Original Article

Factors influencing retention of International Medical Graduates in rural practice

Udoka Okpalauwaekwe, MBBS, MPH, PhD[1], Carla Fehr, MA[2], Taofiq Oluwegun Oyedokun, MBChB, DTM, MMed, CCFP-EM, FCFP-EM, PGDipAeroRT[5], Jon Witt, MD, MPH, CCFP-EM, FCFP[4]

[1]Department of Academic Family Medicine, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [2]Continuing Medical Education, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [5]Department of Emergency Medicine, Saskatchewan International Physicians Practice Assessment Program, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [4]Department of Emergency Medicine, Saskatchewan International Physicians Practice Assessment Program, Continuing Medical Education, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada

Correspondence to: Udoka Okpalauwaekwe, udokaokpala.uo@usask.ca

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Abstract

Introduction: Canada relies on international medical graduates (IMGs) to provide a significant proportion of primary care in rural communities. However, retaining IMGs in rural practices across Canada remains a challenge. We explored the literature to learn what factors influence IMGs' retention in rural practice and what has been recommended in the literature to address these factors.

Methods: We focused search strategies on peer-reviewed literature sources (between 01 January 2012, and 31 December 2023) that explored and identified factors connected to the rural practice retention of IMGs in Canada (and areas transferable to the Canadian context).

Results: Twenty of 1002 articles were selected. Factors were categorised as structural, professional, family, community and personal. Structural barriers identified included overall lack of support, limited access to tertiary care centres and unsustainable model of care. Professional challenges included physician burnout, limited mobility and limited scope of practice. Conversely, community integration, opportunities for spousal employment and accessible schools for children were the common facilitators of IMG retention. Key recommendations to enhance IMG retention that were identified, included: (1) providing fair contracts, funding supports, and balanced workloads; (2) having community-directed recruitment models to match physician expectations for income level, workload and spousal employment and (3) having physician-led retention support groups to help physicians adequately settle in.

Conclusion: This study identified the barriers and facilitators to IMG retention in rural medicine and mapped out evidence-based recommendations for each factor. Engaging and tailoring support strategies unique to the needs of IMGs in rural communities would improve IMG retention.

Keywords: Evidence-informed recommendations, foreign medical graduate, international medical graduate, physician retention, rural health support, rural medicine

Résumé

Introduction: Le Canada compte sur les diplômés internationaux en médecine (DIM) pour fournir une part importante des soins primaires dans les communautés rurales. Cependant, la rétention des DIM dans les pratiques

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rurales à travers le Canada reste un défi. Nous avons exploré la littérature pour connaître les facteurs qui influencent la rétention des diplômés internationaux en médecine (DIM) dans la pratique rurale et ce qui a été recommandé dans la littérature pour aborder ces facteurs.
Méthodes: Nous avons axé nos stratégies de recherche sur des sources de documentation évaluées par des pairs (entre le 1er janvier 2012 et le 31 décembre 2023) qui exploraient et identifiaient des facteurs liés au maintien des DIM dans la pratique rurale au Canada, ainsi que les domaines transférables au contexte canadien.
Résultats: Sur 1 002 articles, vingt ont été sélectionnés. Les facteurs ont été classés en cinq catégories: structurels, professionnels, familiaux, communautaires et personnels. Les obstacles structurels identifiés comprenaient le manque général de soutien, l'accès limité aux centres de soins tertiaires et un modèle de soins non viable. Les défis professionnels comprenaient l'épuisement professionnel des médecins, une mobilité limitée et un champ d'action restreint. À l'inverse, l'intégration dans la communauté, les possibilités d'emploi pour les conjoints et les écoles accessibles pour les enfants sont autant de facteurs qui facilitent la rétention des DIM. Les principales recommandations visant à améliorer la rétention des DIM qui ont été identifiées sont les suivantes: 1) proposer des contrats équitables, des aides au financement et des charges de travail équilibrées; 2) disposer de modèles de recrutement orientés vers la communauté pour répondre aux attentes des médecins en matière de niveau de revenu, de charge de travail et d'emploi des conjoints; et 3) disposer de groupes de soutien à la rétention dirigés par des médecins pour aider les DIM à s'installer de manière adéquate.
Conclusion: Cette étude a permis d'identifier les obstacles et les facteurs facilitant la rétention des DIM en médecine rurale et de formuler des recommandations fondées sur des données probantes pour chaque facteur. L'engagement et l'adaptation de stratégies de soutien spécifiques aux besoins des DIM dans les communautés rurales permettraient d'améliorer leur rétention.

