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Integrated Primary Care Improves Access to Healthcare for Newly Arrived Refugees in Canada

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Abstract In this study we quantify the impact of a partnership between a dedicated health clinic for government assisted refugees (GARs), a local reception centre and community providers, on wait times and referrals. This study used a before and after, repeated survey study design to analyze archived administrative data. Using various statistical techniques, outcomes for refugees arriving 18 months prior to the introduction of the clinic were compared with those of refugees arriving in the 18 months after the clinic was established. Our investigation revealed wait times to see a health care provider decreased by 30 % with the introduction of a dedicated refugee health clinic. The likelihood of GARs being referred to physician specialists decreased by 45 %, but those referred were more likely to require multiple referrals due to increasingly complex medical needs. Referrals to non-physician specialist health care providers nearly doubled following the availability of the clinic. The time-limited, but intense health needs of GARs, require an integrated community-based primary healthcare intervention that includes dedicated health system navigators to support timely, more culturally appropriate care and successful integration.

Keywords Before and after study · Refugee · Primary care · Canada

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Introduction

In 2011, 27,872 refugees arrived in Canada; a quarter of them were government assisted refugees or GARs; part of Canada's commitment to the United Nations (1951) Convention Relating to the Status of Refugees which resettles those who have a "well-founded fear of being persecuted". With the enactment into law of the Immigration and Refugee Protection Act (IRPA) in 2002, GARs arrive sicker and with less social capital as priority is given to those whose vulnerability and need for protection is greatest, rather than those who are most likely to settle in Canada. Consequently, GARs are expected to experience integration challenges due to complex physical and mental health care needs [1].

About a third of newly arrived GARs are welcomed into six cities in Ontario (London, Hamilton, Toronto, Ottawa, Windsor and Kitchener). Often they struggle to access healthcare services due to barriers at the system, organizational and individual levels (see Fig. 1). For example, shortages of primary care physicians, language, lack of familiarity with the healthcare system, cultural differences in expectations regarding which types of illnesses are perceived as treatable, the complexity of their conditions, and bureaucracy when billing Canada's Interim Federal Health Program (IFHP) that provides coverage for health care costs until provincial health insurance is available.
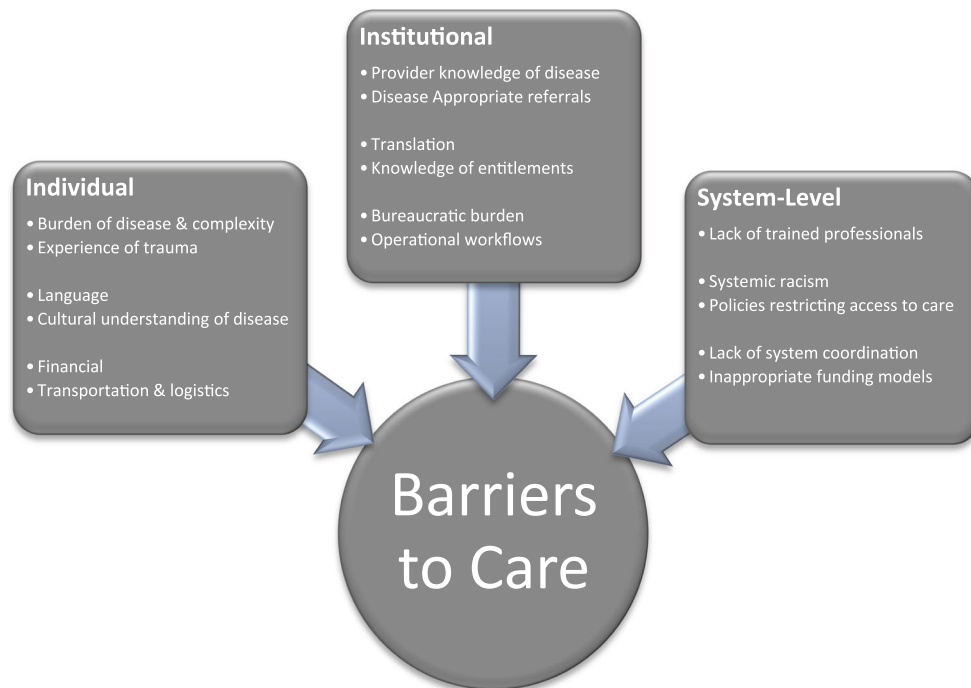
Fig. 1 Barriers to care framework for GARs

