in Canada for less than 10 years; were able to communicate in English; and had given their consent to be interviewed. A total of 15 participants were interviewed: 9 from London and 7 from Ottawa.

^{iv} CCIRH is a national collaboration of over 120 primary care practitioners, immigrant community champions, researchers, program and policy planners dedicated to improving the health of immigrants and refugees. In a research-to-action knowledge translation program CCIRH is committed to continuing its contributions to improve the capacity of Canada's primary health care system.

Data Collection

Since I was interested in identifying known barriers to health services and determine how these barriers are relevant in accessing the primary care's enrollment system in the province, the instrument aimed at exploring four overall dimensions:

- a) experiences accessing and using primary care services after arrival
- b) specific knowledge and experience with the process of registration with a family doctor.
- c) difficulties/problems (if any) contacting and enrolling in a primary care practice.
- d) level of importance of being registered with a family doctor for them and their family

Semi-structured interviews. In order to collect the information, an instrument was developed to guide the process. A semi-structured interview guide was created and used to conduct the interview (see Appendix N). The main topics were organized in two parts: a) list of questions and probes on hindrances using health services and registering in primary care, b) demographic and general information (e.g. age, gender, education, region of origin, employment, etc.). The interview time ranged from 30 to 45 minutes.

All interviews were conducted face to face in English and audiotaped; and then transcribed verbatim for analysis.

Data Analysis

The framework approach was informed by known access and utilization barriers to access and use health services identified in Canada and elsewhere.^{178, 200, 204} The Andersen-model was used to categorize the specific barriers and to guide the analysis. Following that model, the barriers were grouped into three categories or levels: patient level, provider level and system level, to describe and discuss the results:

- Knowledge of the registration system (system)
- Availability of family doctors in the area (system)
- Language or communication difficulties (patient)
- Discrimination (provider)
- Cultural beliefs and practices (patient)
- Other factors or type of barrier

However, I was also interested in identifying additional factors that may be influencing access to the registration system.

Codes were entered into Atlasti 7.0, a qualitative data organization and analysis program (<http://atlasti.com/>). Codes were discussed and debated by two researchers during regular meetings. A thematic editing approach²⁰⁹ was used for the content analysis, to identify common themes and to search actively for outlying ideas, competing explanations, and various meanings. No new themes emerged from the last several interviews. Finally, the results from the coding were categorized into the three levels of the Andersen model (patient, provider and system levels), to present and discuss the findings.

Ethics

For the qualitative study, research ethics approval was obtained from the Research Ethics Boards of the University of Ottawa in Ottawa, Ontario.

Researcher Positionality and Reflexivity

I'm a researcher with a clinical background, who has worked as a Family Doctor in primary care services for several years in Cuba - a developing country with a universal health system- and also worked or studied other primary care systems in both developed and developing contexts. My

medical education is deeply rooted in the social justice paradigm and have working experience in a health care system with a strong focus on health promotion and disease prevention and in which any person, irrespective of his or her social or cultural background, should receive the best possible care. Based on that experience, my view is that a comprehensive health care consists not only on high quality of medical care, but also on addressing as far as possible the social conditions that determine the health status of each person or a group of people.

Results

Characteristics of the Participants

A total of 15 immigrants participated in the study; the majority of them were women, with an average age of 45 years; their age ranged from 18 to 56 years. Most of the participants were recent immigrants, living in Canada for less than five years. The most recent newcomer arrived in 2014, whereas the earliest immigrant came to the country in 2008. Of the 15 participants, seven came from the Middle East region, three from Africa, three from South and Central America; and two from the Asia and Pacific region. Collectively, they represented 13 different nationalities (Table 19).

Nearly half of the participants (7 out of 15) arrived in Canada as Economic or Family Class immigrants, four of them were Refugees, and the rest belonged to other categories (e.g. student, special migrants). Six of the 15 participants reported being employed, while an equal number were looking for a job. Two third of participants had a college or university degree. Most of the participants reported an excellent ability to communicate in English, but most of them considered having a poor or fair capacity to communicate in French.

Table 19. Characteristics of the participants in the qualitative study

Characteristics	Women	Men	Total
Region of origin			
Africa (Liberia, Sierra Leone)	3		3
Asia and Pacific (Nepal)		2	2
Middle East (Afghanistan, Egypt, Iraq, Lebanon, Palestine, Saudi Arabia, Syria)	5	2	7
South and Central America (Brazil, Bolivia, Colombia)	3		3
Type of migrant			
Economic	3	2	5
Family	1	1	2
Refugee	3	1	4
Other	4		4
Length of stay in Canada			
Fewer than 3 yrs	2		2
3-4 yrs (less 5)	4	3	7
5-9 yrs (less 10)	5	1	6
Race ethnicity			
Arab	6	2	8
Latino	3		3
Indian		2	2
African	1		1
White	1		1
Native language			
Arab & Mid. East	6	2	8
English	2		2
India & South Asia		2	2
Spanish	2		2
Other Lang.	1		1
Canadian Official Language ability			
English			
Excellent	6	2	8

Fair	3	2	5
NE	2		2
French			
Fair	5		5
Poor	4	2	6
NE	2	2	4
Education			
College or university	2		2
High school diploma	1	1	2
Post-graduate education	6	2	8
NE	2	1	3
Occupation			
Art, culture, recreation and sport	1		1
Business, finance and administration	1		1
Education, law and social, community and government services	2		2
Health occupations		1	1
Sales and service occupations	1		1
Unemployed	4	2	6
NE	2	1	3
Income level			
Under \$20,000	1	2	3
\$20,000 to \$39,999	1	1	2
\$60,000 to \$79,999	1		1
Over \$80,000	2		2
NE	6	1	7
Grand Total	11	4	15

NE: not specified

Experience with Health Care Services and the Registering with a Family Doctor

Almost all participants indicated having had an experience with the health care system after arrival, either because of a health problem or because they simply wanted to have a family doctor. A total of 10 out of 15 participants reported being permanently registered with a family

doctor, but only 6 of these participants indicated having knowledge of how to find and get registered with a family doctor. They acquired this knowledge, either by having received information after landing or because they found it on their own through printed material, or online; or through friends or relatives. The majority of the interviewees (14 out of 15) considered that being registered with a family doctor is important or very important for them and for their family:

“That is good, because, you know, he or she knows everything, the history of what my health is. What was my health one year before, two years before now, and he or she can compare what is the progress, what is wrong with you, you know” (Man from Nepal, Interview 10)

Another participant for whom having a regular family doctor was a new concept, highlighted the importance of that concept by stating the following: *“Yes, after I went I understand the concept of family doctor and how important it is, because the family doctor will check up you every year, and if you have any health concern you can explain it to him, if you want to see a specialist the family doctor will help you to see the specialist.”* (Man from Afghanistan, Interview 8)

The novelty and newness of having a Canadian family doctor should not be underestimated. Within this new therapeutic relation participants communicate different interpretations of expectations, social and professional boundaries and clinical expectations.

Difficulties Registering with a Family Doctor

The most frequent difficulties expressed by the participants were lack of information or knowledge about how the system works (12 out of 15), language and communication barriers (9 out of 15), and no availability of a family doctor in the area (8 out of 15).

Predisposing Factors

Among the socio-cultural characteristics that may act as predisposing factors two main categories emerged: a) cultural norms and health beliefs; and b) discrimination. The results of these categories are described below.

Ethno-cultural norms and health beliefs. An important theme that emerged among the participants was the perception that cultural aspects are affecting newcomers' ability to learn and understand the Canadian health system. Six participants expressed a feeling that the medical practices in Canada were different from their country of origin. For example, a participant from Syria, said:

“You can talk by phone you can ask him [to the doctor in her country], ask the doctor just a few questions. Here you can't talk to the doctor at all. I don't know. Maybe I'm not supposed to say that because it's different culture, different background it's like maybe might look crude.”
(Women from Syria, interview 1)

For some immigrants, the concept of a family doctor is new or not well understood. From their experience of accessing health care services in their country of origin, they think that a person should be able to see a doctor, whether a general practitioner or a specialist, whenever they consider it necessary. This may suggest that coming from a different cultural and social background some immigrants don't perceive the benefits of the continuity of care and developing a relationship of trust and security. A participant from Egypt expressed this view like this:

“The concept of a family doctor wasn't in my country. So for newcomers it's hard because the concept of understanding what a family doctor is [and] to get a specialist, it's not easy and it takes time for sign up. My aunt came recently, she is being signing up for a family doctor for a year and no reply has come yet. It's hard for newcomers to conceive the concept of a family doctor.”(Woman from Egypt, Interview 7)

Another aspect that is considered important for some ethno-cultural groups is the physician's gender. In some cultural backgrounds, in particular Muslims people from Asia and Africa, a women patient often prefers a female physician. This preference may be linked to early life experience as well as cultural norms. Advanced age may also limit flexibility and trust in providers of the opposite gender. This was a concern expressed by a participant from Afghanistan, regarding his mother:

“My mom is 64 years old. When I took her to the male doctor, she said no. Like sometimes it is a problem to me. I explained to her he is a doctor, he just wants to check you, but she lives 64 years this way, so it is a problem.” (Man from Afghanistan, Interview 8)

Another woman also reiterated the possibility of having a female doctor, because that was her preference: *“Also, if you want to change a doctor. For instance, if I want to have a female family doctor, how can I do it? How can I change the family doctor? These are the issues.” (Woman from Bolivia, Interview 14)*

Reflecting on the diversity and multiculturalism in Canada, one participant felt that the health system needs to be more culturally diverse, and to have different ethnic and cultural backgrounds are represented among health care providers. She said:

“I think the health system should be more diversified. Let say, if I go to see, I’m an immigrant, and I go to a health service where I see some immigrants working there , that will help me to feel more welcome, because I can see people that will know more about my problems. I’ll be, I will feel more identified.” (Woman from Brazil, Interview 13)

This may reflect the perception of some participants that the health system needs to be more responsive to the needs of newcomers from multiple parts of the world.

Related to this issue, one participant suggested that the government allow more internationally educated health professionals (physicians, nurses) to be licensed to provide health services across the country:

“Another thing, it is to encourage international trained doctors, because there are some disease or issues that immigrants are going to call doctors that will understand more, because they have to see patients that walk with a disease or sickness like that they understand. I’m not saying that the medical assistance here it is not good, it is very good; but one thing we need to know, even when we are provided with medical assistance, we also need to take in consideration the emotional state, the physical environment, the comfort level.” (Woman from Liberia, Interview 13)

By having the opportunity of interacting with health professionals from different cultural backgrounds and medical education, immigrants feel that they can talk to health care providers that understand their needs, feel the security in her or his hands and trust in their advice.

Another participant made a similar comment about foreign trained doctors and other health professionals who are highly qualified. He suggested that Canadian licensing requirements be

adjusted to facilitate the integration of these professionals within the health system. This would be an option that could bridge the socio-cultural gap in primary care. As he pointed out:

“One way is to put more health professionals in the system, produce or license, or give the extra doctors may be easier the licensing system, as there are a lot of doctors that have a foreign training, but are not able to practice here, because getting a licence is so difficult, almost impossible in Canada. It is easier in the US, but is more difficult in Canada.” (Man from Nepal, Interview 10)

Race and ethnicity. Perception of discrimination can become an important obstacle when trying to access any service, and can have a very negative impact in health care. In our study only one participant reported experiencing some form of racial discrimination when trying to get enrolled with the family doctor.

“A friend of mine went to see a family doctor trying to get one, when she said they were immigrants, they told her the list was full and they could take her. And there were other comments that made my friend feel like this is not about the list was full, it’s just because I am an immigrant and this doctor doesn’t want to take me” (Woman from Liberia, Interview 3)

Enabling Factors

Enabling factors within primary care are those conditions that help a person to achieve certain health-related goals or gain access to health services. They can be found at three different levels: individual, interpersonal and organizational.

Individual Level

Affordability or costs: Although registration in the patient enrollment system doesn't demand any financial cost for the person, some participants raised concerns about the cost associated with services that are not included in the province health insurance, such as dental and vision care.

“The only thing that I can say it is a problem, for example its vision, the follow-up for the vision or something like this I have to pay for it. That's the only problems that I can say” (Woman from Egypt, Interview 7)

A number of those services not included in the provincial plan can be covered by complementary employer health benefits, but for some immigrants who are unemployed, the costs associated with those services are of great concern, and represents an important source of distress.

“But now I'm realizing that, because I have to get some other services that need to be paid, like a dental or eye. Maybe if I have a family doctor or one doctor, he could give me an advice on where I can get these services in a, like a cost-effective ratio. I don't have a medical insurance, because I'm not working now. It cost more than a thousand dollars. So I'm not able to do it.”

(Man from Nepal, Interview 10)

Education and literacy. For some participants, education attainment and knowledge of the prevailing culture is an important individual-based factor that can help a person during their integration process in a new country. A well-educated person would have a much greater chance to quickly understand the health system and know how to navigate through it with ease, but as

one participant stated, “*Immigrants come from diverse places and they have different levels of education and knowledge.*” (Man from Palestine, Interview 5)

This was indeed highlighted by an African woman, for whom education, along with language ability can be a key facilitating factor for immigrants to understand and navigate the new system.

“I think the problem is low education and the language barrier, people don't talk to, if in a family council everybody it is like low in terms of education or language, it is really going to affect how much knowledge they are gonna get.” (Woman from Liberia, Interview 3)

This concern was shared, as well, by participants who had to serve as knowledge brokers for family members or friends who could neither understand nor navigate the system. This situation posed a problem, as they often needed to take time off from their work to fill the role of interpreter and provide assistance with completing forms or going through administrative procedures. This was specially highlighted by a man in regard to his mother:

“I have it with my mom [the issue of education and language barriers], and lots of them [referring to other immigrants like her] are illiterate and they don't know how to read and write” (Man from Afghanistan, Interview 8)

Language barriers. Language difficulties have been identified in numerous research studies as a key barrier for new immigrants trying to settle into a new country. Many participants (9 out of 15) reported that language difficulties were an important obstacle to access health services and to register with a family doctor. As this next participant pointed out, language issues are a critical barrier for many immigrants.

“Language it’s another huge problem. A lot of the people I talk with and the research I have done it’s that when people have English as second language it’s very difficult. English language is very difficult and coming with all this emotional and physical experiences, it’s very difficult for them to absorb this new information that is being provided to them. For some people it’s very difficult.” (Woman from Liberia, Interview 3)

Although most of the newcomers are able to express themselves and communicate in English or French, they feel that greater language proficiency is an important ability to have when they need to better understand health care information and instructions received from their health care provider. Other participants also reported language difficulties, and how the system should help to address this problem. For instance, when asked about the importance of immigrants’ language abilities, one participant acknowledged its relevance, but she also pointed out the options to address this issue through the use of interpretation services.

“Surely it’s important because for newcomers who don’t even have an interpreter, communicating with a doctor it’s a hard thing. But Canada always offers services for this. So it’s a challenge but also a solution for it.” (Women from Saudi Arabia, Interview 4)

Interpersonal Level

Communication. Besides limited language ability to read and understand basic health care information and instructions in order to make appropriate health-related decisions, there are communication issues between the patient and their health care provider that affect access and enrollment. For some participants, the difficulties to describe or explain certain health problems or discomforts that could be easily expressed in their native socio-cultural

environment, becomes a challenge in the new social context. For example, one participant stated:

“If you have the language barrier it’s very difficult for you to ... what you are going to tell, as English is my second language it’s difficult to translate, express something specific. Some feelings we expressed differently.” (Women from Liberia, Interview 3)

This demonstrates the fact that communication difficulties are encountered even within a very good grasp of the language, due to the use of medical jargon, contextual or regional differences in the meaning of certain expressions, or the various ways people express similar ideas or describe similar problems, as one participant pointed it out:

“Sometimes you are really educated, but you are stuck within the language because it’s medical, really professional and technical. Sometimes even, that this is even different from culture to culture, and the English language from the Middle East is different from the English language here.” (Woman from Lebanon, Interview 6)

This was also confirmed by another participant that considers that even having good language skills, some people strive to understand some terms, administrative procedures and technical material: *“Because when you come to a new country, you’re in a new environment, you cannot express your thinking in other languages, even though I think I’m good in English, but sometimes there are some medical terms, I can’t explain it the same way that I can express in the native language.”* (Man from Nepal, Interview 10)

The challenge in the communication process is not only for the person or the family that is seeking care and trying to explain their problem, but also for the physician to understand what the patient is suffering. This was recognized by one of the participants, by saying:

“The challenge for the family doctor, not for me (the patient) but for other person (the doctor), it is just the time that it's giving to the client, who has problems with English language, so the time for that individual to express themselves what is really going on with them takes time” (Woman from Liberia, Interview 3)

Another issue reported by the participants is that even after finding a regular family doctor, the language and communication problem is still a challenge for family members, as sometimes they must act as interpreter, for a person with a low level of education or limited language skills to communicate properly.

“Even now that we have a family doctor, she (his mother) needs my help to go with her to communicate and say how she feels.” From a broader perspective, he went on to state the following: *“I think that a good way to help newcomers is to specify for them one interpreter and have services that ... they have the facility to take them to the doctors. I can support my family [but] we may have some family that they don't have enough English to take their family to the doctors like they should have a special interpreter even for hospitals.”* (Man from Afghanistan, Interview 8)

Patient-doctor relationship. Participants commented on the extent of the cultural competence of family doctors and health care providers and their sensitivity, overall, towards immigrants. In their view, these service providers should be better trained to address immigrants' health-

care needs. For immigrants, it is important to establish a good relationship and communication with their family doctor in order to achieve their health goals. One of the participants expressed that view by affirming the following:

“Because sometimes, from both sides, there are preconceived ideas. So, when they are together, the first time, just to be listening to each other, it’s essential not jump to conclusions, don't assume for example, the service provider, that he is here he would have to apply by this and this, and make him aware of this relation, and they would be ready to be within the system but service provider have to understand that newcomers know nothing about this.” (Woman from Lebanon, interview 6)

In that sense, some of the participants pointed out the importance of the preparation of the health-care resources, stating that the system should *“try to be more considering the preparation of the human resources.”*(Man from Nepal, Interview 10). Another participant was more direct indicating that:

“On the part of services providers, it is more about education, like just having the education about immigrants' families and just trying the best possible of how to provide services to them, because the language it is not the only issue, people have different problems and situations” (Woman from Liberia, Interview 3)

One critical element of the patient-provider relationship is the cultivation of trust between the two parties, which could help immigrants feel self-assured and thus more assertive during their integration into the new society. This aspect also emerged among the participants, and a woman who was looking for a family doctor, expressed it like this:

“The feeling of trust it’s essential in the health service system. I applied now for a family doctor, and I didn’t know when they are going to answer.” (Women from Lebanon, interview 6)

Another woman stated based on her experience with the walk-in clinic: *“What I felt in a walk-in clinic, the doctor it’s very formal; the relationship between the doctor and the patient shouldn’t be. For me, if I didn’t like the doctor, I didn’t trust him, I didn’t feel comfortable. So how I will put my life in his hands?”* (Woman from Syria, Interview 1)

The prominence of feeling comfortable and confident with the family doctor, as well as having the option of changing the doctor and knowing how to do it, was also reaffirmed by another participant, by saying:

“I think is very important that they assign you a doctor or a clinic. So, that you are followed up for everything. But, to this day I don’t know if for instance, I want to change my provider. I don’t know how to do it. If I can drop the family doctor and go to somebody else. I don’t know how to do it. I don’t know if that is possible.” (Woman from Bolivia, Interview 14)

Organizational Level

Information/knowledge about the system. At the organizational level a recurrent issue was lack of information and knowledge about the primary care system, which was expressed by the majority of the participants. One participant posited that in general the lack of knowledge about the health system in Canada is a significant issue, by stating: *“I think all immigrants don’t know about Canada rules, even healthy rules”* (Man from Palestine, Interview 5).

