Timely access to primary care in New Brunswick

Variability across health regions

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Abstract

Objective To examine the factors that influence variation in timely access to primary care across the different health regions in New Brunswick.

Design Descriptive and comparative study of organizational practices in primary care practices based on speed of access. Data were collected from December 2019 to March 2020 using semistructured interviews conducted by telephone, in person, or online, according to participants' preferences.

Setting New Brunswick.

Participants Participants were primary care providers. Two types of regions were targeted: those with a higher proportion of citizens with timely access to primary care (regions with faster access) and those with less timely access (regions with slower access). A sample of 27 participants was used.

Main outcome measures Organizational practices (ie, new technologies, team-based health services, performance measurement, method of appointment booking, and physician remuneration model) according to prevalence of timely access.

Results Participants in regions with faster access measured their performance more often (45.5% vs 12.5%, *P*=.046), did not use mixed compensation models (0.0% vs 31.3%, *P*<.001), and managed more patients (average of 2157 patients vs 950, *P*=.025), compared with participants from regions with slower access.

Conclusion This study found that performance measurements and other organizational practices are favourably linked to timely access to primary care.

Editor's key points

- The fast-access group measured their performance more often (45.5%) than the slow-access group (12.5%). In the overall sample, the percentage of participants who measured their performance was low (25.9%).
- Health care providers in fast-access regions served a higher number of patients (mean=2157) than those with slower access did (mean=950) to a statistically significant degree (*P*=.025). In regions with slower access, 81.3% of physicians practised in other health care settings. In regions with faster access, only 63.6% of physicians practiced in other health care settings, although the difference was not statistically significant.
- Practices in the faster-access group measured performance more often (45.5%) than those in the slower-access group (12.5%, *P*=.046). The fast-access group used the fee-for-service model (63.6%) more often. The slower-access group used mixed remuneration models more often (*P*=.040).

Primary care is the direct provision of first-contact services between patients and providers (family physicians, nurses, and nurse practitioners).[1,2] The 2 primary roles of these health care providers are to be accessible and to ensure continuity of care.[3] To achieve this, health care providers must make themselves available in a timely fashion. This means services must be offered according to recommended guidelines and clinical best practices to ensure that a patient's health is not negatively impacted while they are awaiting care.[4] Perceptions of timely access may vary between patients and health care professionals, which influences the pertinence of access and services.[5] For example, for patients, timely access means obtaining an appointment with their family physician within a period ranging from the same day to 1 month.[4] However, for health care professionals, this definition varies according to clinical best practices and the health problem or procedure in question.[4,5] To simplify this complex issue, research on this topic typically uses objective indicators to assess whether primary care services are providing timely access. The ability of patients to obtain an appointment the same day, next day, or within less than 5 days are the objective indicators currently used.[6]

In 2016, a study of primary care services in Commonwealth countries found that only 53% of Canadians had timely access to appointments with their family physician. This places Canada beneath the 72% average for other Commonwealth nations.[6] In New Brunswick, 45% of patients were able to schedule an appointment with their family physician either the same day or the next day, which is better than Québec (34%) and worse than Nova Scotia (56%).[6]

In 2017, the New Brunswick Health Council (NBHC) surveyed a number of patients across the province. The survey demonstrated the variability of timely access within the 33 NBHC communities. In terms of timely access, in Kedgwick, Edmundston, Shippagan, Tracadie-Sheila, and Grand Falls only 19%, 41%, 42%, 44%, and 44% of the population, respectively, reported that they could access their family physician within 5 days. On the other hand, St Stephen, Hillsborough, Quispamsis, Neguac, and Perth-Andover had the highest percentages of patients reporting access to their family physician within less than 5 days, with scores of 67%, 68%, 69%, 73%, and 75%, respectively.[7] According to this survey, the provincial average is 55.8%.[8]

In New Brunswick, the factors that influence variability in timely access to health services across health regions have not been well studied. As such, the goal of this study is to identify organizational practices that influence variation in timely access to care across New Brunswick's different health regions.

