



## Tracking postgraduate medical trainees through practice: A longitudinal study

**Report Series**

# Tracking postgraduate medical trainees through practice: A longitudinal study

## Acknowledgements

Leslie Forward of CAPER and Tara Chauhan of the Canadian Medical Association.

## Introduction

Physicians are educated and trained in Canada with the skills to practice in a variety of environments and geographic locations.

Past studies have shown that growing up or having had postgraduate training in a rural area increases the likelihood of rural practice.<sup>1 2 3</sup>

A study of initial practice locations of family physicians in Canada indicated that for many provinces, a greater proportion of IMGs were initially practising in rural areas than CMGs.<sup>4</sup> However, the study also showed that retention among the CMGs was stronger after 5 to 10 years with a smaller proportion leaving for an urban setting than among the IMGs.

Based on a long standing data sharing agreement between the two organizations, this paper utilizes the Canadian Post MD Education Registry (CAPER) and the CMA Masterfile to track practice settings for physicians who completed postgraduate training in Canada. It examines difference based on which faculty provided the physicians' postgraduate training and whether or not the physician received their undergraduate medical degree from a Canadian medical school or one outside Canada (i.e., an international medical graduate).

This study focused on tracking exiting postgraduate trainees who set up practice in Canada from the period 2008 to 2014. Earlier work has shown that between 2000 and 2008, Canada has done well in retaining Canadian medical graduates within the country with over 90% retention for all exiting cohorts even at the 5 and ten year mark.<sup>5</sup>

## Methodology

CAPER is the central repository for statistical information on postgraduate medical education in Canada. CAPER is incorporated within the bylaws of the Association of Faculties of Medicine of Canada and is funded by a number of national medical organizations as well as provincial/territorial and federal governments.

CAPER maintains individual-level data for all postgraduate medical residents and fellows. Data elements permit analysis across universities and trainee characteristics, such as place of MD graduation, legal status, age, gender and field of training. Data is captured longitudinally, from the time of entry to training, to the year of exit and to practice location following post-M.D. training using the CMA Masterfile of licensed physicians in Canada.

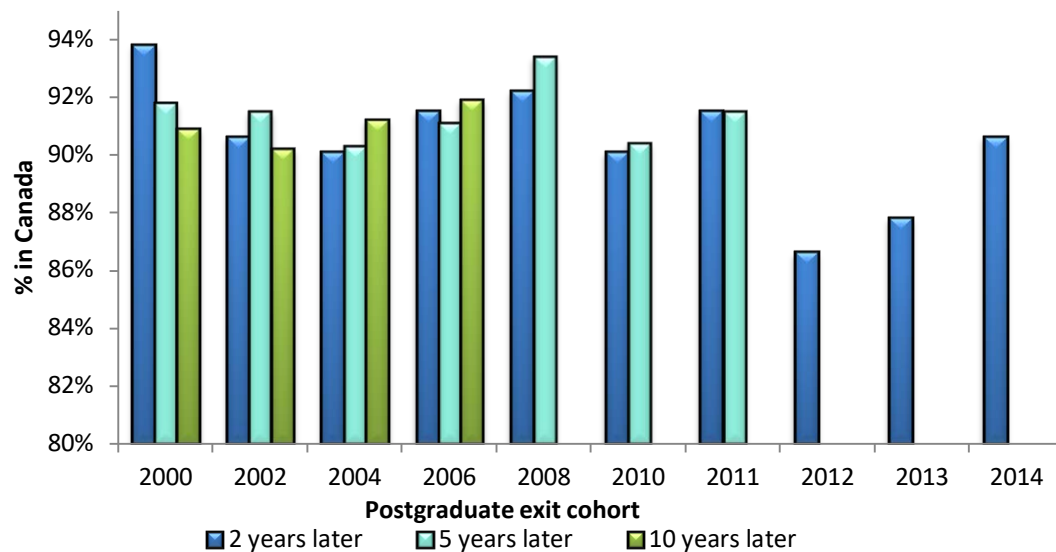
This study focused on tracking exiting postgraduate trainees who set up practice in Canada from the period 2008 to 2014 using the CAPER data and the practice addresses obtained from the CMA Masterfile. This includes fellows who exited during that time but excludes visa trainees.

