



# Applicant and Match Trends to Geriatric-Focused Postgraduate Medical Training in Canada: A Descriptive Analysis

Rebecca H. Correia<sup>1,2</sup>, Darly Dash<sup>1,2</sup>, Sophie Hogeveen<sup>1</sup> , Tricia Woo<sup>3</sup>, Kelly Kay<sup>4</sup>, Andrew P. Costa<sup>1,2</sup> and Henry Yu-Hin Siu<sup>5</sup>

## Article

**Cite this article:** Correia RH, Dash D, Hogeveen S, Woo T, Kay K, Costa AP, & Siu HY-H. (2023). Applicant and Match Trends to Geriatric-Focused Postgraduate Medical Training in Canada: A Descriptive Analysis. *Canadian Journal on Aging / La Revue canadienne du vieillissement* 42(3), 396–403. <https://doi.org/10.1017/S071498082200054X>

Received: 24 June 2021

Accepted: 08 May 2022

### Mots clés:

vieillesse; formation médicale; gériatrie; médecine gériatrique; médecine familiale; soins aux personnes âgées; personnes âgées

### Keywords:

aging; medical education; geriatrics; geriatric medicine; family medicine; care of the elderly; older adult(s)

### Corresponding author:

La correspondance et les demandes de tirés-à-part doivent être adressées à : / Correspondence and requests for offprints should be sent to: Henry Yu-Hin Siu, 1475 Upper Ottawa Street, Hamilton, ON, L8W 3J6 Canada ([siuh3@mcmaster.ca](mailto:siuh3@mcmaster.ca))

<sup>1</sup>Department of Health Research Methods, Evidence and Impact, McMaster University, Hamilton, ON, Canada, <sup>2</sup>Michael G. DeGroot School of Medicine, McMaster University, Waterloo Regional Campus, Kitchener, ON, Canada, <sup>3</sup>Department of Medicine, McMaster University, Hamilton, ON, Canada, <sup>4</sup>Provincial Geriatrics Leadership Ontario, Kingston, ON, Canada and <sup>5</sup>Department of Family Medicine, McMaster University, Hamilton, ON, Canada

## Résumé

Les médecins qui ont reçu une formation de cycle supérieur en soins aux personnes âgées – gériatres, psychiatres gériatriques et médecins de famille spécialisés en soins aux personnes âgées – possèdent une expertise en gestion de besoins de soins complexes. Les déficits en effectif de médecins spécialisés en gériatrie, conjugués au vieillissement démographique, exigent le développement de la formation et l’augmentation du nombre de postes cliniques. Aucune analyse descriptive des données provenant de systèmes de jumelage établis n’a été effectuée pour comprendre les préférences et les résultats des candidats à une formation postdoctorale axée sur la gériatrie. Cette étude décrit les profils des candidats et les tendances de jumelage pour les formations postdoctorales axées sur la gériatrie au Canada. Dans cette étude de cohorte rétrospective, des données provenant du Service canadien de jumelage des résidents (CaRMS) et des directeurs de programmes de médecine spécialisée en soins aux personnes âgées ont été analysées afin d’examiner les quotas des programmes, les préférences des candidats et les résultats du jumelage par faculté de médecine et au fil du temps. D’après le classement de leurs premiers choix de spécialité, les candidats à la médecine gériatrique et à la médecine spécialisée en soins aux personnes âgées ont signalé leur préférence pour ces programmes et ont eu tendance à trouver un jumelage avec succès. La proportion de postes de formation non pourvus a augmenté ces dernières années, et le nombre de candidats n’a pas augmenté de façon constante au fil du temps. On constate une disparité entre le nombre de candidats à une formation axée sur la gériatrie et les ressources humaines en santé pour répondre aux besoins de cette population. Il est essentiel de susciter l’intérêt des stagiaires en médecine pour combler les lacunes en matière d’accès et d’équité.

## Abstract

Physicians with postgraduate training in caring for older adults—geriatricians, geriatric psychiatrists, and Care of the Elderly family physicians (FM-COE)—have expertise in managing complex care needs. Deficits in the geriatric-focused physician workforce coupled with the aging demographic necessitate an increase in training and clinical positions. Descriptive analyses of data from established matching systems have not occurred to understand the preferences and outcomes of applicants to geriatric-focused postgraduate training. This study describes applicant and match trends for geriatric-focused postgraduate training in Canada. In this retrospective cohort study, data from the Canadian Resident Matching Service and FM-COE program directors were analysed to examine program quotas, applicants’ preferences, and match outcomes by medical school and over time. Based on their first-choice specialty ranking, applicants to geriatric medicine and FM-COE signalled a preference to pursue these programs and tended to match successfully. The proportion of unfilled training positions has increased in recent years, and the number of applicants has not increased consistently over time. There is a disparity between applicants to geriatric-focused training and the health human resources to meet population-level needs. Garnering interest among medical trainees is essential to address access and equity gaps.

## Introduction

### Background

Increased health service use among older adults intensifies the demand for medical specialists who have expertise in geriatrics. Physicians with specialized postgraduate training in caring for older adults have expertise in managing complex care needs, including frailty, co-morbidities,

© Canadian Association on Gerontology 2023. This is an Open Access article, distributed under the terms of the Creative Commons Attribution licence (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted re-use, distribution, and reproduction in any medium, provided the original work is properly cited.



polypharmacy, and unnecessary health service utilization (Coleman, 2003; Leipzig et al., 2009; Ribera Casado, 2012). In Canada, geriatric-focused physicians comprise geriatricians, geriatric psychiatrists, and Care of the Elderly family physicians (FM-COE) (Borrie et al., 2020; Hogan et al., 2012). While other medical specialists treat and manage conditions that are more prevalent in people of older ages (e.g., neurologists and Parkinson's disease, cardiologists and end-stage cardiac disease, pulmonologists and chronic obstructive pulmonary disease), only geriatric-focused physicians receive intensive training specifically related to the processes of aging, managing multimorbidity, and providing holistic care of older adults in multiple care settings.