When asked about her knowledge of how to get registered with a family doctor and whether she received information upon her arrival, one participant expressed her experience like this:

“No, nothing. No, any information. I was totally lost. I didn’t know where to go, how to access the health system. Nothing” Based on her own experience, she proposed some possible solutions to address this issue:

“I would say, first I wish I would have received like a guide, like a mini-book, a manual that let me know that, if I had that problem, how I can access with all the information about the resources. Maybe they could give you. They could have this book in different languages. Because when you come to Canada you, immigrants usually don’t have too much language skills, and that will be the first approach. Having some manual, some guidelines on how to access the system, in their own language” (Woman from Brazil, Interview 13)

Another participant confirmed the importance of that point, reflecting on the utility of providing more information at arrival to guide the newcomers connect with the health system. He expressed his views by saying:

“Because we don't know the whole system you know. We're immigrants and we don't have all access information about health and all those things.” He went on saying: *“What I'm seeing, what I've experienced there is a gap. Immigrants when they landed here and, this, this, this you know. There are opportunities on this and this; this information is available, you can find this information on this. You can, if you have need for health, you have to go over there. This kind of information is lacking for the immigrants.”* (Man from Nepal, Interview 11)

Some participants did acknowledge receiving some information about the health system after arriving in Canada, but only in regard to getting the provincial health card, and not specifically on how to find and register with a family doctor. One participant, who explained how she received the information after arriving, at the immigration centre, indicating that: *“They tell you about the health card. But not about how the system operates, how to get a doctor, what you can do.”* (Woman from Sierra Leone, Interview 13)

Another woman felt that her perception that the information prepared for immigrants was insufficient, and emphasized the importance of being given more appropriate information so that newcomers could find their way in the system more easily. As she further explained:

“Well, I just knew that I had to have the health card. And I didn’t know where to go when I get sick. So, I didn’t have the information about how to look for that. I think that, more information is needed, about how the system works, and how you can get access to better services. I know sometimes you get easier access, and others are struggling like me, so we should have better information on how the system works, have an orientation upon arrival about the system, what we can expect, how long it takes, and what are the best ways to access the system.” (Women from Bolivia, Interview 14)

Some of the immigrants are told that they need to search for more information online by themselves, but for many of them this is also a difficult task, as one participant indicated:

“They tell, like you can search on net to see what the doctor who will accept new patients or something like that but even though it’s not easy.” (Woman from Syria, Interview 1)

An additional challenge for the newcomers is the difficulty to understand and make sense of an unfamiliar health system. For some participants, general information is not enough, and it is a struggle for many of them to fully understand how to go through all the complexities of the system.

One participant expressed her concern about it in this way: *“Is complicated that it’s difficult to access; it’s not an easy procedure, the waiting time to get enrolled.”* (Woman from Iraq, Interview 2)

Another participant reflected on this obstacle by saying: *“For immigrants and newcomers it’s very important to know how the system works too because everything it has to be through the Internet, if you want a doctor, or anything not only about health, and some people even if they are good in the language they would have barriers to navigate the system to access the health service, there are a lot of steps from one page to another and another.”* (Women from Lebanon, Interview 6)

There are many administrative procedures to follow in order to complete the process of being registered in the system, requiring newcomers to, fill out forms or submit documents, either online or in person, to gain access to the health benefits. This process commonly takes three months and then more time is needed to identify a family doctor who is available and then wait for a response. As one of the participants commented, this process is cumbersome and time consuming:

“One of the problems is all this process, I mean, these administrative issues; also they need to wait sometimes to receive their health card.” (Woman from Syria, Interview 1)

In their attempts to connect with the health care system, immigrants look for alternatives and seek assistance, from different sources. One option that they have found is asking to people living here for some time that already knows the system, long-term residents for guidance, regardless their birthplace, such as neighbours, colleagues, friends and relatives who already know the system. In fact, several participants mentioned that many newcomers have to rely on friends and relatives already living in the country, to learn about the system, understand how it works, and navigate through it, especially when trying to find and register with a family doctor. When asked about the importance of receiving assistance from relatives and friends, this woman responded:

“Definitely, if you come with relatives living here already enough time, they can ride you. So it’s a lot easier. It’s helpful.” (Woman from Liberia, interview 3)

A woman from the Middle East region, who had family members living in Canada, shared a similar experience when she went through the registration process with them: *“I did know how to sign up because I have relatives here. But some people come alone so these definitely these help them.”* (Woman from Saudi Arabia, Interview 4)

Also, a male participant reflected on how the experience from compatriots that have gone through the process of integration, can be helpful for the newcomers. This is how he exposed his view:

“Actually in my experience, I don't have access to where I need to go actually. What the previous friends the previous generation where did they go, I follow that. Is right? But I don't know actually, I don't know I didn't see the papers and the information. I follow that, my previous

friend, or my previous generations. What they did, I follow that way; because I don't have the right information of where I need to go.” (Man from Nepal, Interview 11)

Nevertheless, even some long-term immigrants have no knowledge of how to get registered with a family doctor. One participant recounted instances where friends who, after living in Canada for many years, still didn't know about primary care services:

“I have seen some people, who have spent some years here, but I ask some questions about some services and they don't know. Some even came and ask me questions how to go there or what to do and have been here several years. (...) They don't know about the services. Like, when I explain to them about the services they say where is that? One of them has been here for seven years and I talk about some services and they don't know about it.” (Man from Afghanistan, Interview 8)

Availability of family doctors. Another obstacle encountered at the health system level is the availability of doctors close to one's place of residence. This is a major reason why many immigrants are struggling to find a family doctor or are waiting a long time to register with one that accepted new patients. For one participant *“the main difficulty it's to find a doctor within your area, not go two hours to get a doctor available.” (Woman from Lebanon, Interview 6)*

According to the participants many immigrants are making multiple attempts to find a family doctor. Although they are considering many different geographical areas, the process is still taking too much time and effort. One woman described her experience trying to find a doctor that would accept her as follows: *“We search through the net. We have all what they give, like a list, like this, you have the names of the doctors. I called many of them, not all of them like accepting new patients, you know?”(Woman from Syria, Interview 1)*

A similar experience of unsuccessful attempts because doctors were not accepting new patients was described by another male participant: *“They went to several doctors but they were rejected because they weren't accepted new patients.”* (Man from Palestine, Interview 5)

Another participant recounted her experience, explaining that she had to go to a different area, but even then she couldn't find a family doctor. *“The area where I'm living there was a long waiting list, there were a lot of people, and other doctors were far away from the area that she was living in.”* (Woman from Iraq, Interview 2)

Another concern revealed by some participants was the difficulties they experienced with trying to access family doctor even after being permanently enrolled. This issue was raised by one of the participants, who reported the dismay of his friend for not being able to access the family doctor, even though he is formally registered in the system.

“Because one of my friends says that, he hardly can see the family doctor, he had to check in an appointment a week ago, because the family doctor is not available every time, but if he goes to the walk-in clinic when you wait at least you can see some doctors. So, even having a family doctor, he can't take the advantage.” (Man from Nepal, Interview 10)

On a similar note, a female participant described her experience when she tried to contact her family doctor for an acute problem. She wanted to talk to the doctor over the telephone, but she got frustrated because she had to book an appointment and wait a few days.

“And the problem you can't even talk to the doctor by phone. Sometimes when the doctor sees you, she only wants to see you. You can't talk to her by phone and just told him, I didn't improve

should I take the medicine you told me? I have to book an appointment and go, it takes a long time. And we don't have much time here.” (Woman from Syria, Interview 1)

Discussion

This study found that recent immigrants in Ontario continue to have difficulties finding a family doctor and enrolling in primary care services, after their arrival. The views and perceptions of the participants in this study contribute to a greater understanding of the challenges that immigrants face when trying to learn about, make sense of and fit in an unfamiliar health care system, which for some immigrants is quite different from their conceptions of health and health care. Immigrants in this study encountered three main issues they struggle to learn and understand the health system; they expend much effort in navigating this system; and then, they experience further difficulties when they start to connect with primary care the services once enrolled in it.

As with any qualitative research, the purpose of this study was not to make generalizations regarding the broader immigrant population, but rather to understand better the perspectives of immigrants with different backgrounds and characteristics, and their experiences with the process to access a family doctor in Ontario. This research is consistent with findings from similar research on newcomers living in Ontario,^{204, 210} and across Canada.^{178, 200, 211} However, these results provide new insights, specifically regarding their perception of enrolling with a family doctor to receive continuing care and to establish a long-term relationship based on trust and security. For some immigrants this is a new concept, which they need to assimilate while they start interacting with the health system.

First, many of the immigrants had stated that having appropriate information was critical to being able to settle in a new country and to connect with the health system; although information

is important, it is nevertheless not enough. Even after receiving some basic information about the health care system in Canada, they still struggle to understand it and how they can access primary care services in the province.

Health care expectations of immigrants stem from their previous experiences in their country of origin, in accessing medical care, either from a general practitioner or a medical specialist. The concept of a family doctor and the requirement of being assigned to a health care provider to receive continued health care is a novel one for some immigrants from other cultures. The sociocultural dimension has already been identified as barriers to accessing health care.¹⁷⁸ In addition, many immigrants need considerable time to learn and adapt to the social norms and customs of their new country. Even after several years living in Canada, some immigrants still do not know or do not understand how the system works. Therefore cultural and health-related beliefs are viewed as important factors in the ability to receive primary care services.

Second, the capacity to understand and navigate the system is an important factor influencing immigrants' access to primary care services. Their ability to navigate the system depends heavily on how well immigrants overcome the initial step of entering a new system and gain sufficient understanding of the complexities of the system. However, this outcome is not easily achieved and many immigrants rely on friends or relatives to find their way into the system, as some of the participants in this study pointed out.

Other factors related to the issue of accessing and navigating the system that emerged in this study were language and communication barriers. These factors are even more critical and pose additional hurdles for people with low education or poor health literacy.²¹² Furthermore,

administrative and bureaucratic procedures and the lengthy time requirement to complete the enrollment process can be daunting for some newcomers.

Finally, once the newcomers start to understand the system and find their way in it, they encounter other obstacles related to family doctors' availability and their willingness to take on new patients.

One frequent complaint is that doctors practising in the neighbouring area are not taking new patients, and so it usually takes a great deal of time to find a family doctor. This is a long-standing problem for many immigrants.²⁰⁴ When immigrants do find a family doctor, they face a certain amount of frustration in setting up a doctor's appointment. According to participants' experiences, they cannot directly contact the doctor but have to book an in-person visit, and they usually must wait for several days or weeks, to see their doctor; even when needing to consult for a simple problem that, in their view, could be resolved with a telephone call. Another occasional difficulty is encountered when requiring health services outside of their family doctor after office hours, and then having to use walk-in clinics or going to the emergency department of a nearby hospital for a problem that can be easily managed with primary care services.²¹⁰ These issues are not limited to immigrants but any resident in the province,²¹³ but certainly have a more negative effect on those not familiar with the system.

An important factor influencing the quality of the patient-doctor relationship is the cultural competence and sensitivity of the health-care providers. According to some immigrants, Canadian doctors are not suitably trained to understand and address certain immigrants' health problems. The relationship can be further strained by communication difficulties, especially in terms of immigrants' poor language proficiency in expressing his or her health problem.

Moreover, the short length of time given to the patient to express his or her health concerns and needs is another obstacle that impacts that relationship. Therefore, additional issues can emerge related to getting the care they actually need, which has an impact on the quality of care being received.^{134, 158} The availability of interpretation services was perceived as an important measure to address the language barrier.

Findings of dissatisfaction with the health system and unmet primary health care needs are consistent with previous studies.²¹⁴ Although some of these issues covered in this study also concern native-born residents, immigrants are disproportionately more affected, with therefore greater implications for the quality of care given to this population.

Conclusions

Despite different sociocultural backgrounds and beliefs, registering with a family doctor to receive continued health care is largely perceived as important by the new immigrants participating in this study. However, there are some obstacles that preventing them from rapidly access these services and benefiting from the health system. For most of the participants, the process of understanding and integrating into new social environment and adjusting to a complex health system are key issues, not to mention the amount of time and efforts for them to adapt and assimilate within their adoptive country.

In their views, the health system is still not responding adequately enough to their needs and concerns. Many immigrants become frustrated and give up in their attempt to connect and get the health care benefits they would be entitled to receive. This situation may partially explain why after living many years in Canada, some immigrants still do not understand the Canadian system. This can have dire consequences for their health status.

Some immigrants feel that making the health system more diverse can help make the system more immigrant-friendly, where health care providers would be more sensitive to their particular needs for understanding how to navigate this system and for greater ease of communicating their concerns. As some suggested easing the licensing process of foreign-trained physicians could be a promising path in that direction. That would have the added value of reducing the shortages of family physicians and expanding the medical workforce in those areas experiencing higher demand for primary care.

The main contribution of this study is the identification of the obstacles that recent immigrants (i.e. less than 10 years in Canada) are still facing when attempting to connect with the health system, particularly with respect to registering with a family and receiving the services they actually need. Although health care barriers previously examined, with many of the studies including a focus on immigrants,^{121, 204, 210} no study to our knowledge has directly explored these barriers specifically in relation to the process of enrollment with a family doctor.

Based on our findings, serious consideration must be given by health authorities in Ontario to further improve the health system by better accommodating the special needs of immigrants and enhance the quality of primary care that they have the right to receive. These results may have similar implications for the health care of immigrant populations across Canada.

CHAPTER FIVE

Are Immigrants Connecting to Primary Care Services in Ontario?

Summary

In most countries with an important influx of migrants, immigrants face challenges to access health care services. Research in Canada and abroad has shown that newcomers face multiple obstacles in their search for health care during their resettlement and integration to the host society. In Ontario, primary care services are organized in three types of models based on the remuneration scheme to the physicians: fee for service (FFS), capitation, and salaried. During the Primary Care reforms in early 2000s, the province introduced new models of primary care practices to enhance the quality of care through the expansion of multidisciplinary care and by offering incentives for applying more preventive measures and some chronic disease management strategies by health-care practitioners (e.g. disease screening, comprehensive care). Along with these innovative reforms, the province promoted the enrollment with a family doctor in the different types of primary care practices.

This research project examined the access and connection of immigrants to the enrollment system to primary care services in Ontario. Questions such as do new models of care represent a barrier to immigrants, or do they help to reduce existing health equities?, were explored. A review of the international literature contrasting a PMC and PHC approaches showed that the latter has more potential to address social determinants of health of immigrant populations. Taking into account the organization of health services in the province, immigrants can receive primary care services mainly through PMC practices (FFS and capitation-based), but also through some PHC-type of models, such as the Community Health Centers. An analysis of immigrants' enrollment in primary care services was conducted, using a secondary analysis of administrative data in Ontario. Unfortunately this research was not able to include enrollment in Community Health Centers due to a lack of

comparable data, but evidence on immigrants' access to enhanced PMC practices that provides more comprehensive primary health care, reveals that health care inequities still exists.

Indeed, findings from the quantitative study have shown that enrollment of immigrants in primary care services have increased over time, but the levels of enrollment remain behind compared to long-term residents. Moreover, results revealed that compared to long-term residents, immigrants have less access to the most comprehensive models of care, which represent an important inequity. In exploring the perceptions of immigrants in two major cities of the province, it was observed that most of those interviewed perceived that there are important factors (information, knowledge, language barriers, cultural issues) affecting their capacity to understand and navigate the system. It takes some time for them to make sense and learn how to connect and use the system.

This chapter discusses the main findings of the research project considering its three components, the implications for policy and for future research.

Immigrants Connecting with Primary Care Services in Ontario

Over the last two decades, developments in primary care services have led to important improvements in the quality of care aiming at responding to the health needs of the population in many countries including Canada. Expansion in the application of preventive interventions (disease screening, patient education, and counselling) and the provision of more comprehensive care to people with more complex needs, such as the multidisciplinary management of chronic diseases,¹⁵⁵ and the emerging model of patient-centered care¹⁵⁶ have contributed to the improvements.

In addition, innovative strategies in primary care services have also introduced important initiatives in responding to social and cultural needs of the population. For example, the implementation of better communication strategies and resources to provide culturally oriented care,^{157, 158} the use of language interpretation services¹⁵⁹ and cultural brokers,¹⁶⁰ facilitate the patient-provider communication and relationship, enabling the curative process. These strategies are critical for immigrants, as they face numerous challenges when they settle in a different society and a new health system.

An important element in the process of accessing primary care services is the enrollment mechanism, which allows patients to connect and register with primary care providers to receive continuous and long-term care. Patient enrollment has been recognized as an important feature of a high-performing primary care system.³³

Research in Canada and abroad has shown a variety of obstacles that newcomers face during their integration into their new society. In order to provide health care to the people living in Ontario, health services are organized in three types of models based on the remuneration

scheme: FFS, capitation, and salary. During the primary care reforms in the early 2000s, the province introduced new models of primary care practices to enhance the quality of care through the expansion of multidisciplinary care and by offering incentives for applying more preventive measures and some chronic disease management strategies by health-care practitioners (e.g. disease screening, comprehensive care). Along with these innovative reforms, the province promoted the enrollment with a family doctor in the different types of primary care practices.

This research project examined the access and connection of immigrants to the enrollment system to primary care services in Ontario. For example, do new models of care help to reduce access barriers among immigrants or do they help to reduce existing health inequities? A review of the international literature contrasting a PMC and PHC approaches showed that the latter has more potential to address social determinants of health of immigrant populations. Taking into account that immigrants in Ontario can receive primary care services mainly through PMC practices (FFS and capitation-based), but also through some PHC-type of models, such as the Community Health Centers; we were interested in examining their enrollment in these services in the province. Although this research was not able to include enrollment in Community Health Centers due to lack of comparable data, evidence on immigrants' access to enhanced PMC practices that provides more comprehensive primary care, reveals that health care inequities still exist.

In responding to the research questions, the specific objectives of this research project were:

1. Identify the main models of primary care to deliver primary health care to immigrants
2. Explore their strengths and limitations to address immigrant's health care needs
3. Determine the levels of enrollment of immigrants in primary care in the province

4. Compare the levels of enrollment to long-term residence in the province and identify the main factors influencing the enrollment levels
5. Explore the perceptions of recent immigrants regarding the access to a family doctor

Researcher Positionality and Reflexivity

As a researcher with a medical background and as Family Doctor in primary care services for several years in Cuba - a developing country with a universal health system-, I've gained experience working and studying other primary care systems in both developed and developing contexts. Bearing in mind that experience, I think it is important to reflect on my own view and position in relation to this research project.

I received a medical education deeply rooted in a social justice paradigm, and worked in a health care system strongly focused on health promotion and prevention; and also a system in which any person, irrespective of his/her social or cultural background, should receive the best possible care. I believe that a comprehensive health care should provide a high quality of medical care and as far as possible, to address the conditions that determine the health status of each person or a group of people. In that context, the Population Health program provided me with the opportunity to expand my knowledge and understanding of how social conditions are essential determinants of health.

Indeed, working in this research project reaffirmed my vision of the importance of the social determinants of health and how these conditions are key drivers in generating the health inequities that prevails in today's world, which affect principally vulnerable populations. Furthermore, I perceived that those health inequities were a major public health problem in developing regions, but they are also an important problem affecting wealthy nations. In these

countries, minorities, such as immigrants, are disproportionately affected by social inequities, which are reflected in their poorer health conditions and health care.

