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Accessibility and Continuity of Primary Care in Quebec

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Key Implications for Decision Makers

- Clinics with acceptable accessibility and continuity of care have key features in common: evening walk-in and scheduled care; fewer than 10 physicians; and established operational links with other healthcare organizations. Their physicians have effective ways of meeting the urgent care needs for their patients and they see approximately four patients per hour.
- Patients with good, ongoing relationships with their physician experience benefits from that “continuity of care” — better co-ordination of care between their primary care physicians and specialists and more complete advice on preventing illness and maximizing health.
- Primary care clinics in Quebec and individual physicians tend to offer either continuity (the doctor knows the patient well and spends time on each visit) or accessibility (it is easy to get in when illness strikes), but patients need both.
- More than one in five people in Montreal don’t have a regular family physician; overall 16 percent of patients surveyed had no family doctor, and the number is probably higher in the general population. People without family doctors don’t get good continuity of care — they receive less preventive care and are more likely to use the emergency room.
- The average wait for Quebeckers who want an appointment with their family physician is 24 days; only 20 percent of 3,441 patients interviewed thought they could see a doctor quickly if they suddenly became ill.

Executive Summary

Provincial and national commissions looking into healthcare say every citizen should have a primary care physician who assumes principal responsibility for the majority of a patient's healthcare needs. There are repeated calls for reforms that would turn the primary care system into a clinical environment that ensures accessible, continuous, comprehensive care, and efficiently and effectively co-ordinates a patient's dealings with other levels of care.

We studied the state of accessibility, continuity, and co-ordination of primary medical care in Quebec in 2002 as the province embarked on a reorganization of its primary care system. We wanted to identify the elements in clinics and physician practices that are associated with better primary care.

In total, 3,441 patients were interviewed at 100 randomly selected community and private primary care clinics in urban, suburban, rural, and remote areas of Quebec.

Results and implications

We found that although patients like and trust their doctors, overall primary care barely meets their minimum expectations. Patients without a regular physician have less access to care and experience poorer continuity and co-ordination of care. In the region of Montreal, 22 percent of those we surveyed did not have a regular physician; that rose to 34 percent among those interviewed in walk-in clinics. Things were little better outside the city. Those patients receive less preventive care and are more likely to have used the emergency room in the last year. Overall, 16 percent of patients surveyed did not have a regular personal physician; that percentage is likely higher in the general population.

We found that “first-contact accessibility” — the ease with which people can initiate contact with their healthcare provider for a new problem — was considerably below minimum expectations. The chance of being seen was better if patients got sick during the clinic's opening hours, but were almost nil if they needed help at night or on the weekend.

The survey also showed that co-ordination of care and preventive care were barely at minimum acceptable levels. Nevertheless, patients felt a strong affiliation to their doctors

and trusted them to provide care in keeping with their medical needs and personal context (“relational continuity”).

Walk-in clinics tend to perform poorly on continuity and preventive care, but they are the regular source of care for 60 percent of the patients we interviewed in them, and we found that some walk-in doctors strive to provide continuity of care. Clearly, walk-in clinics meet the needs of patients without regular doctors, and are the only source of continuity of care for a significant proportion of patients.

A policy of assigning a roster of patients to a physician will probably ensure better access and continuity, but the plight of those who do not have a responsible physician should be an enormous concern for policy makers.

Patients with a regular physician expressed high levels of confidence that their doctor knew their medical history and personal context and would manage their comprehensive care needs. We found that strong affiliation to a physician and good relational continuity translated into better co-ordination with specialists and more complete preventive services and health promotion.

Patients expressed deep frustration with access when they were given the opportunity to make comments. Their greatest dissatisfaction is with waiting for appointments and their ability to reach their physician by phone. The average waiting time until the next available appointment with physicians was 24 days.

Opinions on accessibility were not uniformly bad. Twenty percent of patients expressed clear confidence that they could be seen within a day by their own regular provider. CLSCs in remote regions — community health centres that have emergency rooms integrated with the primary care clinics and at least one physician on site at all times — provided almost optimum accessibility.

We found that clinics and individual physicians tend to focus either on accessibility or on continuity of care. Most provide continuity at the expense of accessibility, although there is a minority which does both — and a depressingly large number who are weak on both. Some elements in our models speak to a trade-off between continuity and accessibility. For instance, if patient volume drops below the average of 3.4 patients per hour, then accessibility suffers; if it increases, continuity suffers. About four patients an hour seems

to be the best balance of accessibility and continuity. Likewise, there is a need to offer a mix of both walk-in and scheduled care.

Our analysis found several common elements in clinics that achieve the best mix of accessibility and continuity. The feature most strongly related to patients having a better sense of accessibility and co-ordination was round-the-clock access to telephone advice (other than the province's Info-Santé line). It can be as simple as voice mail that's checked regularly during the day and refers patients to the on-call network at night. Our model suggests 24/7 telephone access would move patients' sense of accessibility from unacceptably low to at least the minimum-expected threshold.

Contrary to a common assumption, we did not find that solo practitioners offered worse accessibility than group practices, and in the case of rural practices it was better. But when clinics had more than 10 physicians, accessibility and continuity began to decrease. This supports the current policy that suggests that family medicine groups should have between six and eight physicians.

Each additional hour of service above 55 hours per week translated into higher accessibility, especially when offered as evening hours of both scheduled and walk-in care (extra weekend hours were not felt to improve accessibility). Clinics that can't stay open longer should at least consider shifting some working hours to evenings.

The more operational links that a clinic has with other healthcare establishments, the better its accessibility, continuity, and co-ordination of care. This bodes well for the new policy that encourages more links among clinics and hospitals.

Conclusion

There is a perception, among the public and policy makers, that primary care is unresponsive, fragmented, and unco-ordinated with other healthcare. Our study confirms that it is generally unresponsive, but we also find important exceptions that provide guidance for future policies. The core features of the Quebec policy of family medicine groups, such as increasing clinic hours, working in nurse-physician teams, and providing more comprehensive care through operational links with other healthcare establishments, should improve the situation.

Context

There is a perception, among both the public at large and policy makers, that primary care is unresponsive, fragmented, and unco-ordinated with other levels of the healthcare system.

In 2000, the *Commission d'étude sur les services de santé et services sociaux* (1) (Clair Commission) undertook a full review of the state of Quebec's healthcare system, using input from thousands of people, including citizens, special interest groups, professionals and managers working within the healthcare system, and a variety of international experts. One of the most important conclusions was that the healthcare system suffers major problems related to accessibility, continuity, and co-ordination of care. In 1998, the Collège des médecins du Québec noted that "Patients are complaining more and more about the lack of follow-up, delays in appointments, unreturned telephone calls, mistakes in the transmission of records, and referrals to doctors who turn out to be the wrong one," adding that "the reorganization [of the healthcare system] has exacerbated rather than eased the problems of continuity of care in many places" (2) p. 11).