The number of geriatric-focused physicians remains low across the country, with only 304 geriatricians, 203 geriatric psychiatrists, and 346 FM-COE as of 2019 (Canadian Medical Association, 2019b; Grierson et al., 2022) out of 91,375 practising physicians in Canada (Canadian Institute for Health Information, 2020). Although it is expected that the population of Canadians over 65 will double in the next two decades and those over 85 will quadruple (National Institute on Ageing, 2020), some provinces and territories have only one geriatrician serving their entire population (Canadian Medical Association, 2019b). Previous work mapping the health human resources of geriatric-focused physicians estimated deficits in the workforce and emphasized the pressing need to increase training and clinical positions for geriatric-focused disciplines (Borrie et al., 2020; Hogan et al., 2012). However, the ongoing lack of physician workforce planning and disinterest from trainees in care of older adults remain unresolved. These issues continue to perpetuate a mismatch between the number of geriatric-focused physicians being trained and the health human resources needed to address the shifts in aging demographics (Canadian Medical Association, 2019b; Hogan et al., 2012).

Research highlights many potential reasons hindering interest in geriatric-focused training, including limited exposure to geriatrics in undergraduate medical curricula (Curran et al., 2015; Diachun, Hillier, & Stolee, 2006; Gordon, 2011; Meiboom, de Vries, Hertogh, & Scheele, 2015; Torrible, Diachun, Rolfson, Dumbrell, & Hogan, 2006; van Zuilen, Rubert, Silverman, & Lewis, 2001) and the years and length of training required (Bagri & Tiberius, 2010; Meiboom et al., 2015; Torrible et al., 2006). Person-related factors include older adult multimorbidity (Curran et al., 2015; Diachun et al., 2006; Meiboom et al., 2015; Schigelone & Ingersoll-Dayton, 2004; Torrible et al., 2006) and professional or personal negative experiences with older adults (Bagri & Tiberius, 2010; Fitzgerald, Wray, Halter, Williams, & Supiano, 2003; Hughes et al., 2008; Meiboom et al., 2015; Robbins et al., 2011; Schigelone & Ingersoll-Dayton, 2004). Lastly, low perceived prestige of the specialty (Bagri & Tiberius, 2010; Diachun et al., 2006; Meiboom et al., 2015; Robbins et al., 2011; Torrible et al., 2006), inadequate remuneration compared to other specialties (Bagri & Tiberius, 2010; Curran et al., 2015; Diachun et al., 2006; Meiboom et al., 2015; Robbins et al., 2011; Torrible et al., 2006), and variation in interest among different genders (Diachun et al., 2006; Meiboom et al., 2015; Torrible et al., 2006) were noted to influence pursuit of a career in a geriatrics specialty at the systems-level.

### Postgraduate Residency Match Process Description

In Canada, 17 medical schools deliver undergraduate and postgraduate medical training, with most schools located in Ontario ( $n = 6$ ) and Quebec ( $n = 4$ ) (Busing et al., 2015). The application and

matching process for postgraduate medical training is facilitated centrally by the Canadian Resident Matching Services (CaRMS). Residency training is based on national accreditation standards and certifications but relies on provincial policy decisions to fund positions based on current health care needs and projections.

Geriatric medicine, a subspecialty of internal medicine, involves two years of subspecialty training after three years of core internal medicine training. This subspecialty will be offered at 13 medical schools for the 2022 match (The Royal College of Physicians and Surgeons of Canada, 2015). Geriatric psychiatry, which was officially recognized as a subspecialty of psychiatry in 2009, is a two-year, subspecialty training that occurs after four or five years of psychiatry residency training, and is offered at 14 medical schools (Andrew & Shea, 2010; The Royal College of Physicians and Surgeons of Canada, 2010). The FM-COE Certificate of Added Competence (CAC) is a 6- or 12-month postgraduate training program available after two years of a core family medicine residency, and is recognized by the College of Family Physicians of Canada (CFPC) (College of Family Physicians of Canada, 2017; Correia et al., 2022). Sixteen medical schools will offer this additional year of training for the 2022 match (Grierson et al., 2021). Since 2015, all residents completing the additional year of COE training will receive a CAC from the CFPC; however, the CFPC recognized that there were family physicians who provided excellent care for older adults before 2015. In fact, programs to improve family physicians' knowledge and skills in caring for older patients have existed in other forms since 1989 (Frank & Seguin, 2009). As a result, there have been opportunities over the years for family physicians to apply for a CAC in COE without having completed this extra year of training.

Physicians seeking geriatric-focused training use CaRMS to participate in the Family Medicine and Enhanced Skills Match (FM/ES) or the Medicine Subspecialty Match (MSM). Both matches are offered in two iterations each year, known as the first and second matches, to minimize the number of unfilled training positions. Longstanding imbalances between the number of applicants to geriatric-focused programs and unfilled positions have been reported (Hogan et al., 2012).

### Objective

While there is substantive literature on resident interest in geriatrics as a career, there has not been any descriptive work examining applicant and match data for geriatric-focused programs from established matching systems. Therefore, this study aimed to examine the established Canadian medical residency applicant and match processes for geriatric-focused disciplines. This work will inform recruitment efforts and matching procedures for geriatric-focused disciplines, and provide insights to better equip the physician workforce with expertise in the care of older adults.

### Methods

#### Study Design

This retrospective cohort study examined applicants to two geriatric-focused, postgraduate medical training programs in Canada – FM-COE and geriatric medicine – for the match years 2019 to 2021 (FM-COE) and 2016 to 2021 (geriatric medicine).

Because geriatric psychiatry subspecialty matches are facilitated by individual medical schools, the applicant data are not available

from CaRMS data sources. Therefore, geriatric psychiatry match trends were excluded from this study.

**Outcomes**

The primary outcome was to describe the match rate (i.e., filled spots versus total available spots) for each medical school and as a trend over time for geriatric medicine and FM-COE programs.

**Data Collection**

The primary data source was publicly available in FM/ES and MSM CaRMS data repositories, including additional data requested from CaRMS. Applicant and match data were abstracted for both training programs for each year that CaRMS facilitated the matching process for geriatric-focused trainees.

Medical schools located in provinces other than Quebec conducted the residency match process internally for their FM-COE positions prior to 2021 (i.e., not through CaRMS), so program directors were contacted via e-mail to obtain applicant and match data for the years 2019 and 2020. Data were acquired for 10 out of 12 FM-COE programs. FM-COE data for medical schools located in Quebec were obtained directly from CaRMS.