The review of the main approaches to delivering health care to immigrant populations internationally, using the Alma Ata principles, was the first step to appraise how two broad health care perspectives, one more medical or curative-oriented and other more health and socially oriented, could affect health inequities in immigrant populations. Also, the exam of access to health care services among immigrants and refugees in Ontario, allowed me to empirically verify how immigrants to Canada are gaining access to the primary care system, especially to more comprehensive services that could address their health needs.

Through this program, I was able to better understand how the socio-economic environment in which people live and work is a crucial determinant of health and to apply it to the study of immigrants' health care in the context of a Canadian province. Related to this, it is clear to me that comprehensive health-care services, when grounded in solid health promotion and prevention strategies, can be a critical factor in helping people to achieve, maintain and recovers a good health. So, although this notion of equity in access to comprehensive primary health care was already part of my theoretical view and background, it was significantly reinforced after my enrollment in the Program and is reflected in the discussion of the results of this research.

Main Findings and Discussion

In most countries with an important influx of migrants, immigrants face challenges to access and use social services, including health-care services. Research in Canada and internationally has shown the multiple obstacles that newcomers face during their resettlement and integration to a new society and an unknown health care system.

Health care services in Canada are under provincial jurisdiction, and there are numerous types of models and organization of primary care services. In the province of Ontario, health services are organized in three types of models based on the remuneration scheme: FFS, capitation, and salaried (see Appendix G).

As noted earlier, the province underwent a wide process of primary care reforms that introduced innovative models of primary care practices to enhance the quality of care, and an important element of these reforms was the individual enrollment with a family doctor, the patient enrollment model, which was encouraged in most of the primary care practices. This research examined and contrasted the enrollment in primary care services between immigrants and long-term residents in Ontario. In addition, it explored the perceptions of some newcomers to the province regarding the process of registering with a family doctor in order to receive continuous health care.

Main approaches to provide primary care to immigrant populations (Objective 1)

Considering the two broad categories of health care models used in the literature review, PMC and PHC, the primary care practices in Ontario, either FFS-based and capitation-based models fall in the PMC approach, as these practices are predominantly curative-oriented models that are essentially involved in clinical activities inside the health services; while the Community Health Centers can be considered as PHC models (see table 20 below).

The Community Health Centers have been recognized as the type of primary care practice in the province that fits the PHC approach since it is the most consistent model applying community oriented care and activities that are common in the original community-oriented primary care model.²¹⁵ FFS and capitation-based models have gained important achievements by introducing

preventive strategies that are essential to address people’s health needs, yet they have limited capacities to apply community oriented activities.

Table 20. Ontario’s primary care practices and the main health care approaches

Model / Payment scheme	Type of primary care model
<i>Fee for Service (FFS) based models</i>	
FFS Traditional care	PMC
<i>Reformed FFS practices</i>	
Family Health Group (FHG)	PMC
Comprehensive Care Model (CCM)	
<i>Capitation-based blended models</i>	
Family Health Networks (FHN)	PMC
Family Health Organizations (FHO)	
<i>Salaried models</i>	
Community Health Center (CHC)	PHC

The analysis of enrollment in Community Health Centers was not possible in this study (as explained in the limitations), but research in Ontario have found that Community Health Centers are more likely to provide primary care services to vulnerable populations, such as immigrants.¹³⁹ Community Health Centers are community-governed primary care organizations that provide comprehensive services and strategies relevant to the needs of their communities, aiming at serving those with greater health needs and facing access barriers that could be addressed through their programs and strategies.²¹⁶ Other studies have found that Community Health Center and Aboriginal Health Access Centers (AHAC) are serving a higher proportion of vulnerable people (e.g. low-income people, aboriginal and francophone minorities).²¹⁷

Enrollment in Primary Care among Immigrants (Objectives 2 and 3)

Enrollment in primary care services in Ontario has gradually improved since the introduction of enhanced primary care models in early 2000s, and indeed enrollment in primary care has increased among immigrants, as well as in long-term residents. However, these findings revealed that enrollment in primary care practices overall remains consistently lower for immigrants compared to long-term residents. Furthermore, enrollment among immigrant was three times lower compared to long-term residents for the most advanced primary care practices. Thus immigrants continue to be enrolling significantly in more traditional primary care practices. This enrollment inequity is most striking for capitation-based models, which are intended to provide a higher quality of care to Ontario residents, particularly the Family Health Teams, to which immigrants had significantly less access compared to long-term residents.

When looking at the characteristics of immigrants that are enrolled, more inequities were evident. Among immigrants, those in disadvantaged situations, such as those with low educational attainment and low income levels, had more difficulties to get enrolled in capitation-based models. Furthermore, an inverse gradient was observed for immigrants with higher needs, to the extent that those with higher levels of comorbidity had the lowest levels of enrollment in capitation-based models.

These results suggest that, at a population level, immigrants in Ontario have relatively lower access to physicians in comprehensive primary care models, and those difficulties are even greater for more vulnerable immigrants, such as those in the lower income category, less educated at arrival, with poor ability to communicate in Canadian official languages, and those with higher health needs. Therefore immigrants continue to rely on traditional models without

benefiting from the enhanced health care options that may be helpful to alleviate the challenging integration trajectory.

Immigrants' Perceptions on Accessing a Family Doctor (Objective 4)

Despite differences in sociocultural background and beliefs of many immigrants, registering with a family doctor to receive continuous health care is perceived as important by the majority of the participants in this study. However, there were some obstacles that prevented them from rapidly accessing and benefiting from these services. According to most of the participants, the process of understanding a new and complex health system is a key issue for their adjustment to their new life in Canada, which takes time and effort. In their views, the health system is still not responding properly to their needs/demands and many immigrants get frustrated and give up in their attempt to connect and receive its benefits; which may partially explain why after living for many years in Canada, some immigrants still don't understand the Canadian health system. This could have negative effects on their health outcomes.

The qualitative study suggests that there are indeed some obstacles that are affecting immigrants to effectively access the primary care services in the province and to benefit from the improvements and the advances in the quality of services to the Ontario population. Based on the perceptions and opinions of the participants, the information that immigrants receive upon their arrival on the health-care services in the province is not sufficient to understand, to suitably navigate the system and to effectively use the services. Some available mechanisms in place to improve the dissemination and communication and facilitate the connection with the services, such as Telehealth, Health Care Connect, are still not known by many immigrants.

In addition, the communication barriers between newcomers and health care providers, despite the use of interpretation services, continue to be an important obstacle. Another important

hindrance influencing the disparities is the availability of family doctors that can accept patients. Although this can affect any resident in the province, it is more challenging for newcomers. According to the responses, many immigrants still rely mostly on the basic primary care practices, often the 'walk-in' model.

In summary, although this research was not able to include enrollment in Community Health Centers (which is considered an important source of primary care for many newcomers), evidence on immigrants' access to enhanced PMC practices that provides more comprehensive primary care, reveals that health care inequities still exist.

Although other studies on immigrants' access and use of health services have been conducted in Ontario, this is the first study comparing access and attachment of immigrants to primary care services, particularly to those services offering a higher quality of health care. These findings add key important evidence to the significant volume of research on the difficulties that immigrants face accessing and using primary care services in Canada.¹⁷⁸ In particular, this research offer consistent and complementary evidence on the inequities in immigrants' access to continuous primary care services of higher quality in Ontario.

Integrating the Three Studies

According to the healthy immigrant effect concept, the relatively good health of newcomers when they arrive tends to decline over time, while immigrants integrate into the new social environment. Thus, enrolling in primary care would allow newcomers into a new country to receive health care services that could be beneficial for their health transitions. The main goal of primary care is to provide essential health care, not only medical care but also preventive measures. So, it is important for everyone even if the person is healthy, since this care aims at,

not only to cure or restore their health, but also to help people to remain healthy. Furthermore, the main emphasis of primary health care should be on health promotion and disease prevention.

Taking the above into account, enrolling in primary care should matter for any person, since being registered with a family doctor might help people and families to establish a continuous relationship with a health care provider, or a health care team. This relationship would help them to maintain and improve their health and well-being, and not only receive care when they are ill. This notion was indeed revealed in the qualitative study, where, in spite of cultural differences and the obstacles in access, most of the participants considered that registering with a family doctor is important or very important for them and their family.

According to the results of the literature review, PHC approaches are more suited to address the health care needs of immigrants, compared to PMC models. PMC-type of primary care services is the main approach applied in developed nations, including Canada. Applying these two approaches contrasted in the literature review, the primary care models in Ontario can use both models, but only the Community Health Centers can be considered as a PHC approach. The other primary health care practices in the province, either FFS-based or capitation-based models, fall in the PMC approach. And, being enrolled to receive continuous health care could be beneficial for the patients and their family, as many studies have shown.^{170, 171} This is true for enrollment either in fee-for-service-based or in capitation-based practices. But from these two models, capitation-based practices are the closest to the PHC approach.

In the last two decades, there have been considerable advancements in the scope of practice and improvements in the quality of health care aiming at achieving a more comprehensive care. Innovative strategies have been introduced and put in practice to tackle socio-cultural factors that are essential for newcomers, such as introducing interpretation services to address language and

communication barriers,^{218, 219} and initiative to improve the cultural competency of primary care providers.^{220, 221} In consequence, the reformed capitation-based practices have gained important developments in addressing health care needs of the immigrant population. Capitation-based models are providing a more comprehensive multidisciplinary care, by offering more preventive interventions (disease screening, educational activities), which potentially make them more effective in attaining better health outcomes. However, these practices still lack capacity to implement strategies to address social determinants of health that are beyond the limits of the primary care system.

In Ontario, immigrants can use primary care services from any of the different types of practice. In daily practice, there is an intersection or overlapping in the use of these services, since Community Health Centers can eventually be used by any person who is already enrolled in another primary care practice. Unfortunately, for this research project it was not possible to include and compare Community Health Centers in the enrollment study or assess the magnitude of that intersection. Although Community Health Centers provide care to a small proportion of the population in the province, research has found that immigrants represent an important proportion of people receiving care in these health care organizations.¹³⁹

Since the enrollment system in Ontario is a relatively new and is continuously evolving, research to assess the impact of enrollment is still scarce, and has not yet fully determined the effect on health outcomes. However, most of the published reports (peer reviewed and non-peer reviewed) have started to show benefits of the system. Some studies have also identified the deficiencies and failings, but despite the problems, the overall sense is positive and promising. Research has already identified the benefits of enrollment on health care service performance and patient management.^{189,198, 222, 223} An external evaluation of the Family Health Team, the largest study on

this interdisciplinary health care approach, has provided important evidence of the positive outcomes of this model of primary health care in Ontario. Some studies have indeed found that fee for service models have better outcomes for some activities,²²⁴ but most of the current evidence is favouring the more comprehensive strategies from interdisciplinary care models and capitation-based practices.

Limitations of the Research Project

The research has limitations in each of its components. Overall, the study designs, methods and discussion of the results may have left room for personal influence, bias and misinterpretation from the researcher. For example, the definition and classification of the health care approaches when conducting the literature review, or the codification and interpretation of participants' perceptions and views on access to primary care services.

Some limitations related to the use of administrative data for the enrollment study are worth to be highlighted. First, relying on administrative data could have some restrictions in terms of completeness and accuracy. Since the collection of the data is based on administrative fee codes used for physician payments, there could be some differences in completeness of billing between capitation and FFS, but these differences are considered small, thus the data used for the analyses are reasonably complete. Also, a small proportion (less than 5%) of health services that are not billed on a fee-for-service basis would not have been captured in these data. Despite these limitations, I'm confident that this database is reasonably comprehensive and valid for this study.

Another limitation is the possibility of leak in the cohort. Although a close cohort was created, it is likely that some immigrants can eventually travel to another country, especially the country of origin, to receive some health care services. Since only the first recorded date of formal rostering

was used to determine the status of enrollment, and no other change was examined, it was not possible to determine which immigrants were in that situation. The main effect of leakage would be among those not enrolled, so that would have had an impact on the denominators. Again, I was not able to determine whether some immigrants left the province definitively, but even if that have occurred, it was not significant enough to affect the conclusions about the direction and magnitude of the differences in the enrollment levels. A study looking prospectively at immigrants' use of primary care services, accounting for the movements of the people outside the province, would be able to examine that issue.

Another important limitation is that patient enrollment is required under the capitation models but is optional in a fee-for-service model (there is less financial incentive in fee-for-service models to roster patients), thus if a smaller proportion of patients were enrolled in fee-for-service practices than in capitation practices and if patients with frequent visits were more likely to be enrolled, then sicker patients may have been enrolled in the fee-for-service practices than in the capitation practices. More research is needed to determine the extent of that situation. Nevertheless given the significant differences of enrollment in these practices between the two study groups, I believe that this issue does not affect the outcomes of this study.

Finally, the enrollment status is limited to the first recorded date of formal rostering in the system. However, the enrollment status can change from one practice to another or terminate their attachment to a specific practice. Further research involving these practices over an extended study period would help in determining these variations.

A limitation in the qualitative study was that the selection of participants in the qualitative study didn't achieve the desired variety of immigrants. I wanted to have participants that reflected the diversity of immigrants coming to Canada, so I expected to have immigrants from different

regions of origin. I made contact with immigrants' institutions in each city and with colleagues to help with the recruitment of participants. They tried to contact immigrants from different origins and backgrounds but only those included accepted to participate. Unfortunately, despite the efforts of these people and organizations to recruit people from multiple parts of the world, only a few regions were included, mainly from Middle East, Africa, Asia and Latin America. A factor that probably affected the results was that these people and organizations contacted or received from colleagues, friends, or members of immigrant communities which they were working with. In consequence, the sample from London is overrepresented with immigrants from the Middle East, and the overall sample was underrepresented with immigrants from other regions South East Asia and the Pacific region.

Another potential limitation could be the exclusion of Toronto as a target city for the study. Although it was an obvious option, since Toronto is the largest receptor of immigrants, however, there are numerous studies that have examined issues of access to primary care services that have provided some perspective of immigrants settled in that city. Thus, I decided to explore the other two main cities with the largest proportion of immigrants in the province. A second reason was logistic, as we were already been working with a group of people and organizations through the Canadian Collaboration for Immigrants and Refugees Health, which had committed great support for the study.

Conclusions

The international literature shows that immigrants receive primary care services through a PMC and PHC approaches, but PHC models are potentially more effective to address their health care needs. In Ontario, immigrants can use primary care services from different types of practice that

mainly use a PMC approach, through FFS and capitation-based models; but also a PHC approach mainly through the Community Health Centers.

In spite of the attenuation in the gap over time, the overall enrollment levels of immigrants remain significantly lower than that of long-term residents, and the gap is strikingly larger for enrollment in the most comprehensive primary care practices. Thus, immigrants continue to rely in more traditional primary care practices.

Among immigrants, those in a more disadvantaged situation (lower educational attainment, lower income levels, higher levels of comorbidity), are more likely to be unenrolled in any type of primary care practice, and they have even more difficulties to get enrolled in capitation-based models.

For most immigrants, registering with a family doctor is important for them and their family, but many of them experience difficulties to properly connect and access the system. Language and communication issues, lack of information and difficulties to understand the system, and availability of doctors remain as critical barriers for immigrants trying to register with a family doctor. In consequence, it takes a long time for many immigrants to know how the system works, and, in the meantime, they are receiving care in walk-in clinics or emergency departments in close by hospitals.

In summary, access to continuous primary care services for immigrants have improved in Ontario with the introduction of the enrollment system, but inequities in access to primary care services remain. The inequities are more evident in accessing primary care models that offer a higher quality of care.

Contributions and Implications for Practice

The main contribution of this research was that it provided clear evidence on the existing inequities regarding immigrants' enrollment in primary care in Ontario, showing that in spite of progress in access to primary care services, important gaps remain. The empirical study found significant differences on the levels of enrollment between immigrants and long-term residents in Ontario, and the magnitude of those differences is even larger for types of practices that offer more comprehensive primary care, suggesting that immigrants are not benefiting from the enhancements of the reformed and enhanced primary care services in the province.

Although the results of the qualitative study were consistent with other research findings regarding the hurdles that immigrants face accessing and registering with a family doctor. They also revealed that the lack of proper information and the complexities of the enrollment system are daunting for many newcomers to Canada, and to Ontario in particular, which leads them to devote a lot of time and effort to understanding and navigating the system.

The health care reforms in Ontario and across Canada, in the last two decades, have yielded important advancements in primary care by introducing innovative strategies to improve access to primary care services and higher quality of care.³² These advancements included a patient-centered care approach, inter-professional team management of complex health and medical problems to provide a more comprehensive care.^{35, 225} However, despite the progress in the quality of care, there are still problems with timely access to care, high use of the emergency department and more use of walk-in clinics²⁰⁶. Although reformed capitation-based models have improved in the provision of preventive care³⁷, these practices have not achieved the expected improvements in the comprehensiveness of care.²²⁴

The transformations on primary care were also expected to address and reduce the health care existing health inequities, in more vulnerable populations. In order to achieve better outcomes addressing health inequities, primary care strategies need to emphasize more on health promotion and to address key social determinants of health. That goal can be accomplished by promoting more community-oriented actions in response to population's needs. This is a critical aspect for immigrants since most of the challenges that they face during their integration are socially determined. Therefore, more emphasis in a comprehensive PHC approach is required and in a friendlier and culturally oriented system.

This study does have implications for equitable primary care access for immigrant populations and relevance for other Canadian provinces/territories and other countries that may be planning health care reforms. Primary care to immigrants remains an important social and public health problem in Canada and improving the quality of services for immigrant populations impose important challenges. It is our hope that these results will help inform new policy improvement to address those challenges.

Due to the focus of the research in Ontario, we did not look into the numerous models of primary care in other provinces of Canada. But one could question whether our results may resemble those from other regions of the country, regarding health care services to immigrant populations. Therefore this study may also contribute to help primary care strategies across Canada.

The results suggest that innovative strategies targeting social and cultural factors, engaging immigrants' organizations and community groups may have a positive impact in reducing health care inequities. Therefore, these findings can be of great help to inform new policies in Ontario to continue improving primary care services in the province. These policies could help to further

address the needs of new immigrants, especially of those in most disadvantaged conditions (refugees, less educated, low-income families) to overcome known barriers to these services.

Areas of Future Research

This study has explored two health care approaches, PMC and PHC, to provide primary care to immigrant populations, globally and specifically access to the enrollment system to primary care in Ontario. The exam of the two approaches to delivering primary care services suggests that PHC models seem to be more suitable to address immigrants' health care needs than the PMC model, but additional research is needed to actually determine how effective these community-oriented models are impacting on health care inequities.

Equity in primary care can be assessed through the equity effectiveness loop²²⁶, in which community effectiveness can be seen as the result of access, efficacy, provider performance and patient satisfaction. Even though there are methodological challenges and data availability issues, these attributes can be measured for the different models of care in order to determine their capacity in implementing primary care strategies to address and impact on health inequities. Hence comparative research assessing the effectiveness of PHC and PMC approaches in addressing health care inequities is critical. In addition, another important component in the research agenda is to develop knowledge translation efforts to support the expansion of effective experiences in regions with a higher influx of migrants.

Although the analyses have provided consistent evidence on the disparities in immigrant's access to the patient enrollment model in Ontario, additional research should be conducted to further understand the interaction of some of the social and migration-related factors that affect the

enrollment. For example, addressing other questions such as: why enrollment is higher in suburban and rural areas, and how changes in the language ability can affect the enrollment?

In summary, additional research is needed to better determine the overall role of primary care in maintaining good health and to assess the impact of the different approaches of primary care and the enrollment in particular, on health outcomes. Finally, the impact of enrollment and use of the different primary health care models on immigrants' health care and their health transitions needs to be properly examined, particularly the role of Community Health Centers.

