Evaluating the implementation of collaborative teams in community family practice using the Primary Care Assessment Tool

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Abstract

Objective To examine patients' perceptions of care outcomes following the introduction of collaborative teams into community family practices.

Design Cross-sectional, longitudinal study comprising 4 patient telephone surveys between 2007 and 2016, using random sampling of telephone records based on postal codes.

Setting Ten WestView Primary Care Network (WPCN) clinics in Alberta, serving a suburban-rural population of approximately 89 000 and an aggregate clinic panel of 61 611 (in 2016).

Participants Adults aged 18 and older with a visit to a family physician in a WPCN clinic at least once in the previous 18 months.

Interventions In 2006, WPCN implemented a decentralized and distributed collaborative team model, integrating nonphysician health care professionals into member clinics.

Main outcome measures The Primary Care Assessment Tool (PCAT) was used to evaluate standardized primary care delivery domains. Between-year changes were compared using ANOVA (analysis of variance). Clinic-level subgroup analyses were performed.

Results The number of completed surveys included 896 in 2007, 904 in 2010, 1000 in 2013, and 1800 in 2016, reaching 90% to 100% of the targeted sample size. In aggregate, the WPCN PCAT summary score and the scores of 4 core and 2 ancillary domains of primary care exceeded the quality threshold of 3.0: extent of affiliation, ongoing care, first-contact utilization, coordination of care, family-centredness, and cultural competence. The first-contact access domain significantly improved from 2007 to 2016 ($P<.001$). The domains extent of affiliation, first-contact utilization, and coordination of information systems were unchanged. Ongoing care, coordination of care, comprehensiveness, family-centredness, community orientation, and cultural competence decreased. Except for in 2010, the 2 highest scoring clinics were non-participating solo practices; the lowest-scoring clinic was the one with the largest number of physicians. Across survey years, the PCAT summary score increased statistically significantly for 1 solo practice, remained consistent at an above-quality threshold for another, but decreased for all multi-physician clinics. Unattached patients (ie, those without a family doctor) scored the lowest.

Conclusion This study found that WPCN provides high-quality primary care overall, but that patient-perceived outcomes do not indicate global improvement concurrent with team-based initiatives. Decreased standardization of the distributed model likely influenced study-observed variations in clinic performance. Future research should identify clinic and team characteristics that benefit most from team-based care and factors that explain solo practices outperforming models of team-based care.

Editor's key points

▸ The objective of this study was to examine patients' perceptions of primary care within the WestView Primary Care Network (WPCN)—a network of community-based family practice clinics currently serving a suburban-rural population in Alberta—following implementation of collaborative teams in community family practice clinics.

▸ The Primary Care Assessment Tool (PCAT) was used to measure 7 core domains and 3 ancillary domains of primary care; a mean score of 3.0 was chosen as the minimum expected quality level for the PCAT score. This study found that WPCN primary care services consistently exceeded established standards for the overall PCAT summary score, as well as in 6 of the core and ancillary domains: extent of affiliation, ongoing care, first-contact utilization, coordination of care, family-centredness, and cultural competence.

▸ A global improvement in primary care delivery in the WPCN measured by the PCAT was not found, suggesting that team-based care might have introduced complexity into patient management.

Évaluation à l'aide de l'outil d'évaluation des soins primaires : les équipes collaboratives en pratique familiale communautaire

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Résumé

Objectif Examiner la façon dont les patients perçoivent les résultats des soins à la suite de l'implantation d'équipes collaboratives dans des pratiques familiales communautaires.

Type d'étude Étude longitudinale transversale, comportant 4 sondages téléphoniques auprès de patients entre 2007 et 2016, à l'aide d'un échantillon aléatoire de dossiers téléphoniques en se fondant sur le code postal.

Contexte Dix cliniques du Réseau de soins primaires WestView (RSPW) en Alberta, desservant une population de banlieue et rurale d'environ 89 000 personnes, et une représentation clinique globale de 61 611 (en 2016).

