Original Article
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Impact of physician distribution policies on primary care practices in rural Quebec

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This article has been peer reviewed.

Introduction: Accessibility and continuity of primary health care in rural Canada are inadequate, mainly because of a relative shortage of family physicians. To alleviate the uneven distribution of physicians in rural and urban regions, Quebec has implemented measures associated with 3 types of physician practices in rural areas. The objectives of our study were to describe the practices of these types of physicians in a rural area and to analyze the impact of physician distribution policies aimed at offsetting the lack of resources.
Methods: Data were drawn from a medical administrative database and included information related to physicians' practices in the rural area of Beauce, Que., in 2007.
Results: The practices of permanently settled physicians in rural areas differ from those of physicians who substitute for short periods. Permanently settled physicians offer mostly primary care services, whereas physicians who temporarily substitute devote much of their time to hospital-based practice.
Conclusion: Physician distribution policies implemented in Quebec to compensate for the lack of medical resources in rural areas have reduced the deficit in hospital care but not in primary care.

Introduction : L'accessibilité des soins de santé primaires et leur continuité laissent à désirer dans le Canada rural, principalement à cause d'une relative pénurie de médecins de famille. Pour compenser la distribution inégale des médecins entre les régions rurales et les villes, le Québec a instauré des mesures associées à 3 types de pratiques médicales dans les régions rurales. Notre étude avait pour objectifs de décrire les types de pratique de ces médecins et d'analyser l'impact des politiques de distribution des effectifs médicaux visant à compenser les pénuries.
Méthodes : Nous avons extrait les données d'une base administrative médicale et nous y avons inclus l'information relative aux pratiques médicales dans la région rurale de la Beauce, au Québec, en 2007.
Résultats : Les pratiques des médecins établis à demeure dans les régions rurales diffèrent de celles des médecins qui remplacent pour de courtes périodes. Les médecins qui s'établissent en région rurale offrent surtout des services de soins primaires, tandis que ceux qui occupent des postes de remplacent temporaires consacrent principalement leur temps à la pratique hospitalière.
Conclusion : Les politiques de répartition des effectifs médicaux appliquées au Québec pour compenser les pénuries en région rurale ont réduit les pénuries de médecins pour les soins hospitaliers, mais non pour les soins primaires.

INTRODUCTION

The effectiveness of primary care services is a major component of overall health system performance.[1,2] Two important dimensions of effectiveness are accessibility and continuity of care. In many industrialized countries, accessibility and continuity of care are inadequate and are often linked to a relative shortage of family physicians.[3–5] This deficit in primary care services is more

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striking in rural areas, where the proportion of individuals in greater need of primary care, such as seniors and those with chronic diseases, is more apparent.[6,7] To offset this imbalance in distribution of family physicians in rural and urban areas, governments have implemented several types of measures. These include encouraging young physicians from rural areas to practise in their home region,[6,8] offering financial incentives to set up practice in rural areas[9] and providing medical training programs in rural areas.[10,11]

In Canada, various measures have been introduced to solve this problem. For instance, Quebec has implemented regional physicians supply plans (plans régionaux d'effectifs médicaux [PREM]), specific medical activities programs (activités médicales particulières [AMP]) and a locum system (système de dépannage). The goal of PREM, implemented regionally, is to set up targets for recruitment of general practitioners for each administrative region that would lead to equitable distribution among regions in the province.[12]

Activités médicales particulières, also implemented regionally, has the objective of reducing the shortage of physicians in health care establishments in targeted regions. For the most part, AMP is concerned with hospital emergency departments and acute and longer-term care facilities and involves on-call duty. General practitioners who have been in practice for less than 15 years must complete 12 hours of AMP per week. Physicians with 15 to 20 years of experience must perform 6 hours of AMP per week. Finally, AMP does not apply to physicians who have been in practice for more than 20 years.[13,14]

The locum system has been implemented throughout the province. The goal of this policy is to ensure ongoing provision of health services in emergency departments and rural hospitals. The locum system consists of temporarily replacing general practitioners in the performance of their regular tasks, or compensating for a physician shortage that hampers the provision of urgent and needed care to patients in an institution.[15] According to the Ministry of Health and Social Services (Ministère de la santé et des services sociaux [MSSS]), using a locum system enables an institution experiencing a shortage of physicians to maintain continuity of primary medical care (in emergency and acute care departments) during the prolonged absence of 1 or several general practitioners.[15]

In relation to these measures, there are 3 types of physicians practising in rural areas: physicians who live permanently in the territory (locally settled physicians), physicians who come from other areas in the region and are subject to AMP (regional physicians), and locum physicians who come from outside the region.