These are critical areas to continue generating stronger evidence to support policy and decision-making to create better health care environments to help immigrants in their social integration. The potential to link several databases to examine multiple variables and the outcomes, offer an excellent opportunity to move forward this research endeavour.

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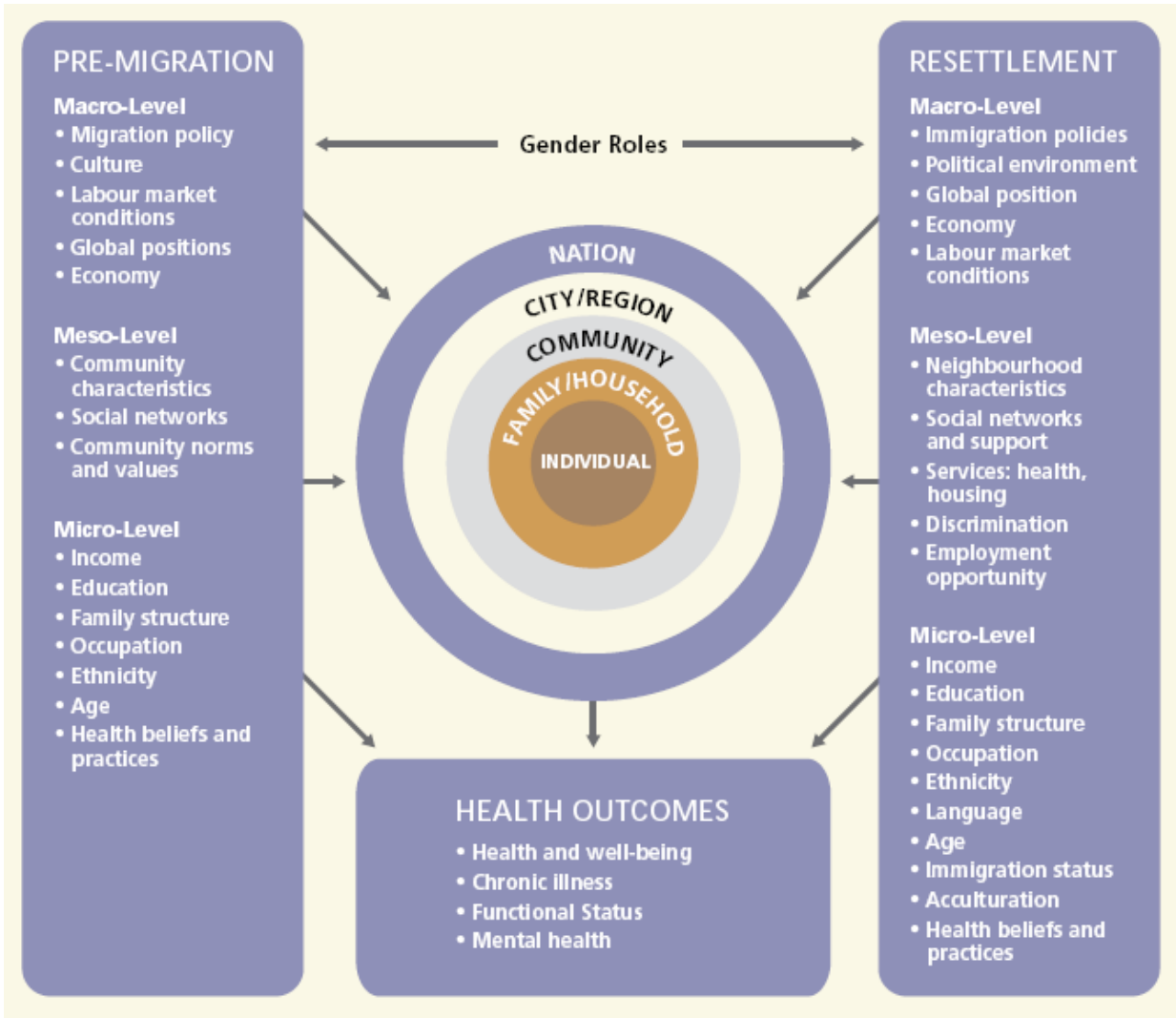
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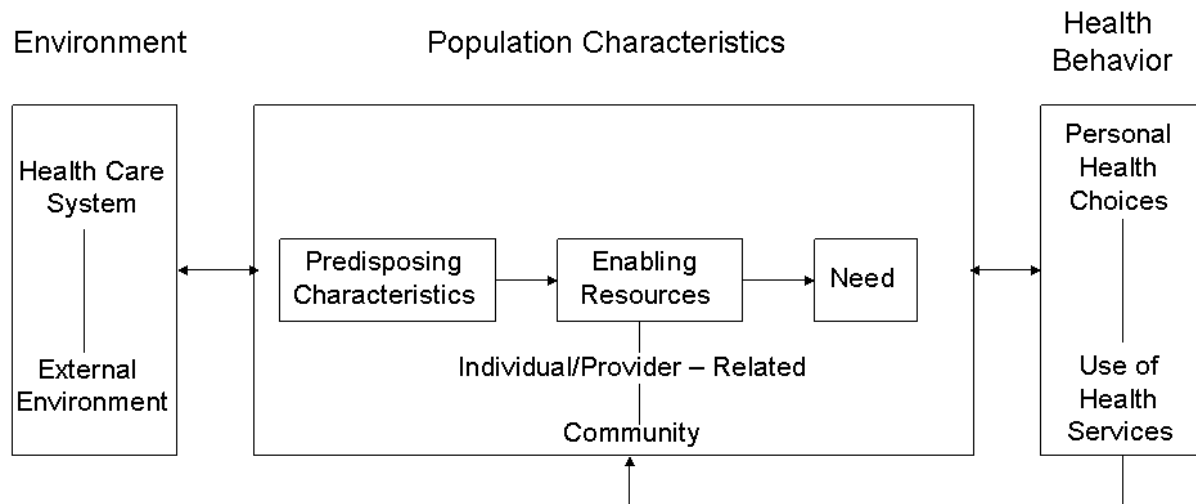
APPENDIXES

Appendix A. Conceptual Framework of Immigrants Health



Source: Bierman et al. 2012 (Ref. 17)

Appendix B. The Andersen Behavioural Model of Health Care Utilization



Source: Andersen, R.M. Revisiting the behavioural model and access to medical care: Does it matter? *Journal of Health and Social Behavior*, 1995; 36(1), 1-10. (Ref. 40)

The behavioural model of health services utilization developed by Andersen (1968, 1995), and Andersen and Newman (1973). In the original version of this model, Andersen outlined the influences of predisposing characteristics (e.g., demographic information, social structure, health beliefs), enabling resources (personal/family and community characteristics), and need (e.g., perceived and evaluated) in predicting health service utilization.

Predisposing characteristics. Includes demographic information, social structure, health beliefs

- Demographic factors: age and gender, are expected to influence the likelihood that an individual will need health care.
- Social factors have generally been operationalized using education and ethnicity.
- Health beliefs: are individuals' knowledge and values about health care that might influence both their perceived need and actual usage.

Enabling resources. Refer to all factors that facilitate health care use. These include the essential components of a health-care facility and health care personnel available in reasonable proximity to where the individual lives. Income and health insurance are also considered enabling resources.

Need. Consider two types of need: perceived and evaluated need. Perceived need refers to the individual's own assessment of the importance of seeking professional help while evaluated need refers to a diagnosis made by a health care professional that leads to further treatment and care.

Appendix C. Search Strategy and Results

Database	Search strategy/search terms			Results
OvidSP	Search terms	Strategy	Derived/exploded/MeSH terms	
Embase (396)	primary health care	primary health care.mp. or exp Primary Health Care/ limit 1 to yr="1990 -Current"	Primary, primary health care, care, community, community mental health services, family practice, health, home care	641
MEDLINE (162)	AND Immigrant	exp illegal immigrant/ or exp immigrant/ or immigrant.mp./ immigrant.mp. or exp "Emigrants and Immigrants"/	Illegal, illegal immigrant, emigrants, emigrants and immigrants, immigrant, immigrants, immigration	
PsycINFO (80)	AND	limit 3 to yr="1990 -Current"		
EBM All (3)	model of care	exp "Delivery of Health Care, Integrated"/ or exp Models, Organizational/ or model of care.mp. or exp Family Practice/ or exp "Delivery of Health Care"/ or exp Long-Term Care/ limit 5 to yr="1990 -Current"	care, delivery, delivery of health care, delivery of health care, integrated, integrated, long-term, long-term care, model, model of care, models, models, organizational, organizational, practice, management, medical, medical care, model, model of care, patient care, organization, organization and management	
Cochrane Library	'primary health care AND immigrant in title abstract keywords	There are 16 results from 715323 records for your search on 'primary health care AND immigrant in title abstract keywords in Trials' Cochrane Central Register of Controlled Trials : Issue 10 of 12, October 2013		16
PubMed	'primary health care AND immigrant	Filters activated: Publication date from 1990/01/01 to 2013/12/31 Article types: Clinical Trial , Comparative Study , Journal Article , Review , Systematic Reviews , Technical Report , More ... Text availability: Abstract available , Free full text available , Full text available Publication dates: 5 years , 10 years Species: Humans		55
Global Health	(primary health care) AND (immigrant) AND (model of care)	<u>primary health care AND immigrant AND model of care</u> Expanders Remove: Apply related words Limiters Remove: Published Date: 19900101-20131231 yr:[1990 to 2013]		33
CINAHL	Expanders - Apply related words Search modes - Boolean/Phrase	((MH "Primary Health Care") OR (MH "Community Mental Health Services+") OR (MH "Community Health Centers") OR "primary health care OR community health AND immigrant" OR (MH "Community Mental Health Nursing") OR (MH "Community Networks") OR (MH "Community Health Services+") OR (MH "Community Health Workers") OR (MH "Community Health Nursing+")) AND immigrant AND model of care		27
Web of science	of Topic=(primary health care) AND Topic=(immigrant)	Refined by: Topic=(model of care) AND Document Types=(ARTICLE OR REVIEW) AND [excluding] Web of Science Categories=(ANESTHESIOLOGY OR SURGERY OR DENTISTRY ORAL SURGERY MEDICINE) Timespan=1990-2013. Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH.		106

Search in OvidSP (Nov. 30th, 2013)

Resources: Embase Classic+Embase 1947 to 2013 November 27, Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1946 to Present, PsycINFO 1806 to November Week 4 2013, EBM Reviews - Cochrane Database of Systematic Reviews 2005 to October 2013, EBM Reviews - ACP Journal Club 1991 to November 2013, EBM Reviews - Database of Abstracts of Reviews of Effects 4th Quarter 2013, EBM Reviews - Cochrane Central Register of Controlled Trials October 2013, EBM Reviews - Cochrane Methodology Register 3rd Quarter 2012, EBM Reviews - Health Technology Assessment 4th Quarter 2013, EBM Reviews - NHS Economic Evaluation Database 4th Quarter 2013

	Searches	Results
1	illegal immigrant/ or exp immigrant/ or immigrant.mp.	45059
2	exp patient care/ or exp health care delivery/ or exp medical care/ or exp "organization and management"/	4808130
3	exp primary health care/	199099
4	1 and 2 and 3 Embase Classic+Embase <1947 to 2013 November 27> (384) Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present> (146) PsycINFO <1806 to November Week 4 2013> (7) EBM Reviews - Cochrane Database of Systematic Reviews <2005 to October 2013> (0) EBM Reviews - ACP Journal Club <1991 to November 2013> (0) EBM Reviews - Database of Abstracts of Reviews of Effects <4th Quarter 2013> (0) EBM Reviews - Cochrane Central Register of Controlled Trials <October 2013> (4) EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012> (0) EBM Reviews - Health Technology Assessment <4th Quarter 2013> (0) EBM Reviews - NHS Economic Evaluation Database <4th Quarter 2013> (0)	541
5	immigrant.mp. or exp Immigration/	65302
6	exp Models/ or exp Health Care Delivery/ or exp Health Care Services/ or model of care.mp.	2908654
7	exp primary health care/	199099
8	5 and 6 and 7 Embase Classic+Embase <1947 to 2013 November 27> (439) Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present> (218) PsycINFO <1806 to November Week 4 2013> (76) EBM Reviews - Cochrane Database of Systematic Reviews <2005 to October 2013> (0) EBM Reviews - ACP Journal Club <1991 to November 2013> (0) EBM Reviews - Database of Abstracts of Reviews of Effects <4th Quarter 2013> (0) EBM Reviews - Cochrane Central Register of Controlled Trials <October 2013> (2) EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012> (0) EBM Reviews - Health Technology Assessment <4th Quarter 2013> (0) EBM Reviews - NHS Economic Evaluation Database <4th Quarter 2013> (0)	735
9	immigrant.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, ps, rs, ui, tc, id, tm, tx, ct]	35320
10	model of care.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, ps, rs, ui, tc, id, tm, tx, ct]	6155
11	primary health care.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, kf, ps, rs, ui, tc, id, tm, tx, ct]	136812
12	9 and 10 and 11 Embase Classic+Embase <1947 to 2013 November 27> (0) Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present> (0) PsycINFO <1806 to November Week 4 2013> (0) EBM Reviews - Cochrane Database of Systematic Reviews <2005 to October 2013> (0) EBM Reviews - ACP Journal Club <1991 to November 2013> (0) EBM Reviews - Database of Abstracts of Reviews of Effects <4th Quarter 2013> (0) EBM Reviews - Cochrane Central Register of Controlled Trials <October 2013> (0) EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012> (0) EBM Reviews - Health Technology Assessment <4th Quarter 2013> (0) EBM Reviews - NHS Economic Evaluation Database <4th Quarter 2013> (0)	0
13	exp "Emigrants and Immigrants"/	43773
14	exp "Delivery of Health Care"/ or exp Patient Care Team/ or exp Patient Care Planning/ or model of care.mp. or exp	3120236

	Long-Term Care/	
15	primary health care.mp. or exp Primary Health Care/	216479
16	13 and 14 and 15 Embase Classic+Embase <1947 to 2013 November 27> (396) Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present> (162) PsycINFO <1806 to November Week 4 2013> (80) EBM Reviews - Cochrane Database of Systematic Reviews <2005 to October 2013> (0) EBM Reviews - ACP Journal Club <1991 to November 2013> (0) EBM Reviews - Database of Abstracts of Reviews of Effects <4th Quarter 2013> (0) EBM Reviews - Cochrane Central Register of Controlled Trials <October 2013> (3) EBM Reviews - Cochrane Methodology Register <3rd Quarter 2012> (0) EBM Reviews - Health Technology Assessment <4th Quarter 2013> (0) EBM Reviews - NHS Economic Evaluation Database <4th Quarter 2013> (0)	641

Hand search:

Relevant journals for migrant's health studies

- Journal of Immigrant Health/ Journal of Immigrant and Minority Health,
- International Journal of Migration, Health and Social Care,
- Immigrants & minorities,
- Ethnicity and Health

Migration resources and organizations

- International Organization of Migration (IOM): <http://www.iom.int/>
- World Health Organization (WHO): <http://www.euro.who.int/en/health-topics/health-determinants/migration-and-health>
- OECD iLibrary/ Social issues/Migration/Health: <http://www.oecd-ilibrary.org/socialissues>
- McMaster Health Systems Evidence & EVIPNet: <https://www.healthsystemsevidence.org/>
- Commonwealth Fund: <http://www.commonwealthfund.org/>

Appendix D. Critical Appraisal Tools

Quantitative (Observational, Experimental or Quasi-experiment)

1. *Was the purpose stated clearly?*
2. *Was relevant background literature reviewed?*
3. *Was the study design appropriate for the study question? If randomized, was appropriately applied?*
4. *Was the study sample and methods described in detail and justified?*
5. *Were the outcome measures reliable or valid?*
6. *Were the analysis methods appropriate and results were presented in terms of statistical significance?*
7. *Was study problem/ intervention described in detail?*
8. *Clinical importance was reported?*
9. *Drop-outs were reported?*
10. *Conclusions were appropriate given study methods and results?*

Qualitative (Qualitative descriptive study)

1. *Was there a clear statement of the aims and questions of the research?*
2. *Is a qualitative methodology appropriate?*
3. *Was the research design appropriate to address the aims of the research?*
4. *Was the recruitment strategy appropriate to the aims of the research?*
5. *Were the data collected in a way that addressed the research issue?*
6. *Has the relationship between the researcher and participants been adequately considered?*
7. *Have ethical issues been taken into account?*
8. *Was the data analysis sufficiently rigorous?*
9. *Is there a clear statement of findings?*
10. *How valuable is the research?*

Reviews (Systematic and other reviews)

1. *Did the reviewer ask a clearly focused question?*
2. *Did the review include the right type of study?*
3. *Did the reviewers try to identify all relevant studies?*
4. *Did the reviewers assess the quality of the included studies?*
5. *If the results of the studies have been combined, was it reasonable to do so?*

6. *Are the main results clearly presented?*
7. *How precise are these results?*
8. *Can the results be applied to the target population?*
9. *Were all important outcomes considered?*
10. *Should policy or practice change as a result of the evidence contained in this review?*

The 10 questions are designed to help thinking about the issues systematically. Each question is asked to record a "yes", "no" or "can't tell". The first two questions are screening questions and can be answered quickly. If the answer to both is "yes", it is worth proceeding with the remaining questions.

Source: National Collaboration Centre for Methods and Tools⁷⁸ and Critical Appraisal Skills Programme (CASP)⁷⁷

Theoretical or Discussion papers, Policy Reports and other grey literature

1. Was there a clear statement of the aims of the study or report?
2. Is the methodology or design appropriate to address the aims of the research?
3. Were the results or conclusions based on reliable data or information?
4. Was the data or information used analyzed with sufficient rigour and rationality/ consistency?
5. Are the barriers to more equitable outcomes presented and discussed? (e.g. mandated, political, emotional, financial, programmatic or managerial)
6. Is there a clear statement of findings and conclusions?
7. Are the results relevant to the target population (immigrants)?
8. Are the study/report's outcomes helpful to address individual and community cultural needs?
9. Are strategies or interventions proposed to modify or reduce the gaps?
10. Have the outcomes a potential impact on the inequalities for the target groups?

Source: Developed based on: Ciliska et al. 2001⁸⁰; Kmet et al., 2004⁸¹; Tugwell et al. 2010⁷⁹.

Appendix E. Procedures for the Classification of Selected Studies

To summarize and discuss the results that allow us to compare the strengths and limitations of the two approaches, we used a narrative approach to synthesize and analyze the results. Thus we followed the framework synthesis method¹ to organize and chart the data for further discuss the results and draw conclusions; specifically on immigrants' barriers to health care and preventive stages of prevention. Hence, three dimensions of categorization and analysis were used: a) type of service provided, b) type of barriers addressed; and c) type of preventive measures applied.

For the first dimension of categorization, the type of services, the studies were classified according to the main type of health care services provided by the program or project. Given the diversity and variability of services and interventions presented in these studies, as well as the complexity of modern health or medical measures to provide health care services, it is very difficult to identify a project or program with a pure type of service or intervention. Therefore, each study was classified based on the most important type of health services implemented and that best described the type of health care strategy presented by the study. This categorization is mutually exclusive. Thus they were grouped into four categories:

- *Primary medical/clinical care*: when the project or program described by the study provided general health-care services, including acute or chronic care, immunization, screening, perinatal and child care, emergency, etc. without focusing on any specific medical or health condition
- *Specific health care*: when the study offered health care actions for a specific health problem or medical condition, such as CVD, HIV/AIDS, oral health, vision care, etc.
- *Mental health care*: when the focus of the study was to provide health care services for mental disorders such as depression, stress or other mental health issues.
- *Preventive care*: when the study focused on specific preventive strategies, such as maternal or child care, reproductive care, cancer screening, health promotion and education interventions.