Primary care is considered a gateway to the healthcare system in many countries [2, 3], yet in Canada the sector has experienced a persistent shortage of family physicians in certain geographies [4]. This has resulted in a growing number of unattached or "orphan patients" who are unable to find a primary care practitioner to coordinate their care [5, 6]. Ontario cities experiencing a shortage of family physicians are designated as "under-serviced" and it is into this milieu that newly arrived GARs are resettled in the south-western Ontario town of Kitchener.

In 2011, Health Quality Ontario reported that 6.5 % of adult Ontarians did not have a family physician [7], down slightly from 7.4 % 2 years earlier [8]; 34 % of GARs do not have a regular doctor or health care provider [9]. In 2008, frustrated with the delays in care and an increasingly arduous process of identifying willing providers in Kitchener, the Reception House staff approached a local physician (NA) with an interest in global public health, social activism and cross-cultural studies, for assistance in establishing a refugee health clinic in his group family practice.

Methods

Studies have noted the lack of rigorous methodology in refugee health studies [10] and weak systematic evaluation of novel primary care interventions which eliminate barriers to successful settlement [11]. In this study we quantify the impact a dedicated refugee health clinic, in partnership with workers at the local receiving centre called Reception House, has on GAR's access to services such as wait times for physician and specialist care, access to allied health services and physician specialists, familiarity with the healthcare system, and social constructs such as perceived family well-being.

The Intervention

Integrated health systems have a number of defining characteristics including a patient focus, standardized care through inter-professional teams, comprehensive services that span the continuum of care, and information systems that support communication [12]. The refugee health clinic model relies heavily on several of these integrating mechanisms to deliver responsive, culturally appropriate primary care, including an uncharacteristically close relationship with Reception House and its staff, partnerships between Reception House case workers and health professionals, translation services, comprehensive assessments, and international medical graduates in training whose input has enhanced the cultural sensitivity and competence of clinic processes.

Feldman's (2006) framework of primary care services for refugees and asylum seekers—those enabling access to comprehensive primary care (gateway), comprehensive
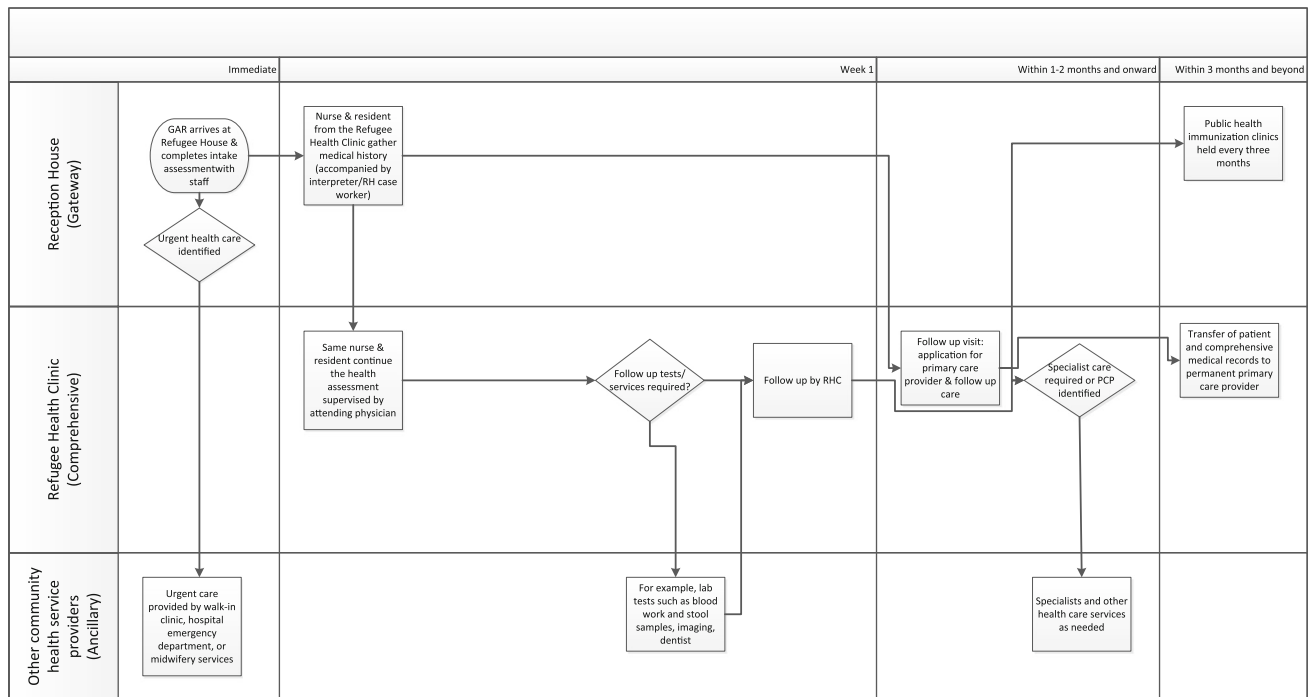
Fig. 2 Timeline and workflow for the provision of healthcare services at RH and RC