**Data Analysis**

The quotas of geriatric medicine positions offered in the MSM and FM-COE positions offered in the FM/ES match, by each medical school in Canada, were determined for all iterations. Match rates were calculated by comparing the filled spots to identified quotas. Successful application rates were computed by dividing the number of matched applicants by the total number of applicants. Subanalyses of match rates based on an applicant's first-choice discipline and sex were completed.

**Results**

A cohort of 291 applicants who applied for geriatric-focused post-graduate medical residency training positions in Canada (i.e., geriatric medicine, *n* = 250, and FM-COE, *n* = 41) in the 2016 to 2021 match years was identified.

**Geriatric Medicine**

The number of geriatric medicine positions offered varied across medical schools and over time (Table 1). In the most recent match year, 12 medical schools offered 48 training positions in geriatric medicine. Overall, the majority of geriatric medicine positions were offered in the province of Quebec (*n* = 131; 49.6%), followed by Ontario (*n* = 63, 23.9%) and Alberta (*n* = 37, 14.0%). Eight geriatric medicine programs were instructed in English, three were instructed in French, and there was one bilingual program.

Figure 1 illustrates the proportion of filled geriatric medicine positions for each match year. In 2021, 28 positions out of 48 were filled (58.3%) for geriatric medicine residency (see Table 1). This indicates that, in 2021, almost half of geriatric medicine positions across Canada were vacant after the first and second match iterations. Notably, the highest proportion of vacant positions were in Quebec; this also corresponds to where the majority of training positions are offered. There is no clear trend in the vacancy rate for geriatric medicine positions over time; 2018 had the highest match

**Table 1.** Quota of geriatric medicine positions offered and the proportion filled in the Medicine Subspecialty Match by school of residency, 2016 to 2021 (first and second iterations combined)

Province	SCHOOL OF RESIDENCY ( <i>N<sub>filled</sub></i> / <i>N<sub>quota</sub></i> )																TOTAL (Match Rate, %)	
	BC		AB		SK		MB		ON		QC		NS		NFLD			
Medical School	UBC	Calgary	Alberta	Saskatchewan	Manitoba	Western	NOSM	McMaster	Toronto	Queens	Ottawa	Laval	Montreal	McGill	Sherbrooke	Dalhousie	Memorial	
2016	4/4	2/5	0/4			1/3		2/2	4/4	2/2	2/2	2/4	4/4	1/6	0/8	2/2		24/48 (50.0%)
2017	3/3	3/3	2/2		1/1	2/2		2/2	5/5		1/1	2/6	4/4	1/5	2/6	1/1		29/41 (70.7%)
2018	3/3	3/3	2/2			1/1		2/2	4/6		2/2	4/4	4/4	2/4	3/4	0/2		30/37 (81.1%)
2019	2/2	3/5	0/1			1/4		2/2	4/4		1/1	2/4	4/4	0/8	3/3	1/2		23/40 (57.5%)
2020	4/4	2/2	3/3		1/1	2/2		2/2	4/4		2/2	2/8	1/7	3/7	2/6	2/2		30/50 (60.0%)
2021	4/4	1/5	0/2		0/1	2/2		3/3	5/5		4/5	2/8	2/8	4/6	2/6	1/1		28/48 (58.3%)
<b>TOTAL</b> (Match Rate, %)	<b>20/20</b> (100.0%)	<b>14/23</b> (60.9%)	<b>7/14</b> (50.0%)	<b>N/A</b>	<b>2/3</b> (66.7%)	<b>9/14</b> (64.3%)	<b>N/A</b>	<b>13/13</b> (100.0%)	<b>26/28</b> (92.9%)	<b>8/8</b> (100.0%)	<b>16/31</b> (51.6%)	<b>19/31</b> (61.3%)	<b>11/36</b> (30.6%)	<b>12/33</b> (36.4%)	<b>7/10</b> (70.0%)	<b>N/A</b>		<b>248/411</b> (60.3%)

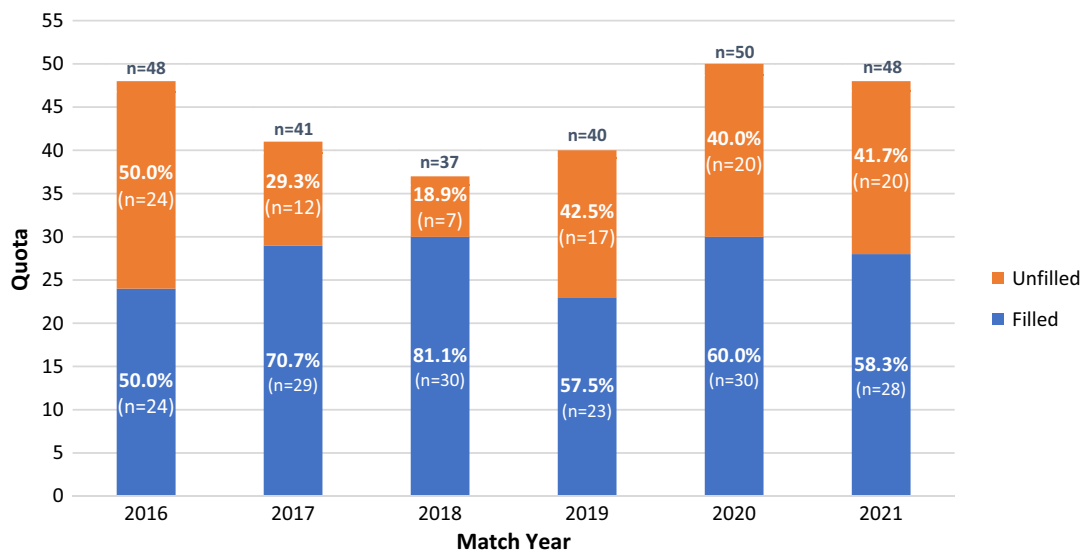


Figure 1. Filled and unfilled geriatric medicine positions at Canadian medical schools, 2016 to 2021 (first and second iterations combined).

rate at 81 per cent (30/38 spots filled), whereas 2021 represented the lowest match rate (58%) in the previous five years.