Methods

To compare the variability in timely access to a family physician across the New Brunswick health regions, the 5 regions with the fastest access were compared to the 5 regions with the slowest access. Timeliness of access was determined according to the responses reported by participants in the NBHC 2017 Primary Health Care Survey. The results are available in **Figure 1**.[7]

Study variables

First, the use of new technologies, notably electronic medical records (EMRs), as well as the use of websites as informational tools for patients, are pertinent indicators when predicting timely access to primary care services.[9] In fact, a Canadian study found a clear advantage to providing team-based health services, composed of either teams of physicians or interprofessional teams, over traditional office practices.[10] That same study reported that using technology improves access both after hours and during regular office hours.[10] Furthermore, measuring the performance of family medicine practices is known to positively affect accessibility. Measuring performance means "measuring patient outcomes and experience, monitoring preventive care, [and comparing] performance measurement against benchmarks and peers."[6]

The method of appointment booking is known to affect access. Under the *traditional model,* all appointments are scheduled in advance.[11] Under the *carve-out model,* a time slot (one-third of the schedule or less) is reserved for urgent care and same-day appointment requests.[11,12] Under the *advanced access model,* most of the schedule (50% or more) is reserved for same-day appointments regardless of the appointment type, be it routine, urgent, or preventive.[11] Finally, there is the *access-by-denial model,* wherein patients call in for same-day appointments. If no spots are available, they can call back again the next day.[11]

Physician remuneration models are another factor that influence timely access to health care services. The results of studies on wait time reduction strategies have indicated that financial incentives are a factor in determining their success.[11,13,14]

Data collection and analysis

The potential participants were contacted from December 2019 to March 2020 by telephone, in person, or online, and data were collected using semistructured interviews. The data obtained were analysed using SPSS. The resulting analyses are descriptive and include frequency measurements and means based on the variables being studied. The analyses also include independent *t* tests for continuous variables and χ^2 analyses for categorical variables to identify differences based on the *P* value less than .05 significance threshold.

Ethical approval

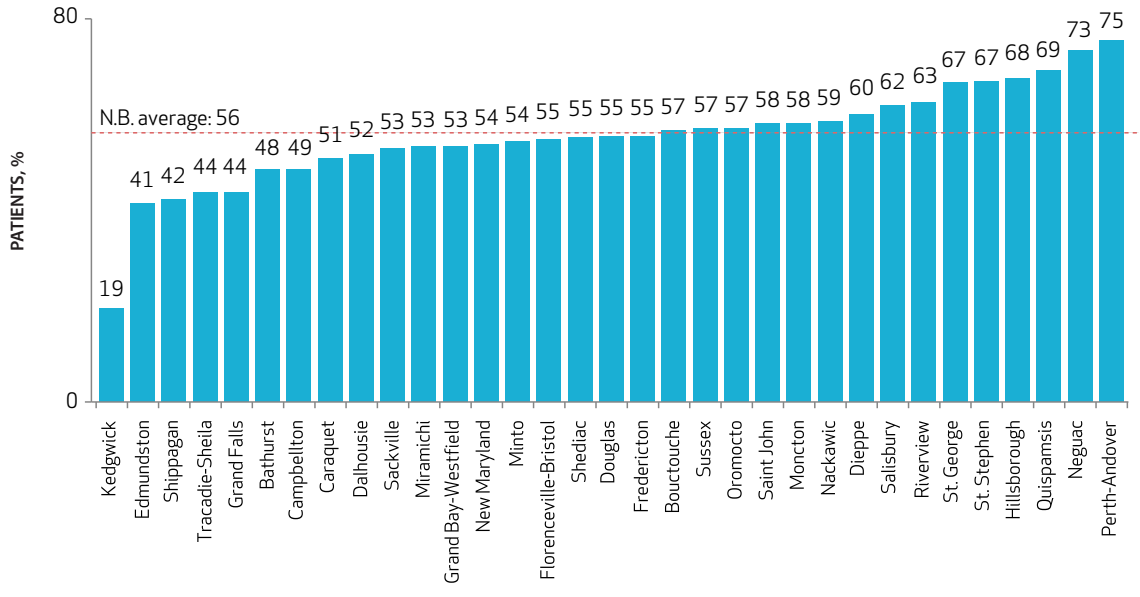
This research received ethical approval from the Vitalité Health Network Research Ethics Board and a recognition request from the University of Moncton's Comité d'éthique de la recherche sur les êtres humains. Although an ethical approval request was submitted to the Horizon Health Network, their ethics board concluded that the project would not require an assessment since the lists of physicians used are publicly available.

Results

Table 1 demonstrates the sample distribution according to region and speed of access. **Table 2** summarizes the types of technology used in the participants' practices. In general, we observed that in regions with more timely access participants use a wider variety of technologies. Electronic medical records are the exception. Differences in the use of EMRs were statistically significant. They are more often used by practices in the slow-access group (100.0% of participants) than in the fast-access group (36.4% of participants).