Participants Les adultes âgés de 18 ans et plus qui avaient consulté un médecin de famille d'une clinique du RSPW au moins 1 fois au cours des 18 mois précédents.

Interventions En 2006, le RSPW a mis sur pied un modèle décentralisé et réparti d'équipes collaboratives, qui intégrait des professionnels de la santé autres que médecins dans les cliniques membres.

Principaux paramètres à l'étude Le Primary Care Assessment Tool (PCAT ou outil d'évaluation des soins primaires) a été utilisé pour évaluer les domaines normalisés de la prestation des soins primaires. Les changements d'une année à l'autre ont été comparés à l'aide d'ANOVA (analyse des variations). Des analyses de sous-groupes sur le plan des cliniques individuelles ont été réalisées.

Résultats Le nombre de sondages effectués était de 896 en 2007, de 904 en 2010, de 1000 en 2013, et de 1800 en 2016, atteignant 90 à 100 % de l'ampleur de l'échantillonnage visée. Dans l'ensemble, la note de synthèse du RSPW évaluée avec l'outil PCAT et les scores obtenus pour 4 domaines principaux et 2 domaines complémentaires des soins primaires étaient supérieurs au seuil de qualité établi à 3,0 : ampleur de l'affiliation, soins sur une base continue, utilisation comme premier contact, coordination des soins, centralité sur la famille et compétence culturelle. De 2007 à 2016, l'accès comme premier point de contact s'est amélioré de manière significative ($p < ,001$). Aucun changement n'a été observé dans les domaines suivants : ampleur de l'affiliation, utilisation comme premier contact et coordination des systèmes d'information. Les résultats pour les domaines de la continuité des soins, de la coordination des soins, de l'intégralité des soins, de la centralité sur la famille, de l'orientation axée sur la communauté et de la compétence culturelle ont connu une baisse. Sauf en 2010, les 2 cliniques qui ont obtenu les notes les plus élevées étaient des pratiques en solo non participantes ; celle qui a reçu les notes les plus basses était celle qui comptait le plus grand nombre de médecins. Au fil des années à l'étude, la note de synthèse mesurée avec le PCAT a augmenté de manière statistiquement significative dans 1 pratique en solo, est demeurée la même, à un niveau supérieur au seuil de qualité dans 1 autre, mais a connu une baisse dans toutes les cliniques comptant de nombreux médecins. Les patients orphelins (ceux sans médecin de famille) ont accordé les notes les plus faibles.

Conclusion Cette étude a permis de constater que le RSPW offre, dans l'ensemble, des soins primaires de grande qualité, mais que les résultats perçus par les patients n'indiquent pas d'amélioration globale parallèlement aux initiatives fondées sur les équipes. Une normalisation réduite du modèle réparti a probablement influé sur les variations observées au cours de l'étude dans le rendement des cliniques. De futures recherches devraient se pencher sur les caractéristiques des cliniques et des équipes qui profitent le plus des soins en équipe, de même que sur les facteurs qui expliquent que les pratiques en solo ont un rendement supérieur à celui des soins dispensés en équipe.

Points de repère du rédacteur

▸ L'étude visait à examiner la perception qu'ont les patients des soins primaires au sein du RSPW, un groupe de cliniques de pratique familiale communautaire, qui dessert une population de banlieue et rurale en Alberta, après la mise en œuvre d'équipes collaboratives dans ces cliniques.

▸ Le Primary Care Assessment Tool (PCAT ou outil d'évaluation des soins primaires) a servi pour mesurer 7 principaux domaines et 3 domaines complémentaires des soins primaires; un score moyen de 3,0 a été choisi comme niveau de qualité minimal attendu. L'étude a conclu que les services de soins primaires du RSPW excédaient constamment les critères établis pour la note de synthèse du PCAT dans l'ensemble, de même que dans 6 des domaines principaux et complémentaires : ampleur de l'affiliation, soins sur une base continue, utilisation comme premier contact, coordination des soins, centralité sur la famille et compétence culturelle.