Provincial and national health services commissions have recommended the primary care system be strengthened to ensure each citizen has access to a primary care physician who assumes principal clinical responsibility for the majority of his or her healthcare needs, and works in a clinical environment that ensures accessible, continuous, comprehensive primary care, as well as co-ordination with other levels of care (1;3-6). In direct response to this, the Quebec minister of health and social services initiated family medicine groups to strengthen primary care by enhancing the collaboration between local community health centres (CLSCs) and private medical practices. These groups of family physicians and nurses provide a defined group of services to rostered patients, with access 24 hours a day, seven days a week. Patients have a contractual relationship with their physician (though without financial penalties for using other services). Each group has explicit agreements with other institutions to ensure smooth transitions between different levels of care. In 2002, 65 groups were created and accredited; on March 31, 2004 there will be 75 (personal communication, Dr. Jean-Guy Èmond). The ministry's goal is to have 80 percent of the population enrolled with family medicine groups within five years.

This study examines the state of accessibility, continuity, and co-ordination of primary medical care in 2002, just as Quebec prepared to embark on this ambitious reorganization

of its primary care system. This study was designed to give key decision makers a "baseline" description of patients' and physicians' reported experience of primary care prior to major reforms. But most importantly, the study was designed to identify what organizational arrangements in the clinic and what professional orientations are associated with better accessibility, continuity, and co-ordination for patients.

Accessibility is the ease with which people can initiate or continue contact with a healthcare provider. In primary care we are particularly interested in *first-contact accessibility*, the ability to access care for a new problem. Continuity of care is the extent to which healthcare services are experienced as being coherent and connected and in keeping with the patient's medical needs and personal context. In primary care we are particularly concerned that patients have an affiliation to a primary care provider who knows their personal context and medical needs and takes principal responsibility for their care, *relational continuity*. That provider is also expected to co-ordinate care with other providers if needed, *co-ordination continuity*.

Research questions

Our study and this report address the following questions.

- What percentage of primary care users can identify a physician who assumes principal clinical responsibility for their care? How does this vary by geographic context and type of clinical setting?
- What is the average experience of patients with respect to first-contact accessibility to care, relational continuity, and co-ordination continuity? How does this vary by geographic context and type of clinical setting?
- How does relational continuity relate to accessibility, co-ordination, and preventive care?
- What organizational structures of the clinic and physician characteristics are related to better patient experiences of accessibility, relational continuity, and co-ordination continuity?

Implications

Our results show there are clinics in Quebec that perform well in accessibility and continuity of care, even prior to any reforms or reorganization of practice. These cases provide valuable insight into elements that could be included in healthcare policies to support system-wide change. The clinic characteristics that support better accessibility

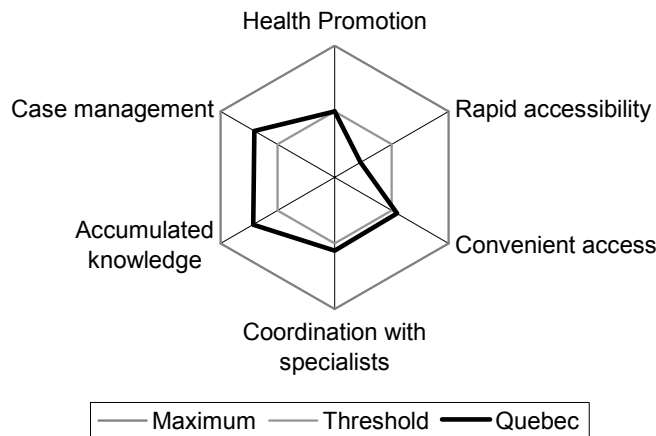
and continuity are not specific to the Quebec context. The way medical care is organized is similar in most Canadian provinces, and aspects of primary care reform are common across provinces. Consequently, the implications that emerge from this study could be of relevance elsewhere in Canada.

We tested, where possible, the structure and practice parameters outlined for family medicine groups in Quebec. By and large, we demonstrate that the policy parameters — such as the size of practice, the presence of a nurse, and extended opening hours — are sound, and are expected to improve accessibility and continuity of care. However, there are surprises in our study; for instance the high performance of solo practices in rural areas and presence of continuity in walk-in clinics. These speak to exercising prudence in the haste to find a one-size-fits-all answer to improving primary care.

Patient Experience with Primary Care

Of the attributes of primary care that we measured, we found that first-contact accessibility was considerably below the threshold of minimal expectations for primary care (Figure1).

Figure 1: Mean patient experience of dimensions of primary care, compared to minimum and optimum levels



Patients expressed very little confidence that they could be seen by their regular physician or clinic within a day if they suddenly became ill. When asked whether they could be seen the same day if they got ill, most patients tended to say “probably not.” By contrast, in four communities in Nova Scotia in 1999, the majority said “maybe;” patients

from a North Carolina HMO and Medicaid population in 1998 said “probably.” The chances of being seen were better if they managed to get sick during the clinic’s opening hours, but were almost nil if they needed help at night or on the weekend. Clearly, 24/7 accessibility is still a long way off for most Quebeckers.

When rating organizational elements related to access, patients were least satisfied with the waiting time to get an appointment and the ability to reach their physician by phone. We systematically asked secretaries for the third-next-available appointment for the physicians who participated in our study. The average waiting time was 24 days.

However, the news about accessibility is not all bad. Twenty percent of patients expressed clear confidence they could be seen within a day by their own regular provider. We were not surprised to find that the CLSCs in remote regions provided the greatest accessibility. These are models of community health centres that have emergency rooms integrated with the primary care clinics and at least one physician on site 24/7. Unfortunately, not all CLSCs are organized to respond to patients’ medical needs — 15 percent from our initial sample did not offer general medical care — or have such low patient volume that they cannot offer an efficient response.

Among patients who had a regular physician assuming responsibility for their care, patients expressed high levels of confidence that their physician knew their medical history and personal context and the physician would manage their comprehensive care needs. In the open comments section of the survey, patients mostly expressed high levels of satisfaction with their physicians and the quality of care they received. We found that strong affiliations to a physician and good continuity of care translated into better co-ordination with specialists and more complete preventive services and health promotion. This is in line with findings from other research, and it underlines the importance of having a regular, responsible physician as outlined in the basic principals of family medicine groups.

However, 16 percent of patients could not identify a responsible physician. We expect that the population average is significantly higher. In the region of Montreal, 22 percent did not have a regular, responsible physician. In walk-in clinics, 34 percent did not have an identified responsible physician, and for one in five of these patients, the walk-in clinic was their regular source of care. Surprisingly, 44 percent of patients in walk-in clinics believed that the walk-in clinic doctor was the physician who assumed principal

responsibility for their care, and in most cases (85 percent) the doctor shared that perception. While walk-in clinics tend to perform poorly on continuity and preventive care, we cannot ignore the fact that these clinics are meeting a need for patients who do not have a regular doctor, and that they are a source of continuity for a significant proportion of patients. But again caution is required; we are convinced that those that participated in our study offer more complete primary care than those we were unable to recruit into our study. Our initial sample included walk-in clinics where it was impossible to contact anyone by telephone or that were excluded because none of the rotating physicians worked a full day at the clinic.

