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Article abstract

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Methods: An online survey was developed, and invitations were sent to all current Canadian rheumatology residents in 2019 (n = 67). Differences between subgroups of respondents were examined using the Pearson χ^2 test.

Results: A total of 34 of 67 residents completed the survey. Seventy-three percent of residents planned to practice in the same province as their rheumatology training. The majority of residents (80%) ranked proximity to friends and family as the most important factor in planning. Half of participants had exposure to alternative modes of care delivery (e.g. telehealth) during their rheumatology training with fifteen completing a community rheumatology elective (44%).

Conclusions: The majority of rheumatology residents report plans to practice in the same province as they trained, and close to home. Gaps in training include limited exposure to community electives in smaller centers, and training in telehealth and travelling clinics for underserved populations. Our findings highlight the need for strategies to increase exposure of rheumatology trainees to underserved areas to help address the maldistribution of rheumatologists.

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Factors influencing rheumatology residents' decision on future practice location

Facteurs influençant le choix du futur lieu d'exercice chez les résidents en rhumatologie

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Abstract

Background: There are regional disparities in the distribution of Canadian rheumatologists. The objective of this study was to identify factors impacting rheumatology residents' postgraduate practice decisions to inform Canadian Rheumatology Association workforce recommendations.

Methods: An online survey was developed, and invitations were sent to all current Canadian rheumatology residents in 2019 ($n = 67$). Differences between subgroups of respondents were examined using the Pearson χ^2 test.

Results: A total of 34 of 67 residents completed the survey. Seventy-three percent of residents planned to practice in the same province as their rheumatology training. The majority of residents (80%) ranked proximity to friends and family as the most important factor in planning. Half of participants had exposure to alternative modes of care delivery (e.g. telehealth) during their rheumatology training with fifteen completing a community rheumatology elective (44%).

Conclusions: The majority of rheumatology residents report plans to practice in the same province as they trained, and close to home. Gaps in training include limited exposure to community electives in smaller centers, and training in telehealth and travelling clinics for underserved populations. Our findings highlight the need for strategies to increase exposure of rheumatology trainees to underserved areas to help address the maldistribution of rheumatologists.

Résumé

Contexte : Au Canada, il existe des disparités régionales dans la répartition des rhumatologues. La présente étude recense les facteurs qui influencent les choix des résidents en rhumatologie concernant leur lieu d'exercice futur afin de guider les recommandations de Société canadienne de rhumatologie relatives aux effectifs.

Méthodes : Après l'élaboration d'un sondage en ligne, une invitation a été envoyée à tous les résidents en rhumatologie au Canada en 2019 ($n = 67$). Les différences entre les groupes ont été examinées à l'aide du test Pearson χ^2 .

Résultats : Trente-quatre des 67 résidents contactés ont répondu au sondage. Soixante-treize pour cent des répondants prévoient d'exercer dans la province où ils avaient fait leur formation en rhumatologie. La majorité des résidents (80 %) ont classé la proximité des amis et de la famille comme le facteur le plus important dans leur choix de lieu d'exercice. La moitié des participants s'étaient familiarisés avec d'autres modes de prestation de soins (par exemple, la télésanté) pendant leur formation en rhumatologie et 15 d'entre eux (44 %) avaient fait un stage en rhumatologie communautaire.

Conclusions : La majorité des résidents en rhumatologie déclarent avoir l'intention d'exercer près de chez eux, dans la province où ils ont fait leurs études. Les lacunes dans la formation comportent l'exposition limitée à des stages dans les petits centres en milieu communautaire, en télésanté et dans les cliniques mobiles ciblant les populations mal desservies. Nos conclusions soulignent le besoin de stratégies visant à augmenter l'exposition des résidents en rhumatologie à des zones mal desservies afin de remédier à la mauvaise répartition géographique des rhumatologues.