To our knowledge, no study has compared the practices of locum and regional physicians with those of physicians settled locally. We sought to describe the practices of physicians working in one rural territory and to analyze whether the physician distribution policies alleviated deficiencies in the provision of primary care. We hypothesized that the practices of locum and regional physicians differ from those of locally settled physicians.

METHODS

Context

Our study is descriptive and retrospective. It includes all family physicians working in Beauce, Que., during 2007. Beauce is a rural territory located in the Chaudière–Appalaches region, which consists of a total of 5 territories. Beauce covers an area of 2843 km^2 and in 2007 had a population of 69 046. There are 200-bed long-term care institutions established in 3 sites, a general and specialized care hospital with 142 short-stay beds, and 2 local community health centres (centre local de services communautaires [CLSCs]) broken up into 5 sites. Beauce also has 23 medical clinics and 2 family medicine groups (FMGs).[16] Family medicine groups are groups of 6–10 freely associated general practitioners who work in close collaboration with nurses and offer services to rostered patients.[17] Beauce is located in a region undersupplied by physicians (0.95 general practitioners per 1000 inhabitants), when compared with other regions in the province (average of 1.03 general practitioners per 1000 inhabitants).[18] Beauce is 100 km from a major metropolitan area (the city of Québec). Its proximity to Québec favours the recruitment of locum physicians.

Data source

Our data were drawn from the Régie de l'assurance maladie du Québec (RAMQ) database, which contains information on physician billing, distribution of income generated from different sites of practice, individual characteristics and some information about patients. This information was available for all physicians who practise, even minimally, in the

Beauce territory. We did not have information about medical practice outside this territory.

The study population includes family physicians who billed for at least 1 service in the territory of Beauce between Jan. 1 and Dec. 31, 2007. We identified the types of physicians through the main practice setting that they reported.

We used physicians' earnings in different sites of practice in the territory to construct profiles of physician practices using a multiple correspondence analysis associated with an ascending hierarchical classification. In Quebec, general practitioners can work in CLSCs, private clinics, long-term care facilities, short-term hospitals, outpatient clinics, home care programs, emergency departments or other settings.

RESULTS

The study population included 145 family physicians; 80 lived in the territory (locally settled physicians), 24 were from the region but lived outside the Beauce territory (regional physicians), and 41 were from outside the region (locum physicians).

In the Beauce territory, 55.1% of physicians were locally settled, 16.6% were regional and 28.3% were locum physicians (Table 1). Table 1 lists physician characteristics by type of physician. Of the physicians, 46.2% did not work at all in primary care services (i.e., CLSC and private clinics). Conversely, 36.6% of physicians earned 75% or more of their income in primary care services. In this category were mostly locally settled physicians.

Figure 1 presents the source of income from different practice settings, by type of physician. Locally settled physicians earned on average more than 60% of their incomes in primary care services (i.e., private clinics and CLSC). Regional and locum physicians earned more than 70% of their incomes in short-term hospitals and emergency departments.

Physician profiles, derived from the method described in the Data source section, resulted in 4 practice profiles. Figure 2 shows physicians' sources of income, by practice profile.

The "emergency practice" profile includes physicians who earn on average more than 80% of their income in emergency departments. The profile termed "hospital-based practice" is composed of physicians who earn on average more than 80% of their income from hospitals. The "multisite practice" profile includes practices in private clinics supplemented with practices in short-term hospitals and long-term care facilities. The "office-centred practice" profile is made up of physicians who share their time between private clinics and home visits.