Table 2 reports the number of applicants who identified geriatric-focused training positions as their first-choice discipline for each of the match years and, among them, the number of applicants who successfully matched. In the 2021 match year, 43 trainees applied to a total of 48 geriatric medicine residency positions. Among them, 27 out of 29 applicants (93.1%) who selected geriatric medicine as their first-choice discipline successfully matched with these positions. The successful application rate was considerably greater for these applicants, compared to those who ranked other disciplines as their first choice (65.1%). Among applicants to geriatric medicine positions in the 2016 to 2021 match years, more females applied to this discipline (n = 171 females, n = 79 males) and matched (71% female, n = 121 vs. 54% male, n = 43), compared to males.

Family Medicine COE

In the 2021 match, 15 medical schools offered 34 FM-COE positions (Table 3), and 16 positions were filled (47.1%). The majority

of FM-COE positions were offered in Quebec (n = 15, 44.1%), followed by Ontario (n = 9, 26.5%). Eleven programs were instructed in English, three were instructed in French, and there was one bilingual program. Four medical schools had completely vacant FM-COE positions after both iterations of the 2021 match process.

The number of FM-COE positions offered across Canadian medical schools was relatively stable from 2019 to 2021, although the number of FM-COE positions slightly decreased in the most recent match year. Figure 2 displays the proportion of filled FM-COE positions for each match year. The FM-COE vacancy rates slightly increased over time (36.8% in 2019 to 52.9% in 2021). Across Canadian medical schools, the match rate for FM-COE programs from 2019 to 2021 ranged from 0.0 per cent to 100.0 per cent; no clear trends were observed for particular provinces and regions of Canada.

Table 2 reports that the 2021 match rate was 47.1 per cent (16/34), and that 14 out of the 16 matched applicants (87.5%) chose FM-COE as their first-choice discipline in the 2021 FM/ES match year. The successful application rate was greater for applicants who selected FM-COE as their first-choice discipline,

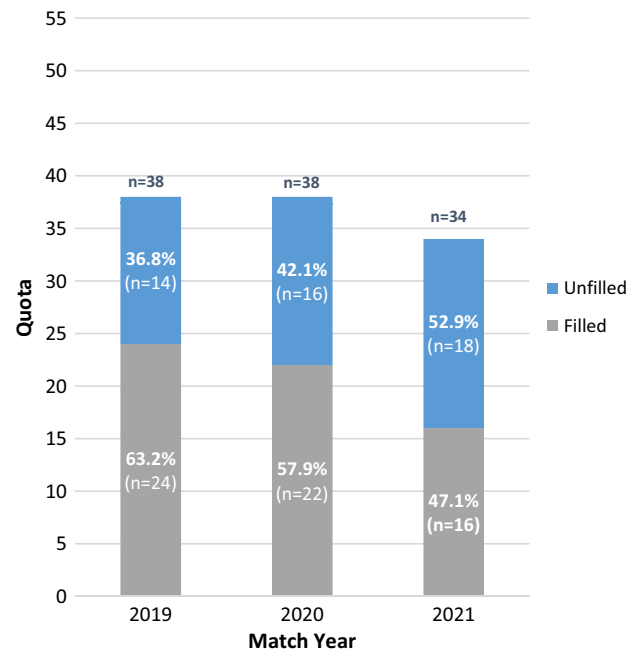
Table 2. Match results for applicants to geriatric-focused disciplines, 2016 to 2021 (first and second iterations combined)

Match Year	DISCIPLINE					
	Geriatric Medicine			Family Medicine COE		
	Number of Applicants (First-choice Discipline)	Number Matched (First-choice Discipline)	Successful Application Rate (First-choice Discipline)	Number of Applicants (First-choice Discipline)	Number Matched (First-choice Discipline)	Successful Application Rate (First-choice Discipline)
2016	44 (24)	24 (23)	54.5% (95.8%)			
2017	45 (31)	29 (27)	64.4% (87.1%)			
2018	45 (33)	30 (29)	66.7% (87.9%)			
2019	34 (19)	23 (19)	67.6% (100.0%)	13 (9)	9 (9)	69.2% (100.0%)
2020	39 (31)	30 (29)	76.9% (93.5%)	7 (5)	6 (5)	85.7% (100.0%)
2021	43 (29)	28 (27)	65.1% (93.1%)	21 (16)	16 (14)	76.2% (87.5%)
<b>Total</b>	<b>250 (167)</b>	<b>164 (154)</b>	<b>65.6% (92.2%)</b>	<b>41 (30)</b>	<b>31 (28)</b>	<b>75.6% (93.3%)</b>

**Table 3.** Quota of COE family medicine positions offered and the proportion filled in the Family Medicine Match by school of residency, 2019 to 2021.

Province	SCHOOL OF RESIDENCY ( $N_{filled} / N_{quota}$ )																TOTAL (Match Rate, %)							
	BC	AB	SK	MB	ON	QC	NS	NFLD	Alberta	Saskatchewan	Manitoba	Western	NOSM	McMaster	Toronto	Queens		Ottawa	Laval	Montreal	McGill	Sherbrooke	Dalhousie	Memorial
2019	1/2	0/3	4/4	4/4	1/2	1/1	1/1	4/4	4/4	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	4/4	3/4	1/4	1/4	1/4	2/2	24/38 (63.2%)
2020	3/3	1/3	4/4	0/2	1/1	1/1	3/3	3/3	2/4	2/4	1/4	1/4	3/4	0/5	0/5	*	*	2/4	1/4	3/4	0/4	0/1	1/1	22/38 (57.9%)
2021	0/2	1/3	2/2	1/1	1/1	1/1	3/3	3/3	2/4	2/4	3/3	3/3	0/4	1/4	1/4	0/1	0/1	2/4	1/4	0/4	1/4	0/1	1/1	16/34 (47.1%)
<b>TOTAL</b> (Match Rate, %)	<b>4/7</b> (57.1%)	<b>2/9</b> (22.2%)	<b>10/10</b> (100.0%)	<b>N/A</b>	<b>3/3</b> (100.0%)	<b>3/3</b> (100.0%)	<b>10/10</b> (100.0%)	<b>2/3</b> (66.7%)	<b>2/6</b> (33.3%)	<b>8/12</b> (66.7%)	<b>7/11</b> (63.6%)	<b>4/12</b> (33.3%)	<b>2/13</b> (15.4%)	<b>0/1</b> (0.0%)	<b>0/1</b> (0.0%)	<b>4/4</b> (100.0%)	<b>24/38</b> (63.2%)	<b>22/38</b> (57.9%)	<b>16/34</b> (47.1%)					

\* Applicant and match data were not obtained from FM-COE program directors.