Mots-clés: Diplômé international en médecine, Diplômé étranger en médecine, Médecins diplômés à l'international, Rétention des médecins, Soutien à la santé en milieu rural, Médecine rurale, Recommandations fondées sur des données probantes

INTRODUCTION

The recruitment and retention of healthcare professionals, particularly physicians in rural areas remains a challenge for many countries, including Canada.[1] With a significant proportion of Canada's population residing in rural areas, equitable access to primary care must be ensured. Although efforts to increase the number of Canadian-trained physicians in rural areas are being made, many rural communities rely on international medical graduates (IMGs) to meet their healthcare needs.[2-4]

IMGs are physicians who have obtained their primary medical degree outside the country in which they currently practise.[2] They play a crucial role in providing healthcare services to underserved rural populations, thus addressing the shortage of physicians in rural areas in Canada and other countries transferrable to the Canadian context.[3,4] However, retaining IMGs in rural practice is affected by a variety of factors which could be professional, family or community related.[5,6] While previous studies[4,6-12] have explored the factors influencing physician retention in rural practice, very few have focused on factors unique to IMGs, which include: cultural adaptation,[2] nuances in local medical practice,[12] potential language barriers,[2,3] recognition and acceptance by local communities,[6] navigating licensure and certification processes[2] and potential gaps in region-specific medical knowledge.[13] Research on rural physician retention in Canada and other countries such as Australia, the United States and the United Kingdom have reported evidence-based recommendations that could be transferable to the Canadian context.[14-20] Therefore, we sought to learn from peer-reviewed literature, what factors influence IMG retention in rural practice in Canada (and areas transferable to the Canadian context) and what evidence-based strategies have been recommended in the literature to address these factors.

METHODOLOGY AND METHODS

Scoping reviews are used to determine the extent, range and quality of evidence on a given area of interest where evidence is emerging.[21] In this study, we employed a systematic approach to searching and reviewing the articles within the discipline of primary care, rural medicine and health systems using the Joanna Briggs Institute (JBI) guideline for scoping review,[22] based on the Arksey and O'Malley' methodological framework.[23] We used the Preferred Reporting Items for Systematic

reviews and Meta-Analyses extension for Scoping Reviews[21] as our reporting guideline.

We focused our search strategy on peer-reviewed literature sources that explored and identified factors connected to the retention among IMG physicians providing primary care in the rural and remote areas in Canada (or areas transferable to the Canadian context e.g. the UK, the USA, Australia and New Zealand). These factors could be intrinsic (inherently related to an individual's motivations, feelings, thoughts and processes) or extrinsic (external motivators or influences that come from outside an individual), acting as facilitators or barriers to IMG-physician-retention physicians in rural or remote areas of practice.

Protocol and registration

There was no pre-published or registered protocol before the commencement of this study.

Eligibility criteria

Table 1 provides a descriptive summary of the eligibility criteria for this study. Inclusion criteria for articles were developed *a priori* to include the following: (1) peer-reviewed articles which reported associations, predictors and relationships between IMG physicians working in rural or remote areas and determinants that influence their decision to stay or leave, (2) peer-reviewed articles carried out in rural or remote areas in Canada (or areas transferable to the Canadian context e.g. the UK, the USA, Australia and New Zealand), and (3) peer-reviewed articles published in English between 01 January 2012 and 31 December 2023. Our article search was limited to article publications post-2012 to match the period after the Saskatchewan International Physician Practice Assessment program was implemented, to explore the advancements in retention efforts since then. Study protocols, opinion pieces, conference abstracts and dissertations were excluded.

Information sources and search strategy

We worked with an academic librarian to identify the conceptual groups of terms which we combined and individually adapted to the database-specific search. These terms included: IMG (including synonyms), rural practice (including synonyms), physician retention (including synonyms), and Canada (or areas transferable to the Canadian context e.g. the UK, the USA, Australia and New Zealand). Table 2 for search syntax generated and modified to identified electronic databases. Studies were identified by searching electronic databases and handsearching reference lists of included articles. The following databases were searched (1 January 2012, to 31 December 2023) to identify relevant articles to include in the study: Medline-Ovid; PubMed Web of Science Scopus and Education Resource Information Center.

Selection of sources of evidence

Two iterative stages were employed to select the sources of evidence for this review study. In the first stage, we screened titles and abstracts of all articles using the following keyword syntax [Table 2]: IMGs (and synonyms) AND retention (and synonyms) AND rural practice (and synonyms) and Canada (or the US, the UK, Australia, and New Zealand). In the second stage, we screened and reviewed the full-text articles of citations included from the first stage. The eligibility criteria

Table 1: Eligibility criteria

Criteria	Inclusion	Exclusion
Population	International Medical Graduate Physicians (as defined in the study)	Non-international medical graduate physician, or Canadian medical graduate physicians, other health professionals such as nurses, etc.
Place of study	Canada (or areas transferable to the Canadian context e.g., the UK, USA, Australia and New Zealand)	Areas not transferable to the Canadian context
Geography	Areas defined with each study as rural or remote	Urban, metro urban, cities
Healthcare areas	Retention, decision to move out from rural area in primary care settings	Secondary or tertiary care, medical education, medical training
Language	English	Non-English
Time period	2012–2023	Before 2012
Study type	Original studies published in a peer-reviewed journal	Opinion pieces, review studies, study protocols, case reports, dissertations, historical and grey literature