▸ Le PCAT n'a révélé aucune amélioration globale dans la prestation des soins primaires dans le RSPW, ce qui laisse entendre que les soins en équipe pourraient avoir accru la complexité dans la prise en charge des patients.

Much attention has been placed on improving primary health care delivery and understanding the components of high-quality care. Previous work has identified core quality indicators as first-contact accessibility, ongoing care (relational continuity), family-centred care, population orientation, and intersectoral teamwork.[1] Primary health care reform in Canada has focused largely on team-based care.[2] The presence of allied health professionals in primary care models has been associated with lower rates of emergency department visits and death after discharge from hospital,[3] as well as increased quality in primary care indicators.[4] The objective of this study was to examine patients' perceptions of primary care within the WestView Primary Care Network (WPCN) in Alberta following the implementation of collaborative teams in member community family practice clinics.

—— Methods ——

This is a longitudinal study that evaluates patients' WPCN experience by measuring Primary Care Assessment Tool (PCAT)[5] scores derived from survey data of all WPCN-member clinic patient panels, including those clinics not participating in the collaborative team initiative.

Study setting

WestView Primary Care Network[6] is a network of community-based family practice clinics currently serving a suburban-rural population of approximately 89 000 in Alberta. Established in 2005 as a provincial initiative to improve primary care delivery, WPCN has doubled from 5 to 10 family practices and has increased from 35 to 45 family physician members since inception.

The network set collaborative team-based care in a distributed "medical home" model[7] as its top priority, and has allocated a substantial budget toward this initiative since 2006.

Study population and sampling method

The study population included adults aged 18 years and older residing within the WPCN catchment area who had visited a WPCN family physician at least once in the previous 18 months.

Four cycles of cross-sectional patient surveys were conducted over 9 years by 2 Alberta-based independent research firms—Howard Research (2007, 2010) and Banister Research (2013, 2016)—using a computer-assisted telephone interviewing system administered by live interviewers. Random sampling generated a list of residential telephone numbers (from a database based on postal codes), which were contacted until the targeted sample size was reached.

Based on a 95% confidence level, 5% margin of error, and known sizes of the WPCN catchment and panel populations, and with consideration of proportional representation by age and sex, a minimum sample size requirement of 382 responses per survey was determined. To ensure power for stratification by clinics for subgroup analyses, clinic-specific sample sizes were calculated based on each clinic's panel size. As a result, target sample sizes were 1000 respondents in 2007, 2010, and 2013, and 1800 respondents in 2016, with a minimum of 50 survey respondents for multi-physician clinics.

Intervention

In 2006, WPCN began implementation of collaborative team-based care as a priority initiative that integrates nonphysician health care professionals into the family practice care team, including nursing, pharmacy, social work, and mental health professionals. In 2010, the proactive office encounter technician (POET) role was created based on the Kaiser Permanente concept[8] and using the Alberta Screening and Prevention framework.[9] These POETs are trained medical office assistants or licensed practical nurses who prepare prompts displayed in the electronic medical record for the attending physician at the time of the office encounter.

WestView Primary Care Network's decentralized model allows site-specific implementation and clinic-level governance of the contractual relationships between clinics and collaborative teams. The network provides overarching guidelines and vision for the program, as well as operational support (eg, contract templates, orientation, training).

Since 2006, WPCN provided targeted funding for clinics implementing team-based services, and team-to-physician ratios increased from 0.25 to 1.22 between 2007 and 2016. Two solo-practice clinics declined the team intervention.

Outcome measurement

Survey questions incorporated items from the PCAT, adult short version; survey questions and operational definitions of the PCAT-measured primary care domains are available at **CFPlus**.* Outcome measures are survey response–generated PCAT scores.