Table 2 presents practice profiles by type of physician as well as other individual and practice characteristics. The emergency and hospital-based practice profiles are mainly composed of regional and locum physicians. The office-centred and multisite practice profiles are essentially composed of locally settled physicians. The emergency and hospital-based practice profiles include more women and younger individuals than the other 2 profiles.

Table 1. Characteristics of 145 physicians

Characteristic	Physician type; % of physicians: Locally settled, *n* = 80	Regional, *n* = 24	Locum, *n* = 41	Total, %
All physicians	55.1	16.6	28.3	100.0
Sex				
Female	42.5	37.5	36.6	40.0
Male	57.5	62.5	63.4	60.0
Age, yr				
< 30	6.2	16.7	19.5	11.7
30–44	31.2	41.7	39.0	35.2
45–65	62.5	41.7	41.5	53.1
Income from primary care services, %				
0	20.0	75.0	80.5	46.2
1–49	3.8	8.3	0.0	3.4
50–74	25.0	0.0	0.0	13.8
75–100	51.2	16.7	19.5	36.6

DISCUSSION

Our results show that the practices of locally settled physicians are very different from those of regional and locum physicians. Locally settled physicians are generally older and mostly practise in primary care. Regional physicians who have AMP obligations and locum physicians are similar: they are younger, work mostly in hospitals and emergency departments, and can often fill permanent vacant positions in hospitals; but they practise rarely or not at all in primary care that requires geographical proximity of physicians and patients.

"Hospital-based practice" physicians see the highest proportion of older patients (≥ 65 yr). The reason for this is likely the high number of hospital admissions among people in this age group. Several studies have shown that management of elderly patients in primary care reduces the number of hospital admissions.[2] By virtue of their in-hospital

practices and because they are from outside the territory, physicians in the "hospital-based practice" profile do not provide patient care management and follow-up, and thus do not contribute to reducing avoidable hospital admissions.

The "emergency practice" profile includes close to one-third of the 145 physicians practising in the territory. A similar province-wide study showed that emergency care provides relatively high accessibility to patients compared with the other groups.[19] Yet, with a progressive increase in the prevalence of patients with chronic diseases, planning of physician distribution should also focus on integration and continuity of care to meet the health needs of an aging population.[2]

The profile termed "multisite practice" seems to be well adapted to a rural context because physicians in this profile work both in primary care and hospitals. However, young physicians in this study are not adopting this practice profile, which may mean it is declining. Overall, the practices of physicians in rural areas do not favour primary care services because many physicians work mostly in institutions.

Basic primary care services are mainly offered by physicians aged 45 years or older who are established in the territory. These results raise concerns regarding the future supply of health professionals in primary care. A similar province-wide study showed that office-centred practice presents the highest level of continuity of care.[18] Yet, the traditional family physician model is dwindling.[20–22] If nothing is done, this model will disappear, because the oldest physicians make up the core of this group. This would have serious consequences on patient care management and continuity of care in rural areas.

Our findings confirm that the planning policies pertaining to physician distribution implemented in Quebec have yielded the expected results. The objectives of these policies were to overcome the lack of resources in health institutions in rural areas. Our results show that regional and locum physicians see many emergency and in-hospital patients. These initiatives apply more specifically to younger physicians who must perform a minimum of 12 hours of AMP per week in hospitals. This requirement does not encourage them to develop primary