Table 2: Keyword search syntax used for library search

Population/
International adj1 medical adj1 graduate* OR Foreign adj1 medical adj1 graduate OR Migrant adj1 physician* OR oversea* adj1 trained adj1 physician* OR oversea* adj1 trained adj1 health adj1 professional.ti.ab*
Retention
Physician adj3 retention OR job adj2 retention OR job adj2 satisfaction OR fulfilment OR career adj2 advancement OR contentment OR job adj2 dissatisfaction.ti.ab
Practice geography/
Rural adj2 medicin* OR rural adj1 population* OR rural adj1 communit* OR rural adj1 practice OR rural adj2 practice or rural adj2 health OR rural adj2 health adj1 servic* OR remote adj1 area OR underserved adj1 area OR family adj2 medicin* OR family adj2 practice OR family adj2 physician OR general adj2 practitioner OR general adj2 practice OR emergency adj2 medicine OR emergency adj2 practice OR emergency adj2 physician OR specialty adj2 practice OR remote adj2 health OR Medicine OR surgery.ti.ab
Location/
Canada OR Alberta OR British adj1 Columbia OR Manitoba OR New adj1 Brunswick OR Newfoundland adj1 and abj1 Labrador OR Northwest adj1 Territor* OR Nova adj1 Scotia OR Nunavut OR Ontario OR Prince adj1 Edward adj1 Island OR Quebec OR Saskatchewan OR Yukon OR United States of America OR USA OR Australia OR New Zealand ORUnited Kingdom OR the UK.ti.ab
#2 AND #4 AND #6 AND #8

listed in Table 1 were used to screen the eligibility for inclusion of the article for data extraction.

Data charting process and data items

Data were extracted into Microsoft Excel (Microsoft Corporation, version 16) for data cleaning and analysis. The title fields used to extract the data from included articles were author (s)/citation, title and year of publication, study objectives, study type, study design, setting, definition of rural, methods, study characteristics (e.g. specialties, participants, sample size, age range, years of practice, years of experience, etc.), study findings (barriers, facilitators to IMG retention and recommendations to mitigate them) and study limitations.

Data synthesis and critical appraisal of included studies

We categorized the results in this review as the barriers and facilitators of IMG retention and synthesized recommendations from included articles after critically appraising each included article using the JBI critical appraisal toolkit.[24] We thereafter assessed the overall strength of evidence provided by each included study using the Oxford Centre for Evidence-Based medicine (OCEBM) level of evidence toolkit.[25] To ensure rigour, trustworthiness and credibility of results, we met bi-weekly to discuss, review and revisit our study research questions, and evaluation protocols to ensure we adhered strictly to these guidelines.

RESULTS

Selection of sources of evidence

A flowchart showing our article selection is found in Figure 1.

Characteristics of sources of evidence

Table 3 summarises the general and methodological characteristics of all 20 articles included in this study. Fourteen (70%) of included studies were published between 2012 and 2017. Fourteen (70%) of included studies were set in Canada, while 6 (30%) were in Australia. Six (30%) of included studies focused on IMG physicians alone, while the rest had a mix of IMGs and domestically trained physicians. Eight (40%) used quantitative study methods, 9 (45%), qualitative and 3 (15%) mixed methods.

Results of individual sources of evidence

Articles were included based on their relevance to answering one or more of the research questions, which included identified factors that challenged or motivated IMG retention in rural medical practices. We also extracted evidence-based recommendations for policy and practice that could address these identified factors.

Synthesis of results

Tables 4 summarise the factors (barriers and

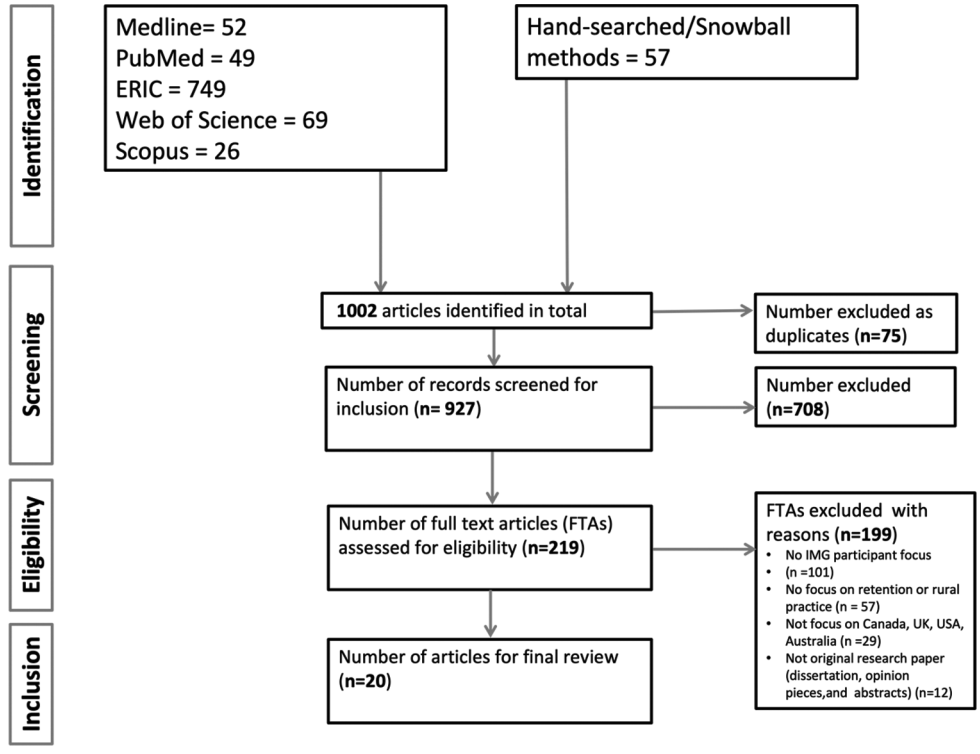


Figure 1: Preferred Reporting Items for Systematic reviews and Meta-Analyses flowchart showing selection of articles for scoping review. FTAs: Full-text articles, ERIC: Education resource information center.