## Findings

### *Located in Canada*

A more comprehensive look at those staying in Canada includes international medical graduates (IMGs) who are Canadian citizens or permanent residents. As with the earlier work mentioned above, retention was high between 2000 and 2009 for CMGs. This holds true even when IMGs are included (see Fig below). In some instances, a greater proportion could be found at the 5 year mark (or even 10 year) than at 2 years post exit. This could be caused by being more settled and hence more easily located or returning from international work. However, from 2010 onward, the proportion decreased to a low of 87% being found in Canada for the 2012 exit cohort at the two year practice mark. While a very small percentage are known to be in the United States or other countries (less than 1%), the remainder simply could not be found on the CMA Masterfile. They may indeed have been in another country or they may have been in Canada. By 2014 we saw the two year percentages recover to over 90% retention.

**Fig 1 Percentage of postgraduate exit cohorts located in Canada 2, 5, 10 years after exiting training (excludes visa trainees).**



### *Located in region of MD or postgraduate training*

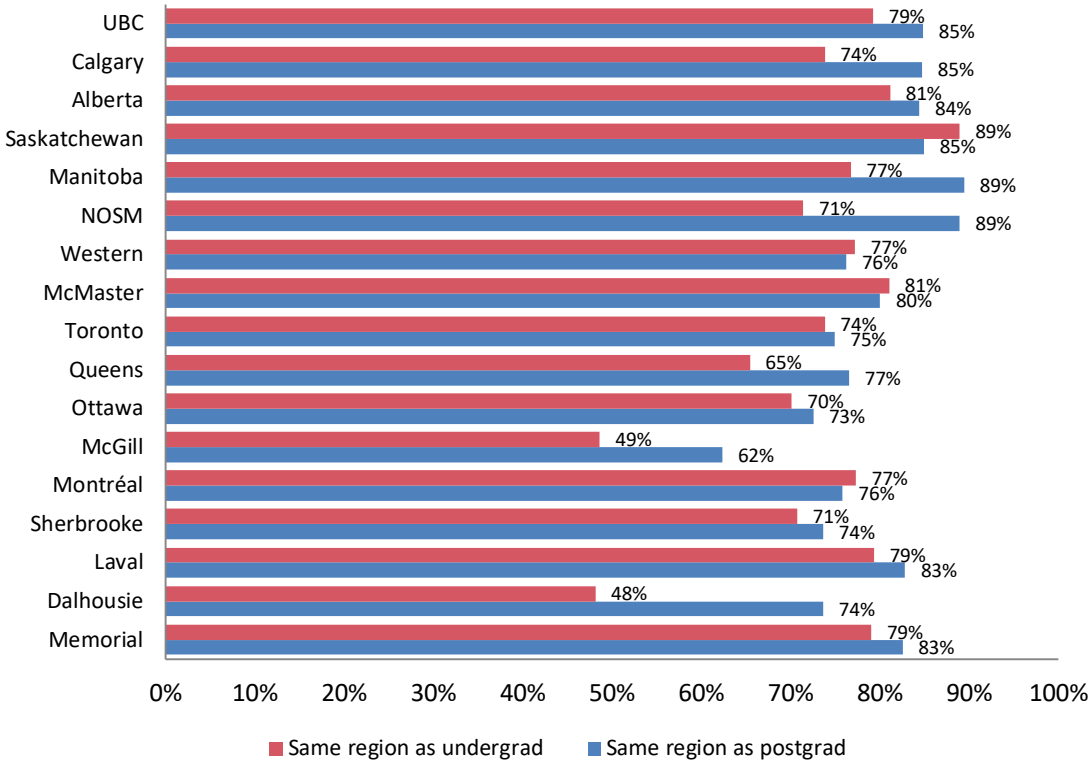
With the rise of distributed medical education and the increased number of training sites away from the health science centres, faculties have been interested to track both their medical graduates and postgraduate trainees into practice so see if their programs are having a positive effect in both recruiting for their region and to less urban centres.

Some faculties are more successful than others in retaining physicians in their geographic region, if not their province. For graduates of Canadian medical schools, typically, where a physician did their postgraduate training is a better predictor of staying in the region (Atlantic, Quebec, Ontario, Prairies, BC & Territories) than where they did their undergraduate MD degree.

For instance, two years after residents exited postgraduate training at Dalhousie, 74% were located in Atlantic Canada compared to less than half of the exit cohort who had done their undergraduate degree there. There are exceptions although they are not necessarily consistent from year to year. With this

2013 exit cohort, 4 of the 17 faculties saw a slightly larger proportion of their undergrad class locate in the region compared to their postgraduate trainees.

