Retention of provisionally licensed international medical graduates: a historical cohort study of general and family physicians in Newfoundland and Labrador

Maria Mathews, PhD is an Associate Professor of Health Policy/Health Care Delivery in the Division of Community Health & Humanities, Faculty of Medicine, Memorial University of Newfoundland

Alison C. Edwards, MSc was a medical research in the Division of Community Health & Humanities, Memorial University of Newfoundland. She is currently enjoying her retirement.

James T.B. Rourke, MD, FCFP (EM), MClSc is the Dean of the Faculty of Medicine, Memorial University of Newfoundland

Attribute work to: Division of Community Health & Humanities, Faculty of Medicine, Memorial University of Newfoundland

Please send correspondence to:

Maria Mathews

Division of Community Health and Humanities

Memorial University of Newfoundland

Health Science Centre

St. John's NL Canada A1B 3V6

phone: (709) 777-7845, fax: (709) 777-7382

email: mmathews@mun.ca

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Abstract

Background: To alleviate the shortage of primary care physicians in rural communities, Newfoundland and Labrador (NL) introduced provisional licensure for international medical graduates (IMG) allowing them to practice in under-serviced communities while completing licensing requirements. Although provisional licensing has been seen as a needed recruitment strategy, little is known about its impact on physician retention. We examined the retention of: 1) IMG who began practice with a provisional license; 2) fully-licensed Memorial University medical graduates (MMG) and 3) fully-licensed medical graduates from other Canadian medical schools (CMG).

Methods: Using administrative data from the NL College of Physicians and Surgeons, the 2004 Scott's Medical Database, and the MUN postgraduate database, we followed family physicians/general practitioners who began their practice in NL in 1997-2000 to 2004. We used Cox regression to examine differences in retention among these three groups of physicians.

Results: There were 42 MMG, 38 CMG and 77 IMG in our sample. Median time for IMG to qualify for full licensure was 15 months. Twenty-one physicians (13.4%) stayed in NL since beginning their practice (35.7% MMG, 5.3% CMG, 5.2% IMG; $p<0.000$). Median retention time was 25 months (MMG: 39 months, CMG: 22 months, IMG: 22 months, $p<0.000$). After controlling for CCFP status, CMG (OR = 2.15; 95%CI: 1.29-3.60) and IMG (OR = 2.03; 95%CI: 1.26-3.27) were more likely to leave NL than MMG.

Conclusions: Provisional licensing accounts for the largest proportion of new primary care physicians in NL but does not lead to long-term retention of IMG. However, IMG retention is no worse than retention of CMG.

Key words:

physician supply

international medical graduates

provisional license

retention

Author Contributions

All authors have read and approved of the manuscript and have met requirements for authorship. Specifically, Dr. Mathews conceived and designed the study, conducted the analysis and prepared the draft of the manuscript. Ms Edwards linked and cleaned the data, and provided feedback on the draft. Dr. Rourke reviewed the study design and provided feedback of the draft of the manuscript

Introduction

Many of the IMG who respond to recruitment initiatives do not meet Canadian licensing requirements and require additional training and ongoing continuing medical education. To facilitate the entry of IMG to practice in Canada, provinces have introduced programs such as provisional licenses and pre-residency programs.[1-4] To alleviate the shortage of primary care physicians in rural communities, Newfoundland and Labrador (NL) also provides provisional licenses for IMG to provide primary care in under-serviced, rural communities.[4,5] Eligible candidates are graduates of accredited medical programs, have successfully completed the Medical Council of Canada evaluating examination (MCCEE) and part one of the qualifying exam (MCCQE part 1), have at least one year of post-graduate training, and have an employment offer from a sponsor approved by the College of Physicians and Surgeons of NL (formerly the Newfoundland Medical Board). IMG must pass the second part of their Medical Council of Canada Qualifying Exam (MCCQE part 2) within three years of receiving a provisional license, and obtain a full license.[5]

While a large number of studies have examined physician recruitment and retention, these studies largely focus on rural physicians and examine the practice locations of graduates of specific training programs, medical schools, or return of service programs. As a result, there has been comparatively little study of IMG even though they form 23% of the physician workforce in Canada.[6] We studied IMG with provisional licenses to determine whether they remain in the NL as long as medical graduates of the provincial medical school (Memorial University of Newfoundland [MUN]) and other Canadian medical schools.