Table 3: General and methodological descriptive characteristics of included studies (*n*=20)

	n (%)	Article citation
Publication year		
2012–2017	14 (70)	5,26-28,31,32,34,35,37,40,41,52,56
2018–2023	6 (30)	21,29,30,33,36,38,39
Country		
Canada	14 (70)	5,26-31,34-36,40,41,52,56
Australia	6 (30)	32,33,37-39,41
New Zealand	0	-
UK	0	-
USA	0	-
Rural definition		
Definition of rural provided	12 (60)	5,26,27,31,34-36,38,40,41,52,56
Definition of rural not provided	8 (40)	28-30,32,33,37,39,42
Physician category		
Studied IMGs alone	6 (30)	36,37,39,40,42,52
Studied IMGs mixed	14 (70)	5,26-35,38,41,56
Study type		
Quantitative	8 (40)	26,32,33,35,40,41,52,56
Qualitative	9 (45)	5,27,29,30,34,36-38,42
Mixed methods research	3 (15)	28,31,39
Data collection methods*		
Primary data	16 (80)	5,27-31,33-42
Structured questionnaire	7 (35)	28,31,33,35,39,40,41
Interview/focus group discussions	12 (60)	5,27-31,34,36-39,42
Secondary data (data registry)	5 (25)	26,32,41,52,56

*Multiple overlap for cited studies. IMGs: International Medical Graduates

facilitators) that influence IMG retention in rural practice thematised accordingly as: structural factors, professional factors, family factors, community factors and personal factors. These themes encompass the common factors that influence IMG retention in rural practices, with further subthemes providing detailed insights. Major themes are identified for each of these factors with attending subthemes elucidating on major themes.

Factors that challenge international medical graduate retention in rural practice (barriers)

The most common factors challenging IMG retention (identified by frequency count) were professional and structural factors, followed by family related factors, then community factors, and personal factors. Healthcare systemic institutional issues[5,26-35] (which included overall lack of support,[30,35] limited access to tertiary care centres,[27,28,30-34] unsustainable model of care[28-30] and poor infrastructure/innovative drive[5,30]) along with physician burnout,[26-28,30,34-38] poor physician wellness supports,[30,34,36,37] and excessive workloads,[26,27,30,34,39] limited mobility and scope of practice for IMGs,[5,27,30,32,34] and a lack of opportunity for professional development in rural areas,[27-35,38,39] were tied as the most common identified barriers to IMG retention in rural practices. Other barriers included poor community support,[27,28,31,33-36,39] disintegration and engagement,[30,31,36,39] family related factors, such as: lack of spousal employment/career advancement,[5,26-28,30,31,33,34,36,39] poor education facilities/opportunities for kids,[27,30,31,33] lack of professional support or collegiality[5,27,31,34,37-39] and personal dislike for rural lifestyle[5,34] or remote areas.[31,32] See Table 4 for more descriptions on barriers challenging IMG retention in rural practice.

Factors that facilitate international medical graduate retention in rural practice (facilitators)

The most common factors facilitating IMG retention were community, family-related factors, professional and personal factors. Our study identified community integration, which includes community friendliness,[5,26-28] trust,[30,31] intimacy,[34-36,38-40] diversity[35,36,39,40] and engagement,[5,27,28,31,36,38,39] to be the most common facilitator for IMG retention. Next were spousal factors such as opportunities for spousal employment,[5,26-31,36,39,40] spousal support for family to stay in rural areas,[5,26-28,30,31,34,36,39,41] strong and accessible education system/childcare services for children[26-32,36,40] and opportunities for recreation/entertainment.[27,31,42] The nature, structure and scope of practice were identified as another facilitator to IMG retention in rural practice.[5,27,29,30,32,34,36-41] These included practice set-up, positive work environment,[5,27,30,34,36-39] collegial support,[5,27,30,34,38,39] practice independence/ownership,[27,32] and balanced work schedules.[5,27,36-38] Other facilitators to IMG retention in rural practice are further described in Table 4.

Recommendations to enhancing retention of international medical graduates in rural communities

We identified the recommendations to enhance IMG retention in rural communities in our study [Figure 2]. These recommendations were further mapped to address the factors identified to influence IMG retention in rural practice. The most common recommendation was to engage IMGs and communities in enhancing retention by providing support strategies (e.g. funding support, fair contracts, moving and retention allowances, etc.) for IMG spouse and family.[5,27,29,31-33,37,39] Other recommendations that cut across structural, professional to family-related and personal factors included: Professional and social inclusion in rural practice, employing a mix of IMGs and locally trained physicians alike, building team support systems (supports for self-care, continued professional development, balanced workloads, innovation, leadership, etc.), providing suitable resources to conduct work with flexible schedules having physician-led retention support groups in community to figure how best to help physicians settle in adequately, having community-directed recruitment models where communities match expectations for income level, workload, amenities for rural physicians, spousal employment and children education opportunities.[27,28,34,36,37,39]

DISCUSSION

The retention of IMGs in rural practice is crucial to ensure sustainability of rural healthcare services and the well-being of rural communities. Our study showed that structural/institutional, professional and family-related factors are the key determinants of IMG retention in rural

practice. Although most of these factors could be transferable to non-IMGs, we also found that, for IMGs, the challenges of rural practice are exacerbated by the additional barriers of cultural and religious differences, language barriers, unfamiliarity with the local healthcare system and workplace/community discrimination or hostility.

