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First practice: family physicians initially locating in rural areas

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Introduction: This paper quantifies the proportion of family physicians in rural practice and, in particular, initial rural practice. It examines differences between graduates of Canadian and international medical schools.
Methods: The Canadian Medical Association postal code master file was used to determine the distribution in rural practice of Canadian and international medical school graduates for every other year from 2000 to 2011. The master file maps practice postal codes into a census metropolitan area or census agglomeration; physicians practising outside these areas are considered rural. Initial practices were estimated based on year of undergraduate medical degree.
Results: Two-thirds of family physicians practising rural medicine in 2011 were graduates of Canadian medical schools. However, between 2000 and 2011, a greater proportion of international medical graduates were practising in rural areas than graduates of Canadian medical schools. International graduates were more likely to initially locate in a rural area, but the drop-off rate was greater among them than with graduates of Canadian medical schools. The proportion of international medical graduates setting up rural practices was decreased among more recent graduation cohorts. The proportion of Canadian medical school graduates initially practising in rural areas was steady.
Conclusion: The results of this study suggest that graduates of international and Canadian medical schools treat rural practice differently. International graduates may decide on a rural location as a means to set up practice in Canada or fulfill a return-of-service obligation, whereas graduates of Canadian medical schools may make a conscious choice to practise in rural locations. Decreasing proportions of international medical graduates in rural practice may be a result of increased opportunities for Canadian postgraduate training and full licensure.

Introduction : Ce document quantifie le pourcentage des médecins de famille qui exercent en milieu rural et, plus particulièrement, qui commencent à pratiquer en milieu rural. Il analyse les différences entre les diplômés de facultés de médecine canadiennes et étrangères.
Méthodes : Les chercheurs ont utilisé le fichier principal par code postal de l'Association médicale canadienne pour déterminer la répartition, en médecine rurale, des diplômés de facultés de médecine canadiennes et étrangères aux 2 ans, de 2000 à 2011. Le fichier principal établit la concordance entre les codes postaux des cabinets et les régions métropolitaines de recensement ou une agglomération de recensement. Les médecins qui exercent en dehors de ces régions sont considérés comme des médecins ruraux. On a calculé le début de l'exercice en fonction de l'année d'obtention de diplôme du premier cycle en médecine.
Résultats : Deux tiers des médecins de famille pratiquant la médecine rurale en 2011 étaient diplômés de facultés de médecine canadiennes. Entre 2000 et 2011, le pourcentage des diplômés de facultés de médecine étrangères qui exerçaient en milieu rural dépassait toutefois celui des diplômés de facultés de médecine canadiennes. Les diplômés de l'étranger étaient plus susceptibles de s'installer au début dans une région rurale, mais le taux d'abandon était plus élevé chez eux que chez les diplômés de facultés de médecine canadiennes. Le pourcentage des diplômés de facultés de médecine étrangères qui établissent une pratique en milieu rural a diminué dans les cohortes plus récentes de diplômés.

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Le pourcentage des diplômés de facultés de médecine canadiennes qui commencent à exercer en région rurale a été stable.
Conclusion : Les résultats de l'étude indiquent que les diplômés de facultés de médecine étrangères et canadiennes abordent différemment la pratique en milieu rural. Les diplômés de l'étranger peuvent choisir un endroit rural comme moyen d'ouvrir un cabinet au Canada ou de s'acquitter de leurs obligations de remboursement de temps, tandis que les diplômés de facultés de médecine canadiennes peuvent choisir délibérément de pratiquer en milieu rural. Le pourcentage à la baisse des diplômés de facultés de médecine étrangères qui exercent en milieu rural peut découler d'une augmentation des possibilités de formation postdoctorale au Canada et de l'obtention du permis d'exercice complet.

INTRODUCTION

According to a 2011 mapping of physician practice postal codes, about 15% of family physicians worked in rural areas of Canada, defined as being outside a census metropolitan area or census agglomeration.[1]

Various studies have profiled rural physicians, and some have shown that growing up or having had postgraduate training in a rural area increases the likelihood of rural practice.[2–4] One study also showed that factors related to practice and lifestyle were more important than financial incentives in attracting and retaining rural physicians.[5] A small study involving family medicine residents at the University of Calgary found that residents from the rural stream had no long-term plans to establish rural practices.[6]

This paper attempts to quantify what proportion of new physicians, or physicians who are new to Canada, made rural Canada their initial practice location and what percentage remained 5 to 10 years later. It examines aggregate point-in-time counts of practising physicians as well as individual cohorts of medical graduates who have begun their practice in a rural setting, either after exiting a Canadian postgraduate education program, or via a special licence in the case of some international medical graduates.