**Figure 2.** Filled and unfilled FM-COE positions at Canadian medical schools, 2019 to 2021.

compared to those who ranked other disciplines as their first choice (75.6%). Overall, between 2019 and 2021, more females applied ( $n = 33$  females,  $n = 8$  males) to FM-COE positions. All male applicants (8/8) matched to a FM-COE position, whereas 70 per cent of female applicants (23/33) matched.

### Discussion

This study found that applicants who match to geriatric medicine and FM-COE programs preferred to pursue these disciplines by selecting them as their first-choice specialty ranking, and that applicants tended to successfully match with these positions. The findings suggest that program quotas and applicant trends have not increased over the years, despite forecasted deficits in the health human resources required for the aging population (Borrie et al., 2020; Hogan et al., 2012). This study confirms previous research reporting that there are high vacancy rates in geriatric-focused training positions (Hogan et al., 2012), and that more females than males apply and match to geriatric-focused training (Canadian Medical Association, 2019a; Hogan et al., 2012).

The finding that those who preferentially rank geriatric-focused disciplines highly tend to successfully match to these positions suggests that residency programs are accepting the most interested and passionate applicants. While this study reports higher successful application rates for applicants who rank geriatric medicine or FM-COE as their first-choice discipline, not all applicants are selected for these positions – resulting in vacant training positions. Applicants may not have successfully matched with these positions due to a poor fit with programs or applicants’ rank preferences. Given that the findings show stagnant growth in applications, a focus on garnering more interest and attracting medical students early in their training may be beneficial in encouraging future clinicians to work in this needed discipline (Correia, Klea, Campbell, & Costa, 2020; Frank & Martin, 2015; Heckman, Molnar, & Lee, 2013; Torrible et al., 2006).

This study observed a high vacancy rate of geriatric-focused training positions that has been echoed in other studies (Borrie et al., 2020; Borrie, Seitz, Basu, Cooper, & Kay, 2018; Hogan et al., 2012). While medical schools in Quebec experienced the greatest vacancy rates, reasons for this discrepancy may be attributed to fewer trainees seeking French-language instruction (Hanson, Moineau, [Mahan] Kulasegaram, & Hammond, 2016) due to the minority francophone population in Canada and medical residents' low salaries relative to those of other provinces in the country (CaRMS, 2021b). Across Canada, interest in geriatric medicine remains low compared to other subspecialty or general internal medicine (GIM) training programs that are available to applicants completing a three-year core internal medicine residency (CaRMS, 2021a). In the first iteration of the 2021 match, there were 570 internal medicine subspecialty applicants for 540 training positions offered (CaRMS, 2021a). For every GIM position, 1.04 applicants selected GIM as their first-choice discipline; for every adult cardiology position, 1.22 applicants selected this discipline; and for every geriatric medicine position, 0.71 applicants selected this discipline (CaRMS, 2021a). Out of 48 positions left vacant across all available disciplines in the match, adult rheumatology and geriatric medicine had the highest number of unfilled positions (i.e., 11 unfilled positions in each discipline) and similar quotas and levels of interest from applicants (CaRMS, 2021a). Similarly, relative to other disciplines in the FM/ES match, 2021 data show that 18 out of 34 positions available for FM-COE were unfilled, compared to only 3 out of 132 positions unfilled for an additional year in Family Medicine emergency medicine training. Further, although the number of training positions offered for FM-COE and palliative care was the same ( $n = 34$  for each discipline), the proportion of unfilled positions was alarming (i.e., 52.9% and 17.6% of FM-COE and palliative care positions were unfilled, respectively).

Previous longitudinal analyses of Canadian geriatric medicine and FM-COE trainees from 2001 to 2010 found limited enrolment and no clear evidence of growth (Hogan et al., 2012). This analysis reports a modest increase in the number of trainees in recent years. While prior work has called for increased program quotas to reduce deficits in the workforce (Borrie et al., 2020; Hogan et al., 2012), the findings from this work suggest that addressing the unfilled, yet available, training positions that are currently offered is paramount as a first step. Only when there is enough interest to fill existing program quotas can increasing program quotas be considered as an effective solution.

In the absence of a national Canadian physician resource plan for geriatrics, a health human resources and education strategy should be developed to address current and future shortfalls in geriatric services across the country (National Institute on Ageing, 2020). Elements of this strategy should consider enhancing undergraduate education in geriatrics (Arai et al., 2015; Gordon, Blundell, Gladman, & Masud, 2007; Heckman et al., 2013; Mateos-Nozal & Beard, 2011; Perrella, Cuperfain, Canfield, Woo, & Wong, 2020; Pokrzywko et al., 2019); strengthening departments of geriatric medicine (Arai et al., 2015; Mateos-Nozal & Beard, 2011); establishing collaborations with primary care and family physician educators who can support the integration of competencies in caring for older adults in their curriculum (Callahan, Tumosa, & Leipzig, 2017; Gordon et al., 2007; Heckman et al., 2013; Lee, Burton, & Lundebjerg, 2017; National Institute on Ageing, 2020; Tinetti, 2016; Weiss & Fain, 2009); addressing the multi-factorial barriers hindering interest in geriatric-focused training (Glauser, 2019; Heckman et al., 2013; Madden & Wong, 2013); and

highlighting positive aspects of geriatric-focused careers in recruitment materials, including pay reform (Glauser, 2019) and high job satisfaction (Leigh, Kravitz, Schembri, Samuels, & Mobley, 2002). When delivering care to older adults, care providers should recognize that not all encounters will be with the chronically ill or institutionalized (Weiss & Fain, 2009), as many older adults live in the community and are interested in maximizing independent lifestyles.