We thematised our results for the ease of comprehension and level of importance (i.e. structural, professional, family, community and personal) with regard to informing strategic changes. We categorised the modifiable factors as extrinsic (structural, professional and community) and nonmodifiable as intrinsic (e.g. family and personal). However, we acknowledge there is an intricate interplay between these factors which is crucial to informing the retention of IMG in rural communities. This interplay can be seen in how extrinsic and intrinsic factors influence each other and collectively impact the decision-making process of IMGs regarding rural practice. For example, a supportive professional environment (extrinsic) that offers autonomy and a broad scope of practice can make rural practice more appealing, potentially outweighing personal or family concerns (intrinsic) about rural living. Similarly, community factors (extrinsic), such as a welcoming community and good patient relationships can mitigate personal apprehensions (intrinsic) about cultural fit and integration. Conversely, strong family ties or personal preferences (intrinsic) might lead a physician to seek out rural opportunities that offer a better work-life balance or align with their values, despite potential challenges related to structural or professional factors (extrinsic). This intricate interplay highlights the need for a holistic approach to strategies aimed at enhancing IMG retention in rural communities, addressing both modifiable and non-modifiable factors to create a supportive and attractive environment for IMGs and their families. Several studies[5,7,9,10,15,27,36,43-45] have highlighted and corroborated the relationships between these factors and how they enable or de-motivate IMG retention in rural practice.

We found from our study that community factors matched with professional and structural factors served as the most important drivers of IMG retention. These are corroborated in similar studies[46,47] exploring physician recruitment and retention in Canada, Australia and some parts of the United States.[2-4,7,8,11-13,16,48-52] These studies have highlighted community integration as the singular most important facilitator for IMG retention in rural areas while acknowledging the value of having a well-structured healthcare system, broadened scope of practice and autonomy for the rural physician workforce.[2-4,7,8,11-13,16,46-54] In this context, it's important to recognize that individual preferences and personal factors, such as age, gender and one's prior place of residence, identified in our study, are aspects that are less amenable to change.

Solutions to the issues impacting physician workforce in rural practices are complex and multifaceted. As such, it is essential to acknowledge that addressing the shortage of healthcare professionals, particularly IMG physicians in rural communities, requires a multifaceted approach that takes into consideration the factors identified in this study, and the unique needs of rural communities in question.[46] Policies to encourage IMG physician retention in rural Canada should be tailored[52,55] for IMGs due to the unique challenges and circumstances faced by this physician group as identified in our study results.

In mapping out recommendations for enhancing IMG retention in our study, we categorised them into two overlapping groups for ease of understanding: extrinsic, which include practical recommendations based on modifiable factors of IMG retention and intrinsic, which includes non-practical or non-modifiable solutions. Again, the role of community was highlighted as a crucial factor in retaining IMGs in rural practice. Key recommendations for community involvement include community-directed recruitment, providing support for spousal employment opportunities and education for families, involving the community in the design of payment models, compensation and allowances and providing community structural supports to combat workplace discrimination, racism and promote inclusivity, community connectedness and engagement.[5,27,36,37] However, it is also important to note that physician institutional bodies (such as, the Canadian Medical Association and the Society of Rural Physicians of Canada in Canada; or the Australian Medical Association and the Rural Doctors Association of Australia in Australia) as well as non-IMG physicians and other healthcare practitioners, have a role