Background

Forecasting demand for rheumatology services is a challenging task.^{1,2} While recommendations have been made for evaluating workforce requirements,³ they have yet to be fully implemented. The 2015 Canadian Rheumatology Association (CRA) workforce survey⁴ revealed a regional maldistribution with few areas meeting the recommended one full time equivalent rheumatologist per 75,000 people.^{5,6} One-third of rheumatologists surveyed planned to retire in 5-10 years.⁴ The increasing feminization of the rheumatology workforce also impacts service volumes.⁷ Strategies used to address healthcare workforce deficits are varied including financial incentives, physician recruitment, rural medical education/training, use of alternative providers, medical practice support, patient travel assistance, and telemedicine.⁸

Understanding trainee preferences for future practice locations is a key aspect of workforce planning and while studies on trainee determinants of future practice location have been conducted in primary care,⁹⁻¹² we found none in Rheumatology. The study objective was to identify factors impacting rheumatology residents' postgraduate practice decisions to inform CRA workforce recommendations.

Methods

Members of the CRA's human resources committee (CB, JW), including a resident representative (JS) and a pediatric rheumatologist (MB), and three adult rheumatologists with expertise in medical education (DM, AC, SJ) developed and piloted an English language electronic 25-question survey (Supplemental material). All current Post Graduate Year (PGY) 4 and PGY5 adult and pediatric rheumatology residents in February 2019 were invited to complete the survey. Participation was voluntary and written consent was obtained. Differences in counts were examined using Pearson chi-square tests and all tests were performed using R Statistical Software version 3.5.2. Ethics approval was provided through the University of Calgary (REB19-0155).

Results

A total of 34 of 67 residents responded to the survey (50.7%, Table 1). Of the 34 respondents, 14 (41.2%) expected to complete rheumatology training in June 2019 and 20 (58.8%) by June 2020 or later. A majority of respondents were in adult rheumatology programs (91.2%) with over half located in Ontario (55.9%).

Table 1. Rheumatology resident characteristics

Characteristic	N (%) of Total Respondents (n = 34)
Year of expected residency completion	
2019	18 (41.2%)
2020 or beyond ^a	20 (58.8%)
Adult rheumatology program	31 (91.2%)
Location of current subspecialty training	
Ontario	19 (55.9%)
Alberta	5 (14.7%)
British Columbia	5 (14.7%)
Another province ^b	5 (14.7%)
Location of medical degree (MD) completion	
Outside of Canada	7 (20.6%)
Ontario	13 (38.2%)
Alberta	6 (17.6%)
Another province or prefer not to say ^b	8 (23.5%)
Location of internal medicine or pediatric training	
Ontario	18 (52.9%)
Alberta	4 (11.8%)
British Columbia	4 (11.8%)
Another province or Outside of Canada ^b	8 (23.5%)
Province where majority of life spent	
Ontario	18 (52.9%)
Alberta	5 (14.7%)
British Columbia	4 (11.8%)
Another province or Outside of Canada ^b	7 (20.6%)
30,000-99,999	6 (17.6%)
100,000-999,999	11 (32.4%)
1,000,000 or greater	15 (44.1%)
29,000 or less or prefer not to say ^c	2 (5.9%)

^aCollapsed responses reported for years 2020 and beyond

^bNumbers of respondents in these cells 3 or less

^cResponse categories with smaller population sizes and no respondents collapsed due to small sample sizes

A majority of respondents had no position arranged post-residency (70.6%, Table 2). However, those completing rheumatology training in 2019 were more likely to report having a position arranged after residency compared to those completing training in 2020 or beyond ($p = 0.0001$). Ten respondents (29.4%) planned additional postgraduate training. Over half (52.9%) reported being "concerned" or "very concerned" about finding positions post residency with no significant differences in responses based on year of graduation ($p = 0.35$).

Table 2. Resident perspectives of future jobs by year of expected graduation

Job arranged post residency ^a	
Temporary locum position	2 (5.9%)
Permanent community practice	4 (11.8%)
Academic position	2 (5.9%)
No job arranged	24 (70.6%)
Other	2 (5.9%)
Prefer not to say	0
Additional training	
Clinical fellowship ^b	6 (18.2%)
MSc or PhD program	4 (12.1%)
Certificate program (i.e. education, quality and safety, sport's medicine)	0
None planned	17 (51.5%)
Unsure	10 (30.3%)
Level of concern about finding jobs post residency ³	
Very concerned	4 (12.1%)
Concerned	14 (42.4%)
Neutral	6 (18.2%)
Not too concerned	8 (24.2%)
Not concerned at all	1 (3.0%)
Desired practice type ^c	
University-based	8 (24.2%)
Community-based	14 (42.4%)
Hybrid	9 (27.3%)
Unsure	2 (6.1%)
Desired city or town size for practice ^d	
30,000-99,999	7 (21.2%)
100,000-999,999	14 (42.4%)
1,000,000 or greater	11 (33.3%)
Unsure	1 (3.0%)
Plan to practice in a center where they received training ^e	
Rheumatology training	24 (72.7%)
Internal medicine or pediatric training	15 (45.5%)
Medical degree	16 (48.5%)
Different province from training	2 (6.1%)
Unsure or not applicable	2 (6.1%)

