

Academic family health teams

Part 1: patient perceptions of core primary care domains

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Abstract

Objective To explore patients' perceptions of primary care (PC) in the early development of academic family health teams (aFHTs)—interprofessional PC teams delivering care where family medicine and other health professional learners are trained—focusing on the 4 core domains of PC.

Design Self-administered survey using the Primary Care Assessment Tool Adult Expanded Version (PCAT), which addresses 4 core domains of PC (first contact, continuity, comprehensiveness, and coordination). The PCAT uses a 4-point Likert scale (from definitely not to definitely) to capture patients' responses about the occurrence of components of care.

Setting Six aFHTs in Ontario.

Participants Adult patients attending appointments and administrators at each of the aFHTs.

Main outcome measures Mean PCAT domain scores, with a score of 3 chosen as the minimum expected level of care. Multivariate log binomial regression models were used to estimate the adjusted relative risks of PCAT score levels as functions of patient- and clinic-level characteristics.

EDITOR'S KEY POINTS

- Ontario has moved toward a new model of primary care delivery that involves interprofessional teams, among them academic family health teams (aFHTs) in which medical learners are trained. This study aimed to explore patient perceptions of such teams early in their development.
- Patients rated utilization of first-contact care, continuous care, and coordination of care above the minimum expected level of care. Results indicated room for improvement in access to first-contact care, coordination through information systems, and comprehensiveness of services available and provided.
- Large numbers of physicians, the presence of electronic medical records, and distributed aFHT sites did not predict improved patient ratings. A large proportion of respondents was not aware of many of the services offered by their aFHTs. Teams might need to target strategies that ensure patients are aware of available services.

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Results The response rate was 47.3% (1026 of 2167). The mean age of respondents was 49.6 years, and most respondents were female (71.6%). The overall PC score (2.92) was just below the minimum expected care level. Scores for first contact (2.28 [accessibility]), coordination of information systems (2.67), and comprehensiveness of care (2.83 [service available] and 2.36 [service provided]) were below the minimum. Findings suggest some patient groups might not be optimally served by aFHTs, particularly recent immigrants. Characteristics of aFHTs, including a large number of physicians, were not associated with high performance on PC domains. Distributed practices across multiple sites were negatively associated with high performance for some domains. The presence of electronic medical records was not associated with improved performance on coordination of information systems.

Conclusion Patients of these aFHTs rated several core domains of PC highly, but results indicate room for improvement in several domains, particularly first-contact accessibility. A future study will determine what changes were implemented in these aFHTs and if patient ratings have improved. This reflective process is essential to ensuring that aFHTs provide effective models of PC to learners of all disciplines.

Les équipes universitaires de médecine familiale

Première partie : ce que pensent les patients des principaux soins de première ligne

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Résumé

Objectif Vérifier ce que les patients pensent des soins de première ligne (SPL) au moment où s'installent des équipes universitaires de santé familiale (ÉUSF) – des équipes interprofessionnelles dispensant des soins de première ligne dans lesquelles des professionnels de la médecine familiale et d'autres professionnels de la santé sont formés - et ce, en ciblant les quatre domaines principaux des SPL.

Type d'étude Une enquête auto-administrée à l'aide du *Primary Care Assessment Tool Adult Expanded Version (PCAT)*, qui porte sur les 4 principaux aspects des SPL (premier contact, suivi, globalité et coordination des soins). Le PCAT utilise une échelle de type Likert (entre certainement pas et certainement) pour coter les réponses des patients sur les différents aspects des soins.

Contexte Six EUSF de l'Ontario.

Participants Des patients adultes venant à leur rendez-vous et des administrateurs de chacun des EUSF.

Principaux paramètres à l'étude Les scores moyens pour les différents aspects des SPL, avec 3 comme score minimal. On s'est servi de régressions multivariées log binomiales pour estimer les risques relatifs ajustés des niveaux de score au PCAT en fonction des caractéristiques des différents types de patients et de cliniques.