primary care where patients are rostered in a mainstream or "dedicated" refugee clinics (core), and essential support services (ancillary) such as interpretive services or specialty mental health services—is used to organize our description of the clinic's care timing and workflows in Fig. 2.

Gateway services are provided by Reception House case workers and trained professionals from the group family practice such as nurses and resident physician. Comprehensive care is delivered by family physicians at the refugee health clinic with language supports funded by Reception House, while ancillary services are delivered in the community by a variety of providers who are willing to treat GARs and are either able to bill the provincial government funded insurance plan or receive funding from IFHP. Case workers perform a critical role helping these new Canadians navigate the health system.

Accessing healthcare practitioners with appropriate knowledge of the refugee experience is particularly important for newly arrived GARs whose medical conditions are often uncommon in Canada and exacerbated by overcrowding in refugee camps due to in adequate sanitation, nutrition and infrastructure [13]. Medical staff at the refugee health clinic are experienced in diagnosing and treating GARs and have established protocols and guidelines for diagnosis and management of these diseases and conditions, including initial intake assessments performed onsite at Reception House within days of GARs' arrival (see Table 1).

Table 1 Medical information collected at intake assessment

Major self-reported health concerns

Medical history

IOM/surveillance reports

Past surgical history

Family history

Medication

Allergies

Immunization records/vaccination required

Systemic review—general (fever, appetite, sleep, weight loss)

Respiratory review (e.g. cough, shortness of breath)

Abdominal review (e.g. diarrhea, known parasites)

Cardiovascular system (e.g. chest pain)

Musculoskeletal

Neurology (e.g. headaches)

Disabilities (e.g. physical, developmental)

Skin (e.g. rash, other)

Eyes (whether referral required)

Teeth (whether referral required)

Social history (e.g. sexual, smoking, alcohol, drugs)

Women's health (e.g. menstrual history)

Pregnancy/obstetric history

Childhood development history

Family planning

This study used a before and after, repeated survey study design comparing outcomes for GARs that received settlement assistance from Reception House before and after

the establishment of the dedicated refugee clinic. Using administrative records, outcomes were anlayzed for refugees arriving 18 months prior to the introduction of the clinic and compared with those of refugees arriving in the 18 months after the clinic was established. The study received ethics clearance from the Research Ethics Board at Western University and Reception House.

Data Collection

Settlement workers maintain detailed logs of all refugee clients' needs and appointments, including medical events. These records are entered into Citizenship and Immigration Canada's Landed Immigrant data system. Anonymized versions of these intake and management logs were the primary source of data to evaluate outcomes such as the length of time to see a healthcare provider, and treatment and referrals for medical care. In addition, exit interviews conducted with clients after a year in Canada were used to assess self-reported outcomes.