Methods

The study was approved by the Memorial University of Newfoundland Human Investigations Committee (HIC reference number: 05.199).

We linked eight years of registration data (1997-2004) from the College of Physicians and Surgeons of NL with the 2004 Scott's Medical Database and the MUN post-graduate medical education database using the physician's name and birth date and medical school as these fields are common to all datasets. The Scott's (formerly Southam) Medical Database was used to identify the 2004 work location of each physician. Scott's Medical Database is an annually updated listing of 56,000 physicians in Canada who are members of the Canadian Medical Association and permit release of their information.[7] This linkage allowed us to follow physicians in Canada, once they left the province. The post-graduate medical education database identified which physicians had completed some or all of their residency training at MUN.

We included all general practitioners and family physicians who obtained their initial NL license between 1997 and 2000. The medical licensing legislation was revised in 1996, so this time frame included only those individuals who were licensed under the current policy. We excluded MUN medical graduates (MMG) and graduates of other Canadian medical Schools (CMG) who had a full license before 1997, IMG who held full or provisional licenses before 1997 (older regulations), or physicians who received their license after 2000 (insufficient follow-up time). In our primary analyses, we excluded physicians who practiced in NL for three months or less because they were likely locum tenens. We repeated our analyses including these physicians.

We followed each physician until July 31, 2004 or until they terminated their initial license (and presumably left the province). We compared: 1) MMG with a full license, 2) CMG with a full license, and 3) IMG with a provisional license.

We used frequencies, means and standard deviations to describe the sample characteristics. Chi square tests, ANOVA, and the Mantel-Cox test were used to identify differences among the three physician groups and gender, year of graduation, whether physicians had done some or all of their post-graduate residency training at MUN, age at licensing, whether the physician had a Certificant of the College of Family Physicians (CCFP) designation, and total time in NL. Cox regression was used to identify differences in the retention of the physician groups. Potential predictors for each regression model were selected on the basis of the bivariate analyses (i.e. chi square and ANOVA). Our final regression models included only significant co-variates.

We grouped year of graduation into four categories: before 1973, 1973-1979, 1980-1989 and 1990-1998. We selected 1973 as a cut off year since this was the first MUN class to graduate. Both the licensing data and the Scott's Medical Database were consulted so that physicians who held a NL license but did not work in the province were identified as working outside NL. The time in practice in NL was calculated by subtracting the date when the initial license was awarded from the date that it ended. Total time in NL does not include practice time from subsequent licenses.

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Results

Of the 278 family physicians/general practitioners who received a new license between 1997 and 2000, we excluded 35 IMG who were provisionally licensed before 1997 and five CMG/MMG who worked in the province with a full license before 1997. In addition we excluded six IMG who held a full license and another seven IMG who had met the requirement for full licensure but were recorded in the database as having a provisional license. These 13 IMG physicians were excluded because their numbers were too small to allow for meaningful analyses. From the remaining 225 physicians, for our primary analyses, we excluded 68 physicians who practiced in the province for three months or less, leaving a study sample of 157 physicians.

IMG with provisional licenses formed the largest proportion (49.0%) of physicians in the cohort, followed by MMG (26.8%) and CMG (24.2%). Most of the physicians in the study were male (62.4%), had graduated in the 1990s (70.1%), had not done any of their residency training at MUN (67.5%), had earned a CCFP (61.8%) and were a mean of 34.0 years when they received their NL license. Physicians worked in the province for a median of 25 months. Twenty one physicians (13.4%) did not leave NL after beginning their practice in the province, 30 of the 136 who left (22.1%) returned to NL at some point after leaving. The largest proportion (46.8%) of IMG had graduated from medical schools in Africa. IMG physicians took a median of 15 months to qualify for full licensure.