**Fig 2 Percentage of 2013 postgraduate exit cohort located in same region as undergraduate or postgraduate training in 2015**



**Location by geographic category**

For the purposes of this study, the following definitions apply:

**Large Urban** – census metropolitan areas with population 100,000 or more

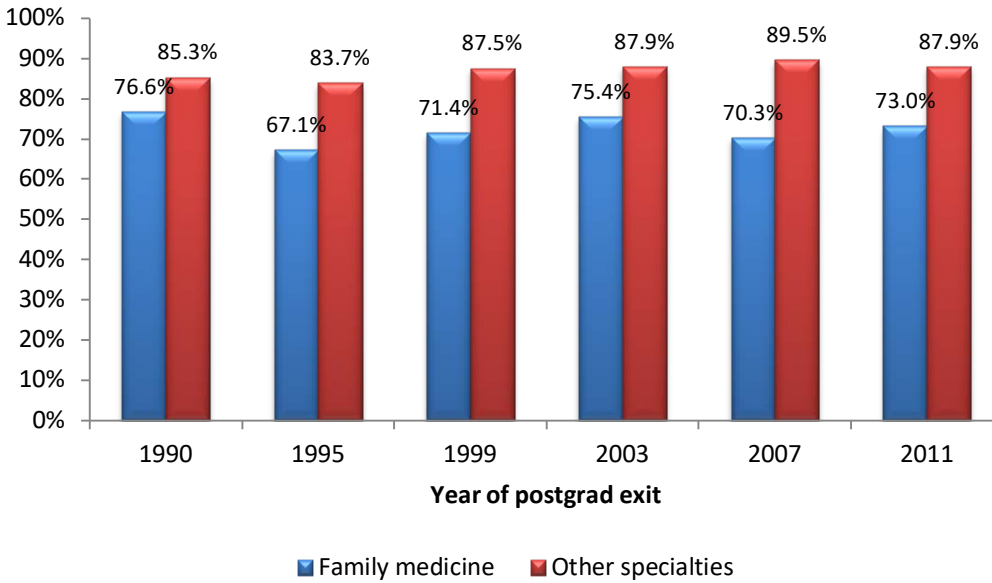
**Small city** – census agglomerations with population 50,000 to 99,999

**Town** – census agglomerations with urban core population of 10,000 to 49,999.

**Rural** –outside census metropolitan areas and census agglomerations plus the Territories.

As seen in Figure 3, practising initially in an large urban setting appears to be on the rise in Canada for both family physicians and other specialties. There is, however, variation in the faculties that produce the greatest proportion of physicians who work in rural areas. A quarter of physicians who completed training at Université Laval in 2013 were practising in rural areas two years after exit, the highest proportion among Canadian faculties of medicine. Those who trained at Dalhousie University had the largest proportion locating in small cities or towns at 26%.

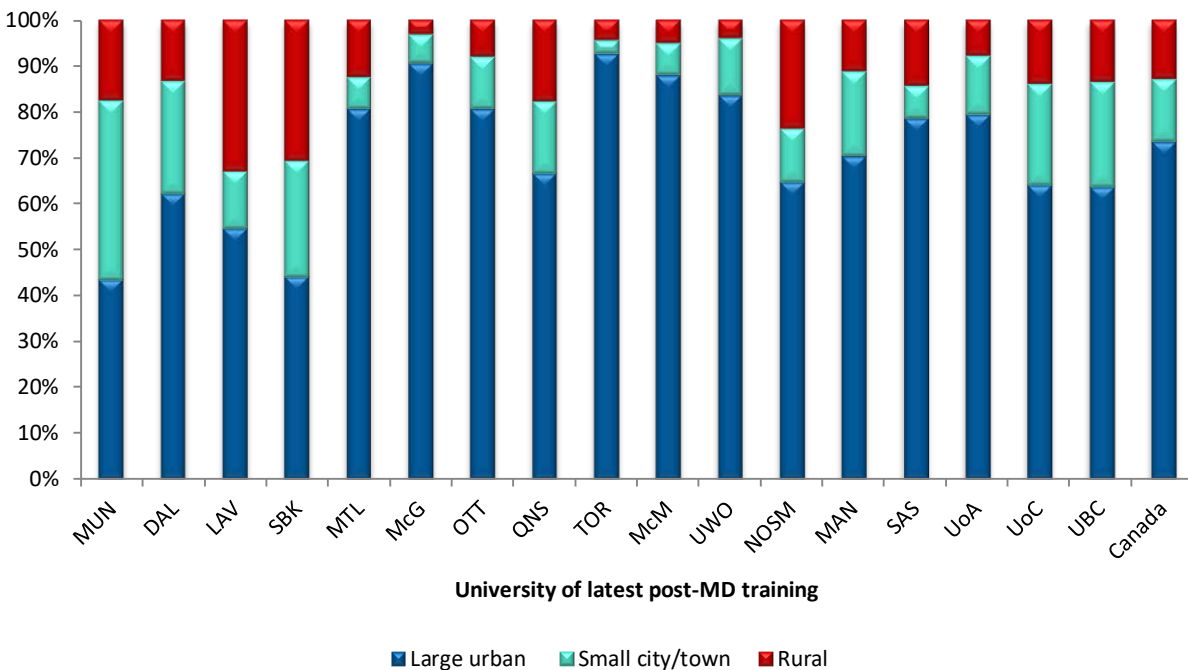
**Fig 3 Postgrad exits practising in large cities FIVE YEARS after exiting training, 1995 to 2014 exit cohorts**