Table 3 presents the results for the team-based care approach. The results reveal that family health teams were used more often in the fast-access group (63.6% of participants) than in the slow-access group (37.5%). The

Figure 1. Comparison of the ability to obtain an appointment with a family physician within 5 days, across the different New Brunswick health regions



Reproduced with permission from the New Brunswick Health Council (2017).[7]

Table 1. Sample distribution by region and timeliness of access

REGION (NETWORK)	FAST-ACCESS GROUP (n=11), n (%)	SLOW-ACCESS GROUP (n=16), n (%)	TOTAL (N=27), n (%)
Kedgwick (Vitalité)	NA	1 (6.3)	1 (3.7)
Edmundston (Vitalité)	NA	9 (56.3)	9 (33.3)
Shippagan (Vitalité)	NA	0 (0.0)	0 (0.0)
Tracadie-Sheila (Vitalité)	NA	3 (18.8)	3 (11.1)
Grand Falls (Vitalité)	NA	3 (18.8)	3 (11.1)
St Stephen (Horizon)	4 (36.4)	NA	4 (14.8)
Hillsborough (Horizon)	1 (9.1)	NA	1 (3.7)
Quispamsis (Horizon)	2 (18.2)	NA	2 (7.4)
Neguac (Horizon)	1 (9.1)	NA	1 (3.7)
Perth-Andover (Horizon)	3 (27.3)	NA	3 (11.1)

NA—not applicable.

Table 2. Technologies used in each group

TECHNOLOGY	FAST-ACCESS GROUP (n=11), n (%)	SLOW-ACCESS GROUP (n=16), n (%)	TOTAL (N=27), n (%)
E-mail	9 (81.8)	9 (56.3)	18 (66.7)
Electronic medical record*	4 (36.4)	16 (100.0)	20 (74.1)
Online registration	3 (27.3)	1 (6.3)	4 (14.8)
Instant messenging	0 (0.0)	1 (6.3)	1 (3.7)
Voice mail	7 (63.6)	8 (50.0)	15 (55.6)
Telemedicine	1 (9.1)	1 (6.3)	2 (7.4)

*Significant difference between groups at $P<.01$ according to the χ^2 analysis (Pearson test for independence).

same tendency was observed for practices working in multidisciplinary teams (that include other types of health providers). However, there was no statistically significant difference between the groups on *t* test analysis for independent samples.

Table 4 presents the different organizational practices observed in physician offices. Practices in the faster-access group measured performance more often (45.5%) than those in the slower-access group (12.5%, $P=.046$). The fast-access group used the fee-for-service model (63.6%) more often. The slower-access group used mixed remuneration models more often ($P=.040$). The most frequently used scheduling systems were the traditional (45.5% in the fast-access group vs 62.5% in the slower-access group) and carve-out models (54.5% in fast access vs 31.1% in slow access). However, these differences were found to be non-significant.

Discussion

The fast-access group measured their performance more often (45.5%) than the slow-access group (12.5%). When

Table 3. Team-based care approach

APPROACH	FAST-ACCESS GROUP (n=11)	SLOW-ACCESS GROUP (n=16)	TOTAL (n=27)
Family health teams, n (%)	7 (63.6)	6 (37.5)	13 (48.1)
Mean no. of physicians	2.4	3.6	3.1
Teams that include other professionals, n (%)	8 (72.7)	7 (43.8)	15 (55.6)
Mean no. of other professionals	3.1	0.9	1.8

a health provider evaluates their performance, important information is revealed that allows them to compare themselves to other health providers. According to van der Wees et al, measuring performance is an excellent incentive for improving practice performance.[15] According to the Canadian Institute for Health Information, performance measurement is uncommon in New Brunswick. Only 38.0% of family physicians annually compare their performance to established targets, and only 8% receive information that would allow them to compare their practice's clinical performance to other practices.[6] Within the study sample, the percentage of participants who measured their performance was lower than that reported by the Canadian Institute for Health Information, at a rate of 25.9%. The regions targeted by this study were all rural, which could mean that they may measure performance less overall than urban practices. However, the results of this study make it impossible to confirm this hypothesis.

Health care providers in fast-access regions serve a higher number of patients (average=2157) than those with slower access do (average=950), to a statistically significant degree (P=.025). These observations are consistent with the proportion of health providers working outside their office practices. In regions with slower access, 81.3% of physicians practise in other health care settings (hospitals, emergency departments, health centres, etc). In regions with fast access, only 63.6% of physicians practice in other health care settings, although the difference is not statistically significant. Practising in settings outside a family medicine practice appears to have an indirect impact on timely access.