Compared to MMG, a larger proportion of IMG were male, graduated before 1990, had not done any of their post-graduate residency training at MUN, did not have a CCFP designation, were older, worked for less time in NL, and never left the province

after starting practice (Table 1). Compared to CMG, a larger proportion of IMG physicians were male, had graduated before 1990, had not done any of their residency at MUN and did not have a CCFP designation but there were no differences in their age, the amount of time they worked in NL time before leaving, or the proportion who were in NL in 2004 or whether they left and/or returned the province.

Cox regression allows us to compare how long MMG, CMG and IMG work in NL before leaving, taking into account any other differences between these groups. The survival curve shows the proportion of each group that remains at any given time. The median practice time for all physicians was just under two years (Figure 1). After controlling for CCFP status, CMG (OR: 2.15, 95% CI: 1.29-3.60) and IMG (OR: 2.03, 95% CI: 1.26-3.27) were more likely to leave NL than MMG. Physicians with the CCFP designation were less likely to leave NL (OR: 0.68, 95% CI: 0.47-0.96) than those without the CCFP designation (or 1.47 times more likely to stay, based on the inverse of the odds ratio). As shown in Figure 2, median practice time for MMG was greater (roughly 40 months) than IMG or CMG (24 months). There was no difference between IMG and CMG practice times.

We repeated our analysis including the 68 physicians who stayed 3 months for less. After controlling for CCFP status and physician groups using Cox regression, the median practice time for all physicians was just over 18 months (Figure 3). Controlling for CCFP status, CMG (OR: 2.75, 95% CI: 1.83-4.13) and IMG (OR: 1.63, 95% CI: 1.07-2.47) were more likely to leave NL than MMG. Physicians with the CCFP designation were less likely to leave NL (OR: 0.71, 95% CI: 0.53-0.96) than those without the CCFP

designation. As shown in Figure 4, median practice time for MMG was greater (roughly 36 months) than IMG (22 months) or CMG (12 months).

Discussion

The overall retention of newly licensed family physicians is low (13.4%), but is higher among graduates of the provincial medical school than graduates of other Canadian or international medical schools. This supports earlier studies that suggest that medical schools contribute substantially to local physician supply. [8] While the study confirms that turnover is high among IMG, it also highlights that turnover is equally high among CMG. Previous studies have suggested that poor IMG retention, particularly in rural NL, may stem from the lack of cultural or religious venues for IMG.[9] These findings suggest that other factors may also play an important role in physician retention in the province. Future studies should examine the factors that contribute to the poor retention of both IMG and CMG in the province.

Almost half of the physicians in the study sample were provisionally licensed IMG. NL, like the rest of Canada, has traditionally relied on IMG to address shortages in physician supply, particularly in rural and remote communities.[1-3] In 2004, IMG made up 23.0% of the family physician workforce in Canada; the lowest proportion of IMG were in Quebec (11.1%) and Prince Edward Island (16.0%) while the highest were in Saskatchewan (61.7%) and NL (44.5%).[6] Provisionally licensed IMG make up roughly 30% of the physician workforce in NL, compared with roughly 5% in Canada.[10] Although IMG make up a large proportion of newly licensed physicians in the province, relatively few remain in the province one year after earning full licensure. By 2004, 70.1% of IMG remained in Canada (according to the Scott's Medical Database), similar to the rates for MMG (81.0%) and CMG (73.7%). These findings confirm the widely held belief that NL provides an entry point to practice elsewhere in Canada.[10]

Physicians who held a CCFP designation were less likely to leave NL than those who did not. We used registration data from the NL College of Physicians and Surgeons because it is the only province-wide data set that includes licensing data. While licenses must be renewed annually, the fee to change or update registration information (currently $275), may discourage physicians from changing provisional to full licenses and updating recently acquired credentials (such as CCFP or LMCC designations). For example, although 47 IMG had qualified for a full license, only 31 had held a full license in NL (i.e. applied for and was granted a full license). Physicians who intend to continue to practice in NL may be more likely to update their registration information than those who do not.

Roughly 30% (68 of 225) of the eligible sample of newly licensed physicians practiced in NL for a short period of time and were likely locum tenens. CMG (60.3%) and graduates from the 1990s (64.7%) made up the largest proportion of these physicians. When these physicians are included in the sample, CMG have significantly lower retention and practice times than both MMG and IMG. We used three months as the cut-off for locums based on consultation with recruiters and other physicians. Using higher cut-offs (up-to six months) excluded an additional 14 physicians but did not change the overall findings.