Patients who do not have a responsible regular physician have significantly more negative experiences in terms of accessibility, continuity, co-ordination, and preventive care. In urban areas where emergency room use seems to be an alternative to rather than an extension of primary care, unaffiliated patients are twice as likely to have used the emergency room in the last year, compared to similar patients who have regular physician.

Rostering of patients within family medicine groups is targeting those who are already affiliated with the practice and probably already enjoy relatively good continuity and co-ordination. Sixty percent of the unaffiliated patients in our study cannot find a family physician who is accepting new patients. The plight of those who do not have a responsible physician and will be excluded from current initiatives should remain an enormous concern for policy makers.

Organizational Factors

In the “Results” section we detail the specifics of the analysis by attribute of primary care; here we emphasize the findings that seem to cut across different outcomes and offer the most potential for improving primary care. We have organized the variables of interest around the dimensions of practice culture, practice structure, and service delivery.

Practice culture

Participating physicians and clinic directors were asked to rate the importance the clinic placed on things such as offering rapid access to patients, a psychosocial approach to care, the business of the practice, offering the latest medical treatments, links to specialists, and keeping on time. We found that practices that prioritize access do indeed

offer better accessibility, and those that value connections with the community and with specialists offer better continuity of care. Surprisingly, placing a high importance on a psychosocial approach to care seemed to translate to lower accessibility and continuity. Strong practice culture translates into practice structures and service delivery to support those values. The fact that structures and practice follow values is not newsworthy, but the clear implication is that the first step in the process of change is deciding something is valuable.

Practice Structure

When clinics had more than 10 physicians, patients' experience of both accessibility and continuity began to decrease. This supports the current policy that suggests family medicine groups have between six and eight physicians. Contrary to a common assumption in current policy directions, we did not find that solo practitioners offered worse accessibility than group practices, and in the case of rural practices it was better.

The organizational feature most strongly related to better accessibility was offering regular patients 24/7 access to telephone advice other than Info-Santé. Patients in these clinics were more than twice as likely to express confidence that they could contact someone from their clinic in the event of a sudden illness, compared to patients in clinics without this service. Telephone access can be as simple as having voice mail that is checked regularly during the day and referring patients to the practice's on-call network during the night. If these results hold true in all practices, then instituting 24/7 telephone access for patients would move accessibility from being unacceptably low to the minimum expected threshold.

Service delivery

We found that below 55 hours per week, the number of opening hours was not related to accessibility. However, above this threshold each additional hour of service translated into a higher confidence in accessibility, with the CLSCs in remote regions offering almost optimal accessibility because of their integrated emergency rooms. This level of availability may seem impossible to physicians who already find themselves too busy; it would certainly be impossible for a single physician. However, our analysis shows that offering services during evening hours was related to better accessibility and continuity, even when the number of opening hours is held steady. By contrast, we found no effect of weekend hours on access or continuity. The implication is that if clinics cannot increase

their opening hours, they should consider orienting some of their working hours toward the evening.

We found that clinics need to offer a mix of walk-in and scheduled care to meet both continuity and accessibility needs. At a clinic level, continuity improves when at least 40 percent of the clinic's opening hours are dedicated to scheduled care for patients. Physicians also need to provide some walk-in care — but not too much — to support continuity. What is too little and what is too much? Our analysis suggests more than 50 percent is too much and 10 percent is too little, unless the physician has clear arrangements to fit in urgent cases around scheduled care.

Finally, we found the more operational links a clinic has with other healthcare establishments, the better its accessibility, continuity, and co-ordination of care. This finding reflects common sense, but it also bodes well for the new policy directions that encourage more operational links among clinics and hospitals. CLSCs have more links than do private clinics, and private clinics in remote and rural settings have substantially more links than those in urban and suburban settings. Rural physicians tend to work in 1.5 more clinical settings than do urban physicians, and 77 percent of them work in settings other than community clinics (hospitals, emergency rooms, or long-term care institutions), compared to 35 percent of their urban counterparts. We believe this pattern of practice helps to foster strong operational links in rural settings.

Approach: What we did

Our decision-maker partners were primarily interested in the organizational and professional factors that might explain variations in primary care, especially continuity of care. Their secondary interest was to have an idea of the state of primary care prior to the implementation of reforms. Consequently, we elected to use a cross-sectional, multi-level survey of primary care practice settings that would allow us to connect patients' experiences to physician and clinic characteristics. The multi-level design explicitly respects and examines the nesting of physicians within organizations and of patients within physicians. We collected information about patients' experiences of care (our outcome of interest), about physicians' perceptions and profiles of practice, and about how the clinics were organized. Here, we describe briefly the selection of study participants, the information collected, and the approach to analysis; further details are provided in Appendix 1 (Participant Selection and Recruitment).

Selection of study participants

The sampling strategy aimed to have representation of the predominant types of primary care organizations in Quebec within the range of geographic contexts. We randomly selected clinics within geographic strata and clinic types, then four physicians within each clinic, and finally 20 consecutive patients who consulted participating physicians. The goal was to have 100 clinics.

Sampling of clinics

We limited our sampling to five health administrative regions for reasons of feasibility and to be able to provide the participating regional health authorities with a regional portrait of primary care. The five regions were:

- Montreal: dense urban and suburban; diverse practice models; multi-ethnic, highly mobile population; good physician to population ratio yet many patients do not have a personal family physician;
- Montérégie: urban, suburban, and rural; stable population and adequate physician supply;
- Bas-Saint-Laurent: predominantly rural with one large urban agglomeration and a regional hospital; rural and remote; stable patient population, predominantly francophone; fluctuating physician supply;
- Gaspésie: rural, remote, and isolated communities; stable patient population; average physician to population ratios, family physicians very involved in hospital care; and
- Côte Nord: remote and isolated communities, with a major agglomeration with a regional hospital; physician to population ratios below provincial levels, family physicians very involved in hospital care.

Our sampling frame was a repertoire of primary care clinics that had been compiled in 2000 (7) and the listing of 170 CLSCs. We excluded from our sampling frame those practice sites that had been designated as pilot projects for the family medicine groups in 2001. The sampling design is shown in Table 1. Our distribution of practice types represents the fact that 85 percent of primary care services are provided in private clinics. We expected that urban areas would have a larger variety in practice organization.