Projecting the estimated need for specialist geriatric resources remains challenging, considering that many clinicians do not solely provide clinical care for older adults. Often physicians dedicate different proportions of their time to clinical practice and non-clinical roles, such as teaching, leadership, administration, or research (Grierson et al., 2021). For example, FM-COE typically dedicate only 30% of their practice to older adults, while spending the rest of their time providing primary care for patients across the age spectrum (Borrie et al., 2020). This inhibits accurate estimates of available physician resources to population-level needs (Vogel, 2011). In Ontario, earlier work estimated physician resource deficits of 150.5 geriatricians and 116.3 geriatric psychiatrists in 2018, with increasing shortages projected by 2025 (Borrie et al., 2020). Nevertheless, the number of geriatric-focused trainees entering a clinical practice is not sufficient to meet the rapidly growing aging demographic. Having a better understanding of the overlapping scopes of practice of physicians between different disciplines who collectively care for older adults and how they practise is needed to identify opportunities for collaboration, coordination, and to provide more accurate projections of geriatric-focused health human resources (Correia, Jabbar, et al., 2022).

These results also support previous findings that geriatric-focused education and related medical services are not equitably distributed across the country (Canadian Medical Association, 2019b; Madden & Wong, 2013). This study shows that some provinces in Canada do not provide training in geriatric-focused positions (i.e., Prince Edward Island and Saskatchewan). Additionally, the Northern territories are further disadvantaged because they do not have medical schools that offer training and have few or no full-time dedicated geriatricians currently serving the population. Because training location has been shown to influence where physicians are most likely to practise after their completion of residency (Hogan et al., 2012), strategies and advocacy are needed to bring training positions to these provinces and territories; supporting retention beyond graduation should also be a priority for these locations. This geographical gap identified could be an interesting opportunity for geriatric medicine and FM-COE to collaborate on a synergistic training and practice solution that provides timely and equitable access to high-quality care for all older adult Canadians.

### Limitations

This study analysed aggregate-level data and, as such, was not able to examine individual-level characteristics of applicants for factors associated with geriatric-focused residency training. Due to the small number of applicants, applicant-level data may have been easily identifiable for characteristics of interest, including the applicants' initial residency training locations, where they completed medical school, and their ages. This analysis of applicants' preferences was limited by the number of years in which match data were available for FM-COE since most medical schools facilitated this process internally before 2021. The research team also lacked the historical context concerning why and how residency positions

were located across Canadian medical schools, which may hinder the interpretations. Lastly, this analysis was strictly limited to CaRMS match data and, thereby, excluded the geriatric psychiatry residency (which is not facilitated by CaRMS) and various repatriation plans through the provincial government for international medical graduates who trained abroad in geriatrics (Ministry of Health, 2018). Future studies on geriatric-focused training should examine individual-level factors and trends over time when longitudinal data are available across all relevant specialties. Future qualitative work can examine the context of geriatric-focused training in Canada, including interviews with medical resident applicants and program directors.

## Conclusion

Resident applicants who apply for geriatric medicine and FM-COE training positions want to pursue careers in geriatric-focused disciplines relative to other disciplines. However, despite this interest, this pool of future physicians is small compared to the Canadian population's need that faces them upon graduation. Therefore, there is an urgent need to build this future pool by fostering interest in geriatrics early in medical school and continuing to build interest through intentional undergraduate medical curricular design. Addressing system-level issues such as remuneration, workload and satisfaction, and geographic resource planning strategically could attract and train more residents with skills in caring for older adults. This work provides foundational information needed to enhance recruitment efforts and matching procedures. Being successful in more effective recruitment will address the significant access and equity care gap for society's most vulnerable demographic sector.

**Acknowledgements.** The authors would like to acknowledge CaRMS for providing the publicly available and additional requested data to enable this work. All interpretations made using the data were made by the authors and not by CaRMS.