METHODS

The Canadian Medical Association postal code master file was used to determine the overall distribution in rural practice of Canadian and international medical school graduates for every other year from 2000 to 2011. This file includes the mapping of the postal codes of all practising physicians into various geographical subdivisions, provided by a special request to Statistics Canada. With this file, rural physicians are defined as those with practice postal codes that are not part of either a census metropolitan area or a census agglomeration.

Census metropolitan areas are large urban centres with populations greater than 100 000, based on the last census. A census agglomeration has a population greater than 10 000 and includes areas that have a high degree of social and economic integration with the urban core. The Society of Rural Physicians of Canada routinely posts counts based on this definition on their website.[7] This definition of rural is by no means perfect and may exclude communities, such as Whitehorse (with a population of about 23 000), that may face many (or more) of the same issues as physicians in less densely populated areas.

Initial family practices were estimated through the use of the year of graduation from medical school. This approach can make use of the Canadian Medical Association postal code master file, which defines rural as being outside a census metropolitan area or census agglomeration rather than the increasingly inaccurate method of the second digit of the postal code being zero. This approach also ensured the inclusion of international medical graduates both exiting Canadian postgraduate training programs and setting up rural practice without Canadian postgraduate training.

The limitation of this master file is that it does not contain information on the year physicians completed their postgraduate education, only the year they completed their undergraduate education. In the case of Canadian medical school graduates, however, the year of undergraduate medical degree can provide a good indication of when they begin their careers in family medicine by estimating 3 to 4 years after graduation. Time to Canadian licensure among international medical graduates may vary.

RESULTS

Family physicians in rural practice

Of the 5408 physicians identified as practising outside a census metropolitan area or census agglomer-

ation in 2011, 3608 (two-thirds) completed their undergraduate medical education in Canada. The remaining third graduated either from a medical school outside of Canada (29%) or had an unknown place of graduation (4%).

The number of family physicians included in this study varies depending on the year of graduation and the year of the practice location being tracked. In the 2011 postal code file, for example, the graduation year cohorts being studied varied in size from 490 to 546 for graduates of Canadian medical schools, and from 27 to 157 for international medical graduates. Although some groups are small, they include all licensed physicians with a valid Canadian address at the time.

When examining graduates of Canadian and international medical schools as separate groups, a greater proportion of international graduates were in rural practice during the periods examined than graduates of Canadian schools (Fig. 1).

By 2011, both groups saw a decrease in the percentage of family physicians practising in rural areas. The gap between the groups narrowed somewhat owing to a slightly greater drop in international medical graduates practising in rural areas compared with graduates of Canadian medical schools.

In 2011, the proportions of family physicians in rural practice varied greatly by jurisdiction, with 65% of international medical graduates in Newfoundland and Labrador practising in rural areas, compared with only 5% in Ontario. Graduates of Canadian medical schools had the strongest presence in rural Nova Scotia and New Brunswick. Ontario had the smallest proportion of Canadian medical school graduates practising family medicine in rural areas (Fig. 2).

Whereas the overall figures are interesting, they illustrate only part of the picture. Much detail is lost when looking at aggregate figures involving physicians with varying times in practice. To better understand the flow into and out of rural practice, an examination of initial family practices is needed.

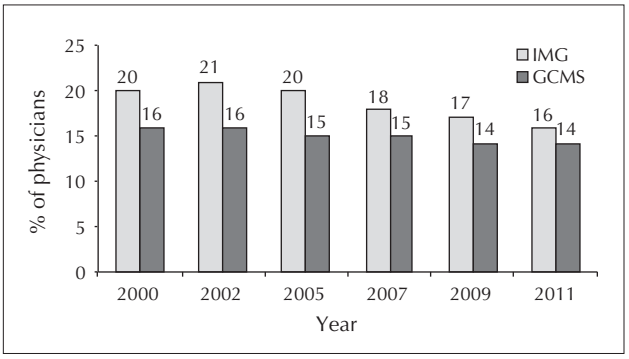


Fig. 1. Percentage of international medical graduates (IMGs) and graduates of Canadian medical schools (GCMS) practising family medicine in rural areas from 2000 to 2011.