Almost one quarter (22.1%) of physicians who left NL returned to the province. The proportion of returning physicians is almost equally split between MMG, CMG and IMG, although a larger proportion (80%) of returning physicians were more recent graduates. These findings suggest that new physicians are highly mobile, possibly more so than previous generations. New physicians may prefer to "try out" different practice

locations, before establishing a more permanent practice. It is unlikely that MMG and CMG physicians were leaving practice for specialist training as was commonplace prior to the 1990s when there was greater flexibility in post-graduate training, and physicians were able to practice after the one year rotating internship. Among IMG, only one physician entered the MUN residency program, although others may have entered residency programs elsewhere.

Study limitations

We examined family physicians who received their first license in NL between 1997 and 2000; factors related to provisional licensing and retention of specialists may differ. Moreover, because registration data did not reliably capture practice addresses, we could not include rural practice as a covariate. We are also unable to determine whether physicians who remained in NL moved within the province. Given that the provisional licensing policy allows IMG to work in rural communities, we were not able to determine whether IMG moved to urban practices once fully qualified. Between 1997 and 2000, licensing policies restricted new physicians from practicing in St. John's, the province's largest urban centre. We are therefore confident that most physicians in the study began practice in smaller communities (the largest, Corner Brook, with a population of 30,000).

Conclusion

Using licensing data from the provincial medical registrar, we found that retention in a cohort of newly licensed family physician/general practitioners was low; less than one in seven physicians remain in the province up to seven years later. Half had left after roughly two years, although locally trained physicians remained in the province twice as long as IMG and CMG. There was no difference between the retention of IMG and CMG. IMG remained in the province for roughly one year after earning a full license. Although provisional licenses and training programs facilitate the entry of IMG to medical practice in Canada, they do not lead to long-term provincial retention but provides a short-term solution to ongoing physician shortages in NL. Given that IMG form a substantial proportion of practicing physicians in the province, eliminating provisional licensing would have a detrimental impact on physician supply in the province.

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Table 1. Characteristics of each physician group*

	MMG n (%†)	CMG n (%†)	IMG n (%†)	p value‡	p value§	p value‖
Sex				0.128	<0.000	0.001
Male	15 (35.7)	20 (52.6)	63 (81.8)			
Female	27 (64.3)	18 (47.4)	14 (18.2)			
Year of Graduation				0.273	0.001	0.005
Before 1973	0	3 (7.9)	1 (1.3)			
1973-1979	1 (2.4)	1 (2.6)	4 (5.2)			
1980-1989	3 (7.1)	4 (10.5)	30 (39.0)			
1990-1997	38 (90.5)	30 (78.9)	42 (54.5)			
MUN residency				0.015	<0.000	<0.000
No	10 (23.8)	19 (50.0)	77 (100)			
Yes	32 (76.2)	19 (50.0)	0			
Have CCFP				0.026	<0.000	0.003
No	4 (9.5)	11 (28.9)	45 (58.4)			
Yes	38 (90.5)	27 (71.1)	32 (41.6)			
Age (years)				0.002	0.001	1.000
mean (sd)	30.4 (4.1)	35.7 (9.6)	35.2 (6.5)			
Total time (months)						
mean (sd)	42.3(29.0)	28.2 (23.3)	28.5 (18.0)	0.018	0.005	1.000
median	39.0	22.0	25.0	0.002	<0.000	0.987
Retention						
Left	18 (42.9)	25 (65.8)	63 (81.8)	0.004	<0.000	0.111
Returned	9 (21.4)	11 (28.9)	10 (13.0)			
Never left	15 (35.7)	2 (5.3)	4 (5.2)			

*Chi-square tests were used in all comparisons except age and total time. ANOVA was used to compare mean age and total time. The Mantel Cox test was used to compare median age and total time
†unless otherwise specified; ‡: MMG vs. CMG; §: MMG vs. IMG; ‖: CMG vs. IMG