Table 1: Sampling design for selection of 100 primary care clinics in Quebec by geographic strata and type of clinic, showing intended and actual distribution

	Urban	Suburban	Rural	Remote	
CLSC					
Intended	9	3	3	2	17%
Actual	7	1	6	3	17%
Private clinics:					
Intended	41	12	17	13	83%
Actual	31	21	18	13	83%
Total:					
Intended	40%	15%	20%	15%	100%
Actual	38%	22%	24%	16%	100%

We further divided the private clinic strata to avoid over-sampling of solo offices (limited to 10 percent of the sample in all geographic strata). In the regions of Côte-Nord, Gaspésie, and Bas-Saint-Laurent we divided the rural strata into semi-urban and rural strata to avoid over-sampling practices in the metropolitan agglomerations, and we divided the remote stratum into remote and isolated strata to ensure an adequate sample of isolated practices. Sites were selected by systematic random sampling from within each sampling stratum.

To be eligible for the study, a clinic or CLSC needed to offer general medical services to an undifferentiated clientele, and to have been administratively stable for at least one year. Clinics that treated specific conditions such as obesity or varicose veins were excluded, as were those who treated only a very targeted clientele, such as HIV patients. Of the 201 clinics initially selected, 22 (11 percent) were ineligible. Of eligible clinics invited to participate, 64 percent accepted and were included in the study. Details of clinic participation are included in Appendix 1.

Eligible study physicians were those who practice general clinical medicine, have been in practice at that site for at least one year, and practice at least one day per week at the clinic. We included a total of 221 physicians in the study, an average of 2.3 per site for group practices and CLSCs. For every eligible and consenting physician we recruited 20 consecutive patients consulting the study physician on a selected clinic day. We selected clinic days that would be representative of the services offered at *that site*. Consequently, for some physicians we have sampled walk-in services, where patients are not their regular patients, even though they also see scheduled patients.

Due to the differences in patient volume of different physicians, data collection sometimes spanned more than one day. However, in some CLSCs patient volume was so

low that we stopped data collection after five half-days of consultations. The average number of participating patients for each physician in private clinics was 18 (Median=20); the average number among CLSC physicians was 12 (Median=12). Of the 4,764 contacted patients, 93 percent were eligible and 89 percent consented to participate. However, 1,333 (37 percent) chose to return their questionnaire by mail and only 69 percent of these returned their questionnaire, giving us a final response rate of 87 percent, a total of 3,441 patients (further details are provided in Appendix 1).

Conclusions regarding study sample

The response rate from clinics is considered to be excellent for studies involving physicians. We are reasonably confident our study sample indeed represents the population of clinics we were interested in studying, and the associations we find between clinic and physician characteristics and patient experiences are robust. Nonetheless, we expect that the participating clinics tend to be stronger providers of primary care than those who refused to participate.

We cannot generalize the description of patients' primary care experiences to the entire province of Quebec since we did not represent all regions. However, we believe the consistency across regions makes us confident that general patterns of care hold for the entire province. We will be able to provide regional portraits for four of the five health regions.

It is important to stress that we are capturing the viewpoint of those who have already achieved access to the health system. Their experience of accessibility and continuity will almost certainly be more positive than if we had sampled the general population. We did not capture those who bypass primary care and go to hospital emergency rooms or who go directly to specialists such as pediatricians and gynecologists for more narrow aspects of care.

Information collected

As mentioned previously, the design strength of this study was that we collected information from patients, from physicians, and from clinics, and we were able to link all the information.

All information was collected using self-administered closed-question questionnaires. Wherever possible we used validated questionnaires and collected information that had been collected in previous studies that would provide grounds for comparison. Below, we outline the information that was collected from the patient, the physician, and the clinics. The questionnaires are included in Appendix 2.

Patient information

Our outcome of interest was the patient’s experience of primary care, especially as it related to continuity. Our principal instrument was the “Primary Care Assessment Tool” developed in the United States by Cassady and Starfield (8). The advantage of this questionnaire is that it measures the extent of the affiliation of the patient to a regular provider and can be validly filled out even by those who did not have a regular provider. The same instrument was also used in Ontario and Nova Scotia to evaluate primary care pilot programs, and it permits inter-provincial comparisons. However, we also included the scale for organizational access from the “Primary Care Assessment Survey” developed by Safran (9). Since these instruments were only available in English, we prepared French versions. Details of this validation process are provided in Appendix 1. The concepts of interest and their measures are outlined in Table 2.

Table 2: Information about primary care experience that was collected at the patient level; all experiences relate to the patient’s usual source of care

Concept of Interest	What we measured
<i>First-contact accessibility:</i> the extent to which healthcare is easy to initiate	<ul style="list-style-type: none"> Organizational accessibility: patient ratings of clinic location, opening hours, ease of making an appointment, waiting time to be seen (PCAS) Patient perceptions of probability that they could be seen on the same day if they suddenly become ill (PCAT)
<i>Relational continuity:</i> a therapeutic relationship with one or more providers that bridges past and current care and provides a link to future care	<ul style="list-style-type: none"> Strength of affiliation to the regular provider of care (PCAT) Perception of accumulated knowledge about the patient (PCAT) Comprehensive clinical responsibility that goes beyond a single clinical encounter (PCAT)
<i>Co-ordination continuity:</i> a consistent and coherent approach to care across different providers	<ul style="list-style-type: none"> Degree of co-ordination between the regular primary care physician and the last specialist seen (PCAT)
<i>Comprehensiveness:</i> availability of the full range of services to meet patients’ health-related needs	<ul style="list-style-type: none"> Prevention and health promotion: the probability that the patient had received age- and sex-appropriate activities (PCAT) Availability of medical procedures at the clinic (measured only at the clinic level)

In addition to information about primary care, we also asked about use of healthcare services in the last year, including use of generalists, specialists, and emergency services. We asked patients about their perceived health and their levels of stress. We obtained socio-demographic information: age, sex, civil status, educational level, occupational status, number and age of persons sharing the household, and financial status.

Physician information

The physician had an encounter form for each participating patient. On this form, the physician indicated whether **she/he** was the principal responsible physician for the patient, and if not, how or whether information from the visit would be communicated to the responsible physician. This allowed us to compare the patient and physician perceptions about the principal physician, and to attribute to the physician a score of affiliation and informational continuity. Table 3 outlines the information that was elicited for each **physician**.

Table 3: Information collected from each participating physician

Physician Variables	Source
Overall practice profile: number of years in practice, number of practice sites, general satisfaction with professional life	Physician questionnaire, adapted from Janus study, CFPC
Practice profile at the clinic: average hours worked per week, weekly average number of patients, acceptance of new patients, type of medical procedures performed	Physician questionnaire, adapted from Janus study, CFPC
Primary care orientation: usual practice with patients regarding rapid accessibility, continuity of care, co-ordination, and prevention activities (items correspond to those asked of patients)	Physician questionnaire, PCAT, Provider Questionnaire
Identification with the profession and practice: degree of identification with the practice organization, identification with the profession, loyalty to the practice organization, attachment to the work group, value attached to quality control, and the importance of keeping up to date	Physician questionnaire, Professional orientation tool, Bilodeau (10)
Management activities at the clinic: involvement in administration and decision-making at the clinic regarding resources and practice	Physician questionnaire, Professional orientation tool, Bilodeau (10)
Demographics & Practice Experience: age, gender, training, number of sites of practice, residence in the practice community	Physician questionnaire, adapted from Janus study, CFPC
Practice culture: perceived importance placed on providing rapid access to patients, a psychosocial approach, chronic care management, keeping on schedule, running a business	Physician questionnaire
Varia: Ownership relationship to clinic, number of years at the clinic, usual working hours in scheduled and walk-in care, patient volume at last clinic session, third-next-available appointment, management of urgent care	Practice secretary

Practice information

At the practice level we collected the variables outlined below in Table 4.