The PCAT was developed by the Johns Hopkins Primary Care Policy Center for the Underserved to evaluate quality and comprehensiveness of primary care services. It is a validated tool measuring patients' primary care experience and can be used to assess the effect of policy and system changes on the delivery of critical aspects of primary care.[5,10]

The PCAT measures extent of affiliation and 6 other core domains of primary care: ongoing care (relational

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continuity), first-contact utilization, first-contact access, coordination of care, coordination of information systems, and comprehensiveness. It also measures 3 ancillary domains: family-centredness, community orientation, and cultural competence.[5,10,11] The operational definitions of PCAT domains are available at **CFPlus**.* Each domain is evaluated using a 4-point Likert scale (4=definitely; 3=probably; 2=probably not; and 1=definitely not). The 3 ancillary domains were excluded from our tabulation of the PCAT summary primary care score, as they were not measured in 2010 owing to budget constraints. A mean score of 3.0 was chosen as the minimum expected quality level for the PCAT score, consistent with previous literature.[12-15]

To determine if clinics varied in chronic disease burden, we added a study-specific question asking each respondent if he or she has "any physical, mental, or emotional problem that has lasted longer than 1 year?"

Statistical methods

Between-year changes at the WPCN level in overall PCAT summary and PCAT subscale scores were compared using 1-way ANOVA (analysis of variance). An additional subgroup analysis of both summary and subscale PCAT scores was performed for individual clinics. Subsequent 2-way analyses were performed to explore between-clinic differences; Pearson χ^2 tests were used for nominal variables. A significance level of $P<.05$ was employed for all statistical tests. All data analyses were performed using SPSS, version 21.0.

Ethics approval was obtained from the University of Alberta Health Research Ethics Board.

—— Results ——

Response rates were 64.59% in 2007, 45.56% in 2010, 54.90% in 2013, and 37.67% in 2016. We cannot explain the noted decline but speculate that "survey fatigue" might be a societal phenomenon over the same period of study. The study did not collect information on non-responders to the telephone survey who might have had a different experience of care. However, the numbers of completed surveys were 896 in 2007, 904 in 2010, 1000 in 2013, and 1800 in 2016, which reached 89.60%, 90.40%, 100.00%, and 100.00%, respectively, of the targeted sample size (**Table 1**).

Respondents were categorized into subgroups: WPCN users (individuals who named a WPCN-member physician as their family doctor) for WPCN-level analyses; unattached (individuals who reported having no family doctor); and WPCN nonusers (individuals naming a family doctor who was not a WPCN-member physician), which is a subgroup that was excluded from study analyses. Characteristics of the 3 groups are reported in **Table 2**.

Characteristics of clinics and PCAT scores, by clinic, per year administered, are available at **CFPlus**.*

Results of PCAT scores at aggregate WPCN level

Results of the PCAT subscale and summary scores for the WPCN user group are shown in **Figure 1**.[13] Across survey years, both the summary score and 6 of 10 PCAT subscales were greater than the threshold level of 3.0, indicating high-quality primary care delivery. No significant change was seen in measures of extent of affiliation (strength of attachment) and first-contact utilization; the first scored near perfect at above 3.92 and the latter scored around 3.80 consistently. While first-contact access showed a significant improvement ($P<.001$) from 2007 to 2016 among the core domains, it and coordination of information systems persisted at below-threshold performance in all survey years. Despite significant decreases ($P<.001$) in subscales measuring ongoing care (relational continuity), coordination of care, and comprehensiveness (services provided), as well as in all 3 ancillary domains, only comprehensiveness and community orientation fell below the threshold score of 3.0 in any of the survey years.

Results of PCAT scores at clinic level

A subgroup analysis explored PCAT survey results at a clinic level and these are shown in **Figure 2**. Mean PCAT summary scores across individual clinics ranged from 3.32 to 3.50 in 2007 ($P=.809$), 2.97 to 3.30 ($P=.370$) in 2010, 3.06 to 3.46 ($P=.005$) in 2013, and 3.12 to 3.47 ($P<.001$) in 2016. Except for in 2010, the 2 highest-scoring clinics were solo-practice clinics that did not participate in the collaborative team initiative, and the lowest scoring clinic was the clinic with the largest number of physicians. Across survey years, the score increased statistically significantly for 1 solo practice, remained consistent at above the quality threshold for another, but decreased for all multi-physician clinics. There were no between-clinic differences in the proportions of chronic illness sufferers for all survey years.