^aOf the individuals with jobs arranged post residency ($n=9$) 55.6% were full time (5) and 44.4% were part time.

^bExamples of clinical fellowships include lupus or vasculitis clinical fellowships.

^c $n=33$ respondents

^dResponse categories with smaller population sizes not shown as 0 respondents

^eParticipants could select all that applied

Respondents' preferences for practice type and practice location are shown in Table 2 with 42.4% reporting a desire for a community-based practice and 42.4% planning to set up practice in a city or town population between 100,000-999,999 inhabitants. Respondents' preference for practice type differed significantly based on year of expected residency completion ($p = 0.009$). Respondents were also more likely to practice in similar population size centers compared to where they had spent the majority of their life (responses dichotomized to 100,000 or greater vs 1,000-99,999; $p = 0.001$).

A majority of respondents ($n = 24$, 72.7%) planned to practice in the province of their rheumatology training program (Table 2). In ranking up to 10 possible factors

important in determining practice location, 80% of respondents ranked proximity to friends and family as the most important factor and job availability second. Teaching opportunities, work prospects for a spouse were the next two highest ranked factors affecting where to set up practice (data not shown).

Only 18.9% of respondents had exposure to telehealth during their rheumatology training and 31.3% had worked in traveling clinics to remote or rural areas (See Appendix A, Table 3). When asked about their future practice, 31.3% of respondents planned to incorporate telehealth into their practice and 43.8% plan to have traveling clinics to remote areas.

Fifteen respondents (44.1%) completed 16 community electives, with a majority ($n = 11$) in large urban centers. An additional 14 respondents indicated that community electives were planned (45.2%). When asked if their participation in the community elective had affected their career decision, 8 of 13 respondents reported that they were more or much more likely to work in a similar setting (61.5%). For those who had not yet completed a community elective, 6 of 19 respondents felt it was likely or very likely that their elective would affect their opinion about where they would want to set up practice while in contrast, over half (10 of 19, 52.6%) reported it was unlikely or very unlikely such an elective would impact their choice of future practice location (Appendix A, Table 3). When examining the population size of where respondents intended to practice and the population size of the community electives completed, no significant relationship was observed ($p = 1$).

Respondents identified a number of barriers to completing a community elective in a smaller center including travel costs ($n = 15$, 46.9%), time away from family and friends ($n = 21$, 65.6%), time away from structured teaching and rounds ($n = 10$, 31.3%) and finding an appropriate preceptor ($n = 12$, 37.5%, data not shown). However, over half of respondents ($n = 17$, 51.3%) agreed that having a travel stipend would increase the likelihood they would do an elective in a smaller center (data not shown).

Discussion

The results of our survey highlight three important considerations for rheumatology workforce planning. Firstly, most respondents plan to remain in the province where they did their training. Secondly, training in Telehealth and travelling clinics appears inconsistently available. Lastly, developing a more robust stipend

program for residents may be a viable strategy for increasing interest in setting up practice in smaller centers.

In Canada, adult rheumatology training programs exist in seven Canadian provinces and pediatric rheumatology training programs in only three.¹³ This likely contributes to the maldistribution of rheumatologists seen in provinces and territories without rheumatology training programs.⁴ In primary care, a variety of strategies from recruitment of residents from underserved communities to financial incentivization have been used to address workforce maldistribution.⁹ Given the varied needs for rheumatology services based on population and geographic considerations,³ local and regional approaches to workforce planning are needed.^{4,14} Detailed geographic analysis can be used to more precisely plan population needs.^{15,16}