For the second dimension of classification, a list of nine categories was defined based on previous research on immigrants populations²⁻⁴, the studies were classified according to the type of barriers and facilitators targeted by the strategies implemented and described. This categorization is not mutually exclusive as some projects or programs can implement interventions targeting multiple barriers or facilitators to health care. Hence the studies were grouped in the following categories:

- *Insurance/ eligibility*: when the study included strategies to address insurance status and eligibility to receive health care services, any legal status and the right to health issues that prevented immigrants from gaining access to health care.
- *Cultural barriers*: when the study described actions and strategies to address to socio-cultural aspects that affect access and use of services, such as perceptions about health and health care, preference for specific health care options, distrust, stigmatization and discrimination, isolation, etc.
- *Language/ Communication barriers*: when the study described strategies or interventions to address problems related to language and communication difficulties, which affect the ability of immigrants to contact or access the health services. These include the use of translation assistance or interpretation services to overcome this barrier.
- *Organization of services/Quality of care*: lack of knowledge of the health system, no regular source of care, long waiting lists, shortage of services, low quality of care.
- *Geographic access*: unavailability of services in the area, long distances from health services, lack or difficulties with transportation.
- *Economic issues/ Costs of services*: economic issues such a low income and costs of some health services.
- *Education/ Health literacy*: low health education, lack of information on health risks.
- *Social networks/support*: social networks and support, community participation.
- *Patient-Provider relationship*: Patient-Provider relationships, provider's cultural sensitivity, trust between patient and provider.

The third dimension of classification grouped the studies according to the main type of interventions actions used by the project or program, based on the model of stages of prevention,⁷⁰ which further define the major public health functions of health promotion and disease prevention. Health promotion is the process of enabling people to increase control over, and to improve their health; while disease prevention is a strategy that applies measures aimed not only to prevent the occurrence of disease, such as risk factors reduction; but also to arrest its progress and reduce its consequences once established. Thus, four categories were defined: health promotion strategy, primary, secondary or tertiary prevention strategy, according to the following criteria:

1. *Health Promotion*: when the study described actions to help people to maintain or to improve their health; either on individuals and/ or on their social and physical environment.
2. *Primary prevention*: when the study described implemented measures seeking to prevent the onset of specific diseases.
3. *Secondary prevention*: when the study described procedures to detect and treat preclinical pathological changes and thereby control disease progression.
4. *Tertiary prevention*: when the study described measures seeking to soften the impact caused by the disease once it has developed; helping with the patient's function, longevity, and quality of life.

Cited References

1. Gale NK, Heath G, Cameron E, Rashid S and Redwood S. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. *BMC Medical Research Methodology*. 2013; 13: 1-8.
2. Derose KP, Escarce JJ, Lurie N. Immigrants and health care: sources of vulnerability. *Health affairs (Project Hope)*. 2007;26(5):1258-1268.
3. Access Alliance. *Racialized Groups and Health Status: A Literature Review Exploring Poverty, Housing, Race-Based Discrimination and Access to Health Care as Determinants of Health for Racialized Groups*. Access Alliance Multicultural Health and Community Services;2005.
4. McKeary M, Newbold B. Barriers to Care: The Challenges for Canadian Refugees and their Health Care Providers. *Journal of Refugee Studies*. 2010.

Appendix F. Final List of Studies Selected for Review

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
Primary Health Care (PHC)								
Abreu M. et al. 2009 (USA)	Latino Immig.	To report results of the Latino Health Insurance Program (LHIP), a health insurance program that employs local community leaders as case managers, using culturally specific methods of outreach and education in a Latino community in Boston MA.	Community members hired and trained as case managers. 230 children and adults enrolled or re-enrolled in the program and received needed services. The Program may serve as a model health insurance access program that can be adapted by community-based organizations and also can be incorporated into public agency programs for Latinos and other immigrant and minority groups.	Primary medical /clinical care PH program PC services/ Centers	HP, PP, SP	1, 2, 3, 7, 8	Suited Health Insurance program	Key actions included: - Community leaders as case managers. - Educational sessions and referrals to the program, successful recruitment and follow-up. - Assistance in obtaining primary care providers and social services. - Social programs: Supplemental Nutrition Assistance programs, fuel aid, free legal advice, social Security assistance.
Ahmed SM. et al. 2000 (USA)	South Asian Immig.	To describe aspects of the South Asian culture and of the acculturation process relevant to establishing rapport and providing competent bio-psychosocial care to individuals and families from this region, in US.	The paper provides suggestions for culturally sensitive health care of South Asians.	Primary medical /clinical care PH program PC services/ Centers	HP, PP	2, 3, 7		Culturally competent health care in primary care: - Health care provider familiar with models of competence in cross-cultural communication. - Knowledge of patient's socio-cultural and religious background. - Use of cultural and linguistic interpreters. - Not assuming knowledge without verification. - Sensitive to patient's education and occupation, and to patient's attitude towards health and health care. - Role of cultural conflict in considering psychosocial problems and interventions.
Blewett L.A. et al. 2004 (USA)	Latino Immig.	To report on 2-day site visits conducted in 2001 and 2002 in three communities (of Iowa;	The development of a Rural Safety Net Support System provided targeted funding to rural areas with growing immigrant	Primary medical /clinical care PH program	HP, PP, SP	2, 3, 4, 7, 8		A wide range of strategies are described, particularly in uninsured populations, based on a safety-net model: low cost services, coordinated care, mixed source

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		Kansas; and Nebraska) to document successful strategies to meet Latino health needs.	populations. Federal community health centre support redirected to new and existing safety net providers to support the development of a safety net monitoring system.	PC services/ CHC; CHW				of funding, and wide community involvement.
Carrillo J.E. et al. 2011 (USA)	Latino Immig.	To report on a health collaborative program by New York-Presbyterian, the Regional Health Collaborative, a population-based health-care model aimed to improve the health of residents in a large Hispanic community in New York city.	The initiative documented the priority health needs of the community, targeting high-prevalence conditions, improving cultural competence among providers, and introduced integrated information systems across care sites. The initiative offers a model for other urban academic medical centers to better serve populations facing social and cultural barriers to care.	Primary medical /clinical care PH program PC services/ Centers	HP, PP, SP, TP	2, 3, 4, 7, 8		Key program strategies were: - patient-centred medical homes; - exchange of health information; - implement targeted care interventions - create a “medical village”; or a interlinked medical homes connected to other health care providers, and community resources.
Chin J.J. et al. 2006 (USA)	Asian-Pacific Islanders Immig.	To report findings of an evaluation of the Bridges Project, a community-based intervention at the Asian and Pacific Islander Coalition on HIV/AIDS (APICHA), to reduce disparities in care for Asians and Pacific Islanders (API) with HIV/AIDS in New York.	The project was effective in improving service utilization and reducing barriers for the Asian-primary-language and undocumented participants. Barriers to services reported most frequently were: language and cost barriers, not knowing where to go for services, and confidentiality concerns. The study found that the capacity to address multiple languages and cultures is essential in providing culturally competent care.	Specific health care: HIV/AIDS PH program PC services/ Centers	HP, PP, SP	1, 2, 3, 4, 7	Some services are provided regardless legal status	Enhanced medical services through: - language interpretation, client escort, - comprehensive case management by bilingual part-time peer workers and full-time case managers. - peer advocates and case managers assisted participants in using social services that were not available, -support clients to overcome barriers in utilizing medical services
De Jesus Diaz-Perez M. et al. 2004 (USA)	Mexican Immig.	To describe a program developed to improve access to health care	A community-based mobile outreach program targeted towards Mexican immigrants can	Primary medical /clinical care	HP, PP, SP	2, 4, 5, 7		A comprehensive mobile community outreach program, including: - primary care services

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		among Mexican immigrants in northern Colorado.	be effective in uncovering medical and mental illness and in directing patients to a health-care home.	PH program PC services/ Centers				- education and information strategies to enhance health literacy and knowledge
Fowler N. 1998 (Canada)	Immig. in general	To report of a local experience of a primary health care program in Hamilton, Canada: The Immigrant/Refugee Health Program (IRHP)	The IRHP as a family practice with a clinical core, operated within the multidisciplinary setting of the Community Health Centre; providing: - Language services, sensitive to differences in language and culture - Health services: routine family care, mental health services, health promotion activities - Settlement and integration support, social assistance. - Peer support and counselling.	Primary medical /clinical care; Preventive care: Health promotion and education PH program PC services/ Centers	HP, PP, SP, TP	2, 3, 4, 8		Key components of the program were: - Language and communication services. - Essential primary care services: family care, mental health, nutrition, social services, and health promotion activities. - Settlement and integration support. - Peer support and counselling to newcomers.
Frank A.L. et al. 2013 (USA)	Immig. workers	To report experiences to addresses health care access for immigrant workers in the AgFF Sector, and the workforce providing care to these workers: the Community and Migrant Health Centers (C/MHCs)	The report emphasize on actions to strengthen and expand the C/MHC system and to establish widely Medical Home models and Accountable Care Organizations. Suggest that system-wide policy changes have the potential to reduce and eliminate health disparities experienced by immigrant workers who sustain the vital Agricultural, Forestry, and Fishery sector.	Primary medical /clinical care; Preventive care: Health promotion and education PH program PC services/ CHC; CHW	HP, PP, SP	1, 2, 3, 4, 8	C/MHCs as the most accessible source of primary care for immigrant workers, not insured by the employer.	C/MHCs provide a wide range of medical services: dental, pharmaceutical, and mental health services. Offer or facilitate access to basic health services such as primary care, diagnostic laboratory and radiologic services, prenatal and perinatal care, child services, immunizations, family planning services, emergency medical services, and screening for breast and cervical cancer, communicable diseases, and cholesterol. Also offers health education and community outreach actions that involve promotores de salud
Isaacs S. et al. 2013 (Canada)	Immig. in general	To describe broker organizations supporting a community-based	The study demonstrates the value of ties across service sectors facilitated by broker organizations to ensure the delivery of	Primary medical /clinical care PH program	HP, SP	2, 8		This experience provide evidence on brokering support networks to improve health services delivery and foster a comprehensive primary health care system

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		network of services to address primary care needs of recent families of immigrants with children	comprehensive services to young immigrant families challenged by an unfamiliar system of care.	PC services/ Centers				for recent immigrant families
Isralowitz R.E. 2000 (Israel)	Elder Ethiopian Immig.	To describe a model community-based eye care including the impact of eye glasses on the quality of life among a limited cohort of Ethiopian elderly.	The project showed the positive influence on a range of functional and social activities that contribute to an improved quality of life among elderly persons. Key points were relevant: the social support, the sense of internal group advocacy, and the need for multiple tactics of community organization.	Specific health care: Vision care PH program PC services/ Centers	HP, PP, SP	4, 7, 8		The key program actions are: - Improved clinical care, - community outreach services, - social support and networks
Kaltman S. et al. 2011 (USA)	Immig. in general	To assess the effect of the Montgomery Cares Behavioural Health Program (MCBHP) and its implications for the adaptation and implementation of evidence-based mental health programs for vulnerable populations, such as uninsured immigrants.	The MCBHP demonstrated that is possible a cost-efficient and evidence-based treatment model. Although adaptations and flexibility were essential, key components of traditional collaborative care are required. The model revealed the effectiveness of the collaborative care model to address mental health care disparities, but emphasis should be put on social service provision in addition to mental health treatment.	Primary medical care/clinical care; Mental health care PH program PC services/ Centers	HP, SP	1, 4, 6, 8	The project provided care for undocumented and uninsured immigrants	Effective clinical care to patients with a wide range of mental problems should have: - a collaborative approach/model - flexibility to meet the changing needs of the dynamic clinic environment of target population. - find diverse and sustained financing to ensure protection for uninsured immigrants Also, social service provision in addition to mental health care is essential to address critical social needs (uninsured, poverty, immigrant vulnerabilities).
Kim M.J. et al. 2002 (USA)	Korean Immig.	To describe a 4-year long bilingual interdisciplinary primary health care project designed to make culturally sensitive primary care	Both components of the project were successful: primary health care services, including the outreach component of the community model; and the mental health activities. Three main challenges were faced and	Primary medical /clinical care; Mental health care PH program PC services/	HP, PP, SP	2, 3, 4, 7, 8		Key elements were: - Provision of bilingual primary health care services; - Outreach component of the community model. - Mental health activities and educational programs in the community.

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		and mental health services, available to underserved Korean immigrants in Chicago.	addressed: emphasis on community outreach with activities outside the walls of the centre, focused on relationships among the provider groups, and the ability of nurses to engage in productive roles in the communities.	Centers (mental)				- Social and community organizations' involvement
Kirmayer L.J. et al. 2011 (Various)	Immig. in general	To identify risk factors and strategies in the approach to mental health assessment and to prevention and treatment of common mental health problems for immigrants in primary care.	For maximum effectiveness on mental health care, attention must be given to contextual and practical issues that influence illness behaviour, patient–physician communication and intercultural understanding. Specific challenges in migrant mental health include: communication, cultural shaping of symptoms and illness behaviour, the effect of family structure and process on acculturation and intergenerational conflict, and the receiving society's facilitation of or impedance of adaptation and social integration.	Mental Health care PH program PC services/ Centers (mental)	HP, PP, SP	2, 3, 4, 8		Four main essential areas in providing appropriate mental health care were proposed: a) culturally oriented mental care, b) Working with interpreters and culture brokers, c) Working with families and d) Working with community organizations
Levin-Zamir D. et al. 2011 (Israel)	Ethiopian Immig.	To describe the impact of a cross-cultural program (The Refuah Shlema programme) for promoting health among Ethiopian immigrants in Israel.	The evidence showed improvements in: (i) clinic staff–patient relations; (ii) availability and accessibility of health services, and health system navigation without increase service expenditure; (iii) perception of general well-being; and (iv) self-care practice with regards to chronic conditions. The	Primary medical /clinical care PH program PC services/ Centers	HP, PP, SP, TP	2, 7, 8, 9		This program suggested that to reduce health disparities, promote, health literacy and improve health indicators. Important measures are: - Training and integration of health care providers, - Cross-cultural sensitivity of all staff, - Enhance availability and accessibility of health services, and health system navigation, without increasing service

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
			findings revealed improved equity and reducing disparities, led to expansion of the programme into new communities. That contributed to sustain the programme for over 13 years					expenditure; - Community health education activities
Lyberg A. et al. 2012 (Norway)	Immig. women	To examine midwives' and public health nurses (PHN)' perceptions of managing and supporting prenatal and postnatal migrant women in Norway.	Midwives' and PHN's perceptions of their work with migrant women had a key theme: managing and supporting educational, relational and cultural diversity in maternity care. This is characterized by two derived themes "health challenges" and "cultural challenges", representing difficulties and concerns migrants' maternity care. The model for cultural diversity in maternity care needs to be developed. Capacity building and closer cooperation between maternity care services is necessary.	Preventive care: Maternal or child care PH program PC services/ Centers	HP, PP, SP, TP	2, 3, 7		Main strategies identified and proposed were: - Implement mechanisms to build a good patient-practitioner relationship aimed at achieving trust - Develop services culturally oriented, and address communication and linguistic barriers. - Relational continuity, flexibility, adaptation to each woman's needs and coordination of the health-care system on the part of health-care managers. - Interventions of health education programs for minority groups.
McElmurry B.J. et al. 2003 (USA)	Latino Immig.	To describe: (a) development and implementation of an urban outreach health program for Latino immigrants; (b) nurse-community-health advocate partnership roles in primary health care delivery, (c) lessons learned over 7 years	The nurse-community-health advocates (CHAs) were a "bridge" between health programs and the community, promoting cultural sensitivity. CHAs and nurses provided a range of services including health education and promotion, outreach through home visits, assessment of family needs for referrals to appropriate resources, and follow-up support.	Primary medical /clinical care; Preventive care: Health promotion and education PH program PC services/ Centers; CHW	HP, PP, SP	2, 4, 8		The nurse-CHA model is a combination of: - health promotion and maintenance actions, - mental and social health services, and - human and economic services,

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
Morrison S.D. et al. 2007 (USA)	Immig. and Refugees	To describe the scope of available human services resources relating to nutrition, physical health, and behavioural health for new and recent immigrants in Guilford County, NC.	The study identified low resources available to ethnic minority immigrant and refugee communities to enable cultural adaptation to their new living situations The findings highlight the limited development of existing services network to increase capacity to provide nutrition and health related services to a growing community of diverse immigrant groups. The results underscore a need for additional local or community based resources to increase the community's ability to provide essential human services to these groups.	Primary medical /clinical care; Preventive care: Health promotion and education PH program PC services/ Centers	HP, PP, SP, TP	2, 3, 6, 8		The model offers comprehensive approach to assess the presence and impact of environmental influences, including interventions on three levels: - intrapersonal level, focuses on resources such as knowledge, beliefs attitudes, and skills that an immigrant must possess to obtain information and services. - interpersonal level, pays attention to social networks, social support, and peer groups, at organizational level (norms, management styles and organizational culture) and at community level (community resources such as health and social services, relevant to health promotion). - public policy level includes legislation, regulations and policies supporting adaptation and integration of immigrants.
Priebe S. et al. 2011 (Europe)	Immig. in general	To assess the difficulties professionals experience in their service when providing such care and what they consider constitutes good practice to overcome these problems or limit their negative impact on the quality of care.	Eight types of problems and seven components of good practice were identified: - organisational flexibility, - good interpreting services, - work with families and social services, - cultural awareness of staff, - education and information programs, - positive and stable staff relationships, - clear guidelines on care entitlements.	Primary medical /clinical care PH program PC services/ Centers	HP, PP, SP, TP	2, 3, 4, 7, 8		Good practices to overcome barriers of access to health care included: - flexibility with sufficient time and resources, - language and interpretation services, - working with families and social services, - cultural awareness of staff, - educational programmes and information material, - create positive and stable relationships with staff, and - clear guidelines on the care entitlements of different migrant groups.
Ramos R.L. et al. 2006 (USA)	Latino Immig.	To describe the development of Promovisión, a	Program showed results in three parts: - Individual: a) Degree of	Preventive care: health promotion and education on	HP, PP, SP, TP	2, 3, 7, 8		The model suggests that community-based organizations (CBOs) are one of the most efficient vehicles to:

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		program based on the utilization of promotores in community-based organizations (CBOs) to improve the provision of HIV prevention services to recent immigrants and Latinos who are less acculturated.	acculturation; and b) Strength of ethnic identity. - Organization: a) Role of promotores in outreach, testing, education, and information dissemination; and b) Organizational structure and decision-making; - Community: a) Sense of community affiliation, feeling of belonging; b) Attitudes to community participation; c) Community mobilization practices; d) Experience with community mobilization (social capital)	HIV/AIDS PH program PC services/ Centers; CHW				- promote early HIV detection and treatment strategies, and - increase secondary and tertiary prevention efforts for individuals who are infected. The combination of CBOs and Promotores would make the delivery of prevention services efficient, effective, and readily adaptable to the cultural variations among immigrant groups.
IOM, 2013 (International)	Immig. in general	To describe the main global strategies and initiative for health care in each world region, according to the annual report of IOM for 2013.	Main policy points for all regions: - build government and non-government capacities for “migrant-sensitive” care - develop and strengthen regional institutional infrastructure, multisectoral partnerships and coordination - improve access and appropriateness of health-care services, increase health promotion and prevention for migrants - research and information dissemination - provide equitable access to migrant-friendly and comprehensive care - train health professionals and staff in culturally sensitive care	Primary medical /clinical care; Preventive care: health promotion and education PH program PC services/ Centers	HP, PP, SP, TP	1, 4, 7, 8, 9	Develop national, regional and sectoral levels, and implement policies to promote migrants’ health	Policy development in five main areas: 1. National regulations and intersectoral collaboration 2. Develop high quality of migrant sensitive services: 3. Education and training health personnel in culturally sensitive care 3. Multisectorial collaboration 4. Promote health promotion and prevention 5. Research and evidence production to support practice