Initial family practice in rural areas

International medical graduates

For many international medical graduates, the initial route to licensure in Canada is through an opportunity to practise in a rural or underserviced area. Even some who have completed Canadian postgraduate training and are fully certified by The College of Family Physicians of Canada or the Collège des médecins du Québec may be required, as a condition of that training, to provide services in communities in need for a set period. This will include but not necessarily be limited to rural areas.

International medical graduates without Canadian postgraduate training may not at first have full licensure that would allow for mobility within and

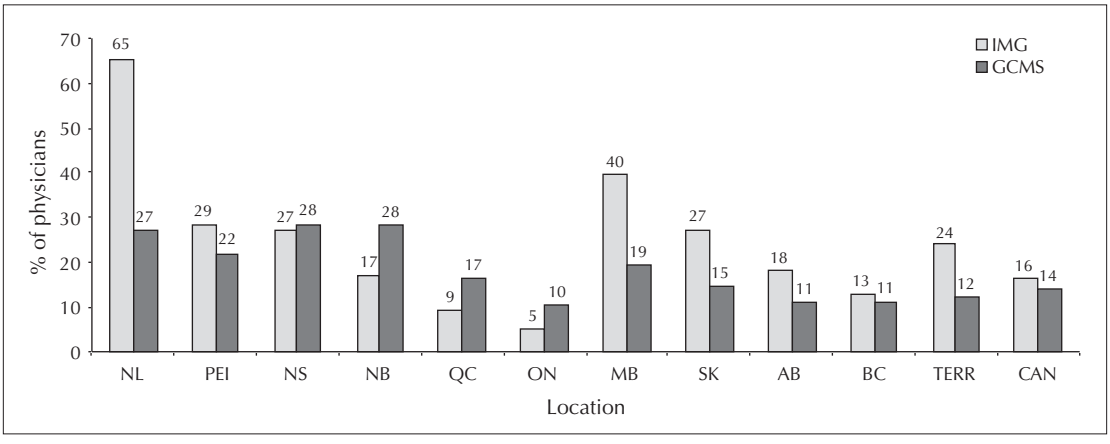


Fig. 2. Percentage of international medical graduates (IMGs) and graduates of Canadian medical schools (GCMS) practising family medicine in rural areas in 2011, by province or territory. TERR = Yukon Territory, Northwest Territories and Nunavut.

outside their jurisdiction. They may be required to stay in a rural community and practice under a supervised licence until they can achieve certification or an alternate recognition of credentials and experience to acquire a full licence.

Figure 3 illustrates the proportion of international medical graduates in rural practice at a particular point in time, by year of graduation from medical school. For example, among those who graduated from medical school in 2001, 77% were in rural family practice in 2005. Among more recent graduates, there appears to be a smaller proportion initially locating in rural areas. Well under half of the 2003 and 2004 graduation cohorts were practising in rural areas in 2007.

Also illustrated by Figure 3 are the trends in international medical graduates setting up and remaining in rural practices based on recent graduation cohorts. Over half (57%) of the international medical graduates who graduated from medical school in 2000 were practising in a rural area in 2005. By 2011, fewer than 1 in 5 (18%) of these graduates were in rural practice. A similar pattern can be seen for the 2001 and 2002 graduation cohorts, with a substantial drop-off rate within 6 years. The 1993 graduation cohort (not shown), had 69% in rural practice in 1998, but only 14% by 2011.

Graduates of Canadian medical schools

The pattern exhibited by graduates of Canadian medical schools differs markedly from that of international medical graduates (Fig. 4). Although the actual volume of Canadian medical school graduates locating in rural areas exceeded that of international medical graduates, proportionally fewer Canadian graduates were practising in rural areas. For instance, 13% of the 2002 graduation cohort was in a rural practice in 2007 (Fig. 4) compared with 58% of international medical graduates who graduated in the same year (Fig. 3). However, 59 graduates of Canadian medical schools are represented compared with only 18 international medical graduates.

For almost every graduation cohort, the drop-off rate among Canadian medical school graduates is much less than it is among international medical graduates. This may indicate a desire to practise in rural Canada among the Canadian medical school graduates, rather than the fulfillment of an obligation. In the 1993 graduation cohort (not shown), 19% of family physicians were initially in rural practice in 1998. Thirteen years later the figure was 14%.