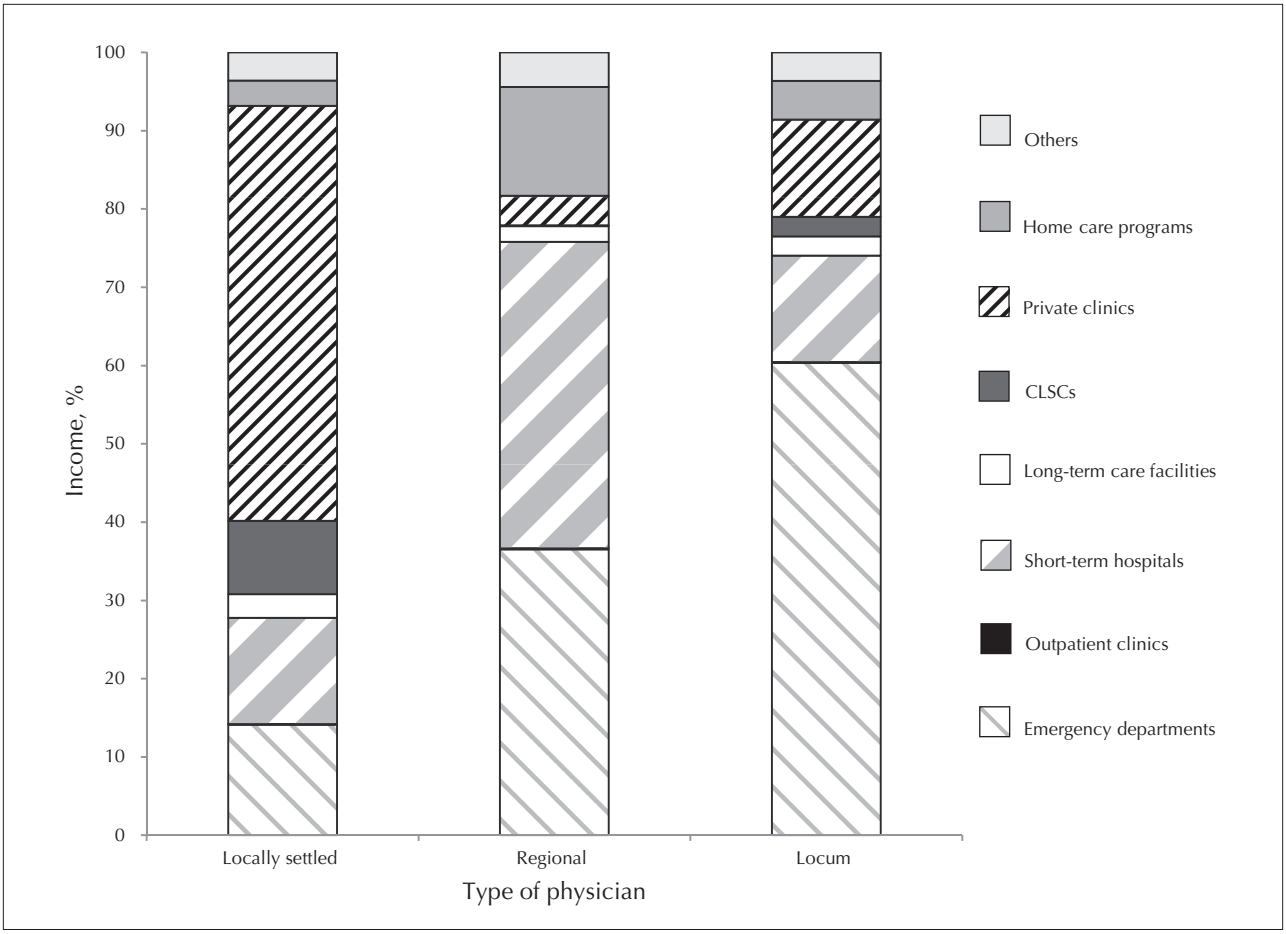


Fig. 1. Source of income by type of physician. CLSCs = centre local de services communautaires (local community health centres).

care practices. Conversely, older physicians are not affected by these policies, and our study shows that they are providing most of the primary care services in rural areas. Regional and locum physicians enable emergency departments and institutions to maintain their level of activity, despite the shortage of physicians in rural territories such as Beauce. In the short term, these policies have a beneficial effect on access to institutional care provided by hospitals and emergency departments in rural areas.

However, these policies have also had unexpected outcomes, as our study has shown. One of these outcomes is that young physicians practise more in institutions and less in primary care. According to Paré and Ricard,[23] there are more young physicians (64%) than experienced physicians (25%) in specialized care. There is a growing percentage of general practitioners in specialized care: it rose from 33.5% in 2003–2004 to 39% in 2006–2007.[23] Therefore, older physicians are providing most primary care services. There is a risk that patient care management and follow-up in primary care services will deteriorate over time. Moreover, when calculating the ratio of physicians to population to determine physician supply in Beauce, the MSSS counts locum physicians and those who must complete AMP. Yet, these physicians are there on a temporary basis. They rarely, if at all, practise in primary care and do not provide patient follow-up or care management, in particular to patients with chronic illnesses. If no measure is applied to change this trend in the long term, these planning policies for physician distribution will have a very negative impact on the provision of primary care services. Complementary measures are needed to make primary care in rural areas a more attractive option for physicians.