In 2013 and 2016, unattached patients scored the lowest of any surveyed patients, with mean PCAT summary scores of 2.32 and 2.00, respectively.

—— Discussion ——

Our results indicate that the aggregate-WPCN primary care services consistently exceeded established standards for the overall PCAT summary score and in 4 core and 2 ancillary domains of primary care: extent of affiliation (strength of attachment), ongoing care (relational continuity), first-contact utilization, coordination of care, family-centredness, and cultural competence. Their PCAT scores compare favourably to those published in other Canadian jurisdictions.[12]

WestView Primary Care Network performance perpetuated at below-target thresholds in 3 core domains and 1 ancillary domain: first-contact access, coordination of information systems, comprehensiveness

(services provided), and community orientation. Informational continuity outside the clinic is perceived as a "macro-system" challenge. Despite augmented preventive care including the support of POETs in our model, busy family practices struggle to have those conversations with patients. Low "community orientation" scoring might speak to WPCN's ongoing failure to authentically engage patients in the codesign of the "patient-centred medical home."

Although scoring the lowest of all core domains across survey years and failing to reach the target quality threshold by 2016, the WPCN-level access indicator (2.41) showed the most improvement over the study period coinciding with escalating support for team resources. Other work has found associations between accessibility and team care.[13] Our findings are consistent with Canadian studies that have identified first-contact

accessibility as a challenge, with mean scores of 2.30 reported in Quebec[13] and 2.28 in Ontario.[12]

Overall, WPCN did not show a global improvement in primary care delivery measured by the PCAT; this suggests that team-based care might have introduced complexity into patient management, as discussed in previous studies about the Ontario family health teams[12] and the Quebec implementation of family medicine groups.[14] Our results provide convergent evidence pointing to the challenges of implementing team-based care in the community family practice. We propose that the relatively low team-to-physician ratios (optimal ratios have been reported as between 2:1 and 4:1[16,17]), the "physician as gatekeeper" model, and fee-for-service physician remuneration continue to hinder optimal team-based care and access.

Our subgroup analysis demonstrates statistically significant variation in PCAT scores between individual

Table 1. Study population, sampling, response rates, and respondent subgroups

DESCRIPTIONS	2007	2010	2013	2016
Study population				
WPCN catchment population,* N	71 864	77 148	82 707	88 892
WPCN family practice clinics, N	6	7	7	10
WPCN family physicians, N	35	43	50	45
WPCN family practice panel (ie, patients attached to WPCN-member family practice clinics),† N	49 377	53 396	61 637	61 611
Age,† %				
• 0-19 y	29.60	26.90	26.50	26.10
• 20-64 y	61.30	62.60	62.20	61.60
• ≥65 y	9.70	10.40	11.30	12.30
Male sex,† %	49.60	50.10	49.30	50.10
Sampling				
Target sample size for surveys, N	1000	1000	1000	1800
Survey results				
Response rate, %	64.59	45.56	54.90	37.67
Completed surveys—respondent sample size, N	896	904	1000	1800
Respondent subgroup				
WPCN users,‡ n (%)	832 (92.86)	717 (79.31)	861 (86.10)	1676 (93.11)
Unattached,§ n (%)	35 (3.91)	21 (2.31)	20 (2.00)	35 (1.94)
WPCN nonusers,‖ n (%)	28 (3.13)	160 (17.7)	119 (11.90)	89 (4.94)
Other (do not know or cannot provide), n (%)	1 (0.11)	6 (0.66)	0 (0.00)	0 (0.00)