The percentage of Canadian medical school graduates choosing rural practice appears to be steady at about 16%, but this figure has the potential to rise shortly given that many of the graduates of the Northern Ontario School of Medicine (with its focus on rural medicine) are only now completing their postgraduate training and ready to begin practice.

DISCUSSION

The data presented in this study suggest that recent graduates of Canadian medical schools are certainly

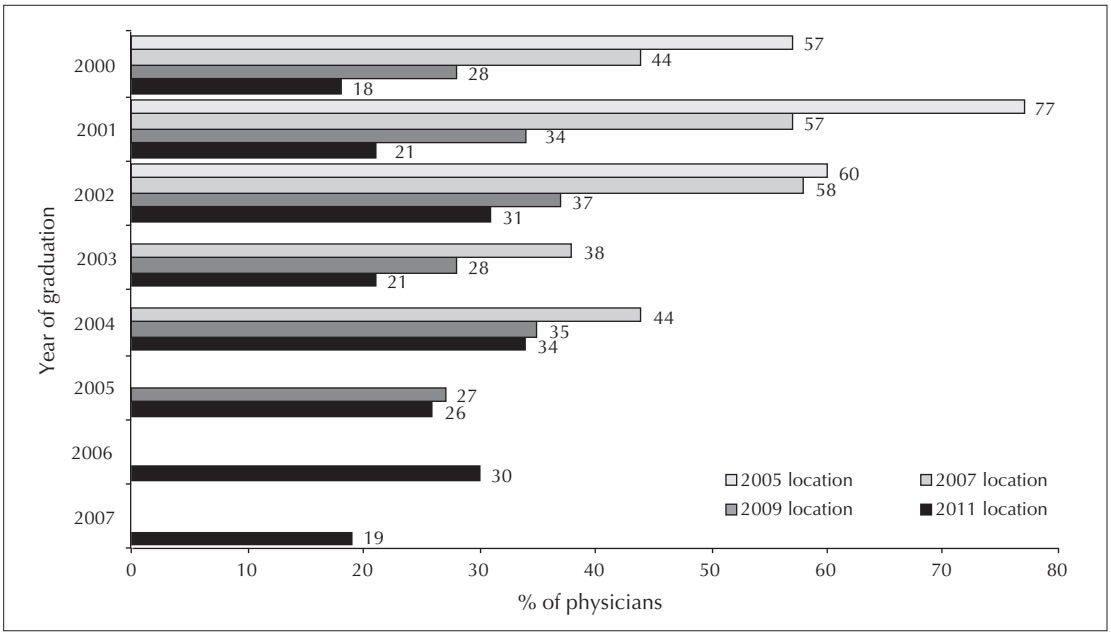


Fig. 3. Percentage of international medical graduates practising family medicine in rural areas in 2005, 2007, 2009 and 2011, by year of graduation from medical school.

not shunning rural practice and may actually be setting up practice in rural areas in larger proportions than has occurred historically. It will be interesting to track this information once graduates of the Northern Ontario School of Medicine are settled into practice. Family physicians who have decided to practise in the country instead of the city appear to be making a serious commitment in terms of retention.

Among international medical graduates, it would appear that the larger proportions of physicians locating in rural areas have lessened in recent years. This drop may be caused by the almost threefold increase in government funding for international medical graduates completing their residency in Canadian postgraduate training programs within the last decade. For provinces with a return-of-service agreement in place for international medical graduates, the graduate may be obliged only to go to an area of need, which would not necessarily be a rural community. For example, in Ontario, all communities other than Toronto and Ottawa would qualify.[8] In provinces with no return-of-service requirement, international graduates can practise in an urban setting of their choice immediately after achieving certification and licensure.

The other noticeable trend is the greater drop in international medical graduates practising in rural areas compared with graduates of Canadian medical schools. The data suggest that Canadian and international graduates approach their initial rural practices differently. Whereas both groups may receive incentives for setting up practice, international medical graduates are more likely to decide on a rural location as a means to set up practice in Canada. This is supported by a 2004 survey in which international medical graduates practising family medicine in rural areas were far more likely (60%) to indicate that the availability of a practice opportunity was one of the main reasons for selecting their current practice location compared with rural family physicians who graduated in Canada (27%).[9]

This information will be tracked to learn if graduates of Canadian medical schools maintain or increase their contribution to rural practice. With the introduction in some provinces of retention bonuses, it will be interesting to see if both Canadian and international graduates decide to stay longer in the rural communities they are currently servicing.