Résultats Le taux de réponse était de 47,3% (1026 sur 2167). Les répondants avaient en moyenne 49,6 ans et la plupart étaient des femmes (71,6%). Le score global pour les SPL (2,92) était juste en-dessous du niveau minimal attendu. Les scores de 2,28 pour l'accès au premier contact, de 2,67 pour la coordination des systèmes d'information et, dans le cas de la globalité des soins, de 2,83 pour les services offerts et de 2,36 pour les services fournis étaient tous en-dessous du minimum. Ces résultats laissent entendre que certains groupes de patients ne n'ont pas un accès optimal aux services offerts par les EUSF, notamment les immigrants récents. Il n'y a pas de relation entre les caractéristiques des EUSF et une performance élevée en termes de SPL, même chez les EUSF qui comptent un grand nombre de médecins. Une dispersion géographique des cliniques était négativement associée à des niveaux élevés de performance dans certains domaines. La présence des dossiers électroniques n'entraînait pas une meilleure coordination des systèmes d'information.

Conclusion Les clients de ces EUSF ont attribué des cotes élevées à plusieurs aspects des SPL de base, mais les résultats indiquent qu'il y a place pour des améliorations dans plusieurs domaines, notamment en ce qui concerne l'accès au premier contact. Une étude à venir permettra de savoir quels changements ont été apportés dans ces EUSF et si cela a amélioré les cotes attribuées par les patients. Un tel processus d'autoréflexion est essentiel pour s'assurer que les EUSF présentent un modèle efficace aux étudiants de toutes les disciplines.

POINTS DE REPÈRE DE L'ÉDITEUR

- L'Ontario utilise de plus en plus un modèle pour les soins de première ligne, auquel participent des équipes interprofessionnelles parmi lesquelles on compte des équipes universitaires de santé familiale (EUSF) où sont formés plusieurs professionnels de la santé. Cette étude voulait savoir ce que pensent les patients de ces équipes fraîchement formées.

- Les patients ont jugé que les soins reçus lors du premier contact, ainsi que la continuité et la coordination des soins étaient d'un niveau supérieur au minimum attendu. Les résultats indiquaient toutefois des possibilités d'amélioration dans le cas de l'accès à un premier contact, de la coordination au moyen des systèmes informatiques, et de la globalité des services offerts et dispensés.

- La présence d'un grand nombre de médecins, l'utilisation du dossier électronique et la dispersion géographique des EUSF ne contribuaient pas à améliorer les cotes attribuées par les patients. Une bonne partie des répondants ignoraient plusieurs des services offerts par leur EUSF. Les équipes auraient probablement avantage à mettre en place des stratégies pour s'assurer que les patients connaissent les services qu'elles offrent.

Cet article a fait l'objet d'une révision par des pairs.
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Primary care (PC) is associated with effective health care delivery,¹⁻⁸ and the components of an effective PC system are increasingly being explored.^{1,7-9} Core PC domains as described by Starfield and others include first-contact care (utilization and accessibility), continuity of care, coordination, and comprehensiveness of care.^{8,10,11} Health care systems with strong PC services in these domains have been found to have better quality of care, more equity in health care and health, improved population health and patient satisfaction, decreased costs, and increased efficiency.^{1,6,8}

Since 2002, many Canadian provinces have endeavoured to reform PC.¹²⁻¹⁵ Ontario has moved toward a new model of PC delivery that involves interprofessional teams, rostered patients, preventive care performance incentives, an after-hours telephone advice service, and electronic medical records (EMRs).^{13,14,16,17}

We were interested in looking at the development of academic family health teams (aFHTs), which are interprofessional PC teams that deliver care in an environment in which family medicine residents, medical students, and other health professional learners are trained. The successful implementation of these new models of PC will be partially dependent on the development of a PC work force that embraces them.¹ Learners' attitudes about family health teams (FHTs) are likely influenced by exposure. Modeling effective care within the core domains of PC is of critical importance, both as an opportunity to learn the attributes of effective PC and to influence learners to choose collaborative team practice in the future. Academic FHTs also have unique challenges to access and continuity of care, as academic responsibilities might take physicians away from clinic time, and trainees rotate in and out of the clinic.

The objective of this study was to explore patients' perceptions of the core domains of PC in the early stages of development of aFHTs.

METHODS

Design

At the time of study, the Department of Family and Community Medicine at the University of Toronto in Ontario consisted of 10 teaching units with approximately 231 family medicine residents; 7 of these units were aFHTs (approximately 154 residents). All 7 aFHTs were invited to participate and 6 agreed. Participating teams were located in downtown or suburban Toronto. Patients 18 years of age and older who could read and communicate in English were invited by clinic secretaries to complete an anonymous questionnaire at the time of their appointments. A randomized and rotating schedule for questionnaire administration at the 6 sites was developed to minimize sampling bias. Patients who declined to take a questionnaire and those who returned blank surveys were counted as declining participation in the study.