Table 4: Information collected about the organization of each participating clinic

Practice variables	Source
Practice Structure: <ul style="list-style-type: none">• location, type of practice, type and number of providers• organization for acute and scheduled care, opening hours, availability of diagnostic services and therapeutic modalities, immediate access to other health professionals [nurses, social worker, specialists], on-call organization	Adaptation of questions in Janus questionnaire
Governance & Management: <ul style="list-style-type: none">• type of practice, sharing of patient files, extent of computerized information• ownership (physician vs. non-physician, single owner vs. group partnership), administrative relationship of owners to providers, financing	Adaptation of questions in Janus questionnaire
Practice culture: <ul style="list-style-type: none">• importance given by the clinic on providing patients rapid access, a psychosocial approach, chronic care management, maintaining the schedule, managing the business• clinic's global vision on community involvement, philosophy, goals• coherence of vision between the physicians and the clinic director	Adaptation of questions in Janus questionnaire
Varia: <ul style="list-style-type: none">• existing links with laboratories, pharmacies, radiology services• on-site observations of adequate space allocation, interrelationships between the staff and the patients, degree of patient privacy	Observations by research technicians

Approach to analysis

Description of the average experience of physicians was based on all patients included in the study, regardless of their regular source of care. Analysis of the organizational and provider components related to patient experience was based only on patients whose regular source of care was a participating physician. To test the associations between organizational variables and physician characteristics, we used multi-level regression analysis. Multi-level regression modelling takes into account the nesting of patients in physicians and of physicians in practice sites, whereas conventional regression assumes that each subject is completely independent of the other. Multi-level analysis gives us more accurate estimates of the strength of relationships and their statistical significance (11). In this study we have three levels: patient, physician, and clinic. Sometimes we developed models with only two levels — patient and clinic or patient and physician — when we wanted to have a more detailed understanding of effects at the clinic or physician level.

Results

Patients' Experiences of Primary Care

Average Experience

The patients' experiences of care are based on the experiences of all 3,441 eligible and consenting patients in the study with a regular care provider. Some of these patients were reporting on care of physicians who were not included in our study; however, their perceptions are pertinent for the objective of describing the average experience with primary care in Quebec. One of our principal motivations for using the Primary Care Assessment Tool was that we could compare it with the experience of primary care pilot projects in Nova Scotia and the HMO population in North Carolina. (The tool was also used to evaluate primary care pilot projects in Ontario, but the results are not comparable to others because of the volunteer bias among respondents.) The comparisons with the other populations are presented in Table 5.

Table 5: Patients' mean experiences with core dimensions of primary care, comparing Quebec, Nova Scotia, and North Carolina

	<i>Quebec</i>	<i>Nova Scotia</i>	<i>North Carolina</i>
Accessibility	2.2 – probably not	2.5 – probably	2.8 – probably
Continuity	3.3 – most probably	3.5 – most probably	3.0 – probably
Co-ordination	3.0 – probably	3.6 – most probably	3.2 – probably
Prevention	2.84 – probably	2.6 – probably not	2.8 – probably

Response scale : 1=absolutely not, 2= probably not, 3= probably, 4= absolutely

Keeping in mind the Nova Scotia sample represents four rural communities and the North Carolina sample is an HMO population, it would seem there are some striking differences in Quebec. When asked if they could be seen the same day if they became suddenly ill, the average response in Quebec is close to “probably not,” whereas in the North Carolina HMO population the average was a weak “probably,” and in Nova Scotia a definite “maybe.”

On the other hand, both Canadian samples expressed a higher level of confidence in the relational continuity of their physicians than did those in North Carolina. The Quebec patients were, on average, less confident in the co-ordination of care between their primary care physician and specialists than patients in North Carolina or Nova Scotia. The comprehensiveness scores may not be entirely comparable, because slightly different

services were included in each list (such as education on gun safety in North Carolina); however, Quebec patients appear to be doing as well as other jurisdictions.

Minimal expectations

In order to easily interpret the results, we decided to express the results in performance terms where we define optimal care and minimum expected care. Optimal care is represented by the maximal level of confidence on the scales used. We conceptually and operationally defined the minimal levels as outlined in Table 6 below. All of our subsequent results will be presented in these performance terms. The graphs show the extent to which clinics or physicians exceed or fall below the minimal threshold of care. Likewise, the results of the regression models show the mean achievement for all patients in the study, and the effect of each variable is expressed in terms of the percentage points that the variable increases or decreases the primary care attribute above or within the optimal performance range (that is, above the threshold level).

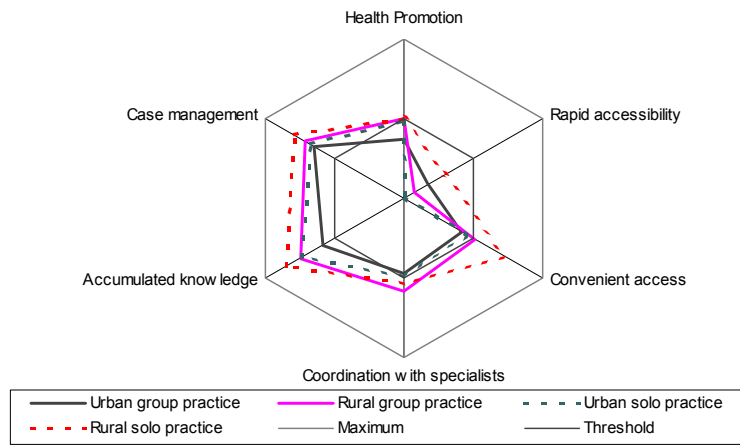
Table 6: Minimal expectations for core attributes of primary care

Concept	Minimal Expectation	Operational equivalent
Accessibility:	<ul style="list-style-type: none"> • Rapid access: If they get ill suddenly and need care, patients should be confident that they could probably get advice or orientation from a provider who knows them. • Convenient access: Patients should evaluate the convenience of seeing their physician as good. 	<ul style="list-style-type: none"> • Mean of at least 3 (“probably”) on a scale of 1 to 4 • Mean of at least 4.5 (between “good” and “very good”) on a scale of 1 to 6
Physician-Patient Continuity (“person-focused care over time”)	<ul style="list-style-type: none"> • Affiliation: Patients should be able to identify a physician who is principally responsible for their healthcare. • Accumulated knowledge: Patients should be confident that their physician knows their medical history and personal context. • Case management: Patients should be confident that their physician’s clinical responsibility towards them extends beyond the clinical encounter. 	<ul style="list-style-type: none"> • Mean of at least 3 (“probably”) on a scale of 1 to 4.
Co-ordination Continuity with Specialist	<ul style="list-style-type: none"> • Patients should be reasonably confident that their physician and the specialist collaborate on and communicate about their care. 	<ul style="list-style-type: none"> • Mean of at least 3 (“probably”) on a scale of 1 to 4.
Comprehensive care (Health promotion and clinical prevention)	<ul style="list-style-type: none"> • Over time, patients’ physicians should have addressed a majority of key age- and sex-appropriate strategies to maintain health. 	<ul style="list-style-type: none"> • Mean of at least 3 (“probably”) for this scale.