No data from case notes was collected for a 4 month period following the date of the clinic opening to avoid artefacts arising from transitions in practice and work processes at the new clinic. Guidelines for coding and interpreting settlement workers' case notes were discussed. Three researchers and a research assistant were trained to review and extract the relevant data. Each coded the same ten cases and compared results; inconsistencies were resolved. Subsequent random spot checks revealed no further inter-rater reliability issues.

Sample

The initial sample consisted of all GARs arriving at Reception House in the 18 months before the clinic was opened (N = 466) and, following the 4 month adjustment period, in the 18 months after (N = 406). Both adults and children were included in the sample. Various sub-samples were used to complete the analysis. A random sample from each family group was used for all binary variables, referral samples selected all individuals requiring either physician specialist only or both physicians and allied health referrals (only the first visit to each specialist was considered independent and included), and finally the exit interview sample which included all data available.

Statistical Analysis

Table 2 provides a description of the dependent variables used in the analysis and Table 3 a description of the covariates.

The dependent variables focus on outcomes that reflect the stated goals of the healthcare system in Ontario. Of

note, in 2012 the quasi-autonomous organization responsible for healthcare quality in Ontario expressed a desire for improvement in wait times to see providers, and avoidance of hospitalization. Furthermore, they attributed accessibility, patient-centredness (providing care that is responsive to patients' needs and preferences), and effectiveness as indicators of a high-performing healthcare system [14].

All five self-reported dependent variables in this study measure the refugee health clinic's ability to deliver culturally appropriate, effective, and integrated community based primary healthcare or its impact. Some are more directly related to the work of the clinic, such as "reports improvements in ability to understand the healthcare system", "reports improvements in ability to understand the mental health care system", "reported improvements in family health". Others are indirectly related, such as "reported being employed" or "reported problems accessing healthcare", where the health status of the respondent is a contributing factor.

The remaining nine outcome variables are variants on the theme of providing appropriate and timely access to care. Lack of timely access to informed, family practitioners who were prepared to assume the care of this vulnerable population was a determining factor in the establishment of the refugee health clinic; hence variables such as "saw a healthcare provider", "days to see a healthcare provider", and "saw any type of specialist" are anticipated to provide a measure of the clinic's success in accessing care. However, the clinic was unable to care for clients over the long-term; dependent variables such as "found a family physician", reflect the goal of the clinic to transfer primary care to a permanent family practitioner.

A number of factors were identified as having the potential to confound or interact with the dependent variables and are listed in Table 3. Those with technical or professional skills and English-speaking ability, and the more educated and literate were predicted to be more likely to find employment. Older adults are more likely to report age-related illness in addition to other conditions, and refugees with more social support are expected to better navigate the healthcare system. Self-reported health problems will prompt more immediate access to care, and health risks identified by a physician were predicted to increase the likelihood of a referral—the impact of both variables was controlled during the analysis.

We analyzed client characteristics and the outcome variables using descriptive statistics. Bivariate associations between clinic exposure and all covariates were assessed using correlation analysis and Chi square (excepting age, which was evaluated using a t test). Social support, education and English ability had associations with exposure at $p < 0.05$, identifying them as potential confounders.

Table 2 Description of dependent variables

Saw healthcare provider: This binary variable indicates whether the client ever saw a healthcare provider while under the supervision of RH. Seeing a provider was coded as "1" while not seeing one was coded as "0"

Days to see a healthcare provider: This variable was generated by calculating the number of days between the client's arrival at RH and their first visit with a healthcare provider. Most had their first visit with a family physician but some saw a public health nurse, emergency, or urgent care clinic doctor

Found a family physician: This binary variable indicates whether the client was taken on as a long term patient by a family doctor or equivalent primary health provider (such as a pediatrician or nurse practitioner) while under the supervision of RH. Getting a family physician was coded as "1" while not getting one was coded as "0"

Days to find a family physician: This variable was generated by calculating the days between the client's arrival at RH and their formal acceptance as a long-term patient by a family doctor or an equivalent alternate primary health care provider such as a pediatrician or nurse practitioner

Saw any type of specialist: This binary variable indicates whether the client was seen by any type of specialist (allied health or physician), whom they'd been referred to while under the supervision of RH. Seeing a specialist was coded as "1" while not seeing one was coded as "0"