**Family medicine practice locations**

Since such a large proportion of rural physicians are family medicine specialists, it made sense to concentrate our analysis on that subgroup. See figure 4 below for the percentage of trainees in rural Canada two years after exiting their programs. Note the graph is a composite of the 2004 to 2013 exit cohorts.

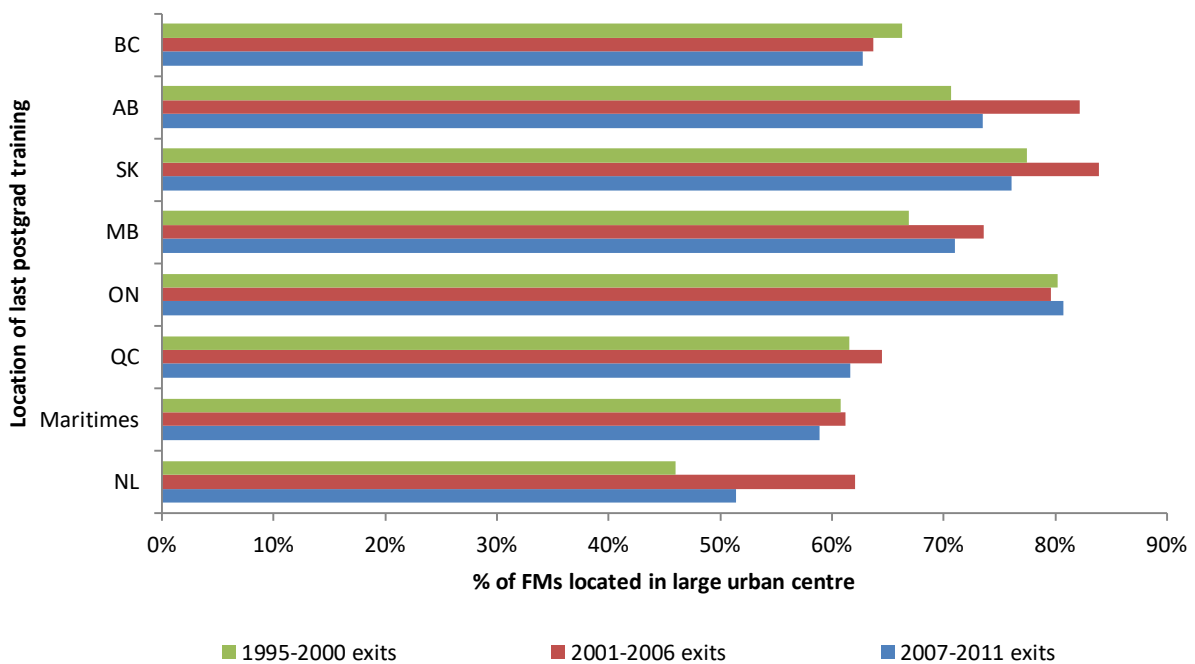
**Fig 4. 2011 FAMILY MEDICINE postgrad exits five years later by school and location type in Canada (excludes visa trainees).**



Given the small numbers involved in looking at family medicine practice location by individual postgraduate exit cohorts, certain years were grouped for comparisons purposes. In this study, 1995 to 2000 formed the first cohort, 2001 to 2006 the second and the most recent for which 5 year practice data were available was 2007 to 2011. Also the Maritimes is considered the training location for NS, NB and PEI since all fund positions at Dalhousie.