Overall performance

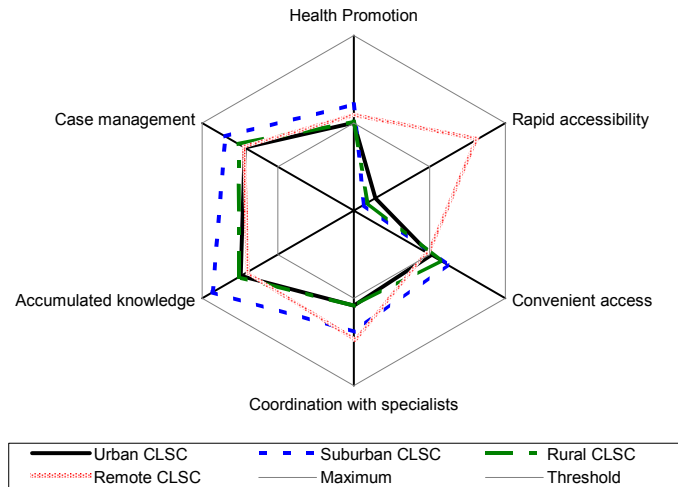
The graphs of primary care performance show both the optimal and minimal levels of care, and the mean score of clinics or physicians for the patients seen. Figure 1 illustrates the mean primary care performance for all the patients included in the study. Primary care performance varied by geographic strata and type of clinic, as illustrated in Figures 2 and 3. (The graph has been limited to the patients who are considered to be regular patients of the clinic, that is, 2,726 of the 3,441 patients included in the study.)

Figure 2: Primary care performance in solo and group private practices by geographic strata and type of clinic



The figures show that the attributes within relational continuity (accumulated knowledge and case management) are reasonably strong for users, that health promotion is just at the minimum level, that continuity co-ordination varies considerably but is only above minimal expectation, and that rapid accessibility is considerably below the expected minimum.

Figure 3: Mean primary care performance of CLSCs by geographic strata



On average, the patients have very little confidence they could be seen within a day by their regular physician if they get sick suddenly. In elements of convenient access patients tend to be very satisfied with the location of their physician’s office: 85 percent rate it as being very good or excellent. However, satisfaction rates plummet when asked about waiting times to have an appointment (only 48 percent satisfied) or the ease with which they can talk to their physician by telephone (46 percent satisfied). This is worrisome since a level of satisfaction below 80 percent is considered to be problematic. In the open comments patients made at the end of the questionnaire, the vast majority expressed general support for their physicians but deep dissatisfaction with being able to access them on a timely basis.

Indeed, when we asked secretaries to give us the time to the third-next-available appointment (avoiding spurious availabilities due to cancellations), the average waiting time was 24 days (SD: 22 days); this varied from 0 to 167 days. Five percent of physicians were never available for appointments, and for five percent the delay was longer than two months; however, 19 percent were available in less than one week. There is not a simple relationship between time-to-next-appointment and patient perceptions of accessibility. The relationship is modified by the physician’s arrangements for managing urgent care in their regular patients, the proportion of time spent in the clinic’s walk-in services, and the overall availability at the clinic. The physician’s access arrangement affects continuity of care as well as accessibility. For instance, if a physician’s appointment availability is greater than three weeks and she/he usually refers urgent care

to the walk-in services of the clinic, then if she/he personally does less than four hours of walk-in care, her/his patients experience significantly worse accessibility and continuity than patients whose physician does more than four hours in the clinic's walk-in service. Patients would rather see their own physician than any physician.

Overall, accessibility was 34 percent below the minimum expected threshold. However, this varied by type of practice and geographic region. We were surprised to find that walk-in clinics were not perceived to be more accessible than other clinics, and we hypothesize that this may be because patients have to present in person to get an appointment and then do not know how long they will have to wait to be seen. We were very surprised to find that rural solo practices in rural areas seemed to offer better accessibility than other clinics, although still below minimal expectations. We hypothesize that this may be due to their belonging to the same social network as patients. The star performers for accessibility were the CLSCs in remote areas (Figure 3). They performed at 68 percent of optimal performance. This may be explained by the fact that these centres have 24-hour emergency room service that is physically and administratively attached to the primary care clinic. However, they also offer access to telephone advice and have accessibility-oriented physicians.

Related organizational and physician factors

In this section we provide the details of the regression models that explain the variance in the attributes of primary care that are of principal interest in this study: accessibility, relational continuity, and co-ordination continuity. All models were controlled for patient age, primary care use, and education level to try to ensure that we are comparing clinic and physician outcomes for equivalent patient populations. Models include only patients who identify the study physician as their regular care provider.

At the clinic level, we organized the variables into three dimensions: practice culture, resource and governance structure, and clinic practice. Within the clinics we also included elements of the physician's practice that would explain the attribute.

Accessibility

The model that best explains accessibility is presented in Table 7. For this and the other models shown, the effect of each variable assumes that the other model elements are held constant. In our models we assume perfect performance is represented by 100 percent and

the worst possible by –100 percent. The magnitude and direction of each effect indicates its impact on moving towards or away from maximal performance; these are represented graphically relative to the mean level of accessibility. Note also the effects are additive, so we can estimate the impact of more than one variable at once. For instance, a practice that prioritizes rapid access, has six family physicians, a nurse but no other paramedical professionals, a 24/7 telephone help line, and formal links with the local hospital could expect to achieve an accessibility 19 percent of the optimal ($19 = -34 + 8.0 + 11.9 + 0 + 30.4 + 2.7$), whereas a similar sized practice with none of these features would only be expected to achieve the mean rapid accessibility of –34 percent below the minimum acceptable threshold.

A practice culture that places a top priority on attending to urgent care within 24 hours either in person or by telephone results in an eight-point increase in accessibility. The resource structure is critical. We were surprised to find that when the practice becomes too large (more than 10 family physicians), accessibility decreases. Our results show that having a nurse on site increases accessibility, whereas having a broad range of primary care professionals is associated with lower accessibility. We interpret the latter association with caution, because we do not have enough information to explore causal patterns. Unfortunately, our practice questionnaire did not provide any information about the nurse's function at the clinic nor the role or formal link to paramedical professionals.