Limitations

The postal code file is purchased by the Canadian Medical Association only every 2 years. Five years after graduation appears to be the peak for family physicians locating in rural practice (e.g., 2005 location of physicians who graduated in 2000, 2007 location for physicians who graduated in 2002). The remaining cohorts may have peaked in years for which the postal code file was unavailable, and therefore the drop-off rates for those physicians may be understated. Regardless, the trends observed are similar among all graduation cohorts.

Tracking of cohorts by year of graduation does not necessarily track the same individuals. When a

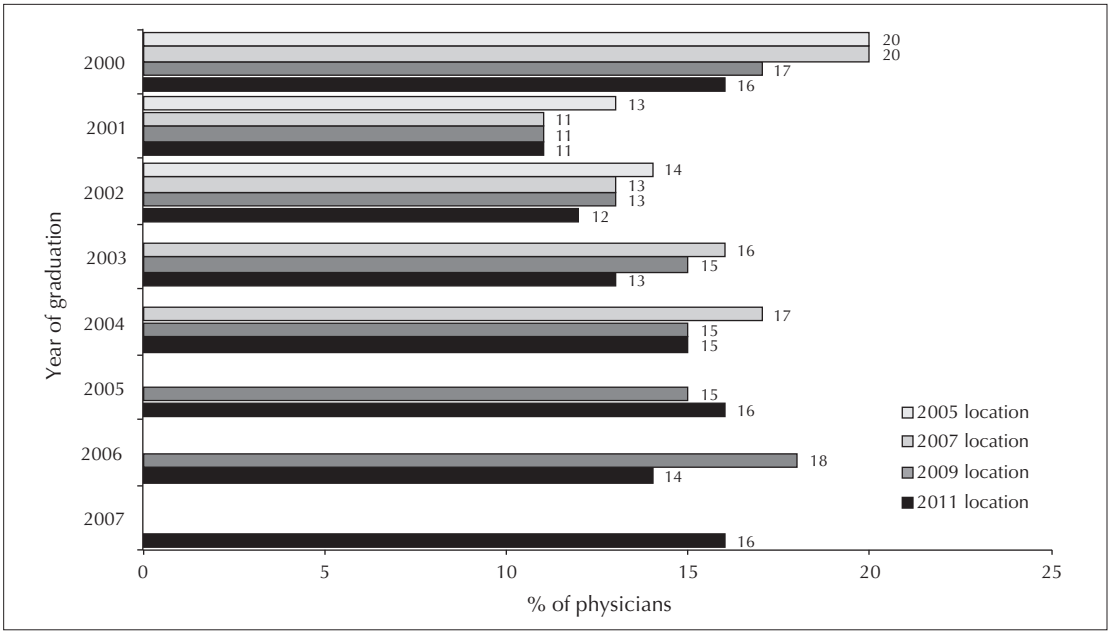


Fig. 4. Percentage of graduates of Canadian medical schools practising family medicine in rural areas in 2005, 2007, 2009 and 2011, by year of graduation from medical school.

percentage remains the same in a rural area, it does not necessarily mean people from that graduation cohort did not leave and others arrive. Also, a physician who remained in rural medicine may have migrated from one rural community to another.

CONCLUSION

Although it is recognized that there is no perfect definition of what constitutes a rural physician, within the parameters of this study, it would appear that most graduates of Canadian medical schools who choose rural medicine do so with the intention of staying longer than a couple of years. By nature of their training, they are less likely than international medical graduates to be fulfilling a return-of-service contract, although they may be receiving incentives to practise in rural areas. In provinces like Ontario, there are many cash incentives to practise in urban centres of need, so graduates of Canadian medical schools who set up a practice in a rural setting are likely doing so by choice rather than because of incentives alone.

The volume of international medical graduates in the study was smaller than that of graduates of Canadian medical schools, especially when examined by individual graduation years. It is clear, however, that many international medical graduates left rural areas within a few years. Even so, substantial proportions remained in rural practice, and the proportion of all international medical graduates practising in rural areas exceeded the proportion of Canadian graduates for all years of the study.

Clearly, both groups make a continued and important contribution to the provision of medical services in rural Canada.

Competing interests: None declared.

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