## References

- Andrew, M. H., & Shea, C. (2010). Geriatric psychiatry education in Canada: The pathway to subspecialty recognition. *International Psychogeriatrics*, *22*(6), 919. <https://doi.org/10.1017/S1041610210000414>
- Arai, H., Ouchi, Y., Toba, K., Endo, T., Shimokado, K., Tsubota, K., et al. (2015). Japan as the front-runner of super-aged societies: Perspectives from medicine and medical care in Japan. *Geriatrics & Gerontology International*, *15*(6), 673–687. <https://doi.org/10.1111/ggi.12450>
- Bagri, A. S., & R. Tiberius (2010). Medical student perspectives on geriatrics and geriatric education. *Journal of the American Geriatrics Society*, *58*(10), 1994–1999. <https://doi.org/10.1111/j.1532-5415.2010.03074.x>
- Borrie, M., Cooper, T., Basu, M., Kay, K., Prorok, J. C., & Seitz, D. (2020). Ontario geriatric specialist physician resources 2018. *Canadian Geriatrics Journal*, *23*(3), 219–227. <https://doi.org/10.5770/cgj.23.448>
- Borrie, M., Seitz, D., Basu, M., Cooper, T., & Kay, K. (2018). *Specialized geriatric services in Ontario: Human resources mapping geriatricians, care of the elderly physicians, and geriatric psychiatrists*. St Joseph's Health Care London. [https://rgps.on.ca/wp-content/uploads/2019/05/Specialized-Geriatric-Services-in-Ontario-RGPO-Final-Report\\_Apr1.pdf](https://rgps.on.ca/wp-content/uploads/2019/05/Specialized-Geriatric-Services-in-Ontario-RGPO-Final-Report_Apr1.pdf)
- Busing, N., Harris, K., MacLellan, A.-M., Moineau, G., Oandasan, I., Rourke, J., et al. (2015). The future of postgraduate medical education in Canada. *Academic Medicine*, *90*(9), 1258–1263. <https://doi.org/10.1097/ACM.0000000000000815>
- Callahan, K. E., Tumosa, N., & Leipzig, R. M. (2017). Big 'G' and little 'g' geriatrics education for physicians. *Journal of the American Geriatrics Society*, *65*(10), 2313–2317. <https://doi.org/10.1111/jgs.14996>
- Canadian Institute for Health Information. (2020). *Physicians in Canada, 2019*. Ottawa, ON: Canadian Institute for Health Information. [https://secure.cihi.ca/free\\_products/physicians-in-Canada-report-en.pdf](https://secure.cihi.ca/free_products/physicians-in-Canada-report-en.pdf)
- Canadian Medical Association. (2019a). Geriatric medicine profile. CMA. Retrieved 5 March 2021 from <https://www.cma.ca/sites/default/files/2019-01/geriatric-e.pdf>
- Canadian Medical Association. (2019b). Number of physicians by specialty and age, Canada, 2019 [CMA Master Data File]. Retrieved 5 March 2021 from [https://www.cma.ca/sites/default/files/2019-11/2019-02-physicians-by-specialty-age-e\\_0.pdf](https://www.cma.ca/sites/default/files/2019-11/2019-02-physicians-by-specialty-age-e_0.pdf)
- Canadian Resident Matching Service. (2021a). Data reports: 2021 medicine subspecialty match - First iteration. CaRMS. Retrieved 5 March 2021 from <https://www.carms.ca/data-reports/msm-data-reports/>
- Canadian Resident Matching Service. (2021b). Salary. CaRMS. Retrieved 5 March 2021 from <https://www.carms.ca/match/r-1-main-residency-match/salary/>
- Coleman, E. A. (2003). Falling through the cracks: Challenges and opportunities for improving transitional care for persons with continuous complex care needs. *Journal of the American Geriatrics Society*, *51*(4), 549–555. <https://doi.org/10.1046/j.1532-5415.2003.51185.x>
- College of Family Physicians of Canada. (2017). *Priority topics and key features for the assessment of competence in care of the elderly*. CFPC. Retrieved 5 March 2021 from [https://www.cfpc.ca/CFPC/media/Resources/Education/COE\\_KF\\_Final\\_ENG.pdf](https://www.cfpc.ca/CFPC/media/Resources/Education/COE_KF_Final_ENG.pdf)
- Correia, R. H., Grierson, L., Allice, I., Siu, H. Y. H., Baker, A., Panday, J., et al. (2022). The impact of care of the elderly certificates of added competence on family physician practice: Results from a pan-Canadian multiple case study. *BMC Geriatrics*, *22*(1), 840. <https://doi.org/10.1186/s12877-022-03523-4>
- Correia, R. H., Jabbar, A., Siu, H. Y. H., Hogeveen, S., Dash, D., Mowbray, F. I., et al. (2022). Comparing the scopes of practice of geriatric-focused physicians in Canada: A qualitative study of core competencies. *Canadian Medical Association Open Access Journal*, *10*(2), E563–E569. <https://doi.org/10.9778/cmajo.20210193>
- Correia, R. H., Klea, L., Campbell, G., & Costa, A. P. (2020). Fostering inter-generational education: An experiential learning program for medical students and older adults. *Canadian Medical Education Journal*, *11*(5), e74–e77. <https://doi.org/10.36834/cmej.69327>
- Curran, M. A., Black, M., Depp, C. A., Iglewicz, A., Reichstadt, J., Palinkas, L., et al. (2015). Perceived barriers and facilitators for an academic career in geriatrics: Medical students' perspectives. *Academic Psychiatry*, *39*(3), 253–258. <https://doi.org/10.1007/s40596-014-0208-6>
- Diachun, L. L., Hillier, L. M., & Stolee, P. (2006). Interest in geriatric medicine in Canada: How can we secure a next generation of geriatricians? *Journal of the American Geriatrics Society*, *54*(3), 512–519. <https://doi.org/10.1111/j.1532-5415.2005.00610.x>
- Fitzgerald, J. T., Wray, L. A., Halter, J. B., Williams, B. C., & Supiano, M. A. (2003). Relating medical students' knowledge, attitudes, and experience to an interest in geriatric medicine. *The Gerontologist*, *43*(6), 849–855. <https://doi.org/10.1093/geront/43.6.849>
- Frank, C., & Martin, R. E. (2015). Humanities and geriatric education: A strategy for recruitment? *Canadian Geriatrics Journal*, *18*(1), 37–41. <https://doi.org/10.5770/cgj.18.137>
- Frank, C., & Seguin, R. (2009). Care of the elderly training: implications for family medicine. *Canadian Family Physician*, *55*(5), 510–511.
- Glauser, W. (2019). Lack of interest in geriatrics among medical trainees a concern as population ages. *Canadian Medical Association Journal*, *191*(20), E570–E571. <https://doi.org/10.1503/cmaj.109-5752>
- Gordon, A. L., Blundell, A. G., Gladman, J. R. F., & Masud, T. (2007). Undergraduate education in geriatrics within the United Kingdom. *Age and Ageing*, *36*(6), 705. <https://doi.org/10.1093/ageing/afm126>
- Gordon, J. E. (2011). Updated survey of the geriatrics content of Canadian undergraduate and postgraduate medical curricula. *Canadian Geriatrics Journal*, *14*(2), 34–39. <https://doi.org/10.5770/cgj.v14i2.11>
- Grierson, L., Vanstone, M., & Allice, I. (2020). Understanding the Impact of the CFPC Certificates of Added Competence. *College of Family Physicians of*