The single most important resource that affects accessibility is giving patients 24/7 access to a telephone that is attached to the practice; it accounts for a 30-point improvement in accessibility. Put another way, patients of clinics with this service are 2.4 times as likely as other patients to think they would probably or certainly be seen if they got ill. Interestingly, telephone access was offered by 10 percent of private practices in urban areas and all CLSCs in remote areas. Our study questionnaire did not systematically provide more information about this service, but through conversations with some of the clinics we established that the telephone services can even be voice mail that will be checked on a regular basis and referred to the responsible professional.

Table 7: Characteristics of clinic organization and physician practice that influence patients' confidence in the provider's rapid accessibility: results of hierarchical regression modelling showing impact on achievement of optimal performance¹

	Impact on performance ²	
Mean accessibility for all patients	-34	
CLINIC ORGANIZATION		
Practice culture (effect of adding one unit to the importance given to this dimension by the clinic)		
• Rapid access	8.0	
Clinic structure		
• Between one and 10 family physicians	--	
• More than 10 family physicians	-18.1	
• Presence of a nurse in the clinic	11.9	
• Number of healthcare professionals (other than nurses, psychologists, occupational therapists, and physiotherapists)	-2.8	
• Telephone access 24/7 (other than Info-santé)	30.4	
• Formal and operational links with other healthcare establishments (the effect of each additional link) ³	2.7	
Clinic practice		
• Effect of evening walk-in services	10.6	
• Effect of weekend walk-in services	--	
• Number of hours open during the week above 55 hours (the effect of each additional 10 hours)	7.0	
CHARACTERISTICS OF PHYSICIAN PRACTICE		
Practice		
• The waiting time for the next appointment is less than a week ³	7.4	
• Number of patients seen per hour (each additional patient above the mean of 3.4 patients/hr)	3.7	
Management of urgent care needs		
• Meeting patients at the hospital emergency room	-17.5	

¹ The control variables are patient age, education, and use of family physician. Only physicians' regular patients were included.

² Variable are significant with p-value <.05.

³ p-value between 0.11 and 0.05.

The more operational links the clinic had with other healthcare establishments, the more accessible it became for patients: almost three points for every additional link. Not surprisingly, longer clinic hours improved accessibility, but an in-depth look at the data reveals that this effect only occurs after a minimal threshold of 55 hours. When these hours are offered is also important. We were surprised to see that offering evening walk-in services increases accessibility by 11 points, whereas offering walk-in services on weekends had no effect.

Physician practice also influences accessibility over and above clinic characteristics. Patients of the 20 percent of physicians who are available for appointments within a week have a seven-point increase in accessibility. Also, physicians who see a relatively high volume of patients per hour have better accessibility: almost three points for every additional patient seen per hour. Unfortunately, as we show later, this high volume pays an equivalent price in terms of continuity; obviously equilibrium is required.

Our model shows that physicians who use the hospital emergency room to treat urgent cases tend to have a lower perceived accessibility among their patients. On closer examination, we find that this effect is principally significant for physicians who spend less than half of their practice time at the clinic, a pattern that occurs principally in rural areas. From conversations with rural physicians and policy makers, it seems that they see the hospital emergency room as an extension of primary care, and they manage much of their urgent care through their availability at the emergency room. However, it is clear from comments made by patients that they do not like going to the hospital emergency room because the waiting time is long and the organization is not transparent. As one patient said “the service is very, very disagreeable and incomprehensible” (id: 313204).

Relational continuity

Our model for relational continuity is presented in Table 8. The model shows that the mean level of continuity is generally high for all the clinics at 41 percent. It varies widely between patients, but not as much as accessibility. In the three-level model we did not find that practice culture influenced continuity, but in a two-level clinic-patient model, we found that a high priority on rapid access had a negative effect, whereas community connectedness and service orientation positively affected continuity.

Again, we find that operational and formal links with other establishments improve relational continuity: two points for every established link. The effect is even stronger for co-ordination continuity, as shown later. Again, we find that offering evening services improves continuity, whereas weekend services have no effect; this time, however, the service to be offered is scheduled care as opposed to walk-in care. In a two-level clinic-patient model, we found that clinics that did not dedicate at least 40 percent of their opening hours for scheduled care performed 13 points lower in continuity. Likewise, when physicians did more than 50 percent of their clinic practice as walk-in care, continuity suffered by approximately 12 points.

We have already mentioned how hourly patient volume results in a trade-off between accessibility and relational continuity. Seeing four patients per hour seems to be the optimum balance between accessibility and continuity.

Unfortunately, our instrument did not specifically assess physician’s attitudes and approaches to continuity. We have some information about continuity at the practice culture level, but continuity seems to vary more between physicians than between clinics. In an attempt to capture elements that might be related to continuity attitudes, we also included the extent to which the physician feels attached to the community where she/he practices. We also included our score for informational continuity that we obtained from the physician based on the plans for communicating the results of a patient visit to another responsible physician. We found that both attachment to the community and informational continuity style had a positive impact on relational continuity.

Table 8: Characteristics of clinic organization and physician practice that influence patients’ relational continuity: results of hierarchical regression modelling showing impact on achievement of optimal performance¹

	Impact on performance ²	
Continuity mean for all patients	41	
CLINIC ORGANIZATION		
Clinic structure		
• Formal and operational links with other healthcare establishments (the effect of each additional link)	2.0	
Clinic practice		
• Offer evening appointments	5.5	
• Offer weekend appointments	--	
CHARACTERISTICS OF PHYSICIAN PRACTICE		
Physician Practice		
• Percentage of clinic hours in walk-in care greater than 50 percent	-12.3	
• Number of patients seen per hour above the mean	-2.4	
Physician orientation		
• Attachment to the community served by the clinic	4.6	
• Informational continuity	9.3	

¹The control variables are patient age, education, and use of physician. Only the physicians’ regular patients were included.

²Variable are significant with p-value <.05.

Co-ordination continuity

Our model for co-ordination continuity is presented in Table 9. Before discussing the organizational and physician characteristics that apply, it is important to note that relational continuity was the variable that was most strongly related to better co-ordination. Thus, improving relational continuity, through either patient-physician faithfulness or registration with a physician, will be expected to improve co-ordination continuity.

Again, we note that operational links with other healthcare establishments improves co-ordination of care: three points for every additional link. We did not explore the nature of these links, but an examination of the physician variables provides a clue to the importance of informal, operational links that are created through the physician's involvement in various practice settings. The model shows that physicians who have a varied practice tend to have better co-ordination. This may explain why co-ordination tends to be better in rural and remote areas where physicians spend only an average of 70 percent of their working week in community practice, compared to 90 percent for urban and suburban physicians. Seventy-seven percent of rural primary care physicians also work in hospital or long-term care settings, compared to 35 percent of their urban counterparts.