While the difference is non-significant, the fast-access group uses a carve-out appointment scheduling model more often (54.5%) than the traditional model (45.5%). In fact, only 31.3% of the slow-access group use the carve-out model, while 62.5% use the traditional model. Under the traditional model, all appointments are scheduled in advance. In urgent situations, appointment requests are either refused or added to an existing appointment ("double booked"). A patient whose request for an urgent appointment has been denied is referred elsewhere (eg, to the emergency department) to receive care.[11,16] This practice is very costly to the provincial government, as

Table 4. Organizational practices of fast- and slow-access groups

PRACTICE	FAST-ACCESS GROUP (n=11)	SLOW-ACCESS GROUP (n=16)	TOTAL (n=27)
Performance measurement,* n (%)	5 (45.5)	2 (12.5)	7 (25.9)
Quality of patient experience, n (%)	2 (18.2)	3 (18.8)	5 (18.5)
Preventive care, n (%)	8 (72.7)	8 (50.0)	16 (59.3)
Policies implemented in practice, n (%)	5 (45.5)	6 (37.5)	11 (40.7)
Physician practising in other settings, n (%)	7 (63.6)	13 (81.3)	20 (74.1)
Accepting new patients, n (%)	5 (45.5)	2 (12.5)	7 (25.9)
Mean (SD) patients managed by physician*	2157 (1078)	950 (356)	1317 (852)
Remuneration model, n (%)			
• Fee for service	7 (63.6)	6 (37.5)	13 (48.1)
• Salary	4 (36.4)	3 (18.8)	7 (25.9)
• Mixed*	0 (0.0)	5 (31.3)	5 (18.5)
• Patient	0 (0.0)	2 (12.5)	2 (7.4)
Appointment scheduling, n (%)			
• Traditional	5 (45.5)	10 (62.5)	15 (55.6)
• Carve-out	6 (54.5)	5 (31.3)	11 (40.7)
• Accelerated access	0 (0.0)	1 (6.3)	1 (3.7)
• Access by denial	0 (0.0)	0 (0.0)	0 (0.0)

*Significant difference between groups at P<.05. Performance measurement and mixed remuneration model were assessed using χ^2 analysis (Pearson test of independence), while the "patients managed by physician" variable was assessed using a t test for sample independence.

a visit to a family physician in New Brunswick costs an average of $46.60 while an emergency department visit costs $192.17 on average.[17]

Based on the survey results, the fee-for-service model is associated with timely access. Fee-for-service is an incentive for primary care providers to see patients more quickly.[14] The proportion of participants receiving fee-for-service remuneration was higher (63.6%) in the fast-access group than the slow-access group (37.5%). In this payment model, physicians are compensated for each service provided. They can sometimes be offered additional bonuses, which can provide an incentive to see more patients and increase office hours.[14,18] However, only the mixed remuneration model showed a statistically significant difference between the 2 groups, as only participants from slow-access regions used that model.

The use of EMRs was a common practice among participants from slow-access regions, as 100.0% of those interviewed reported using them compared with only 36.4% of participants from fast-access regions. Using this technology, physicians can obtain information from another medical consultation (eg, with a specialist) in less than 5 minutes. In addition, they can send automatic reminders to patients with chronic diseases.[19] In theory, physicians could save an average of 15 minutes per record, allowing them to see more patients.[20] However, the participants in this study did not appear to benefit from them. There is evidence that physicians find EMRs are difficult to use to their full potential, are time consuming to complete, and may even contribute to burnout, which may explain lower uptake rates.[21-24] No data were collected within the framework of this study on that regard.

Finally, regions with slower access are from the Vitalité Health Network, while regions with fast access are from the Horizon Health Network. The policies and regulations of these networks were not studied within the scope of this project.

Limitations

The results remain nuanced because of the small sample size from target regions, which also limits the generalizability of the study. Further, the observational nature of the study did not permit the establishment of causal links between the variables studied. Finally, organizational differences between the health networks were not studied.

Conclusion

Measurable and modifiable factors influence the speed of access to primary care services, namely, the measurement and comparison of practice performance, control over physician remuneration, providers practising strictly within their own offices, and the number of patients managed. To improve timely access (including use and provision of medical services) in New Brunswick, these data could be useful for government decision making, practices, and patients. Future research could assess the pertinence of appointment requests since patient perceptions of urgency do not always align with those of health care professionals. Other research avenues could include a comparison of network policies and procedures, physician perspectives on performance measurement, and evaluation of the need for physicians to practise in settings outside primary care.

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Contributors

All authors contributed to the concept and design of the study; data gathering, analysis, and interpretation; and preparing the manuscript for submission.

Competing Interests

None declared

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