WPCN—WestView Primary Care Network,
*Population of Spruce Grove, Stony Plain, and Parkland County in Alberta (Alberta Health Services Department of Population Health Surveillance and Reporting, written communication, 2018).
†These data come from WPCN administrative records based on data provided by Alberta Health semi-annual payment reports to WPCN 2007-2016 (unpublished data). *WPCN panel* refers to the total number of Albertans informally enrolled to member physicians of the WPCN per Alberta Health proxy attachment methodology.
‡*WPCN users* refers to respondents who had visited a WPCN-member physician or clinic at least once in the previous 18 months and who had named a WPCN-member physician as their family doctor.
§*Unattached* refers to respondents who reported having no family doctor.
‖*WPCN nonusers* refers to respondents naming a family doctor who was not a member physician of WPCN. This group was excluded from analyses in this study.

clinics. WestView Primary Care Network's distributed model of collaborative team and governance provides flexibility for individual clinics to best serve clinic patients' specific needs, but also leads to a lack of standardization across clinics, which likely affected the outcomes observed. It is also noted that the 2 solo practices that did not participate in the WPCN-resourced team initiative performed highest in PCAT scores; and, consistent with previous work,[13] clinics with fewer physicians performed better on the access subscale than larger clinics did.

Table 2. Characteristics of survey respondents, by subgroup

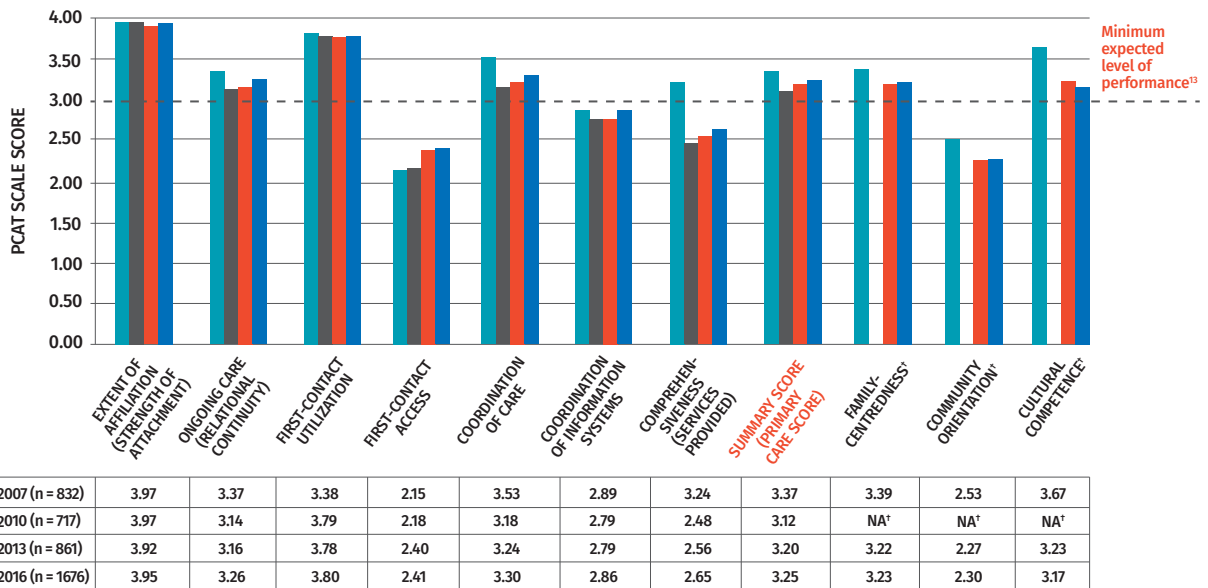| CHARACTERISTICS, BY SUBGROUP	2007	2010	2013	2016
WPCN users*				
• Respondents, N (%)	832 (92.90)	717 (79.30)	861 (86.10)	1676 (93.10)
• Mean (SD) age, y	47.9 (16.6)	51.60 (15.1)	49.0 (16.7)	53.7 (16.4)
• Male sex, %	43.50	35.70	46.50	46.90
• Chronic disease: "Yes," %	41.90	23.10	19.40	22.90
• Employed, %	56.70	52.70	64.00	54.10
• Not employed, %	7.70	4.50	2.90	6.00
• Did not finish high school,%	24.20	16.70	14.50	14.50
• Finished university or vocational school, %	32.10	37.70	41.40	41.90
• Household income <$34 999, %	20.70	24.30	14.60	NA
• Household income >$80 000, %	41.10	41.80	55.40	51.60
Unattached†				
• Respondents, N (%)	35 (3.91)	21 (2.31)	20 (2.00)	35 (1.94)
• Mean (SD) age, y	37.4 (12.1)	44.1 (18.2)	42.5 (14.5)	48.6 (16.7)
• Male sex, %	51.40	33.30	60.00	57.10
• Chronic disease: "Yes," %	37.10	19.00	10.00	20.00
• Employed, %	68.50	66.60	80.00	60.00
• Not employed, %	11.40	4.80	10.00	11.40
• Did not finish high school, %	37.10	28.60	10.00	5.70
• Finished university or vocational school, %	25.70	33.30	60.00	48.60
• Household income <$34 999, %	21.40	27.80	5.90	NA
• Household income >$80 000, %	35.70	33.30	76.50	52.90
WPCN nonusers‡				
• Respondents, N (%)	28 (3.13)	160 (17.7)	119 (11.90)	89 (4.94)
• Mean (SD) age, y	53.7 (21.1)	51.8 (14.8)	47.1 (15.7)	58.9 (14.1)
• Male sex, %	25.00	33.10	42.90	39.30
• Chronic disease: "Yes," %	39.30	22.00	16.90	26.10
• Employed, %	50.00	55.10	71.40	55.40
• Not employed, %	3.60	2.50	2.50	7.90
• Did not finish high school, %	25.00	17.50	5.90	14.60
• Finished university or vocational school, %	28.60	38.80	43.70	50.60
• Household income <$34 999, %	31.80	21.90	10.20	NA
• Household income >$80 000, %	40.90	48.10	64.80	50.60