Questionnaire development

The FHT Patient Perceptions of Care questionnaire included questions from 3 sources: the Primary Care Assessment Tool Adult Expanded Version (PCAT),¹⁸ the Primary Care Assessment Survey (PCAS),¹⁹ and questions developed by the research team. This paper reports on responses to the PCAT, a validated survey instrument with good coverage of primary health care domains.^{11,18,20} The PCAT¹⁸ addresses 4 core domains of PC (first-contact utilization and accessibility, continuity, comprehensiveness, and coordination) and 3 derivative domains (community orientation, family-centredness, and cultural competence) (Table 1).²¹ This

Table 1. The PCAT definitions of domains of primary health care

PRIMARY CARE DOMAIN	PCAT DEFINITION	NO. OF PCAT QUESTIONS
Accessibility	First-contact care <ul style="list-style-type: none"> • Care is first sought from the primary care provider for a new health or medical need • Usual entry point into the health care system • Includes <ul style="list-style-type: none"> -accessibility -utilization 	Access: 12 Utilization: 3
Continuity of care <ul style="list-style-type: none"> • Relational or clinician continuity • Informational or record continuity 	Continuous (ongoing) care <ul style="list-style-type: none"> • Longitudinal use of regular source of care • Relationship over time between providers and patient 	15
Coordination of care	Linking of health care visits and services for appropriate care for all health problems	Coordination of care: 9 Information systems: 3
Comprehensiveness of care	Range of services available and services provided	Services available: 25 Services provided: 13

PCAT—Primary Care Assessment Tool Adult Expanded Version.
Data from Johns Hopkins Primary Care Policy Center.²¹

paper reports on the 4 core domains of PC. The PCAT questions measure the attainment of PC attributes²¹ and address issues such as whether you can be seen the same day if sick (accessibility), whether you are seen by the same doctor or nurse each time (continuity), whether certain services are available (comprehensiveness), and whether your doctor knows the results of consultant visits (coordination),²¹ rather than whether patients are satisfied with aspects of their care. The administrator of each participating aFHT completed a separate survey regarding FHT size, number and type of health care professionals, presence of EMRs, length of operation, and degree of implementation of their FHT plan at the time of the survey.

Sample size

With 1% type I error and 90% power for detecting differences of size greater than or equal to 0.20 between 2 proportions, approximately 200 patients were required per FHT site for a total of 1200 patients across the 6 sites.

Scoring the PCAT

The PCAT uses a 4-point Likert scale to capture patients' responses about the likelihood of occurrence of a positive component of their care (definitely=4, probably=3, probably not=2, definitely not=1, not sure or do not remember=0). Mean scores for each of the PC domains and an overall PC score averaging all 4 key domains were calculated.²² A mean score of 3 was chosen as the minimum expected care level for each domain because the study team considered that an FHT should probably or definitely be offering the attributes of care described by Starfield and colleagues.⁸ Other authors in this area have also chosen 3 (probably) as the minimum expected level for each domain of care.^{12,23,24} Responses were included if answers were provided for at least 50% of items in a scale.

Analysis

Descriptive statistics were used to explore the characteristics of the sample. The PCAT scores were collapsed into 2 categories: less than 3 (below the minimum expected level of care) and 3 or higher (at or above the minimum expected level of care). Multivariate logistic regression models estimated adjusted relative risks of a given outcome (PCAT score level) as a function of patient- and clinic-level characteristics.²⁵ Patient characteristics included age group, sex, marital status, good health, immigrant status, education, employment status, and annual income. Practice characteristics included having a nurse practitioner in the aFHT, more than 10 physicians in the aFHT, use of an EMR, if the aFHT was a distributed site (ie, more than 1 location), and if there was a mental health worker in the aFHT. We investigated the variability of the outcome both within

a clinic and between clinics. If between-clinic variation was observed to be negligible, regression parameters were estimated using ordinary least squares methods. Services provided under the headings of "women's health," "procedural," and "counseling" were grouped in a method similar to that used in a study on comprehensive care by Russell and colleagues.²⁶ The PCAT measure of whether a service was available was collapsed into a binary scale (definitely or probably=yes; probably not or definitely not=no).

Ethics approval was obtained from the hospital research ethics boards associated with the participating aFHTs.