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			- Promote partnerships between government and academic institutions to integrate migrant health in curricula.					
WHO, 2010 (International)	Immig. in general	To report the results of the 2010 Global Consultation on Migrant Health was convened as a result of the 2008 World Health Assembly Resolution on the Health of Migrants.	The report defines essential features of migrant-sensitive health systems when have: - interpretation/ translation services, - culturally informed care delivery, - culturally tailored population programmes (e.g. health promotion, disease prevention), - use of cultural support staffs as intercultural mediators, community health workers, and patient navigators. Also, the health systems can address migrants' health needs, through: - organizational frameworks supported by policy, management strategies, good data, - prepared health care workforce.	Primary medical /clinical care; Preventive care: health promotion and education PH program PC services/ Centers	HP, PP	2, 3, 4, 8		Migrant sensitive care services should include: - interpretation and translation services, - culturally informed care delivery, - culturally tailored population programmes (e.g. health promotion, disease prevention, disease support), - the use of cultural support staff such as intercultural mediators, community health workers, and patient navigators. - apply organizational frameworks supported by policy, management strategies, good data, and - prepare the health workforce to understand and respond effectively to address migrants' health needs.
Sim et al. 2004 (USA)	Chinese Immig.	To assess the health needs of the worker population in Manhattan's Chinatown and its utilization of health care services.	The recommendations for public and private service providers serving immigrant populations included: 1. Complete a thorough needs assessment. 2. Conduct comprehensive community health education campaigns 3. Provide automatic enrollment, personal attention, and/or	Primary medical /clinical care PH program PC services/ Centers	HP, PP	1, 2, 6		Key recommendations in designing programs to serve immigrant populations should include: - a needs assessment to ensure a culturally and linguistically appropriate care. - comprehensive community health education campaigns - enrollment and education choices - ensure continuing coverage when the program ends - expansion of health coverage

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							Entitlement	Health service attributes/interventions
			education choices for providers and users 4. Ensure continuing coverage when the program ends 5. Expand health coverage accessibility. 6. Encourage joint employer- and union-sponsored health insurance.					accessibility through diverse options
Primary Medical Care (PMC)								
Aragones A. et al. 2010 (USA)	Latino Immig.	To assess the effectiveness of a multilevel intervention in increasing the rate of colorectal cancer (CRC) screening among Latino immigrants.	The intervention was successful in increasing rates of completed CRC screening primarily through increasing adherence after screening. Additional efforts should focus on developing new strategies to increase physician recommendation for CRC screening, while employing effective patient adherence interventions.	Preventive care: Cancer screening PC services/ Centers	HP, PP	2, 3, 7, 9		A primary care program to improve disease screening rates in an urban immigrant population should include: - culturally and linguistically sensitive care, - multi-level intervention.
Baarnhielm S. et al. 2000 (Sweden)	Turkish Immig.	To explore structures of illness meaning and understanding among 10 somatising Turkish-born migrant women from a poor and low status suburb of Stockholm, in contact with local health care services	Capacity to influence individual recovery was mostly regarded as low. Relations with family and the clinician were regarded as important to recovery. Recovery was related to several factors: social, family and clinician relationships. Trust and cultural beliefs had important influence in encounters with local health care.	Primary medical /clinical care; Mental Health care PC services/ Centers	HP, PP	2, 3, 9		Primary care programs aiming at improving health care of different ethnic groups should consider: - Cultural and linguistic issues - Patient-provider relationships - Engage family and social groups
Belue R. et al. 2012 (USA)	Immig. children	To examine the relationship between medical home (MH) participation and receipt of preventive care among immigrant	Immigrant children had decreased odds of receiving preventive care despite MH status. Improving the family-centred care aspect of the MH is necessary to increasing medical home access to	Preventive care: Child care PC services/ Centers	HP, PP, SP	1, 4	Entitlement criteria to reach immigrant families, in low SES	The experience presents an innovative model of medical home care for children from immigrant families that consider: - patient-centred care, - involving the family in that care and - improved coordination of services.

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
		children age 0-17	immigrant children and the receipt of preventive services for immigrant children who meet the MH criteria.				groups	
Cabieses B. et al. 2012 (Chile)	Immig. in general	To explore health care provision entitlement and use of health care services by immigrants in Chile and compare them to the Chilean-born	There were significant associations between SES, and access to and use of health care among immigrants and a higher prevalence of no health care provision entitlement among poor and disabled immigrants compared to the Chilean-born. Changing associations between access and use of health care and SES among immigrants over time may reflect changes in their socio-demographic composition between 2006 and 2009.	Primary medical /clinical care PC services/ Centers	PP, SP	1, 6	Facilitate access to primary care services to undocumented immigrants	Traditional PC model based on system availability of services. All immigrants receive: prenatal care, child health care, emergency care, and the universal child vaccination programme irrespective of their legal status in the country.
De Jonge A. et al. 2011 (Netherlands)	Immig. women	To assess whether midwives adjust their care if women are undocumented and have no health insurance, in Netherlands.	Undocumented women were more likely to have a preterm birth and to give birth at home than documented women. They were less often referred for failure to progress in labor. Compared to documented women, the undocumented came for booking later in their pregnancy and they received care elsewhere or disappeared from care more frequently. Although referral guidelines are generally followed by midwives, undocumented women are more at risk of adverse perinatal outcomes and inadequate care.	Preventive care: Maternal care PC services/ Centers	HP, PP, SP	1, 4	Primary care midwives provide all care to low-risk women, no matter their legal status.	Appropriate midwives services and training, in compliance with perinatal care and referral guidelines can be an important resource for some vulnerable immigrants. However, more efforts should be put to address the needs of undocumented/illegal migrant women.
Gould G. et al.	Immig. in	To describe a	The Coffs Harbour Refugee	Primary medical	HP, PP, SP,	2, 4, 6, 8		Essential requirements of an integrated

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
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2010 (Australia)	general	multidisciplinary primary health care clinic for newly arrived humanitarian entrants in regional New South Wales and report health problems and issues during the initial period of operation	Health Clinic represents a successful collaboration between relevant stakeholders. It was well utilized by the target community. The service delivery model used in the clinic could be replicated in other areas in regional Australia, provided financial and human resources are available.	/clinical care Reproductive care PC services/ Centers	TP			care model should include a supportive policy that ensures: - funding and external links to other organisations, - community involvement in planning and implementing, - integration of services; complementary mix of staff, appropriate physical infrastructure, - comprehensive health assessments, - multi-disciplinary approach, interpreting services, transport, pharmaceuticals, not out-of-pocket expenses
Guruge S. et al. 2010 (Canada)	Portuguese Immig.	To report the experiences of Portuguese-speaking immigrant women who used a mobile health clinic (MHC) for their reproductive health care, in Toronto.	The MHC is an innovative, appropriate, and viable model for language, cultural, and gender-specific care that is characterized by trust, confidentiality, respect, and a sense of acceptance. This model can help to reduce barriers to health care access, improve provision of preventive care	Preventive care: Reproductive care PC services/ Centers	HP, PP, SP, TP	2, 4, 9		The MHC is an innovative, appropriate health care: - viable model for language, - cultural, and gender-specific care, characterized by trust, confidentiality, respect, and a sense of acceptance.
Jensen N.K. et al. 2013 (Europe)	Refugees	To investigate how general practitioners experience providing care to refugees with mental health problems.	General practitioners experience that providing care to refugees differs from providing care for patients from the majority population. The different strategies employed by the general practitioners in the health care treatment of refugees reflects the diversity in the organization of general practice in Denmark and the lack of a national strategy in the health-care management of refugees.	Mental health care PC services/ Centers	SP, TP	3, 4, 9		Relevant mental medical care for refugees should consider: - general practitioners to be aware of potential traumas experienced by refugee patients, - leave room for taking individual differences into account in the consultation. This could be attained by the development of conversational models for general practitioners, to be aware of in the treatment of refugee patients
Ku L. 2007	Immig.	To examine common	Federal, state and local policies	Primary medical	PP, SP,TP	1, 3, 6	Insurance	Basic strategies for appropriate care to

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
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(USA)	children	misconceptions regarding immigrants and the nation's health care problems, and describes potential federal, state, and local policies that could improve or weaken children's access to insurance and health care	should improve insurance principles to cover all immigrant children regardless their legal status. Find funding options for strategies to enhance access to health care: interpretation services, uncompensated care at safety net or public health facilities, social benefits for low-income immigrants. Also efforts to improve access to Medicaid or other insurance model.	/clinical care for children PC services/ Centers			coverage for all children regardless their legal status	immigrant children are: - provide support to irregular child immigrants - include interpretation services for health-care services, and - funding mechanisms to address key barriers to access
Kwong K. et al. 2013 (USA)	Chinese Immig.	To describe a culturally relevant intervention using a collaborative depression care model to integrate mental health and primary care services for depressed low income Chinese-Americans at a community health centre.	The collaborative care model was successful in ameliorating patient depression and anxiety symptoms. A collaborative care model appears to be effective and feasible in treating depression for Chinese Americans in the primary care setting.	Mental Health care: depression PC services/ Centers	SP, TP	4		The program describe a successful collaborative care model to provide mental care to depression patients, based on: - care management group at a Community Health Center, - coordination of care between primary care providers and mental health professionals
Lofvander M. et al. 2002 (Scandinavian)	Immig. in general	To examine Scandinavian studies concerning transcultural issues in primary care by reviewing the Scandinavian literature.	Descriptive explorative studies suggest problems in communication, behaviour, mental ill health, physiotherapy, and organization of care. The author suggests that studies using action research methods are to be preferred, since clinical transcultural care deals with complex illness patterns, including many emotional dilemmas. In addition, the author offers some final advices based	Primary medical /clinical care PC services/ Centers	HP, PP, SP, TP	2, 4		Actions to appropriate clinical transcultural care should: - Follow basic universal rules of the doctor-patient relationship, regardless of cultural barriers. - Take into account individuals characteristics of immigrants, their socio-cultural framings. - Take every personnel category into account in providing care (receptionists, nurses, doctors, etc.). - All health care personnel should embrace common concepts on non-medical issues.

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
			on personal experience.					- Provide good interpreters.
Singh-Franco D. et al. 2013 (USA)	Immig. in general	To determine effect on surrogate endpoints for cardiovascular disease, through a retrospective chart review of patients seen by a multidisciplinary team that provided primary care services in a mobile clinic over 12 months.	A mobile clinic with a multidisciplinary team providing primary care services showed improvement in surrogate cardiovascular endpoints in an underserved, low-income, mostly foreign-born, Haitian population. Provision of medical care via a mobile clinic in the community allowed patients with chronic health problems access to medical care.	Primary medical care/clinical care; Specific health care: CVD; Preventive care: health promotion and education PC services/ Centers	HP, PP, SP	4, 5, 6		The program suggest: - An outreach project (a mobile unit) for poor adults, - multidisciplinary care, laboratory tests and drug supply, - health education strategies
Tapp H. et al. 2013 (USA)	Latino Immig.	To describe a collaborative research project that identified and addressed challenges experienced by both Hispanic patients and their primary health care providers, to establish best practices across a network of health service providers to the Hispanic community.	The results emphasize the importance of enhancing cultural competency in clinics serving Hispanic immigrant patients. Ensuring that patients have access to bilingual staff from the beginning to the end of their visits is one element of this competency. Both patients and providers identified a culturally targeted, patient-centred medical home, with continuity of care as the ideal for receiving care.	Primary medical /clinical care PC services/ Centers	HP, PP, SP	1, 2, 3, 4, 5	The program offered low-cost services to uninsured patients with chronic disease	Key elements of this model are: - Cultural comfortable—bilingual service availability - Costs—low-overhead model with upfront payment - Streamlining access to clinics and clinic services - Hispanic community—targeted health care education - Dissemination across the community-wide safety net - Encourage continuation of partnerships between researchers and safety-net clinics
Taylor V.M. et al. 2009 (USA)	Vietnamese women	To provide information about Pap testing barriers and facilitators that could be used to develop cervical cancer control intervention programs for Vietnamese American women.	Efforts to increase Pap smear receipt should enable women without a source of health care to find a regular provider. Also, programs should improve patient-provider communication by encouraging health care providers to recommend Pap testing, and by empowering Vietnamese women to ask their physicians for the test.	Preventive care: cancer screening, health promotion and education PC services/ Centers	HP, PP, SP	2, 7, 9		Key health care factors in cervical cancer screening participation were: - physician-patient communication about Pap testing, - continuity of care, - health education and - address patients' beliefs on cancer screening.

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
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Telleen S. et al. 2012 (USA)	Latino Immig. children	To examine the social context, structural, and behavioural factors within an immigrant community that contribute to increased access and use of oral health services by Latino children.	Barriers in access and use oral health services included the structural variables of provider characteristics and affordability, and the individual mother's health beliefs about preventive care. For Latinos living in the same neighborhoods, with comparable socio-economic status, social levels of financial affordability, provider availability and communication, and maternal health beliefs about preventive care predicted service use.	Primary medical /clinical care; Specific health care: oral health; Preventive care: health promotion and education PC services/ Centers	HP, PP, SP, TP	2, 4, 9		Key factors of dental care determinants were: - Patient-provider communication - Continuity of care - Organization of care to meet patients' needs - Patients beliefs and values of health/preventive care - Insurance status and cost of services - Education role of dental care providers
Han, G.S. et al. 2006 (Australia)	Korean Immig.	To analyse GPs' views on the health of Koreans and the complex process of providing and seeking effective and satisfactory medical care, in a Korean community in Sydney.	Korean-speaking medical practitioners provided their fellow Koreans with 'culturally appropriate' health care, with the key factor of absence of language barrier. Patient satisfaction was high, due to the good understanding the doctors have of the social aspects of illnesses, although they did not go beyond curative medicine in their practice.	Primary medical /clinical care PC services/ Centers	HP, PP, SP, TP	2, 3, 9		A key factor in providing satisfactory care to this immigrant group was that Korean-speaking medical practitioners were able to provide their fellow Koreans with 'culturally appropriate' health care, which lead to: - absence of a language barrier. - high level of patient satisfaction, due to doctors' understanding of the social/cultural aspects of illnesses - the use of Korean herbal medicine
WHO, 2003 (International)	Immig. in general	To provide an overview of some of the key challenges for policy-makers in addressing the linkages between migration, health and human rights.	Main points to ensure rights to care were: • Accessibility in relation to legal status • Accessibility in relation to affordability • Physical accessibility of health services • Culturally sensitive and good quality of services	Primary medical /clinical care PC services/ Centers	HP, PP	1, 4, 6		Actions to ensure rights to health care of migrants are: • Accessibility in relation to legal status • Accessibility in relation to affordability • Physical accessibility of health services • Culturally sensitive and good quality health services • The right to seek, receive and impart information

Authors, date (Country)	Target group	Study goal	Key Results/Outcomes	Health problems or Area of Care	Type of Prevention strategy	Target Barriers	Interventions/strategies to address barriers	
							Entitlement	Health service attributes/interventions
			• Right to seek, receive and give information					

Legend

Type of health care/ services intervened

Primary medical/clinical care: basic primary care services, including acute or chronic care, immunization, screening, perinatal and child care, emergency, etc.

Specific health care: health care for specific health problem or medical condition, such as CVD, HIV/AIDS, oral health, vision care, etc.

Mental health care: health care for mental disorders such as depression, stress or other condition.

Preventive care: Specific preventive strategies, such as maternal or child care, reproductive care, cancer screening, health promotion and education interventions.

Type of Interventions/Actions

HP: Health Promotion, actions on social determinants of health

PP: Primary Prevention

SP: Secondary Prevention

TP: Tertiary Prevention

Target Barriers/Facilitators

1. *Insurance/ eligibility:* insurance status and eligibility to receive health care services, legal status, and right to health.
2. *Cultural barriers:* refers to relevant aspects affecting access and use of services such as perceptions about health and health care, preference for specific health care option, distrust, stigmatization and discrimination, isolation.
3. *Language/ Communication barriers:* low ability to speak the official language and communication difficulties.
4. *Organization of services/Quality of care:* lack of knowledge of the health system, no regular source of care, long waiting lists, shortage of services, low quality of care.
5. *Geographic access:* unavailability of services, long distances from health services, lack or difficulties with transportation.
6. *Economic issues/ Costs of services:* economic issues such a low income and costs of some health services.
7. *Education/ Health literacy:* low health education, lack of information on health risks.
8. *Social networks/support:* social networks and support, community participation.
9. *Patient-Provider relationship:* Patient-Provider relationships, provider's cultural sensitivity, trust between patient and provider.

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Appendix G. Primary Care Models in Ontario

Remuneration scheme/ Model	Year introduced	Main features
Fee For Service (FFS)		
<i>FFS Traditional Care</i>		
Focused clinical practice		Traditional fee for service practice or straight fee-for-service plan
<i>FFS-based new models</i>		
Family Health Group (FHG)	2003	FHG offer comprehensive primary health care services to their enrolled patients. Offer regular office hours plus extra After Hours blocks of office time. FHG physicians are also on call to a ministry funded Telephone Health Advisory Service (THAS) outside of regular off ice hours that takes phone calls from their enrolled patients.
Comprehensive Model (CCM)	Care 2005	CCM was designed specifically for solo primary care physicians. These physicians offer comprehensive primary health care services to their enrolled patients including regular office hours plus one three hour block of after-hours services per week. Like their group counterparts, CCM physicians also emphasize illness prevention for their enrolled patients.
Capitation-based Blended Models		
Family Health Networks (FHN)	2002	FHN are groups of physicians who work as a network along with a nurse-staffed after-hours telephone advisory service to provide primary care for their patients 24 hours a day, seven days a week. The networks emphasize illness prevention and comprehensive care for patients.
Family Health Organizations (FHO)	2006	FHOs represent the alignment of Primary Care Networks and Health Service Organizations into one model. FHOs are groups of physicians who provide comprehensive primary health care services to their patients with a focus on illness prevention. Through Institutional Substitution Program Grants, allied health professionals are part of some of the teams as well. FHOs provide care during regular and extended office hours and patients have access to nurse staffed THAS.
Salaried models		
Community Health Center (CHC)	1970s	CHC employ teams of physicians, nurse practitioners, nurses, counsellors, community workers and dieticians that serve high-risk communities and populations who may have trouble accessing health services because of language, culture, physical disabilities, socio-economic status or geographic isolation. They focus on addressing the underlying conditions that affect people's health (poor diet, poverty, housing problems, violence and lack of education). They improve access to primary care and help strengthen communities.

Source: Primary Health Care in Ontario. Health Force Ontario. <http://www.healthforceontario.ca/HealthcareInOntario/PrimaryCare.aspx#catagory01>
 The Family Health Teams are also patient enrollment models, typically consisting of FHNs and FHOs. Each team is set up based on local health and community needs, and focuses on chronic disease management, disease prevention and health promotion. In this model practitioners work as interdisciplinary teams (family doctors, registered nurses, dieticians and social workers) providing ongoing health care through regular and extended hours of service^v. Professionals working in this model are paid in different schemes (blended capitation model, complement-based remuneration plus bonuses and incentives or blended salary model).^{vi}

^v Family Health Team. Ontario Ministry of Health and Long Term Care. <http://www.health.gov.on.ca/en/public/programs/hco/options/fht.aspx>

^{vi} Family Practice Models. Health Force Ontario. http://www.healthforceontario.ca/Work/OutsideOntario/PhysiciansOutsideOntario/PractisingInOntario/family_practice_models.aspx#fht

Appendix H. The Patient Enrollment System in Ontario

As part of the national's Primary Care Reform initiatives, Ontario introduced the patient enrollment system in primary care practices which formalizes a continuing relationship between the physician and the patient.³⁴ Patient enrollment model (PEM) involves a dual commitment from both the patient and physician, which benefits both parts.