NA—not available, WPCN—WestView Primary Care Network.
*WPCN users refers to respondents who had visited a WPCN-member physician or clinic at least once in the previous 18 months and who had named a WPCN-member physician as their family doctor.
†Unattached refers to respondents who reported having no family doctor.
‡WPCN nonusers refers to respondents naming a family doctor who was not a member physician of WPCN. This group was excluded from analyses in this study.

Figure 1. The PCAT scores* over time (2007, 2010, 2013, and 2016) at the WPCN level: *Assessment of primary care received, by WPCN user population (multiyear telephone surveys—WPCN catchment residents).*

|	EXTENT OF AFFILIATION (STRENGTH OF ATTACHMENT)	ONGOING CARE (RELATIONAL CONTINUITY)	FIRST-CONTACT UTILIZATION	FIRST-CONTACT ACCESS	COORDINATION OF CARE	COORDINATION OF INFORMATION SYSTEMS	COMPREHEN-SIVENESS (SERVICES PROVIDED)	SUMMARY SCORE (PRIMARY CARE SCORE)	FAMILY-CENTREDNESS†	COMMUNITY ORIENTATION†	CULTURAL COMPETENCE†
2007 (n = 832)	3.97	3.37	3.38	2.15	3.53	2.89	3.24	3.37	3.39	2.53	3.67
2010 (n = 717)	3.97	3.14	3.79	2.18	3.18	2.79	2.48	3.12	NA†	NA†	NA†
2013 (n = 861)	3.92	3.16	3.78	2.40	3.24	2.79	2.56	3.20	3.22	2.27	3.23
2016 (n = 1676)	3.95	3.26	3.80	2.41	3.30	2.86	2.65	3.25	3.23	2.30	3.17

NA—not applicable, PCAT—Primary Care Assessment Tool, WPCN—WestView Primary Care Network.

*The PCAT scores range from 0 to 4, with higher scores indicating better performance.

†The 3 ancillary domains (family-centredness, community orientation, and cultural competence) were excluded from the PCAT summary primary care score, as they were not measured in 2010 owing to budget constraints.