Again, we note that co-ordination improves with access to a 24/7 telephone attached to the practice. This resource that supports both accessibility and co-ordination may reflect a practice attitude that sees both access and continuity as being important.

We note that practices with occupational therapists and physiotherapists have better co-ordination, whereas those with more broad-based primary care professionals have poorer co-ordination. There was no effect associated with having a nurse in the practice. Again we caution about making any causal inferences about this statistical association. Some of the hypotheses we have entertained is that beyond a certain size and practice time, smooth co-ordination within the practice becomes unmanageable; or the presence of a broad range of healthcare providers reflects an economic arrangement of space sharing rather than a cohesive practice orientation. We also hypothesise that clinics with physiotherapists or occupational therapists tend to have a more medical focus and may be

more oriented to co-ordination with specialists. Our measures did not permit us to determine if a broader primary care resource base would produce better co-ordination with other professionals. The positive impact of physicians performing a wider scope of medical procedures may also speak to the importance of a medical focus in facilitating co-ordination with specialists.

Table 9: Characteristics of clinic organization and physician practice that influence patients’ confidence in the provider’s co-ordination with specialists: results of hierarchical regression modelling showing impact on achievement of optimal performance¹

	Impact of performance ²	
Co-ordination mean for all patients	12	
CLINIC ORGANIZATION		
Clinic structure		
• Telephone access 24/7 (other than Info-santé)	16.3	
• Formal and operational links with other healthcare establishments (the effect of each additional link)	3.2	
• Presence of occupational therapists and physiotherapists	12.2	
• Number of healthcare professionals (other than nurses, psychologists, occupational therapists, and physiotherapists)	-5.5	
CHARACTERISTICS OF PHYSICIAN PRACTICE		
• Range of medical procedures performed	2.2	
• The proportion of time spent in community practice is less than 50 percent	--	
• The proportion of time spent in community practice is between 50 and 70 percent	16.5	
• The proportion of time spent in community practice is between 70 and 90 percent	--	

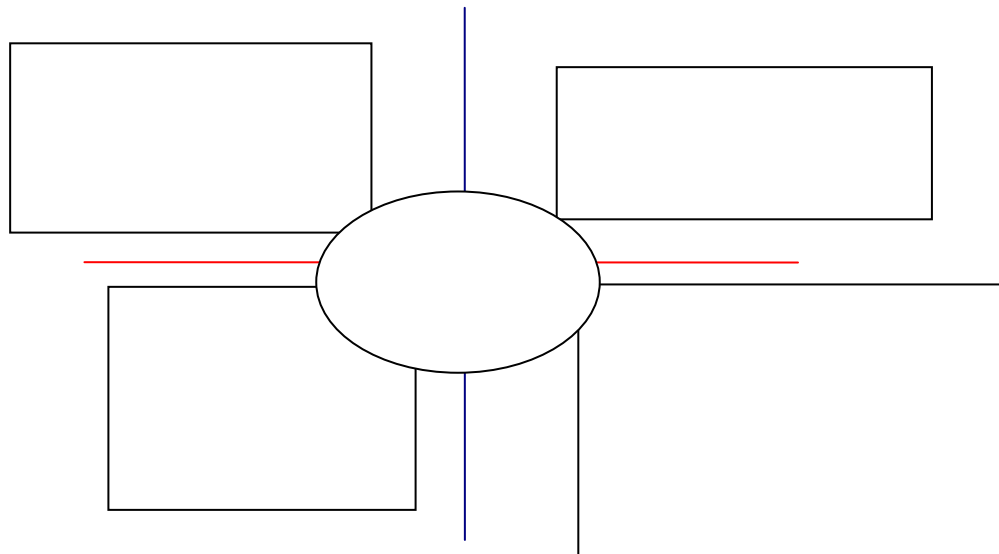
¹ The control variables are patient age, education, and use of physician. Only the physicians’ regular patients and those who have seen a specialist in the last two years were included.

²Variable are significant with p-value <.05.

Physician characteristics

We asked physicians to characterize their practice in the same terms of accessibility, continuity, co-ordination, and prevention that we asked of patients. We found that physicians — and practices — tend to organize their practice around either accessibility or continuity. The vast majority of physicians privilege continuity — with its associated better communication, care management, and prevention — at the expense of first-contact accessibility. We identified five distinct groups of physicians based on their accessibility-continuity profile: first contact, continuity, family physician, job, and average (Figure 4).

Figure 4: Types of physicians by self-reported accessibility and continuity profiles



Continuity physicians tend to be older than average and to feel attached to their communities and their clinic colleagues; they are strong on prevention but offer a more limited scope of medical procedures. Rapid access physicians achieve accessibility at the expense of continuity and comprehensiveness; they perform a larger range of medical procedures. We also found a minority of physicians who try to offer continuity and accessibility; although they are more successful at continuity than at accessibility. The prototype of this physician is the solo rural physician who is attached to the community and has established good links with the other health services in the community. There are also physicians who are weak on accessibility, continuity, and comprehensiveness. They tend to be younger than average, to see a low volume of patients, and not to feel a strong attachment to their work environment. That these physicians are also younger raises the concern about a shift away from continuity-accessibility among the younger cohorts of family physicians. We cannot provide further insight into that concern with this study, but it should be flagged for future follow-up.

Physicians need to balance accessibility and continuity to offer the best care to their patients. When physicians spend more than 50 percent of their clinic time in walk-in care, accessibility is marginally better but continuity is significantly worse. However, physicians must have effective ways to deal with urgent needs in order assure continuity of care, especially if they have long delays for appointments or do less than 10 percent of

their time as walk-in care. The way of dealing with urgent care that best meets both accessibility and continuity needs is to fit in urgent cases around scheduled care.

Summary

Conclusion

Prior to this study there was a perception, among both the public at large and policy makers, that primary care was unresponsive, fragmented, and unco-ordinated with other levels of the healthcare system. Our study confirms that it is indeed generally unresponsive, but we also find important exceptions that provide guidance for future policies. The core features of policies for family medicine groups will consolidate relational continuity and should improve accessibility and co-ordination. However, the plight of those without regular physicians is critical and is not currently being addressed.

The open comments made by patients affirm that they mostly like and support their physicians, but they are very frustrated about accessibility. Our study suggests that accessibility could be improved through incentives and structures that would encourage clinics to increase their opening hours to offer evening services, have better telephone accessibility for urgent care, have nurses on site, and establish operational links with other establishments. It is encouraging that some of these are features in the family medicine groups, but we would like to see impacts on a larger scale and consequently need broader policies. In the meantime, improvements to accessibility can still be made within current clinic structures and incentives. Average accessibility would improve if every family physician planned space for urgent cases within scheduled care or dedicated at least 10 percent of clinic hours to walk-in services that are operationally linked to the clinic.

Although patients like and trust their doctors, overall primary care barely meets minimum expectations, and the public will need to see steady and consistent improvement to recover their confidence in the system.

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