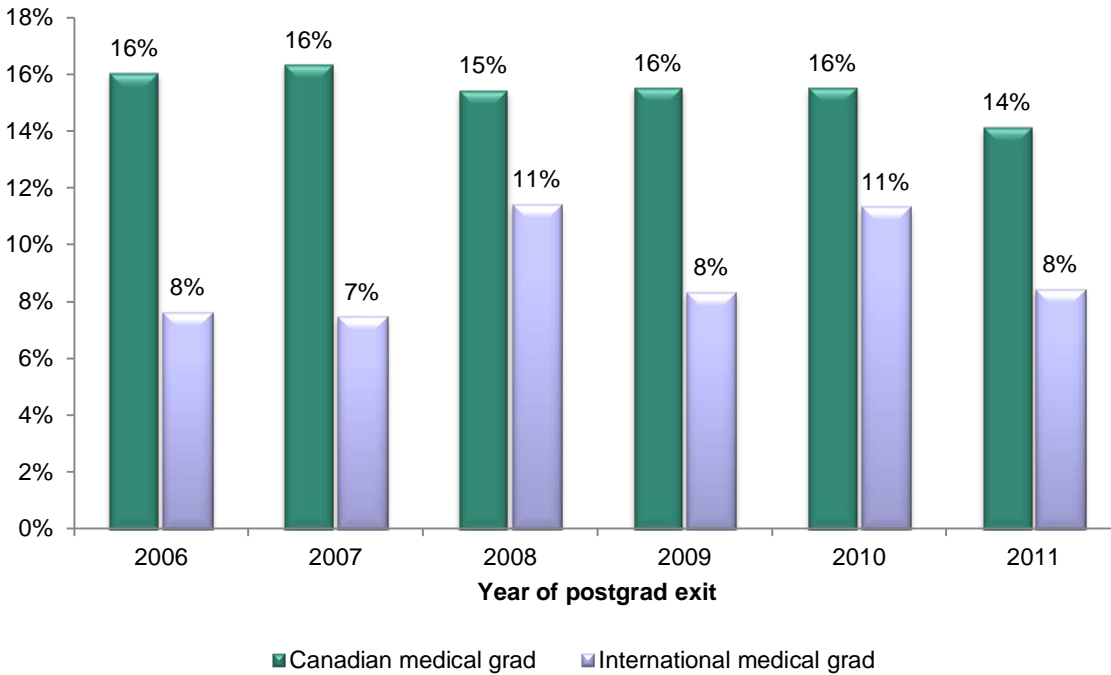
Figure 5 shows what proportion of the three grouped family medicine exit cohorts were located in large cities five years later. For example, two thirds of family physicians who exited BC postgrad training between 1995 and 2000 were located in large urban centres somewhere in Canada. For those exiting training between 2001 and 2006, 64% were in big cities. The percentage lowers again slightly to 63% for those who exited more recently. While most training provinces show an increase in the proportion of FMs in urban centres between the first and second cohorts, many show a subsequent decline for the 2007 to 2011 exits. Not a single province showed an increase of urbanization for all three cohorts of family medicine physicians.

**Fig 5 Family physicians in LARGE CITIES five years after exiting by location of postgrad training Exit cohorts 1995-2000, 2001-2006, 2007-2011**



This study also examines the differences among postgraduate exits who obtained their medical degree in Canada versus another country. For most years, a greater proportion of family medicine exits who were Canadian medical graduates (CMGs) are locating in rural areas compared to international medical graduates (IMGs) who have also completed Canadian post-M.D. training (fig 6).

**Figure 6: Percentage of FAMILY PHYSICIAN exits in RURAL practice FIVE years later by place of MD degree**



Retention figures at five years indicate that for both groups, the drop off has not been great. In some instances the percentage in rural areas at five years is more than at two years. This can occur when a physician is still doing locums at two years and difficult to locate. They may have decided by five years, to set up a permanently in a rural area and can therefore be more easily located.