Incentivizing subspecialty physicians to set up practice in rural/remote communities may be impractical given the need for a significant population base to sustain a viable practice. Telemedicine¹⁷ and traveling clinics represent alternative strategies to deliver care to underserved, rural and/or remote populations. A minority of respondents had exposure to these strategies for care delivery as part of their formal training. In February 2020, the Canadian Medical Association, the College of Family Physicians of Canada, and the Royal College of Physicians and Surgeons of Canada released a report on virtual care to provide recommendations for scaling up virtual medical services.¹⁸ In this report a medical education task force developed six recommendations addressing virtual care, including the need for incorporating and updating virtual care competencies across undergraduate and postgraduate training programs in Canada.¹⁸ It is likely the COVID-19 pandemic will increase uptake of virtual care in all medical training programs.

Community electives are a mandatory part of adult rheumatology training programs in Canada; however, most of the respondents reported doing their electives in larger urban centers. This choice may reflect the lack of availability of rheumatology practices suitable for community electives in smaller centers. Respondents also cited other potential barriers to completing electives in smaller centers including cost and time away from family, friends and structured teaching. A stipend program to support residents to complete community electives in smaller or more remote centers may increase the number of rheumatology residents considering pursuing practice in these communities.

For most respondents, proximity to friends and family was the most important factor selected when considering where they would like to work. Thus, by encouraging medical students and residents from areas where there is a shortage of rheumatologists to pursue a career in Rheumatology is a potential strategy that has been explored in Canada through partnership with rural medical programs.¹⁹ Encouraging rheumatology trainees to consider community practice, may also increase rheumatologist access, as community rheumatologists often have more clinics per week and see a higher volume of patients.⁴

Limitations

Our study has several limitations. Firstly, the response rate was close to 50% and as a result, the findings may not be fully reflective of the entire cohort and we did not have data on non-respondents to understand if their demographic characteristics differed in important ways from respondents. Additionally, this survey was administered only in English, which may have limited the number of Quebec respondents. The overall sample size was small, limiting statistical analysis. Additionally, some groups had to be combined when reporting the data to preserve anonymity. The results may not be representative of the challenges and considerations when entering the pediatric rheumatology workforce given small number of respondents. This survey represents a cross section across only two years of residents and responses may vary over time.

Conclusions

This work suggests a multifaceted approach including expanding rheumatology training recruitment, advanced virtual care training opportunities and financial support for community electives should be considered as strategies to help address predicted rheumatology workforce shortages.

Conflicts of Interest: The authors declare no conflicts of interest.

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Appendix A.

Table 3. Resident training and exposure to modes of care

Participation in modes of care that provide rheumatology care for under-served populations including those in rural or remote areas	
Telehealth	6 (18.8%)
Travelling clinics to remote areas	10 (31.3%)
Urban clinics servicing underserved populations (refugees, urban indigenous communities)	2 (6.3%)
Other	3 (9.4%)
No opportunity to participate	16 (50.0%)
Future practice plans to participate in modes of care that provide care for under-served populations including those in rural or remote areas?	
Telehealth	10 (31.3%)
Travelling clinics to remote areas	14 (43.8%)
Urban clinics servicing underserved populations (refugees, urban indigenous communities)	4 (12.5%)
Unsure	16 (50.0%)
None planned	3 (9.4%)
Type of community elective completed	
Large urban center (>100,000)	11 (35.5%)
Medium urban center (30,000-99,999)	3 (9.7%)
Smaller population center (<30,000)	2 (6.5%)
No but elective planned	14 (45.2%)
Not applicable (no community electives in my program) or none planned	5 (16.1%)
No, and none is planned	0
Effect of community elective on career decisions if completed (n = 13)	
Much less likely to work in a similar setting	0
Less likely to work in a similar setting	1 (7.7%)
No impact on decision	4 (30.8%)
More likely to work in a similar setting	5 (38.5%)
Much more likely to work in a similar setting	3 (23.1%)
Perceived likelihood that doing an elective in a smaller community (population <100,000) and/or in a remote region (away from major academic rheumatology centers) would change your opinion about where to set up practice (n = 19)	
Very unlikely	5 (26.3%)
Unlikely	5 (26.3%)
Neutral	3 (15.8%)
Likely	5 (26.3%)
Very likely	1 (5.3%)