The Ontario Ministry of Health and Long-Term Care have established the regulations to perform the formal enrollment process in primary care practices in the province. Guidelines to orient this process are available (*MOHLTC, 2011*)²²⁷ to primary care practitioners. The manual outline the staff's role of Primary Care group has in the process of patient enrollment and the removal of patients from their roster.

Patient enrollment models in Ontario

- Comprehensive Care Model (CCM)
- Family Health Group (FHG)
- Family Health Network (FHN)
- Family Health Organization (FHO)
- Blended Salary Model (BSM)
- South Eastern Ontario Academic Medical Organization (SEAMO)
- Rural and Northern Physicians Groups Agreement (RNPGA)
- Group Health Centre (GHC)
- St. Joseph's Health Centre (SJHC)
- Weeneebayko Health Ahtuskaywin (WHA)

Source: Flemming M. Ontario Patient Rostering.

http://www.chsrf.ca/Libraries/Picking_up_the_pace_files/Mary_Fleming.sflb.ashx

Patient enrollment models (PEM) consist of a voluntary patient enrollment with a primary care physician who participates in any of the Ontario primary care models. These models are aimed at rewarding family physicians for providing comprehensive primary care services to their patients based upon alternative funding contracts which set out physicians obligations of care including after-hours care, being on call for the THAS and providing a formal patient enrollment process (MHLTC).²²⁸ Currently there are numerous types of patient enrollment models in Ontario, including family health groups, family health networks, family health organizations, family health teams, comprehensive care model (see Box 1).

Ontario residents can get into the health system by different ways. For example, the Ontario Health Care Connect program^{vii} includes a web-based platform to help people without a family health care provider find one. Through these provincial program patients and people living in Ontario can understand their health care options. Using this program people who are not currently enrolled with a family health care provider can find one and sign into the available practice; according to Ministry of Health and Long-Term Care records. To be formally registered in a family care practice any person has to fill out the enrollment and consent form.

Along with these tools for all the residents, Ontario has developed other online resources aimed to assist new immigrants to connect with the health system in the province. Among those resources is *Health care for newcomers to Ontario* (http://www.ontarioimmigration.ca/en/after/OI_AFTER_HEALTH.html), which provide sufficient information about the health system in the province. However as new immigrants face several barriers and limitations at arrival that prevent them from accessing many services (such as poor official language proficiency, low general and health literacy, lack of knowledge on how get the information they need), they may have difficulties following the process, equally contacting directly the public health offices or using internet-based resources.

The Process of Enrollment

To enroll, a patient must complete and sign the *Patient Enrollment and Consent to Release Personal Health Information* form. The enrollment process can be summarized in six steps (see the diagram below). Physicians

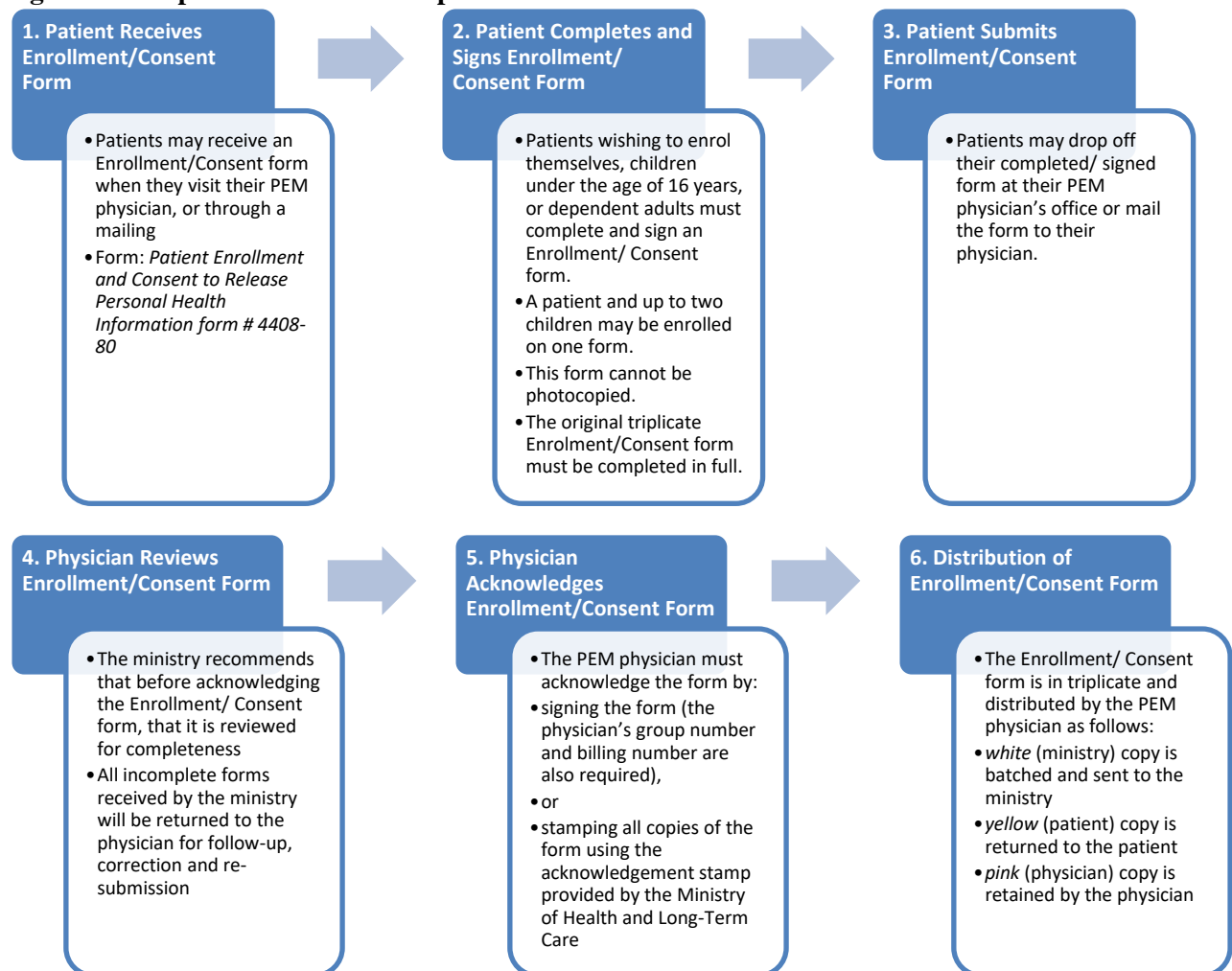
^{vii} Health Care Connect Ontario. <http://www.health.gov.on.ca/en/ms/healthcareconnect/public/overview.aspx>

and groups (except Comprehensive Care Model) have the option of selecting Group Enrollment and Consent, to allow a patient to enroll to the entire group rather than one individual physician.

Under group enrollment and consent, a patient enrolls with an individual designated physician within a PEM group. However the patient provides consent to disclose personal health information to all the other physicians within that PEM group. As consent is given to the entire group, this ensures that if the designated physician changes their membership within the group, the patient will not have to re-enroll if they choose to stay with the same PEM group.

When a patient need to be removed from your roster, the PEM physician should initiate the process by completing a different form (Form # 3624-84).

Figure A1. Steps for the enrollment process



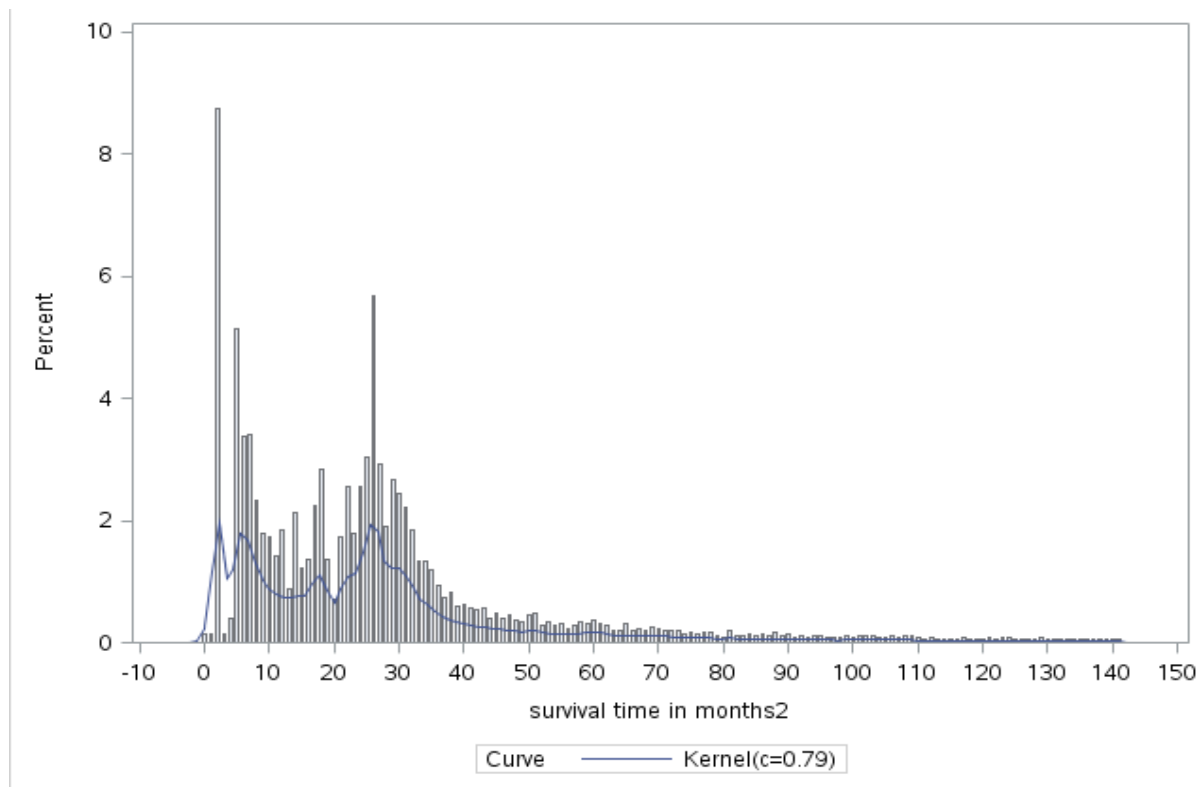
Source: Processing Enrollment/Consent Forms. Reference Manual for Primary Care Groups. Ontario Ministry of Health and Long-Term Care. Registration and Claims Branch. Version 1.4. April 2011.

Appendix I. Survival Analysis: Summary of Results

Summary statistics for time to enrollment by study group. Ontario 2012

Variable	Recent Immigrant (n=947545)		Long Term Resident (n=6788788)	
	Mean	Std Dev	Mean	Std Dev
Survival time (days)	1046	806.9	831.1	765.5
Survival time (months)	33.8	26.5	26.7	25.1
Survival time (years)	2.4	2.2	1.8	2.1
Enrollment status	0.98	0.15	0.98	0.13
Age	39.9	14.0	45.9	17.1
Comorbidity (ADG score)	1.5	0.8	1.5	0.75

Distribution of survival time: probability density function (enrollment over time 2003-2012)



Appendix J. Enrollment in Any Family Care Practice by Socio-demographic and Study Group in 2012

Appendix Ia. Overall enrollment in any family care practice by socio-demographic and study group

	Immigrants				Long-term Residents				Total enrolled			
	Number	Rate (%)	95% Cis from	to	Number	Rate (%)	95% Cis from	to	Number	Rate (%)	95% Cis from	to
Age												
18-34	279531	63.0	62.8	63.1	1557341	67.6	67.5	67.7	1836872	66.9	66.8	66.9
35-49	310396	66.0	65.8	66.1	1858236	73.3	73.2	73.4	2168632	72.2	72.1	72.2
50-64	100110	65.8	65.5	66.1	1325632	73.5	73.4	73.6	1425742	72.9	72.8	73.0
65+	43620	46.2	45.7	46.7	675899	47.3	47.2	47.4	719519	47.2	47.1	47.3
Gender												
Women	393812	66.6	66.4	66.7	2924212	70.6	70.5	70.6	3318024	70.1	70.0	70.1
Men	339845	59.7	59.5	59.8	2492896	63.5	63.4	63.5	2832741	63.0	62.9	63.1
Quintile of income												
Q1 (poorest)	231159	61.9	61.7	62.1	865853	60.7	60.6	60.8	1097012	61.0	60.9	61.1
Q2	170626	63.5	63.3	63.8	1047089	65.5	65.4	65.6	1217715	65.2	65.1	65.3
Q3	138017	64.3	64.0	64.5	1120326	68.2	68.1	68.3	1258343	67.7	67.7	67.8
Q4	115658	65.1	64.8	65.4	1169476	70.4	70.3	70.5	1285134	69.9	69.8	70.0
Q5 (richest)	77858	61.6	61.3	62.0	1201861	70.1	70.0	70.2	1279719	69.5	69.4	69.6
Area of residence												
Urban	707551	63.2	63.1	63.3	3632339	66.7	66.7	66.8	4339890	66.1	66.1	66.2
Suburban	20986	63.8	63.1	64.4	1258213	70.1	70.0	70.2	1279199	70.0	69.9	70.1
Rural	4623	60.6	59.2	62.0	483680	64.7	64.5	64.8	488303	64.6	64.5	64.8
Comorbidity (ADG score)												
0	62664	36.3	35.9	36.6	337337	45.5	45.3	45.7	400001	43.7	43.6	43.9
1 to 5	303614	63.5	63.4	63.7	2383880	69.4	69.3	69.4	2687494	68.6	68.6	68.7
6 to 9	305208	71.9	71.7	72.0	2251301	71.1	71.1	71.2	2556509	71.2	71.2	71.3
10 +	62171	72.3	72.0	72.7	444590	61.1	61.0	61.3	506761	62.3	62.2	62.4
Resource utilization (RUB score)												
Non-users	62659	36.3	35.9	36.6	337246	45.5	45.3	45.6	399905	43.7	43.6	43.9
Healthy users	44734	59.7	59.3	60.2	321577	67.0	66.8	67.1	366311	66.0	65.8	66.1
Low morbidity	131700	63.4	63.1	63.6	945086	70.1	70.0	70.2	1076786	69.2	69.1	69.3
Moderate	384028	70.2	70.0	70.3	2967547	72.4	72.3	72.4	3351575	72.1	72.1	72.2
High	102450	71.4	71.2	71.7	715027	65.6	65.5	65.7	817477	66.3	66.2	66.4
Very High	8086	54.5	53.4	55.6	130625	41.9	41.6	42.2	138711	42.5	42.2	42.7
Total	733657	63.2			5417108	67.1			6150765	66.6		

* Rate per 100 hab. (# of enrolled /total people in the category x 100)

Appendix Ib. Enrollment by model of care (FFS-based and capitation-based) by socio-demographics and study group

	Immigrants								Long-term Residents							
	FFS-based				Capitation-based				FFS-based				Capitation-based			
	Number	Rate (%)	95% Cis from	to	Number	Rate (%)	95% Cis from	to	Number	Rate (%)	95% Cis from	to	Number	Rate (%)	95% Cis from	to
Age																
18-34	178053	40.1	39.9	40.3	101478	22.9	22.6	23.1	564494	24.5	24.4	24.6	992847	43.1	43.0	43.2
35-49	193900	41.2	41.0	41.4	116496	24.8	24.5	25.0	662232	26.1	26.0	26.2	1196004	47.2	47.1	47.3
50-64	64855	42.6	42.2	43.0	35255	23.2	22.7	23.6	461423	25.6	25.5	25.7	864209	47.9	47.8	48.0
65+	29945	31.7	31.2	32.3	13675	14.5	13.9	15.1	228653	16.0	15.9	16.2	447246	31.3	31.2	31.4
Gender																
Women	249753	42.2	42.0	42.4	144059	24.3	24.1	24.6	1033666	24.9	24.9	25.0	1890546	45.6	45.6	45.7
Men	217000	38.1	37.9	38.3	122845	21.6	21.3	21.8	883136	22.5	22.4	22.6	1609760	41.0	40.9	41.1
Quintile of income																
Q1 (poorest)	147591	39.5	39.3	39.8	83568	22.4	22.1	22.7	318615	22.4	22.2	22.5	547238	38.4	38.3	38.5
Q2	110747	41.2	40.9	41.5	59879	22.3	22.0	22.6	377954	23.6	23.5	23.8	669135	41.9	41.7	42.0
Q3	89926	41.9	41.6	42.2	48091	22.4	22.0	22.8	404903	24.6	24.5	24.8	715423	43.5	43.4	43.7
Q4	74749	42.1	41.7	42.4	40909	23.0	22.6	23.4	419513	25.3	25.1	25.4	749963	45.1	45.0	45.3
Q5 (richest)	43559	34.5	34.0	34.9	34299	27.2	26.7	27.6	392132	22.9	22.7	23.0	809729	47.2	47.1	47.3
Area of residence																
Urban	457986	40.9	40.8	41.0	249565	22.3	22.1	22.5	1501535	27.6	27.5	27.7	2130804	39.1	39.1	39.2
Suburban	7428	22.6	21.6	23.5	13558	41.2	40.4	42.0	307288	17.1	17.0	17.3	950925	53.0	52.9	53.1
Rural	1109	14.5	12.5	16.6	3514	46.0	44.4	47.7	93018	12.4	12.2	12.6	390662	52.2	52.1	52.4
Comorbidity (ADG score)																
0	38426	22.2	21.8	22.7	24238	14.0	13.6	14.5	104612	14.1	13.9	14.3	232725	31.4	31.2	31.6
1 to 5	186119	39.0	38.7	39.2	117495	24.6	24.3	24.8	784537	22.8	22.7	22.9	1599343	46.5	46.5	46.6
6 to 9	199079	46.9	46.7	47.1	106129	25.0	24.7	25.3	839410	26.5	26.4	26.6	1411891	44.6	44.5	44.7
10 +	43129	50.2	49.7	50.7	19042	22.2	21.6	22.7	188243	25.9	25.7	26.1	256347	35.2	35.1	35.4
Resource utilization (RUB score)																
Non-users	38426	22.2	21.8	22.7	24233	14.0	13.6	14.5	104610	14.1	13.9	14.3	232636	31.4	31.2	31.6
Healthy users	27323	36.5	35.9	37.0	17411	23.2	22.6	23.9	103135	21.5	21.2	21.7	218442	45.5	45.3	45.7
Low morbidity	81163	39.1	38.7	39.4	50537	24.3	23.9	24.7	312705	23.2	23.0	23.3	632381	46.9	46.8	47.0
Moderate	247247	45.2	45.0	45.4	136781	25.0	24.8	25.2	1076153	26.3	26.2	26.3	1891394	46.1	46.1	46.2
High	67294	46.9	46.5	47.3	35156	24.5	24.1	25.0	271545	24.9	24.8	25.1	443482	40.7	40.6	40.9
Very High	5300	35.7	34.4	37.0	2786	18.8	17.3	20.2	48654	15.6	15.3	15.9	81971	26.3	26.0	26.6
Total	466753	40.2			266904	23.0			1916802	23.8			3500306	43.4		

* Rate: Number of persons in the category/total of reference population in the category x 100

Appendix K. Enrollment among Immigrants by Socio-demographic Characteristics and Model of Care in 2012