Figure 1. Retention of Physicians

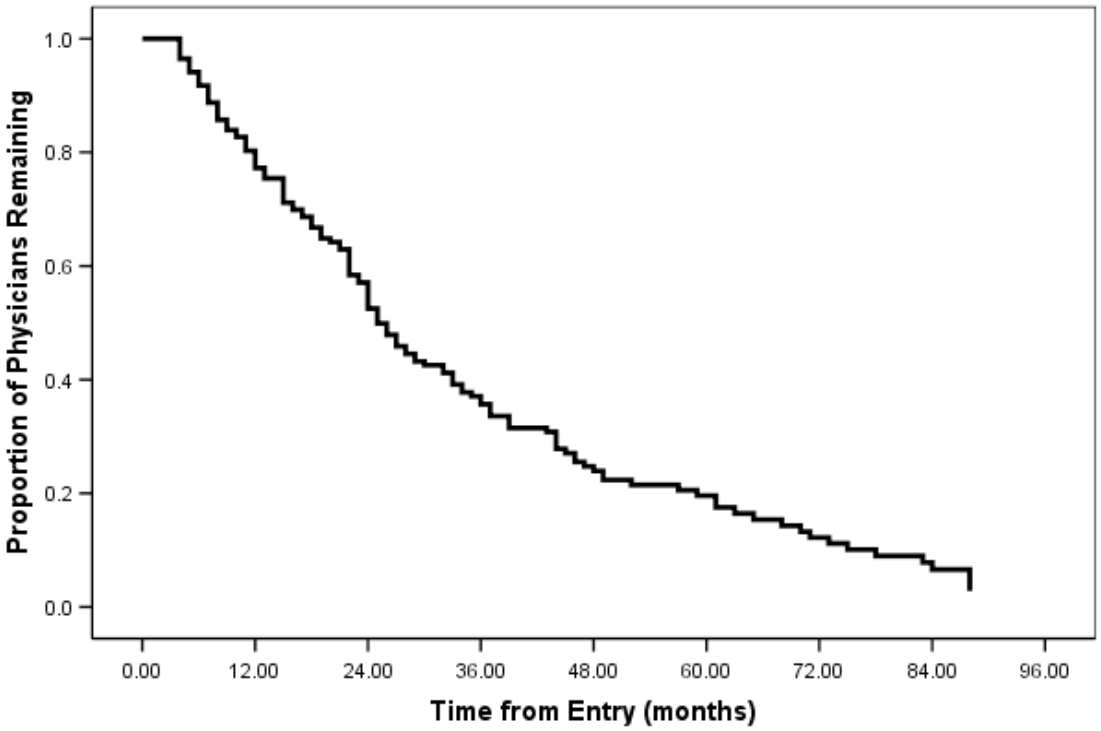

Figure 2. Retention by Physician Group

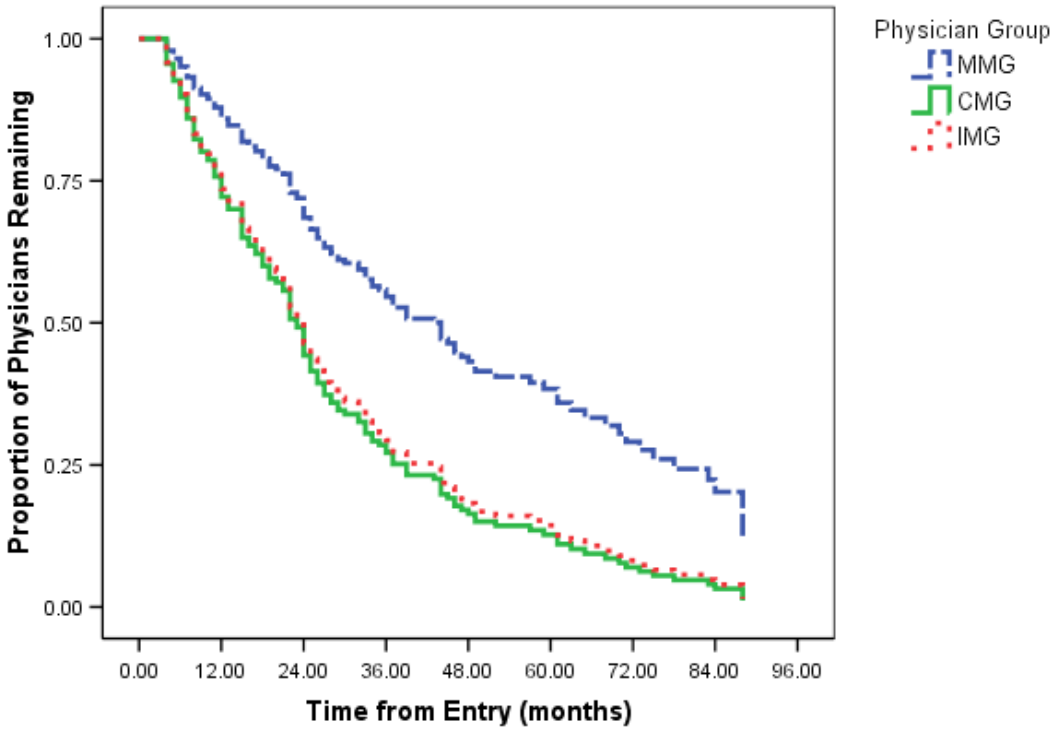