RESULTS

The overall aFHT patient survey response rate was 47.3% (1026 surveys completed out of 2167 surveys distributed); the range was 34.9% to 62.6% across the 6 sites. The number of patients per site ranged from 117 to 234. Participating patients had a mean age of 49.6 years; most were female (71.6%), spoke English at home (93.8%), were married (60.1%), employed (59.0%), and had more than high school education (79.5%) (**Table 2**). Participating aFHTs had been funded for from 14 to 19 months, and FHT business plan implementation scores ranged from 5 to 9 out of 10 (none=1, full implementation=10) (**Table 3**). Participating teams also included chiropractors, dietitians, nurse practitioners, nurses, pharmacists, social workers, and mental health workers in varying combinations. The number of rostered patients per aFHT ranged from 3300 to 50000, and the reported number of daily patient visits ranged from approximately 70 to 200. Each aFHT provided extended hours (eg, 5:00 PM to 8:00 PM) on 2 to 4 days of the week. All provided a telephone health advisory service when closed.

Mean overall PCAT score and domain scores are listed in **Table 4**. The overall PC score (2.92) was just below the minimum expected care level of 3. First contact (accessibility), coordination of information systems, and comprehensiveness of care (services available and provided) were below the defined minimum expected level of care.

Table 5 highlights the patient and practice characteristics that significantly predicted responses above the minimum expected level for each PC domain. No practice or patient characteristics significantly predicted a higher overall PC score. No practice or patient characteristics significantly predicted higher scores on accessibility of care, including practices with 10 or more family physicians. Recent immigrants ($P<.001$) and employed patients ($P=.001$) were significantly less likely to rate continuous (ongoing) care at or above the minimum

expected level. Presence of electronic records was not a predictor of higher scores on coordination of information systems. Patients in aFHTs with a mental health worker were twice as likely to rate comprehensiveness

of services available above the minimum expected level, and those where the aFHT was distributed across different sites were less likely to rate comprehensiveness highly. **Table 6** shows that most respondents were aware of the availability of women's health services; slightly more than half knew that some procedures were available. Although most knew that nutrition counseling was available, only two-thirds knew counseling for mental health or drug or alcohol abuse was available at their aFHTs.

Table 2. Characteristics of family health team patient participants: N = 1026; mean (range) age of patients was 49.6 (18–90) years.

CHARACTERISTIC	n/N (%) [*]
Age group, y	
• ≤ 39	292/953 (30.6)
• 40–64	471/953 (49.4)
• ≥ 65	190/953 (19.9)
Female	686/958 (71.6)
English spoken at home	860/917 (93.8)
Recent immigrant (in Canada ≤ 10 y)	46/918 (5.0)
Marital status	
• Single	215/941 (22.8)
• Married or common law	566/941 (60.1)
• Separated, divorced, or widowed	160/941 (17.0)
Employment	
• Employed	540/916 (59.0)
• Not employed (not employed, student, or retired)	376/916 (41.0)
Education	
• High school or less	196/956 (20.5)
• More than high school	760/956 (79.5)
Household income	
• ≤ \$35 000	189/908 (20.8)
• \$36 000–\$75 000	251/908 (27.6)
• > \$75 000	377/908 (41.5)
• Not sure or declined to answer	91/908 (10.0)
Perception of health as excellent, very good, or good	794/936 (84.8)

^{*}Proportions might not add to 100% owing to rounding.

DISCUSSION

Patients of these aFHTs rated utilization of first-contact care, continuous (ongoing) care, and coordinated care above the minimum expected level of care. Results indicate room for improvement in the PC domains of accessibility of first-contact care, coordination through information systems, and comprehensiveness of services available and provided. Our findings also suggest that recent immigrants might not be optimally served by aFHTs currently. Practice characteristics, such as large numbers of physicians, were not associated with high performance on PC domains. Team practices distributed across multiple sites were also not associated with high performance and were negatively associated with the comprehensiveness of services domain. Presence of EMRs was not associated with improved performance on coordination of information systems.

First contact

Utilization. By far most rated this domain above the minimum expected level, indicating that most participating patients used their aFHT for routine and urgent care. This is not surprising given that participants were recruited from the waiting room, but it also reflects the use of PC in Canada.