Days to see any type of specialist: This variable was generated by calculating the number of days between the referral to a specialist (physician or allied health) by a qualified healthcare worker and the client's first appointment to see the specialist. If the first specialist subsequently referred the client to another specialist that is treated as a separate referral event

Referral required to any type of specialist: This binary variable indicates whether the client needed to be seen by a specialist (allied health or physician) that they had been referred to by a qualified health worker. Seeing a specialist was coded as "1" while not seeing one was coded as "0"

Physician specialist referral required: This binary variable indicates whether the client needed to be seen by a physician specialist (not an allied health worker), that they had been referred to by a qualified health worker. Seeing a specialist was coded as "1" while not seeing one was coded as "0"

Days to see physician specialist: This variable was generated by calculating the number of days between the referral to a physician specialist by a qualified healthcare worker and the client's first appointment to see the specialist. It excludes allied health referrals.

Reported problems accessing healthcare: This variable was derived from exit interview data in which clients were asked a "yes"/"no" question about whether they had experienced problems accessing healthcare during their first year in Canada. "No" was coded as 0 while "yes" was coded as 1.

Reported improvements in ability to understand the health care system: This variable was derived from exit interview data in which respondents were asked a "yes"/"no" question about whether they felt they had increased their understanding of the healthcare system during their first year in Canada. "No" was coded as 0 while "yes" was coded as 1

Reported improvements in ability to understand the mental health care system: This variable was derived from exit interview data in which respondents were asked a "yes"/"no" question about whether they felt they had increased their understanding of the mental healthcare system during their first year in Canada. "No" was coded as 0 while "yes" was coded as 1

Table 2 continued

Reported improvements in family health: This variable was derived from exit interview data in which respondents were asked a "yes"/"no" question about whether they felt they had improved their family health during their first year in Canada. "No" was coded as 0 while "yes" was coded as 1

Reported being employed: This variable was derived from exit interview data where respondents were asked various questions about their employment status at that time, and case log data where employment was noted. Single, isolated incidents of casual employment in manual labour jobs that lasted less than a week were not included. Being employed was coded as1 while not being employed was coded as 0

Independent samples t tests identified no significant differences between the pre- and post-clinic samples for age, gender, and years and living situation in the last country, nor were there significant differences in self-identified health issues or physician identified health risks. Frequency data on referral events were also analyzed at this stage.

A combination of alternative regression techniques were used to measure the associations between clinic exposure and the outcome variables. The associations between clinic exposure and binary outcome variables were tested using binary logistical regression. These included "saw a healthcare provider", "found a family physician", "referral required to any type of specialist", "saw a specialist", and all the outcome variables derived from the exit interviews. In binary logistical regression the odds ratio generated by the logistic model represents the change in the likelihood of the event occurring after the clinic was established compared to before. In these regressions "clinic availability" was entered in step one, followed by the control variables relevant to each analysis (specified in the results section).

Interactions between clinic exposure, the potentially effect-modifying covariates, and time-related dependent variables (including days to see a healthcare provider, find a family physician, see a specialist and see a physician specialist) were tested using simple linear regression. For these regressions the variables were entered in three steps. The first step included "clinic availability", the second step added in the covariates "social support", "education", and "English ability". The third step included interaction terms between "clinic availability" and all three covariates that were included in step 2. The linear regression results were then used to inform an analysis of covariance (ANCOVA). The ANCOVA on log transformed (normalized) data was used to compare the means for "days to see a healthcare provider" and "days to find a family physician" in the pre- and post-clinic groups while accounting for the observed variability in "social support", "occupation", and "English ability".