Figure 3: Retention of Physicians (Including Locums)

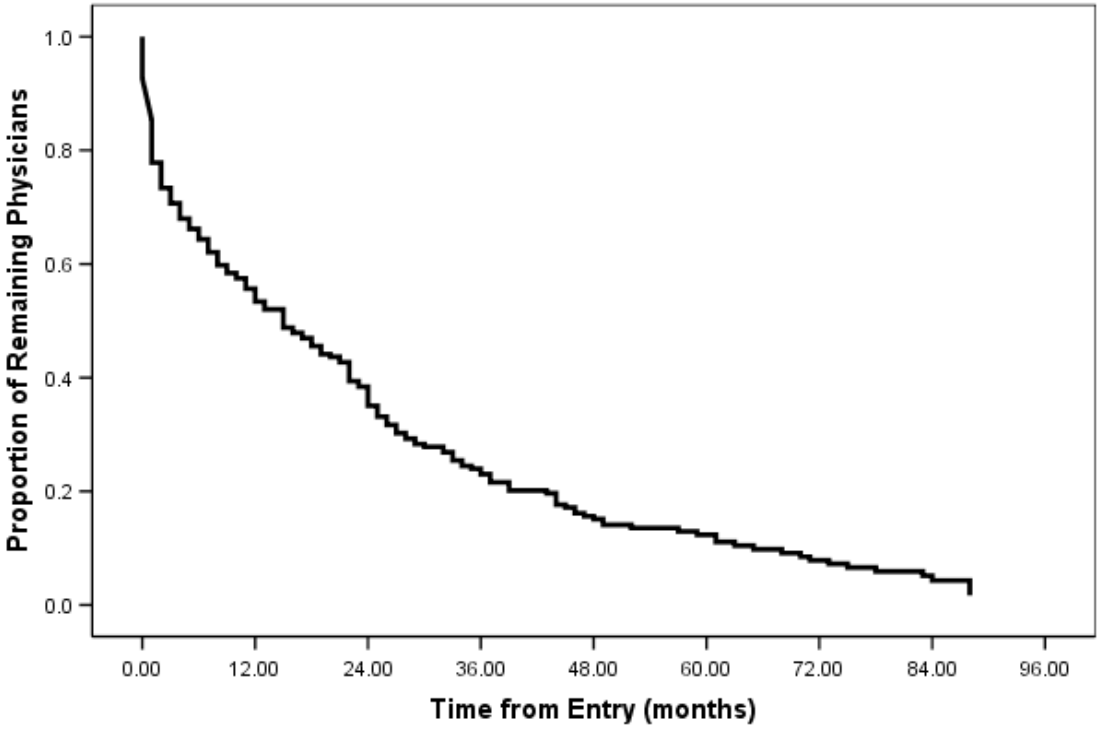

Figure 4. Retention by Physician Group (Including Locums)