In a society in which more patients increasingly require continuous and integrated care over time, the physician distribution policies implemented in Quebec do not encourage patient care management and follow-up of chronic illnesses in primary care, especially among young physicians who are required to work a certain number of hours in institutions.

To ensure that medicine in rural areas has a future and that continuing and accessible primary care services continue to be provided, it is important

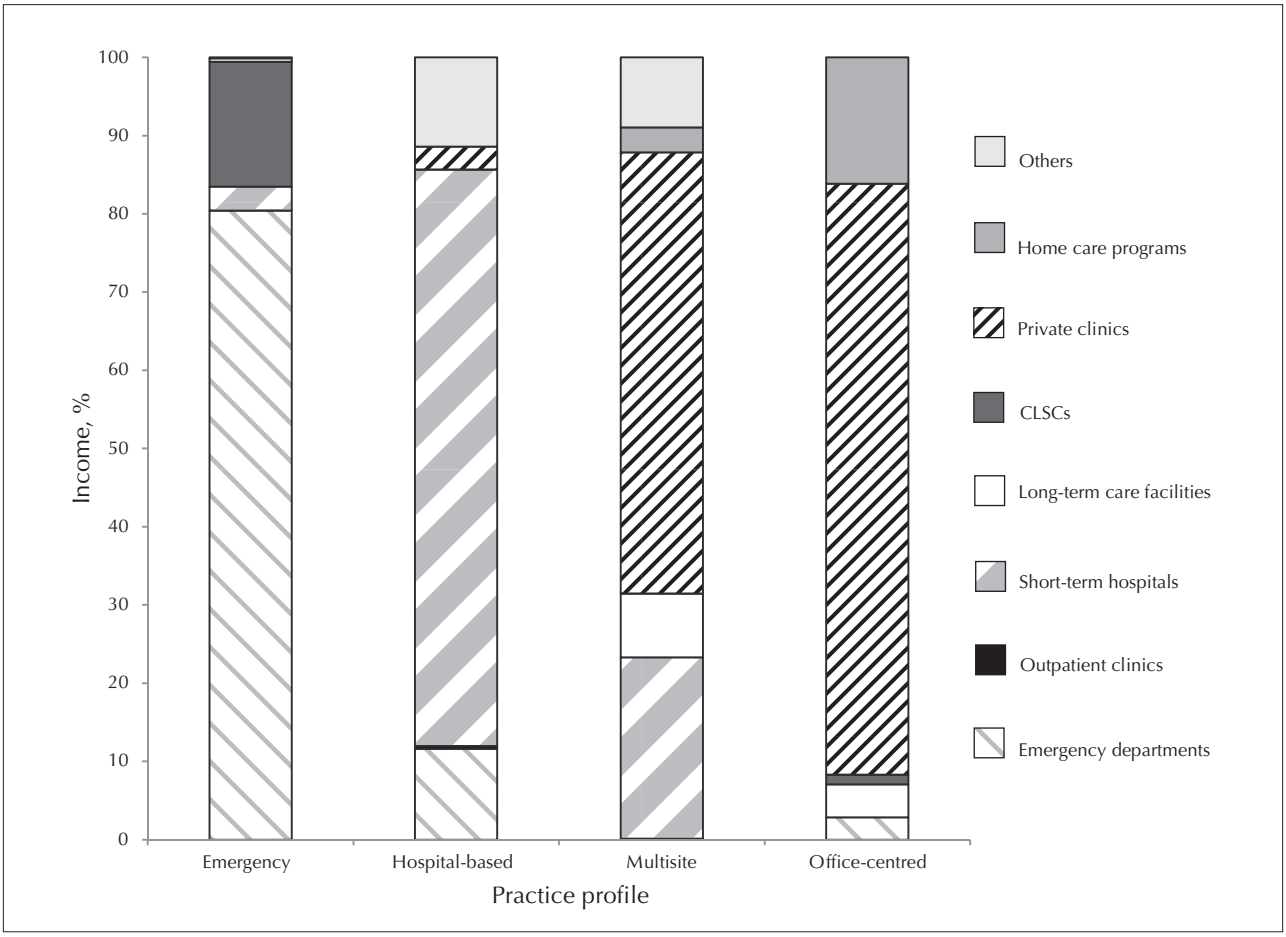


Fig. 2. Source of income by practice profile. CLSCs = centre local de services communautaires (local community health centres).

to implement other measures to encourage young physicians to practise in primary care. The literature shows that, although financial incentives are popular among younger physicians, close attention should be paid to the practice and lifestyle factors that appear to have greater importance.[10] Certain conditions and values similar to the concept of the "medical home" make primary care more attractive to young physicians,[24] but remuneration models supportive of this concept are not applied in Quebec. Only the FMG model implemented in Quebec in 2002 offers organizational and financial conditions that young physicians find interesting. Family medicine groups offer organizational and financial resources and conditions that are more beneficial than those found in traditional clinics, and they are likely to attract young physicians more easily. A report on the implementation and effects of FMGs shows that, in Quebec, it is easier to recruit physicians to FMGs than to traditional medical clinics.[25] But the conditions required for the acceptance and accreditation of FMGs by the MSSS are sometimes difficult to meet in rural areas, which may hinder their implementation. It is in the interest of decision-makers to adapt the conditions required for the implementation of FMGs in a rural context to strengthen primary care in rural areas.

Limitations