Table 4: Factors influencing physician retention in rural practice

Factors	Theme	Descriptions making it more likely to move	*n* (%)	Article citation
		Barriers		
Structural	High workforce turnover rates	Low staffing and high turnover rates of other staff in rural practice[5,28,34]	3 (15)	5,28,34
	Healthcare systemic/ institutional issues	Overhead costs of running a clinic not commensurate to financial income[26,27]	11 (55)	5,26-35
		Poor/lacking continuity of care[28-30]		
		Non-sustainability in model of care delivery[27,28,33]		
		Limited access to tertiary care centres for referral, specialists, and allied health care professionals[27,28,30-34]		
		Poor medical infrastructure/practice set-up and innovative drive (i.e., preserving the status quo)[5,30]		
		Overall lack of institutional support[30,35]		
	Systemic racism/ discrimination	Racism/discrimination and workplace harassment in the system and among staff/ colleagues[26,34,37]	3 (15)	26,34,37
	Financial burden	IMGs on special funded return-of-service related to residency[56]	1 (5)	56
Professional	Limited mobility and scope of practice attached to contracts	Limited mobility from limited freedom to choose versus mandated employment based on contract.[40] E.g., conditional licenses,[40] mandatory return-of-services for IMGs,[52,56] bonded status a 10-year moratorium,[33,36] and other regulatory requirements attached to contract[32,37]	11 (55)	5,27,30,32-34,36,37,40,52,56
		Limited scope of practice,[5,27] limited autonomy, and utility of skills attached to contract[30,32,34]		
	Professional wellbeing	Burnout from excessive workload, excessive on-call duties, and lack of time off for vacations[26-28,30,34-38]	11 (55)	26-28,30,34-39
		Poor physician wellness supports[30,34,36,37]		
		Dissatisfaction with professional life, professional relationships/underappreciation, and working conditions[26,27,30,34,39]		
	Lack of collegiality	Disconnectedness with non-IMG colleagues[5,27,31,34,37-39]	9 (45)	5,26,27,31,32,34,37-39
		Misunderstanding in communication[34,37]		
		Poor collegial treatment from rural and urban colleagues[26,27,31,34,37-39]		
		Distrust and questioning IMG physicians' competencies[27,32,34,37]		
	Lack of opportunity for professional development	Lack of opportunities for career advancement or personal development[27,29,34,35,38,39]	11 (55)	27-35,38,39
		Distance from training sites for CME/CPD[28,30,31,34]		
	Lack of financial incentive	Lack of financial support for workload and overtime[5,26-28,30,33,34]	8 (40)	5,26-28,30,31,33,34
		Inflexible payment models[30]		
	Balancing professional and personal boundaries	Loss of anonymity (i.e., maintaining health personal-professional boundaries)[31,34]	2 (10)	31,34

Cont∂...

Table 4: Contd...

Factors	Theme	Descriptions making it more likely to move	*n* (%)	Article citation
		Barriers		
	Nature/ characteristic of patient	Complex patient panel[30]	1 (5)	30
Family	Spousal/family determinant factors	Being married to a non-physician male spouse[52]	3 (15)	34,52
		Spouse living in the prairies of Canada[41]		
		Spouse born in Asia or Africa[41]		
		No family or friend in community or living close by[34]		
	Family intention to move out brought by:	Lack of spousal employment[5,26-28,30,31,33,34,36,39]	10 (50)	5,26-28,30-34,36,39
		No spousal support/agreement to stay[5,27,30,31,34,39]		
		Lack of opportunities for spouse to advance career/education[27,30-33,39]		
		Poor education facilities for kids[27,30,31,33]		
		Unmet collective family needs[27,33,34,36] (e.g., health, safety)		
	Remoteness and distance	Area too remote[27,31,33,34,39]	8 (40)	27,30-34,36,39
		Extreme distance to family members[31-34,39]		
		Long distance to good education[27,30-34,36,39]		
		Long distance to entertainment/leisure amenities[27,31,33,34]		
		Long distance to cultural and religious events[31,33,34,39]		
Community	Community disintegration	Poor community engagement/engagement activities[27,28,31,33-36,39]	9 (45)	27,28,30,31,33-36,39
		Lack of cultural diversity and acceptance/cultural and ideological differences (including cultural and religious opportunities to thrive) [30,31,36,39]		
		Lack of professional community and/or professional networks[27,31]		
		Community insecurity and privacy[31,34]		
		Poor community support for IMG physicians[27,31,33,34,39]		
	Language barriers	Inability to understand and/or communicate with community members and to be understood by community members[34]	1 (5)	34
	Nature and historical traits	Harsh weather conditions[30]	2 (10)	30,38
		Poor community traits/peculiarities[30,38]		
Personal	Social determinants/ personal characteristics	Age: Younger IMGs[26,32]	5 (25)	26,32,40,41,52
		Gender/marital status: Female and married IMGs, [26,52] male and single IMGs[26]		
		Residence/immigration: Immigrated from Africa, [26,41] IMG moving from city to rural area following immigration[26,32,40]		
		Language barriers[26]		
	Personal preferences	Poor financial incentive/high living cost[26,27,35]	7 (35)	5,26,27,31,32,34,35
		Long distance from work[31,32]		
		Dislike for rural areas[5,34]		
		Unbalanced social life[34]		
		Very small community size (challenging personal-professional balance of boundaries, and personal privacy) [31,34]		

Contd...

Table 4: Contd...