Figure 2. The PCAT summary scores, by clinic
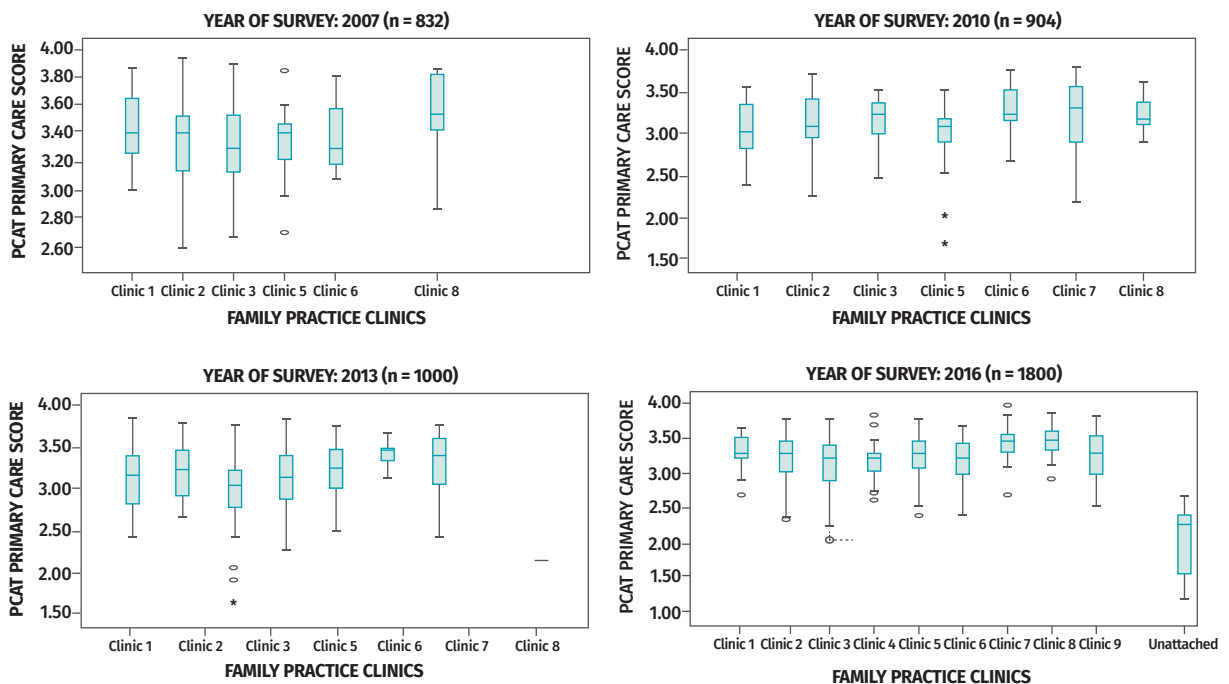
PCAT—Primary Care Assessment Tool.

This supports that high-quality primary care is dependent on many determinants.[18] This study suggests that appropriate investment in team-based care might be necessary but not sufficient to achieve all the outcomes desired. A broader understanding and strengthening of those determinants of high-functioning primary care systems is desirable in addition to team resourcing.

Finally, lower PCAT scoring by unattached patients confirms the importance of attachment: patients' health care experience improves when they are attached to a family doctor, supporting the health policy objective of increasing patient attachment to family physicians.

Limitations

Our longitudinal study results are observational and do not account for the emergence of many changing independent variables over time. The PCAT evaluates patient perceptions of their primary care services but is not designed to objectively evaluate system integration, equity, or efficiency.

Conclusion

The WPCN model has been associated with primary care that exceeds established thresholds for high-quality service delivery; however, non-participating solo family practices scored higher than multi-physician clinic implementing teams did. Concurrent with implementation of team-based care, WPCN first-contact access improved from 2007 to 2016, but this improvement was not seen for other domains of the PCAT, some of which decreased over time. Future interventions should continue to target access and transition of care, and prioritize attachment of patients to family physicians. Decreased standardization of the distributed model had likely influenced study-observed variations in clinic performance. Future research should identify clinic and team characteristics that benefit most from team-based care and factors that explain solo practices outperforming models of team-based care. 🍁

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