Table 3. Characteristics of participating academic FHTs

SITE	LENGTH OF OPERATION, [*] MO	NO. OF FHT SITES	DEGREE OF IMPLEMENTATION OF FHT PLAN (SCALE 1–10) [†]	NO. OF ROSTERED PATIENTS	NO. OF FAMILY DOCTORS [‡]	NO. OF FAMILY MEDICINE RESIDENTS [‡]	NO. OF OTHER HEALTH CARE PROFESSIONALS [‡]	EMR
1	15	1	8	12 000	11	20	14	Yes
2	18	1	5	8000	14	26	8	Yes
3	19	2	9	6000	4	15	6	Yes
4	16	> 1	5	About 50 000	NA [§]	NA [§]	NA	Yes
5	NA [§]	2	7	About 3300	17	20	10	No
6	14	1	7	9600	20	20	6	No

EMR—electronic medical record, FHT—family health team, NA—not available.

^{*}Length of operation was calculated as the time between the date funding was received and the end date of the study.

[†]Scale ranged from 1 = none to 10 = full implementation.

[‡]Doctors, residents, and health care professionals includes full-time and part-time practitioners.

[§]Information was not provided by FHT managers.

Table 4. The PCAT scores

PCAT DOMAIN	N*	MEAN (SD) SCORE	PATIENTS RATING <3.0, %
First-contact utilization	1005	3.70 (0.43)	4.2
First-contact accessibility	909	2.28 (0.36)	96.5
Continuous (ongoing) care	865	3.31 (0.50)	24.2
Coordination of care	680	3.35 (0.61)	22.5
Coordination of information systems	928	2.67 (0.62)	63.0
Comprehensiveness of services available	727	2.83 (0.50)	61.3
Comprehensiveness of services provided	787	2.36 (0.98)	65.1
Overall primary care score†	418	2.92 (0.34)	NA

NA—not applicable, PCAT—Primary Care Assessment Tool Adult Expanded Version.
 *Responses were included if answers were provided for at least 50% of items in a scale.
 †Includes patients who completed at least 50% of items in all scales.

Accessibility. Other Canadian studies have shown similar problems with first-contact accessibility, with Haggerty and colleagues¹² and Tourigny and colleagues²³ reporting mean scores of 2.3 and 2.27, respectively, at the beginning of PC reform and family medicine group implementation in Quebec. We did not find any significant patient or practice predictors of accessibility. More findings related to access are reported in a companion paper in this issue (page e31).²⁷

Continuity

Our mean relational continuity score of 3.31 compares with those of Haggerty et al (3.35) and Tourigny et al (3.49).^{12,23} Continuity addresses the nature and strength of “the person-focused relationship with the source of care over time.”¹⁸ It is concerning that employed patients, who reflect almost 60% of the study population, and recent immigrants, reported lower scores for continuity of care. Continuity of care with a physician has been associated with improved receipt of preventive care,²⁸⁻³⁰ lower use of emergency services,²⁹ and lower admission rates to hospital.³¹ Starfield comments that “it is not the type of PC providers that make the difference, but, rather, the functions they perform that are

Table 5. Significant predictors of scores ≥3.0 on primary care domains: There were no significant predictors for first-contact access.

DOMAIN	RR	95% CI	P VALUE
First-contact utilization			
• Age group: ≥ 65 y vs < 65 y	1.06	1.01-1.12	.01
• Marital status: married or common law vs single	1.04	1.01-1.08	.02
• Marital status: separated, divorced, or widowed vs single	1.06	1.01-1.10	.015
• Employed vs not employed	1.04	1.01-1.07	.034
Continuous (ongoing) care			
• Age group: 40-64 y vs < 40 y and ≥ 65 y	1.18	1.07-1.31	.001
• Health is excellent, very good, or good vs fair or poor	1.26	1.10-1.44	<.001
• Lived in Canada ≤ 10 y vs > 10 y	0.65	0.51-0.84	<.001
• Employed vs not employed	0.84	0.76-0.94	.001
Coordination of care			
• Age group: 40-64 y vs < 40 y and ≥ 65 y	1.18	1.04-1.32	.008
• Age group: ≥ 65 y vs < 65 y	1.25	1.06-1.48	.01
• More than high school education vs high school education or less	0.83	0.70-0.98	.03
Coordination of information systems			
• Age group: 40-64 y vs < 40 y and ≥ 65 y	1.48	1.15-1.91	.002
• Age group: ≥ 65 y vs < 65 y	1.65	1.17-2.33	.004
• Employed vs not employed	0.74	0.59-0.94	.01
Comprehensiveness of services available			
• Distributed site vs not a distributed site	0.60	0.39-0.94	.02
• Mental health worker in FHT vs no mental health worker	2.14	1.25-3.67	.006
• Income \$36 000-\$75 000 vs ≤ \$35 000 and > \$75 000	0.65	0.49-0.88	.005
• Income > \$75 000 vs ≤ \$75 000	0.73	0.54-0.99	.04
Comprehensiveness of services provided			
• Income > \$75 000 vs ≤ \$75 000	0.71	0.52-0.98	.03

FHT—family health team, RR—relative risk.