Factors	Theme	Descriptions making it more likely to move	*n* (%)	Article citation
		Facilitators		
Structural	Nature and structure of payment models	Multiple options in remuneration structure[27,30,34,39]	4 (20)	27,30,34,39
		Adequate modes of remuneration[27,30,34,39]		
	Institutional support for IMGs	Innovation/improved medical facilities[5,27,34,39]	6 (30)	5,27,30,34,35,39
		Freedom to choose/goodness of fit test[5,27,34,39]		
		Compensation/additional incentive for migration decisions to rural practice (relocation support) [5,27,30,34,35,39]		
Professional	Nature and structure of work	Practice set-up (positive work environment, interprofessional team focused care, continuity of care/practice) [5,27,30,34,36-39]	10 (50)	5,27,29,30,32,34,36-39
		Broad scope of work, autonomy, and duties as a physician (enhancing skill development) [5,27,29,30,32,34,36,38]		
		Balanced work schedule[5,27,36-38]		
		Practice ownership/independence[27,32]		
		Affiliation to academic center[27,32]		
	Collegial support	Presence of specialist support[27,34,38,39]	6 (30)	5,27,30,34,38,39
		Supportive and friendly peers and colleagues[5,27,30,34,38,39]		
		Friendly staff and solid workforce[5,27,34,38,39]		
	Professional advancement	Availability and access to CME/CPD activities/ opportunities to teach/personal and career development[27,29,30,35,38,39]	6 (30)	27,29,34,35,38,39
	Financial and non-financial incentives	Physician compensation[5,27,30,34,35,39] (e.g., signing bonuses, housing, education, reimbursements for travel expenses, relocation support, retirement plans)	6 (30)	5,27,30,34,35,39
		Financial incentives relative to workload[27,34,35,39]		
Family	Spousal and family determinant factors	Being married to a non-physician female spouse[31,52]	5 (25)	27,31,33,41,52
		Married with children[31,41]		
		Having other family member living together[27,31] (mother, mother in-law, father, cousins, etc.)		
		Having other family and/or friends living close[27,31,33]		
	Spousal benefits	Spousal support to stay[5,26-28,30,31,34,36,39]	11 (55)	5,26-31,34,36,39,40
		Opportunities for spousal employment (two income earning power)[5,26-31,36,39,40]		
		Spouse having a rural background[27,31,34]		
		Spouse having ties to specific community[27,31,34]		
		Opportunities for networking and professional development[26,27,31,39,40] (for non-physician spouses)		
	Children benefits	Strong education system/childcare services within community and/or access to one close to community[26-32,36,40]	10 (50)	26-31,34,36,40
		Opportunities for recreation entertainment, leisure for children and/or access to one close to community[27,31,34]		
		Opportunities to make friends with other children[27,31]		
		Safety of children[30,31]		

Contd...

Table 4: Contd...

Factors	Theme	Descriptions making it more likely to move	*n* (%)	Article citation
		Facilitators		
	Collective family benefits	Collective desire of family to stay[27,28,31,34,39]	5 (25)	27,28,31,34,39
Community	Community integration	Community friendliness, trust, intimacy, and warmth[5,26-28,30,31,34-36,38-40]	13 (65)	5,26-28,30,31,33-36,38-40
		Cultural diversity[35,36,39,40]		
		Strong community engagement[5,27,28,31,36,38,39] and integration both professionally and non-professionally[26,31,39,40]		
		Community appreciation and support for IMGs, families, and members[5,27,30,31,33,34,39]		
		Community safety and privacy[31,34]		
		Community inclusivity of other cultural and religious activities[31,39,40]		
		Strong community leadership and administration in fundamental needs provision[27,31,34] (health, education, recreation)		
	Nature, location, and access	Location relative to accessing basic amenities[27,36,39]	8 (40)	5,27,30,31,34,36,38,39
		Peculiar community attractive traits such as natural environment for fun, weather tourist attraction, sports[5,30,34,36,38]		
		Access to transport, easy mobility, motorable roads, access to other communities, and the city[27,31,34,39]		
Personal	Social determinants/ personal characteristics	Age: Older aged IMGs[41]	5 (25)	27,34,40,52
		Gender/marital status: Male and married[52,41]		
		Residence/immigration grew up in a rural area; born or immigrated from the USA,[41] less years since arrival to rural area, [41] moving from rural-to-rural area following immigration[27,34,40]		
		Currently studying[41]		
	Personal preferences[38]	Preference for rural lifestyle[5,27,28,30,34,36,38]	10 (50)	5,27,28,30,31,33-36,38
		Having rural background/previous rural experience[5,27,30]		
		Good proximity to work[31,35]		
		Having ties to specific community[27]		
		High income/compensation[33,34]		
		Relatively larger rural areas[31,34]		
		Low cost of living[35]		

IMGs: International medical graduates, CME/CPD: Continuing medical education/continued professional development

to play in supporting IMGs to settle in rural communities. In addition, our study highlighted the role of financial supports to incentivise IMG retention in rural areas in Canada (and Australia). These financial incentives should be considered in light of identified IMG retention barriers and combined with strategies tailored to address these unique challenges faced by IMGs to ensure their long-term retention.[11,34] In summary, our study recommendations can be captured with the word 'support', which includes support from the community, support for family, support from physician peers, and support from the structural systems that oversee rural healthcare delivery. These supports should be facilitated by engaging rural communities with the IMG physicians and key stakeholders in co-designing systems and strategies to facilitate retention.[6,45,56]