Table 3 Description of covariates

Occupation: Derived from self-reported prior occupation at intake and grouped into six categories including none, unskilled/labourer, technical/skilled, administrative, sales and marketing, professional/managerial

Age (often approximate): It is not unusual for adults from some parts of the world to be uncertain of their true age

Social support: This binary variable indicates whether the client had family or pre-existing friends in the local community (other than those arriving with them), who were able to offer advice and support. 0 indicates a lack of social support while 1 indicates having it available

Education: Grouped into four categories including none, primary school only, high school, and post-secondary

English ability: Determined by the RH using formalized language assessment tools that have been validated by Citizenship and Immigration Canada, then grouped into two categories with 0 representing people who reported minimal or no language skills and 1 representing people with medium skills or fluency

Self-reported health problems: This binary variable indicates that the client identified a health concern or problem to a settlement worker during the intake process. 0 indicates no health concerns while 1 indicates that there was at least one concern

Health risks: This binary variable indicates that a physician identified a health problem after seeing the patient; 0 indicates no health problems while 1 indicates that there were problems

Results

A total of 872 records were examined, including 444 males (50.9 %) and 428 females (49.1 %). A large percentage were under the age of 18 (49.2 %). Thirty-eight different countries of birth were documented, and over 40 countries were listed as the country of last residence. Although statistically significant, the differences in country of origin and residence in the before and after samples were not considered substantive since both samples had high variability (primarily coming from Northwest Africa, the Middle East, and Southeast Asia), without a single identifiable cultural group dominating. Most of the refugees had little or no ability to speak English (71.4 %). Characteristics of random and referral samples, and key outcome variables are included in Table 4.

The types and frequencies of all referrals pre- and post-clinic were compared in order to better understand the notable differences. Before the clinic a total of 253 referrals were made (mean = 0.54 per individual). Among those, 151 (59.7 %) were for allied health including dentists, nutritionists, optometrists, massage therapists, and physiotherapists, while 102 (40.3 %) were for physician specialists. After the clinic a total of 488 referrals were made (mean = 1.20 per individual), 295 (60.5 %) were for allied health while 193 (39.5 %) were for physician specialists. This indicates that the proportions of referrals going to allied health workers and physicians was largely

stable. All subsequent referral analysis focuses on referrals to physician specialists only.

Table 5 presents associations between clinic availability and key outcomes. For each of these associations the potential effect modification of English ability, social support, and occupation was examined and, subsequently disregarded; none was found to be independently associated with the respective outcome. GARs were no more likely to see any healthcare provider after the clinic opened (OR = 0.99, $p = 0.151$). The likelihood of an individual requiring a physician specialist went down 45 % as a result of seeing an refugee health clinic physician (OR = 0.55; $p = 0.004$). Considering that the mean number of referrals per individual post-clinic more than doubled, this indicates that fewer refugees required referrals, but those that did were requiring multiple types of specialist care. This supports Reception House workers' observations that new refugees increasingly arrive with highly complex medical needs.

Clinic availability was significantly and substantively negatively associated with wait times to see a healthcare provider ($\beta = -17.81$, $p < 0.05$), meaning that after the clinic was established refugees were seen by a healthcare provider much faster than refugees who did not have access to the clinic. No other covariates showed significant associations with this outcome variable and the clinic did not affect the time it took to find a family physician or to see a specialist. The mean wait times (in days) to see a healthcare provider and find a family physician are presented in Table 6. Refugees' wait time to see a healthcare provider decreased 30 % from approximately 30 days in the period before to 21 days in the period after the clinic opened (ratio of means = 0.70; $p < 0.001$).

The long term impact of the clinic on improving GARs' "reported improvements in ability to understand health care system" was significant at all stages ($p < 0.01$). The first step in the model was significant ($p < 0.01$), indicating that access to the clinic was positively associated with this improved understanding. The latter two steps, which added health risks and control variables to the analysis, were not significant. The full model had a Nagelkerke score of 0.244 and suggested that people who accessed the clinic were 35 % more likely to report understanding the healthcare system than people who did not have access to the clinic ($\beta = 1.35$, $p < 0.05$). There was no significant association between access to the clinic and GARs reporting improvement in their ability to understand the mental health care system.