Characteristics		FFS-based models				Capitation-based models				RR	p-value	Total enrolled			
		Number	Rate (%)	95% CIs		Number	Rate (%)	95% CIs				Number	Rate (%)	95% CIs	
				from	to			from	to					from	to
Age	18-34	178053	40.1	39.9	40.3	101478	22.9	22.6	23.1	1.8	<.0001	279531	63.0	62.8	63.1
	35-49	193900	41.2	41.0	41.4	116496	24.8	24.5	25.0	1.7		310396	66.0	65.8	66.1
	50-64	64855	42.6	42.2	43.0	35255	23.2	22.7	23.6	1.8		100110	65.8	65.5	66.1
	65+	29945	31.7	31.2	32.3	13675	14.5	13.9	15.1	2.2		43620	46.2	45.7	46.7
Gender	Women	249753	42.2	42.0	42.4	144059	24.3	24.1	24.6	1.7		393812	66.6	66.4	66.7
	Men	217000	38.1	37.9	38.3	122845	21.6	21.3	21.8	1.8		339845	59.7	59.5	59.8
Income quintile	Q1 (poorest)	147591	39.5	39.3	39.8	83568	22.4	22.1	22.7	1.8	<.0001	231159	61.9	61.7	62.1
	Q2	110747	41.2	40.9	41.5	59879	22.3	22.0	22.6	1.8		170626	63.5	63.3	63.8
	Q3	89926	41.9	41.6	42.2	48091	22.4	22.0	22.8	1.9		138017	64.3	64.0	64.5
	Q4	74749	42.1	41.7	42.4	40909	23.0	22.6	23.4	1.8		115658	65.1	64.8	65.4
	Q5 (richest)	43559	34.5	34.0	34.9	34299	27.2	26.7	27.6	1.3		77858	61.6	61.3	62.0
Area of residence	Urban	457986	40.9	40.8	41.0	249565	22.3	22.1	22.5	1.8	<.0001	707551	63.2	63.1	63.3
	Suburban	7428	22.6	21.6	23.5	13558	41.2	40.4	42.0	0.5		20986	63.8	63.1	64.4
	Rural	1109	14.5	12.5	16.6	3514	46.0	44.4	47.7	0.3		4623	60.6	59.2	62.0
Educational category	High School or less	268594	41.2	41.0	41.4	143259	22.0	21.7	22.2	1.9	<.0001	411853	63.1	63.0	63.3
	Post Sec. education	94510	39.6	39.3	39.9	60344	25.3	25.0	25.7	1.6		154854	64.9	64.7	65.2
	University degree	83572	39.4	39.0	39.7	50081	23.6	23.2	24.0	1.7		133653	63.0	62.7	63.2
	Post-Grad Education	20051	34.5	33.8	35.2	13200	22.7	22.0	23.4	1.5		33251	57.2	56.7	57.7
Region of origin	Africa and Middle East	63602	36.1	35.7	36.4	43872	24.9	24.5	25.3	1.4	<.0001	107474	60.9	60.6	61.2
	Asia and Pacific	250554	47.8	47.6	48.0	89623	17.1	16.9	17.4	2.8		340177	64.9	64.8	65.1
	South and Central America	69856	39.5	39.2	39.9	46736	26.5	26.1	26.9	1.5		116592	66.0	65.7	66.3
	US	5390	20.8	19.7	21.9	8285	31.9	30.9	32.9	0.7		13675	52.7	51.9	53.5
	Europe and the UK	77351	29.9	29.6	30.3	78388	30.3	30.0	30.7	1.0		155739	60.3	60.0	60.5
Canada official language ability	English	270031	39.5	39.3	39.6	166360	24.3	24.1	24.5	1.6	<.0001	436391	63.8	63.6	63.9
	French	2958	30.2	28.6	31.9	2612	26.7	25.0	28.4	1.1		5570	56.9	55.6	58.2
	English & French	6986	30.5	29.4	31.5	6410	27.9	26.8	29.0	1.1		13396	58.4	57.6	59.2

	Neither English nor French	186753	42.1	41.8	42.3	91511	20.6	20.3	20.9	2.0		278264	62.7	62.5	62.8
Length of stay in Canada	Fewer than 3 yrs	42243	42.6	42.1	43.0	22030	22.2	21.6	22.7	1.9		64273	64.8	64.4	65.1
	3-4 yrs (less 5)	61014	41.4	41.1	41.8	32610	22.2	21.7	22.6	1.9		93624	63.6	63.3	63.9
	5-9 yrs (less 10)	147801	41.5	41.2	41.7	74684	21.0	20.7	21.3	2.0		222485	62.4	62.2	62.6
	10+ yrs	215695	38.6	38.4	38.8	137580	24.6	24.4	24.9	1.6		353275	63.3	63.1	63.4
Immigrant class	Economic class	197450	39.6	39.4	39.8	120099	24.1	23.9	24.3	1.6	<.0001	317549	63.7	63.5	63.9
	Family class	191006	41.8	41.6	42.0	98143	21.5	21.2	21.7	1.9		289149	63.3	63.1	63.4
	Refugees	71543	37.4	37.1	37.8	46747	24.4	24.1	24.8	1.5		118290	61.9	61.6	62.1
	Other immigrants	6754	46.8	45.6	48.0	1915	13.3	11.8	14.8	3.5		8669	60.1	59.1	61.1
Maternal Language	English	72395	36.5	36.2	36.9	56620	28.6	28.2	28.9	1.3	<.0001	129015	65.1	64.8	65.3
	French	949	23.7	21.0	26.5	1140	28.5	25.9	31.1	0.8		2089	52.3	50.1	54.4
	Chinese	97871	51.5	51.1	51.8	21622	11.4	10.9	11.8	4.5		119493	62.8	62.5	63.1
	India & South Asia	106222	48.4	48.1	48.7	38328	17.5	17.1	17.8	2.8		144550	65.9	65.6	66.1
	Arab & Mid. East	28566	34.5	33.9	35.0	20509	24.7	24.2	25.3	1.4		49075	59.2	58.8	59.6
	SE Asians	49117	41.1	40.7	41.6	30015	25.1	24.6	25.6	1.6		79132	66.2	65.9	66.6
	Spanish	18211	32.7	32.0	33.4	16618	29.9	29.2	30.6	1.1		34829	62.6	62.1	63.1
	Other Lang.	93387	32.1	31.8	32.4	82030	28.2	27.9	28.5	1.1		175417	60.3	60.0	60.5
Comorbidity	0	38426	22.2	21.8	22.7	24238	14.0	13.6	14.5	1.6	<.0001	62664	36.3	35.9	36.6
	1 to 5	186119	39.0	38.7	39.2	117495	24.6	24.3	24.8	1.6		303614	63.5	63.4	63.7
	6 to 9	199079	46.9	46.7	47.1	106129	25.0	24.7	25.3	1.9		305208	71.9	71.7	72.0
	10 +	43129	50.2	49.7	50.7	19042	22.2	21.6	22.7	2.3		62171	72.3	72.0	72.7
Resource utilization	Non-users	38426	22.2	21.8	22.7	24233	14.0	13.6	14.5	1.6	<.0001	62659	36.3	35.9	36.6
	Healthy users	27323	36.5	35.9	37.0	17411	23.2	22.6	23.9	1.6		44734	59.7	59.3	60.2
	Low morbidity	81163	39.1	38.7	39.4	50537	24.3	23.9	24.7	1.6		131700	63.4	63.1	63.6
	Moderate	247247	45.2	45.0	45.4	136781	25.0	24.8	25.2	1.8		384028	70.2	70.0	70.3
	High	67294	46.9	46.5	47.3	35156	24.5	24.1	25.0	1.9		102450	71.4	71.2	71.7
	Very High	5300	35.7	34.4	37.0	2786	18.8	17.3	20.2	1.9		8086	54.5	53.4	55.6
Total		466753	40.2			266904	23.0			1.7		733657	63.2		

* Rate per 100 hab. (# of enrolled /total people in the category x 100)

Appendix L. Multivariate Logistic Regression: Immigrants' Enrollment in Any Model in 2012

Characteristics		Predisposing factors			Predisposing + enabling factors			Full model		
		OR	95%CI		OR	95%CI		OR	95%CI	
			from	to		from	to		from	to
Gender	Men	1.00			1.00			1.00		
	Women	1.39*	1.38	1.41	1.41*	1.40	1.42	1.27*	1.26	1.28
Area of residence	Urban	1.00			1.00					
	Suburban	1.32*	1.29	1.36	1.28*	1.24	1.32	1.33*	1.29	1.37
	Rural	1.11*	1.04	1.18	1.09*	1.03	1.15	1.16*	1.09	1.23
Income quintile	Q5 (richest)				1.00			1.00		
	Q1 (poorest)				0.86*	0.84	0.87	0.84*	0.83	0.86
	Q2				0.92*	0.90	0.94	0.91*	0.89	0.92
	Q3				0.97*	0.95	0.99	0.96*	0.94	0.98
	Q4				1.03*	1.01	1.05	1.02	1.00	1.03
Educational category	Post-Grad Education				1.00			1.00		
	High School or less				1.02	1.00	1.05	1.00	0.98	1.03
	Post Sec. education				1.12*	1.09	1.15	1.10*	1.07	1.13
	University degree				1.11*	1.08	1.13	1.09*	1.07	1.12
Comorbidity	0							1.00		
	1 to 5							1.56*	1.53	1.58
	6 to 9							2.08*	2.05	2.12
	10 +							2.38*	2.32	2.43
Length of stay in Canada	10+ yrs				1.00			1.00		
	Fewer than 3 yrs				0.92*	0.90	0.93	1.16*	1.14	1.18
	3-4 yrs				0.94*	0.92	0.95	0.98*	0.96	0.99
	5-9 yrs				1.01*	1.00	1.02	1.02*	1.00	1.03
Immigrant class	Economic class	1.00			1.00			1.00		
	Family class	0.91*	0.90	0.92	0.97*	0.96	0.99	0.95*	0.94	0.96
	Refugees	0.77*	0.76	0.78	0.87*	0.86	0.89	0.84*	0.83	0.85
	Other immigrants	1.06*	1.01	1.11	0.96	0.91	1.01*	0.93*	0.89	0.98
Region of origin	US	1.00			1.00			1.00		
	Africa and Middle East	1.00	0.96	1.03	1.23*	1.19	1.29	1.16*	1.12	1.21
	Asia and Pacific	1.20*	1.16	1.24	1.31*	1.26	1.37	1.24*	1.19	1.29
	South and Central America	0.99	0.95	1.03	1.06*	1.02	1.10	1.01	0.97	1.05
	Europe and the UK	0.83*	0.80	0.86	1.03	0.99	1.07	1.02	0.98	1.06
Canadian official language ability	English & French				1.00			1.00		
	English				1.03	1.00	1.07	1.03	1.00	1.07
	French				0.93*	0.88	0.99	0.94*	0.88	0.99
	Neither English nor French				0.94*	0.91	0.98	0.95*	0.92	0.99
Maternal Language group	English				1.00			1.00		
	French				0.73*	0.67	0.80	0.72*	0.66	0.78
	Chinese				1.24*	1.20	1.28	1.27*	1.23	1.31

India & South Asia	0.89*	0.87	0.92	0.87*	0.84	0.89
Arab & Mid. East	0.80*	0.77	0.82	0.78*	0.76	0.80
SE Asians	0.79*	0.76	0.81	0.80*	0.78	0.82
Spanish	0.88*	0.86	0.90	0.87*	0.85	0.89
Other Lang.	0.81*	0.79	0.83	0.80*	0.78	0.82

* Significantly different from reference group (p< 0.05)

Appendix M. Multivariate Logistic Regression: Immigrants' Enrollment in capitation-based models in 2012

Characteristics		Predisposing factors			Predisposing + enabling factors			Full model		
		OR	95%CI from to		OR	95%CI from to		OR	95%CI from to	
Gender	Men	1.00			1.00			1.00		
	Women	1.16*	1.15	1.17	1.17*	1.16	1.19	1.18*	1.17	1.20
Area of residence	Urban	1.00			1.00			1.00		
	Suburban	2.44*	2.38	2.51	2.26*	2.20	2.32	2.26*	2.20	2.31
	Rural	3.01*	2.86	3.17	2.81*	2.66	2.96	2.81*	2.66	2.96
Income quintile	Q5 (richest)				1.00			1.00		
	Q1 (poorest)				0.80*	0.79	0.82	0.81*	0.79	0.82
	Q2				0.81*	0.80	0.83	0.81*	0.80	0.83
	Q3				0.80*	0.79	0.81	0.80*	0.79	0.81
	Q4				0.80*	0.79	0.81	0.80*	0.79	0.81
Educational category	Post-Grad Education				1.00			1.00		
	High School or less				0.76*	0.74	0.78	0.76*	0.74	0.78
	Post Sec. education				0.83*	0.81	0.85	0.83*	0.81	0.85
	University degree				0.87*	0.85	0.89	0.87*	0.85	0.89
Comorbidity	0							1.00		
	1 to 5							1.17*	1.15	1.19
	6 to 9							1.12*	1.10	1.14
	10 +							0.98	0.96	1.01
Length of stay in Canada	10+ yrs				1.00			1.00		
	Fewer than 3 yrs				0.87*	0.85	0.88	0.88*	0.87	0.90
	3-4 yrs				0.90*	0.89	0.91	0.90*	0.88	0.91
	5-9 yrs				0.89*	0.88	0.90	0.89*	0.88	0.90
Immigrant class	Economic class	1.00			1.00			1.00		
	Family class	0.84*	0.83	0.85	0.90*	0.89	0.91	0.90*	0.89	0.91
	Refugees	0.91*	0.90	0.92	0.92*	0.91	0.93	0.92*	0.91	0.93
	Other immigrants	0.60*	0.57	0.63	0.75*	0.71	0.79	0.75*	0.71	0.79
Region of origin	US	1.00			1.00			1.00		
	Africa and Middle East	0.57*	0.55	0.59	0.73*	0.70	0.75	0.73*	0.70	0.76
	Asia and Pacific	0.34*	0.33	0.35	0.61*	0.59	0.63	0.61*	0.59	0.63
	South and Central America	0.57*	0.56	0.59	0.55*	0.54	0.57	0.56*	0.54	0.57
	Europe and the UK	0.70*	0.68	0.72	0.89*	0.86	0.92	0.89*	0.86	0.92
Canadian official language ability	English & French				1.00			1.00		
	English				1.01	0.98	1.04	1.01	0.98	1.04
	French				1.09*	1.03	1.15	1.09*	1.03	1.15
	Neither English nor French				0.89*	0.86	0.92	0.89*	0.86	0.92
Maternal Language group	English				1.00			1.00		
	French				0.95	0.88	1.03	0.95	0.88	1.03
	Chinese				0.40*	0.38	0.41	0.40*	0.38	0.41
	India & South Asia				0.59*	0.58	0.61	0.60*	0.58	0.61
	Arab & Mid. East				0.85*	0.83	0.87	0.86*	0.83	0.88
	SE Asians				0.88*	0.86	0.90	0.88*	0.86	0.90
	Spanish				1.35*	1.32	1.38	1.35*	1.32	1.38
	Other Lang.				0.82*	0.81	0.84	0.83*	0.81	0.84

* Significantly different from reference group (p< 0.05)

Appendix N. Interview Guide

Qualitative study: Access and enrollment of new immigrants in Family Health Care in Ontario: which immigrants are getting in and which are not?

Interviewer: _____ Interviewee pseudonym: _____ Code #: _____

Country of origin: _____ Date of arrival: _____

Place: _____ Date: _____ Time: _____

PRESENTATION OF THE INTERVIEW

Hello, my name is Ricardo Batista and I am a graduate student at the University of Ottawa. The purpose of this interview is to study the use of health services by recent immigrants to Ontario. The study is being conducted in partnership with Canadian Collaboration for Immigrants and Refugees Health. We are interested in hearing about your experiences in using health services (doctors) since your arrival. This interview will take about 45 to 60 minutes. We would like your permission to audiotape the interview and to write notes as we do not want to forget any important points. All the notes/tapes will be typed up by me. All the information you share with us will be used only for the purposes of this study and s will be kept confidential and stored in the archive of the University.

QUESTIONS

1) Could you please, briefly share with me your migration story?

Prompts:

- *What were your reasons for migration?*
- *You came alone or with your family?*
- *Overall, how has been the settlement process?*

2) After arrival, did you receive any information about health care (doctors) and how to contact/ use the health services in Ontario?

Prompts

- *Did you know about Health Care Connect or any other program/ service for primary care?*
- *Have you used that program?*
- *If so, what was your experience with it?*

3) Since your arrival to Ontario have you sought health care or used any type of health service?

Prompts:

- *For type of primary care service I mean family doctor or nurse, emergency room, walk-in clinic, Telehealth services, etc.?*

If the response in Question 3 is NO, jump to question 10; if response is YES, then:

4) Could you please specify what type of health care service or facility you used?

5) Can you tell me about the first time you contacted or visited a health care service in Canada?

Prompts:

- *How did you find a doctor/nurse?*
- *What was the reason for the visit? When?*
- *Difficulties experienced during the encounter?*
- *Language barriers?*
- *Was the health issue properly addressed?*
- *If positive health care encounter, why?*
- *If negative health care encounter, why?*

- 6) There is a formal patient enrollment system in Ontario, where a legal resident can be permanently registered to a family doctor, to receive continue care by the same doctor or health team. Do you know about that system or mechanism of registration?
- 7) If YES, have you been able to get enrolled with a family doctor?

Prompts

- *To what type of practice?*
- *How easy was it to get registered? How long took you to get registered?*
- *Did had difficulties to be registered?*

If have NOT been registered:

- 8) What has been your experience with that enrollment?

Prompts

- *Did you experience any difficulties? Language barriers?*
- *If positive experience health care, why?*
- *If negative experience health care, why?*
- *In general are you satisfied with the service? Elaborate with some reasons for either option of satisfaction.*

If not been enrolled or don't know the system,

- 9) Do you think that being enrolled with a family doctor would be important for you and your family? Why or why not?

If the response to Question 3 is NOT, then:

- 10) What have been your experiences to contact or to be enrolled with a family doctor?

Prompts

- *What are the difficulties/ obstacles you find to register in a Family Doctor?*
- *Knowledge of the health system?*
- *Language barriers or other difficulties?*
- *Is different to your previous experience with health care or your expectations?*

- 11) In your opinion, and no matter your enrollment status; do you see what are the main benefits or disadvantages if any, for new immigrants to be enrolled in a primary care services, at arrival?

Is there anything related to this interview or on this topic that we have not discussed, which you would like to talk about?

Now I would like to conclude this interview by asking you some last personal questions, would that be alright?

Demographic information

1. Gender: _____
2. Age (in years): _____
3. Where were you born? _____
4. What race/ethnicity do you identify yourself with?

African	_____	Asian	_____
Canadian/Black	_____	Latino/Hispanic	_____
North	_____	Caucasian	_____
American	_____	Other	_____
Indian/Métis/Inuit	_____		
5. What is your native language? _____
6. If native language is not English or French, ask:
Do you speak either English or French?
 - Yes
 - No
7. What is your highest level of education (completed level)?
 - Finished Elementary School (grade 8)
 - High school diploma
 - Some college or university courses
 - College or university (Bachelor, Professional, Graduate)
 - Postgraduate education (Master, Doctoral, Postdoctoral)
 - Other (Specify) _____
8. Are you employed? (Yes, No) _____
9. What is your annual household income level (before taxes)? (OPTIONAL)
 - Under \$20,000
 - \$20,000 to \$39,999
 - \$40,000 to \$59,999
 - \$60,000 to \$79,999
 - Over \$80,000

CLOSING STATEMENT: *Thank you so much for talking with us – it has been a really helpful.*