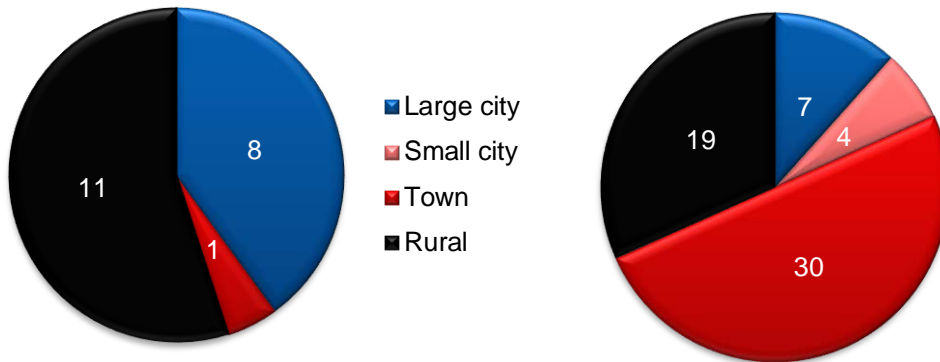
CAPER data receives the training site postal code for each first year resident. The tracking data show that new family physicians, who spent at least some of their first year at a rural training site, are not particularly likely to locate in rural areas or even small towns. Among the 2013 postgraduate exit cohort of family physicians, 27 trained at a rural site and of those, 12 began practice in a rural area or a town (44%). Almost a third (30%) were practising in urban areas.

For those family physicians who trained in a site that was geographically located in a town, the results were a little different. Of the 71 family physicians in the 2013 exit cohort, 49 (69%) were practising in a town or a rural area two years later. See figure 6. Because these cohorts are not large, further exit cohorts will be analyzed to see if the pattern is consistent from one year to the next.

**Figure 7: THREE year practice location of Family medicine 2013 postgrad exit cohort**

Practice locations of FM who attended a **RURAL** training program (both based on postal code)

Practice locations of FM who attended a **TOWN** training program (both based on postal code)



### Summary

At the national level, the trend to urban locations for initial practices continues despite distributed medical education programs but it is unknown if the trend would have been more acute without these decentralized training sites. Also, the overall numbers can mask success stories among individual faculties such as Dalhousie, NOSM and Laval as well as some provinces which appear to be reversing the trend of urbanization among family physicians.

This analysis also indicates that when a training site is located in a town rather than a purely rural setting, there is a higher likelihood of residents setting up practice in a similar sized or even rural community. This could be due to the longer exposure those trainees have to that type of medical practice compared to those who may have trained for short periods in very rural locations.

Some IMGs who are undertaking postgraduate medical education in Canada sign return of service agreements to work in underserved areas following the completion of their training. In many instances, these underserved areas are quite urban although not necessarily large census metropolitan areas such as Toronto. So in other words, these IMG are not obliged to work in rural communities. This suggests that, not unlike the Canadian grads who locate in rural settings, the small percentage of IMGs who do go to rural areas are purposely choosing to do so. When examining family medicine rural physicians, we are not seeing a large drop off of either the CMGs or the IMGs at the five year mark.

While among practising physicians there is traditionally a high percentage of IMGs in the more rural provinces<sup>6</sup> (e.g. NL, SK), this is more a result of direct licensure (often provisional) than the output of IMGs from the Canadian postgraduate training system. The IMGs with the same qualifications as graduates of Canadian medical schools are not quite as likely to select rural training but those who do, appear to have similar retention rates at five years as those who graduated from Canadian schools.



---

<sup>1</sup> Henry JA, Edwards BJ, Crotty B. Why do medical graduates choose rural careers? *Rural Remote Health* 2009;9:1083

<sup>2</sup> Feldman K, Woloschuk W, Gowans M, et al. The difference between medical students interested in family medicine versus urban family or specialty medicine. *Can J Rural Med* 2008;13:73-9.

<sup>3</sup> Rourke JT, Incitte F, Rourke LL et al. Relationship between practice location of Ontario family physicians and their rural background or amount of rural medical education experience. *Can J Rural Med* 2005;10:231-40

<sup>4</sup> Buske L. First practice: family physicians initially locating in rural areas. *Can J Rural Med* 2013;18(3):80-85

<sup>5</sup> CAPER. Fact sheet on practice retention of postgraduate trainees. <https://caper.ca/~assets/FactSheetonretention.pdf>

<sup>6</sup> CAPER. Fact sheet on IMGs. <https://caper.ca/~assets/Fact%20Sheet%20on%20IMGs%20-%20Final.pdf>