The overall model predicting that GARs "reported problems accessing healthcare" was significant ($p < 0.01$). The first step in the model, which included access to the clinic, was not significant. The latter two steps, which added predictors that were significantly negatively

Table 4 Crude descriptive data

	Total sample		Pre clinic		Post clinic	
	n = 293	(%)	n = 166	(%)	n = 127	(%)
Primary random sample						
Lifestage						
Child	97	(33.1)	51	(30.7)	46	(36.2)
Adult	196	(66.9)	115	(69.3)	81	(63.8)
Gender						
Male	165	(56.3)	91	(54.8)	74	(58.3)
Female	128	(43.7)	75	(45.2)	53	(41.7)
Social support						
No	202	(68.9)	125	(75.3)	77	(60.6)
Yes	91	(31.1)	41	(24.7)	50	(39.4)
English ability						
None/min	231	(78.8)	137	(82.5)	94	(74.0)
Mod/fluent	62	(21.2)	29	(17.5)	33	(26.0)
Health risks (physician identified)						
No	232	(79.2)	134	(80.7)	98	(77.2)
Yes	61	(20.8)	32	(19.3)	29	(22.8)
Education						
None	N: 54	(18.4)	N: 28	(16.9)	N: 26	(20.5)
Elementary	N: 118	(40.3)	N: 68	(41.0)	N: 50	(39.4)
High school	N: 96	(32.8)	N: 60	(36.1)	N: 36	(28.3)
Tertiary	N: 25	(8.5)	N: 10	(6.0)	N: 15	(11.8)
Saw healthcare provider (1st visit)						
No	12	(7.7)	4	(2.92)	8	(6.7)
Yes	244	(95.3)	133	(97.1)	111	(93.3)
Reported being employed in Canada						
Yes	40	(13.7)	14	(9.2)	26	(25.7)
No	253	(86.3)	152	(90.8)	101	(74.3)
Age						
Mean	29		29.25		28.91	
SD	±15.02		±14.52		±15.71	
Referral sample (includes physician and allied health)						
Age						
Mean	47.18		46.58		48.45	
SD	±15.34		±14.40		±15.77	
Saw any type of specialist[a]	(n = 741)		(n = 253)		(n = 488)	
No	21	(28.3)	14	(5.5)	7	(1.4)
Yes	720	(71.7)	239	(94.5)	481	(98.6)
Days to see any type of specialist[a]						
Mean	43.60		38.80		43.51	
SD	±82.54		±50.55		±61.26	
Exit interview sample						
Social support	(n = 147)		(n = 84)		(n = 63)	
Yes	37	(25.2)	14	(16.7)	23	(36.5)
No	110	(74.8)	70	(83.3)	40	(63.5)
Reported problems accessing healthcare	(n = 132)		(n = 67)		(n = 65)	
Yes	23	(17.4)	13	(19.4)	10	(15.4)
No	109	(82.6)	54	(80.6)	55	(84.6)
Reported improved understanding of healthcare system	(n = 161)		(n = 96)		(n = 65)	
Yes	136	(84.5)	76	(79.2)	60	(92.3)
No	25	(15.5)	20	(20.8)	5	(7.7)

[a] Unit of analysis is a referral event not an individual, thus one individual may generate multiple referrals

Table 5 The odds of key outcomes by clinic availability

Outcome	Odds ratio	p value adjusted
Saw a healthcare provider	0.99	0.151
Found a family physician	1.18	0.069
Physician specialist referral required	0.55	0.004

Table 6 Wait times (in days) by clinic availability

Pre-clinic	Post-clinic	Post/pre ratio of means	p value adjusted[a]
Days (mean) to see a healthcare provider			
30.1	21.0	0.70	<0.001
Days (mean) to find a family physician			
44.8	47.6	1.06	0.355

[a] Adjusted for English ability, social support and educational level using ANCOVA

associated with reporting problems accessing healthcare included having physician-diagnosed health risks ($\beta = -1.36$, $p < 0.01$), being older ($\beta = -0.06$, $p < 0.01$), and having more education ($\beta = -0.83$, $p < 0.05$). Women also reported problems accessing healthcare ($\beta = 1.23$, $p < 0.05$). There was no link between clinic availability and employment. In keeping with prior literature on the subject there was a significant positive association between English ability and employment ($\beta = 2.483$, $p < 0.001$), meaning that refugees with moderate or fluent English were 2.48 times more likely to be employed during their first year in Canada than refugees with no or marginal English ability.