Studies based on medical administrative databanks present both known strengths and limitations.[26,27] The data available to our study restricted our analyses. It would have been useful to have more information on the practices of locum physicians in their main regions of practice. Given that locum physicians tend to be in a younger age group, if their main practices were the same as in this rural area (i.e., emergency or hospital-based care), this would raise important concerns for patient care management and continuity of care, and more broadly for the future of primary care in Quebec. Overall, the situation prevailing in other rural areas in Quebec is not different from that presented in this study.[19] Our results could be extrapolated to other rural regions in Quebec or the rest of Canada, where the same conditions would apply.

CONCLUSION

Physician distribution policies in rural regions raise a dual challenge. Health care institutions need physicians to maintain their level of service delivery, whereas primary care practices also require physicians to provide continuous and integrated care to

Table 2. Characteristics of 145 physicians, by practice profile

Characteristic	Practice profile; % of physicians*				Total, %
	Emergency	Hospital-based	Multisite	Office-centred	
All physicians	35.2	17.2	17.2	30.3	100.0
Locally settled physicians	29.0	36.0	96.0	73.0	55.0
Regional physicians	20.0	36.0	4.0	9.0	17.0
Locum physicians	51.0	28.0	0.0	18.0	28.0
Sex					
Female	47.0	56.0	36.0	25.0	40.0
Male	53.0	44.0	64.0	75.0	60.0
Age, yr					
< 30	20.0	28.0	0.0	0.0	12.0
30–44	55.0	28.0	52.0	7.0	35.0
45–65	25.0	44.0	48.0	93.0	53.0
Patient age group, mean % of patients					
0–18	20.0	8.0	21.0	16.0	17.0
19–64	56.0	37.0	54.0	60.0	55.0
65–74	10.0	14.0	8.0	11.0	10.0
≥ 75	14.0	39.0	15.0	12.0	17.0
Undetermined	0.0	2.0	2.0	1.0	1.0
No. of patients seen in Beauce					
< 999	79.0	76.0	16.0	41.0	54.0
1000–1799	13.0	0.0	28.0	25.0	18.0
1800–2399	2.0	18.0	32.0	14.0	14.0
> 2399	6.0	6.0	24.0	20.0	14.0

*Unless otherwise indicated.

the population. Our results show that the policies implemented so far have given priority to institutional care at the detriment of primary care. A solution to that problem might be to create conditions for fostering the implementation of new innovative primary care organizations, such as FMGs.

Competing interests: None declared.

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