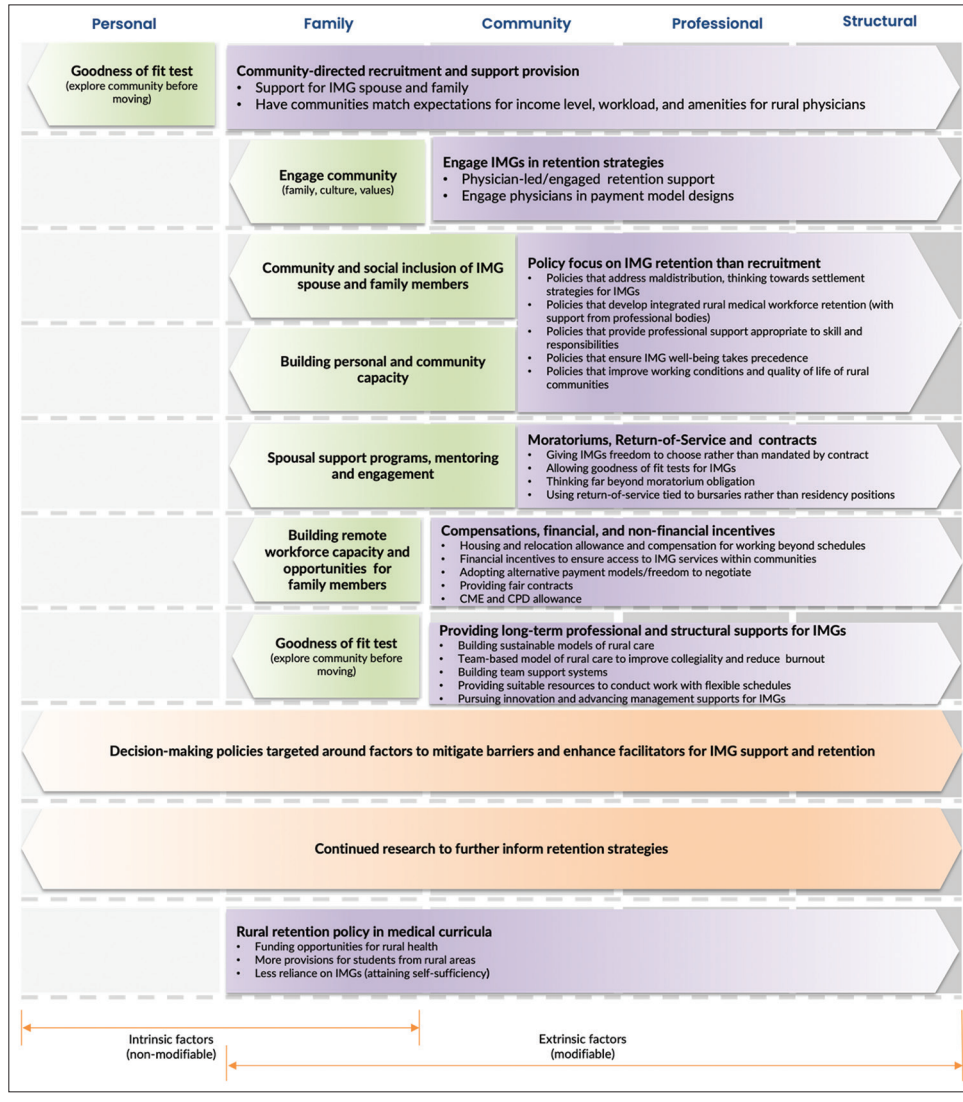


Figure 2: Recommendations to enhancing retention of international medical graduates in rural communities mapped for thematized factors. IMGs: International medical graduates.

It is noteworthy that the overall purpose of enhancing the physician workforce, whether in urban or rural practice, is to improve the quality of care delivered to patients over the long term.[57] Physician retention is critical for maintaining continuity of care and building relationships between the healthcare system and the community, which can improve patient outcomes and satisfaction. It is also crucial to acknowledge that physician retention strategies should consider the overall health and well-being of physicians themselves.[58] Physician burnout, disconnection, dissatisfaction and high turnover rates can negatively impact a physician's overall well-being as well as the quality of care they provide to rural communities.[59-61] Therefore, enhancing physician retention in rural communities should go hand in hand with ensuring that physicians, including IMGs and non-IMGs, are supported physically, mentally, and professionally.

Limitations

Our study is not without its limitations. First, because of the limited scope of original studies on IMG retention in Canada, we expanded our search strategy to include studies from Australia, the USA and the UK which bear similarities in healthcare delivery for rural, metropolitan and urban areas. However, some of our findings may not be generalisable to rural areas with dissimilar settings and health system dynamics. In addition, some of the included review articles captured mixed experiences of IMG and non-IMG physicians

which may not have fully captured the in-depth experiences of IMGs in some rural areas in Canada. Third, some articles included in this review study used self-reported measures. This reliance on self-reported and/or perceived experiences further introduces limitations to our study results, as they may not fully capture objective behaviours or generalisable attitudes across broader populations due to the subjective nature of personal reporting and interpretation. Finally, the evidence for our study's recommendations is categorised as OCEBM levels III (non-randomised controlled cohort/ follow-up studies) and IV (case-series, case-control and historically controlled studies), as it is based on non-randomised cohort, case-series and case-control studies without including systematic reviews or randomized trials. As such, these recommendations are more appropriately seen as informed guidance or expert opinions rather than definitive conclusions, pending further validation by higher-level evidence. Nonetheless this limitation does not negate the validity and reliability of the quality of evidence from these studies.

CONCLUSION

We identified the factors that influence the retention of IMGs in rural areas and categorized them as, structural, professional, family-related, community and personal and factors. Our results revealed professional and structural factors to be the most significant barriers to retention while community and family-related factors were the most common facilitator. Based on our evidence-based recommendations, tailored support strategies should be implemented to address the unique challenges faced by IMGs in rural communities. Our study provides important recommendations for enhancing IMG retention in rural practices, which can be applicable in Canada or other countries with similar contexts such as the UK, the USA, Australia and New Zealand.

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