Table 6. Comprehensiveness of selected services: Overall comprehensiveness score (mean of services available) was 67.8%.

PRIMARY CARE SERVICE	PATIENTS WHO INDICATED THAT THE SERVICE WAS PROBABLY OR DEFINITELY AVAILABLE AT THEIR FHTS, N/N (%)
Women's health	
• Antenatal care	664/862 (77.0)
• Papanicolaou test	761/895 (85.0)
• Family planning or birth control	631/873 (72.3)
Procedural	
• Suturing	491/896 (54.8)
• Allergy shots	648/895 (72.4)
• Wart treatment	595/884 (67.3)
• Splinting for a sprained ankle	481/886 (54.3)
• Removal of an ingrown toenail	484/878 (55.1)
Counseling	
• Nutrition	817/942 (86.7)
• Alcohol or drug abuse	506/885 (57.2)
• Mental health	573/893 (64.2)

FHT—family health team.

responsible for the benefit,⁷⁷ raising the potential for a “usual source of care” or team to provide continuity. “Continuity of the relationship the patient has with the health care team” has been described as a new dimension of continuity of care.³² To date, most longitudinal PC has reflected care over time with a particular provider rather than with a team or site. A recent study of care provided at a Canadian family medicine teaching clinic showed that, although patients were generally satisfied with care, those who were less satisfied had reduced continuity with their usual doctor.³³ They found that more satisfied patients “felt connected through other members of the health care team,” most often with the family practice nurse.³³ More work is needed to look at patient satisfaction with longitudinal care as patients become familiar with teams and nonphysician health care providers, and as teams try different approaches to improve continuity.

Coordination

The presence of EMRs was not associated with significantly higher scores on coordination of information systems, which might be related to the early stage of aFHT development and EMR implementation in the participating practices.

Comprehensiveness

Russell and colleagues²⁶ showed that increased number and diversity of providers in the practice, rurality, and length of practice operation were associated with better comprehensiveness scores. We had similar findings

regarding the presence of allied health professionals, but larger numbers of physicians in the aFHT did not significantly predict ratings of comprehensiveness of services provided. All of the services listed in **Table 6** would have been available at these aFHTs from family physicians or allied health providers. The services provided by the new allied health professionals in aFHTs might not have been well publicized, or patients might not have paid attention to services they were not in need of. Academic FHTs might need to target informational approaches (eg, television in the waiting room, brochures, website). More than a third of respondents were not aware that counseling for mental health or alcohol and drug abuse was available at their aFHTs. This might be related to poor communication, or these patients might not have required these services so were not made aware of them. In order to gain the benefits of a strong PC system, patients must be aware of services that can be accessed at their clinics rather than using emergency departments or urgent care clinics.

Limitations

Surveying patients in the clinic waiting room has limitations. Reception staff might miss potential subjects,³⁴ and findings reflect only those patients who are attending the clinic. The response rate was reasonable but might have been biased toward either high or low rating of PC domains. Some findings were limited by sample size. For example, the findings related to recent immigrants are interesting but are limited by low numbers. The questionnaire was long and respondents might have suffered from questionnaire fatigue. This study took place in aFHTs in Toronto and might not be generalizable to other academic teams, particularly those in rural locations.

Conclusion

This study highlights the importance of developing strategies to improve access, continuity, and information about available services for populations served by aFHTs. A future study will evaluate any changes that were implemented following presentation of these findings to participating aFHTs, and corresponding patient ratings. This reflective process is important to ensure that aFHTs provide examples of effective models of PC to learners of all disciplines.

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Contributors

Drs Carroll and Talbot, Ms Permaul, Ms Tobin, Drs Blaine and Butt, Ms Kay, and Dr Telner contributed to the design of the study. **Dr Carroll, Ms Permaul, Ms Tobin, and Dr Moineddin** contributed to the analysis. All authors contributed to writing and editing the manuscripts and approved the final version submitted.

Competing interests

None declared

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