The overall model predicting "reported improvements in family health" was not significant and none of the individual steps were significant. However, the "yes/no" nature of the question resulted in severe range restriction. Most GARs enter Canada from dire circumstances; therefore it is not surprising that 98 % of respondents reported improvements in family health in the year after arrival.

Discussion

Prior to the refugee health clinic, GARs received episodic care for urgent health conditions through walk-in clinics and hospital emergency departments. Our investigation of the impact of timely, culturally appropriate care for refugees revealed a 30 % decrease in wait times to see a health care provider, and an 18 % increase in refugees finding a permanent family physician in the community in the year after their arrival. This notable achievement occurred at a time of increasing numbers of orphan patients in the general population and is attributed to strong relationships developed with the local physician community, timely transfer of comprehensive assessment and treatment records, and ongoing consultation between refugee health clinic and community family physicians post-transfer. GARs' likelihood of finding a permanent family physician went up 18 % (OR = 1.18; $p = 0.069$); while the p value for this association does not meet conventional levels of statistical significance, as a trend value it indicates the probability of association being due to chance is small.

Referrals to non-physician primary health care providers (therapists, dentists, optometrists) nearly doubled after the clinic was established. As there were no significant differences in the number of physician-detected health risks between our before and after samples, this increase can be attributed to either better access to providers, diagnoses that required more treatment modalities, or a combination of both. Fewer GARs are being referred to physician specialists for care, suggesting that the clinic service providers are better equipped to diagnose and treat conditions prevalent amongst the refugee population. However, those patients who are referred are more likely to require referrals to multiple specialists, which is consistent with our profile of increasing medical complexity in new arrivals. These results support the notion that physicians with expertise in global health and access to translation services are more likely to treat patients at the primary care level, and that establishing supportive relationships with committed allied health specialists in the communitywill improve access to service. Those using the clinic reported improved understanding of and ability to navigate the healthcare system after a year in Canada.

The refugee health clinic delivers specialized primary care using providers who are aligned under one organization with common medical records, policies and procedures to guide professional practice. The model is dependent upon case workers accompanying clients to appointments, arranging language support and coordinating what is often a complex array of specialist and ancillary service appointments. This system navigator role for high needs or vulnerable populations is a concept which is increasingly evident in the healthcare sector particularly for vulnerable populations [15]. Models of care that include dedicated clinics with specialized services, such as the Primary Health Care Amplification Model in Australia [16] where patients are seen by a "beacon practice" then linked with community general practice, and "medical homes" [17] and "whole community" [18] models in the United States, have been documented in the literature. However, systematic analysis of the effectiveness of these models is notably absent; most are descriptive papers providing details on the processes, but not the outcomes, at these clinics.

To the best of our knowledge, this is the first quantitative analysis of the impact of a refugee health clinic on access to care and patient-reported outcomes. While the use of secondary and self-reported data in this study might introduce its own set of biases, the use of a before and after design and robust statistical analysis provides a level of rigour which is uncommon in refugee health research. A limitation is that while data entry in the administrative records was meticulous, it was performed by settlement workers with limited clinical knowledge.

Conclusions

The community-based, integrated, primary care model described here is one built on the goodwill of participating healthcare providers. The refugee health clinic operates part-time as a complementary service in a regular family practice, there are no formal contracts to outline service expectations, and there is no funding beyond normal settlement services support to manage this increasingly disadvantaged population. While the benefits of the refugee health clinic to accessibility and wait times are evident from this study, further research is required to determine its value at a system level, such as increasing deflections away from local emergency rooms.

Equitable access to care is a cornerstone of the Ontario and many other healthcare systems, yet barriers to appropriate care for refugees are increasing [19], a potentially catastrophic situation when combined with more medically complex needs. Comprehensive economic evaluations of initiatives such as the refugee health clinic are needed to allow policy-makers and healthcare providers to purposively design and deliver more effective, and culturally sensitive healthcare to some of our most vulnerable Canadian citizens.

New Contribution to the Literature

This study quantifies the impact of a novel primary care model for refugees on medical and social dimensions which contribute to their overall health, wellbeing and successful assimilation. The results suggest that community collaborations can influence the delivery of timely, more effective care for newly arrived refugees.

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