- Canada. Retrieved on January 31, 2023 at <https://www.cfpc.ca/CFPC/media/PDF/2020-04-CAC-Impact-Study-Report.pdf>
- Hanson, M. D., Moineau, G., (Mahan) Kulasegaram, K., & Hammond, R. (2016). Is Canada ready for nationwide collaboration on medical school admissions practices and policies? *Academic Medicine*, *91*(11), 1501–1508. <https://doi.org/10.1097/ACM.0000000000001286>
- Heckman, G. A., Molnar, F. J., & Lee, L. (2013). Geriatric medicine leadership of health care transformation: To be or not to be? *Canadian Geriatrics Journal*, *16*(4), 192–195. <https://doi.org/10.5770/cgj.16.89>
- Hogan, D. B., Borrie, M., Basran, J. F. S., Chung, A. M., Jarrett, P. G., Morais, J. A., et al. (2012). Specialist physicians in geriatrics—Report of the Canadian geriatrics society physician resource work group. *Canadian Geriatrics Journal*, *15*(3), 68–79. <https://doi.org/10.5770/cgj.15.41>
- Hughes, N. J., Soiza, R. L., Chua, M., Hoyle, G. E., MacDonald, A., Primrose, W. R., et al. (2008). Medical student attitudes toward older people and willingness to consider a career in geriatric medicine. *Journal of the American Geriatrics Society*, *56*(2), 334–338. <https://doi.org/10.1111/j.1532-5415.2007.01552.x>
- Lee, A. G., Burton, J. A., & Lundebjerg, N. E. (2017). Geriatrics-for-specialists initiative: An eleven-specialty collaboration to improve care of older adults. *Journal of the American Geriatrics Society*, *65*(10), 2140–2145. <https://doi.org/10.1111/jgs.14963>
- Leigh, J. P., Kravitz, R. L., Schembri, M., Samuels, S. J., & Mobley, S. (2002). Physician career satisfaction across specialties. *Archives of Internal Medicine*, *162*(14), 1577–1584. <https://doi.org/10.1001/archinte.162.14.1577>
- Leipzig, R. M., Granville, L., Simpson, D., Anderson, M. B., Sauvign e, K., & Soriano, R. P. (2009). Keeping granny safe on July 1: A consensus on minimum geriatrics competencies for graduating medical students. *Academic Medicine*, *84*(5), 604–610. <https://doi.org/10.1097/ACM.0b013e31819fab70>
- Madden, K. M., & Wong, R. Y. (2013). The health of geriatrics in Canada—More than meets the eye. *Canadian Geriatrics Journal*, *16*(1), 1–2. <https://doi.org/10.5770/cgj.16.75>
- Mateos-Nozal, J., & Beard, J. R. (2011). Global approaches to geriatrics in medical education. *European Geriatric Medicine*, *2*(2), 87–92. <https://doi.org/10.1016/j.eurger.2011.01.001>
- Meiboom, A. A., de Vries, H., Hertogh, C. M. P. M., & Scheele, F. (2015). Why medical students do not choose a career in geriatrics: A systematic review. *BMC Medical Education*, *15*(1), 101. <https://doi.org/10.1186/s12909-015-0384-4>
- Ministry of Health. (2018). *Repatriation Program*. Toronto, Ontario: Ministry of Health. Retrieved 5 March 2021 from <https://www.health.gov.on.ca/en/pro/programs/repatriation/>.
- National Institute on Ageing. (2020). *An evidence informed national seniors strategy for Canada* (3rd ed.). Toronto, ON: National Institute on Ageing. Retrieved 5 March 2021 from [http://nationalseniorsstrategy.ca/wp-content/uploads/2020/09/NSS\\_2020\\_Third\\_Edition.pdf](http://nationalseniorsstrategy.ca/wp-content/uploads/2020/09/NSS_2020_Third_Edition.pdf).
- Perrella, A., Cuperfain, A. B., Canfield, A. B., Woo, T., & Wong, C. L. (2020). Do interest groups cultivate interest? Trajectories of geriatric interest group members. *Canadian Geriatrics Journal: CGJ*, *23*(3), 264–269. <https://doi.org/10.5770/cgj.23.413>
- Pokrzywko, K., Torres-Platas, S. G., Abdool, P. S., Nassim, M., Semeniuk, T., Moussa, Y., et al. (2019). Early clinical exposure to geriatric psychiatry and medical students' interest in caring for older adults: A randomized controlled trial. *The American Journal of Geriatric Psychiatry: Official Journal of the American Association for Geriatric Psychiatry*, *27*(7), 745–751. <https://doi.org/10.1016/j.jagp.2019.03.004>
- Ribera Casado, J. M. (2012). The history of geriatric medicine. The present: Problems and opportunities. *European Geriatric Medicine*, *3*(4), 228–232. <https://doi.org/10.1016/j.eurger.2012.01.002>
- Robbins, T. D., Crocker-Buque, T., Forrester-Paton, C., Cantlay, A., Gladman, J. R. F., & Gordon, A. L. (2011). Geriatrics is rewarding but lacks earning potential and prestige: Responses from the national medical student survey of attitudes to and perceptions of geriatric medicine. *Age and Ageing*, *40*(3), 405–408. <https://doi.org/10.1093/ageing/afr034>
- Schigelone, A. S., & Ingersoll-Dayton, B. (2004). Some of my best friends are old: A qualitative exploration of medical students' interest in geriatrics. *Educational Gerontology*, *30*(8), 643–661. <https://doi.org/10.1080/03601270490483887>
- The Royal College of Physicians and Surgeons of Canada. (2010). Objectives of training in the subspecialty of geriatric psychiatry. *The royal college of physicians and surgeons of Canada*. Retrieved 5 March 2021 from <https://www.royalcollege.ca/rcsite/documents/ibd/geriatric-psychiatry-otr-e.pdf>.
- The Royal College of Physicians and Surgeons of Canada. (2015). *Objectives of training in the subspecialty of geriatric medicine*. The Royal College of Physicians and Surgeons of Canada. Retrieved 5 March 2021 from [https://www.royalcollege.ca/rcsite/documents/ibd/geriatric\\_medicine\\_otr\\_e](https://www.royalcollege.ca/rcsite/documents/ibd/geriatric_medicine_otr_e).
- Tinetti, M. (2016). Mainstream or extinction: Can defining who we are save geriatrics? *Journal of the American Geriatrics Society*, *64*(7):1400–1404. <https://doi.org/10.1111/jgs.14181>
- Torrible, S. J., Diachun, L. L., Rolfson, D. B., Dumbrell, A. C., & Hogan, D. B. (2006). Improving recruitment into geriatric medicine in Canada: Findings and recommendations from the geriatric recruitment issues study. *Journal of the American Geriatrics Society*, *54*(9), 1453–1462. <https://doi.org/10.1111/j.1532-5415.2006.00884.x>
- van Zuilen, M. H., Rubert, M. P., Silverman, M., & Lewis, J. (2001). Medical students' positive and negative misconceptions about the elderly: The impact of training in geriatrics. *Gerontology & Geriatrics Education*, *21*(3), 31–40. [https://doi.org/10.1300/J021v21n03\\_05](https://doi.org/10.1300/J021v21n03_05)
- Vogel, L. (2011). Specialty training out-of-sync with job market. *Canadian Medical Association Journal*, *183*(13), E1016. <https://doi.org/10.1503/cmaj.109-3985>
- Weiss, B. D., & Fain, M. J. (2009). Geriatric education for the physicians of tomorrow. *Archives of Gerontology and Geriatrics*, *49*(Suppl 2), S17–S20. [https://doi.org/10.1016/S0167-4943\(09\)70007-X](https://doi.org/10.1016/S0167-4943(09)70007-X)