An Undergraduate Medical Education Framework for Refugee and Migrant Health: Curriculum Development and Conceptual Approaches

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Abstract

Background: International migration, especially forced migration, highlights important medical training needs including cross-cultural communication, human rights, as well as global health competencies for physical and mental healthcare. This paper responds to the call for a ‘trauma informed’ refugee health curriculum framework from medical students and global health faculty.

Methods: We used a mixed-methods approach to develop a guiding medical undergraduate refugee and migrant health curriculum framework. We conducted a scoping review, key informant faculty interviews and e-surveys, and then, integrated our results into a competency-based curriculum framework with values and principles, learning objectives and curriculum delivery methods and evaluation.

Results: The majority of our Canadian medical faculty respondents reported some refugee health learning objectives within their undergraduate medical curriculum. The most prevalent learning objective topics included access to care barriers, social determinants of health for refugees, cross-cultural communication skills, global health epidemiology, challenges and pitfalls of providing care and mental health. We report competency-based learning objectives and primary and secondary topics. We also discuss curriculum delivery and evaluation methods such as community service learning with reflection exercises.

Conclusions: This guiding undergraduate medical education curriculum suggests integrating cross-cultural communication skills, exploration of access to care barriers for newcomers, and system approaches to improve refugee and migrant healthcare. Programs should also consider social determinants of health, community service learning and the development of links to community resettlement and refugee organizations.

Background

Cross-cultural education and global migration connect human rights, social development, evidence-based medicine and universal healthcare access.\(^1,2\) Indeed, the COVID-19 pandemic has magnified the health and social inequities facing refugee and migrant populations.\(^3,4\) Health inequities are unjust and unfair health disparities.\(^5,6\) Social accountability in medical education provides a compelling and promising case-by-case learning approach to disadvantaged populations.\(^7\) However, if medical students are to lead the post COVID-19 generation of healthcare providers, they will need training opportunities to develop knowledge, skills and attitudes to address health inequities related to trauma, racism, culture and language differences, access to health systems, tropical infectious disease, vaccination, chronic disease and global mental health.\(^8–10\)

Refugee and migrant or newcomer health is a field of study that focuses on the health of forcibly displaced and migrating populations.\(^11\) The International Organization of Migration estimates there are 272 million international migrants worldwide, 80 million of whom were forcibly displaced in 2019.\(^2\) Canada, for example, where 21% of the total population is foreign-born, resettles over 500,000 newcomers annually.\(^12\) Transitioning refugee populations require evidence based clinical preventive guidelines\(^1,13\) community partnership programs\(^14–16\) and innovative health systems.\(^17\) Both physicians and newcomer patients routinely juggle multiple access to care barriers, acute and chronic disease epidemiology differences and language and health literacy challenges.\(^18,19\)

Competency-based medical curriculum frameworks can guide the development of global health and social accountability curricula for both faculty and medical students. Existing frameworks include values and principles, teaching and learning methods, and core competency based learning objectives and evaluation.\(^20,21\) Competency
based roles (i.e. CanMEDs roles: Expert, Communicator, Collaborator, Advocate, Professional, Leader, and Scholar) sit at the centre of these frameworks and drive the learning objectives. Teaching and learning on trauma informed communication approaches, patient-centred and evidence-based interventions, mental health care and antiracism, and related advocacy\textsuperscript{16,23} are high priority topics in social accountability\textsuperscript{24}.

Skilled and well-prepared future physicians and leaders could reduce the unjust and unfair health disparities that face refugees and migrants\textsuperscript{25–27}. Medical students have called for more innovative global and refugee health training approaches\textsuperscript{28,29}. The objective of this paper was to develop a practical framework to improve medical student curriculum that will enable the next generation of physicians to address refugee and migrant/newcomer health inequities.

**Methods**

We used a multi-phased mixed methods approach\textsuperscript{30} to identify priority topics and develop new objectives and curriculum delivery methods for an undergraduate medical curriculum on refugee and migrant health (Fig. 1). We report our findings according to the Good Reporting of a Mixed Methods Study (GRAMMS) reporting guidelines\textsuperscript{31}.

We performed a scoping review, conducted key informant interviews with global health faculty, followed up with refugee health curriculum e-surveys, and finally, used a competency-based framework analysis to develop and refine priority learning objectives and curriculum delivery methods. Mixed methods have allowed us to identify elements of a refugee curriculum more comprehensively than any single method alone. We followed a collaborative research approach\textsuperscript{32} and engaged key stakeholder groups, including medical students, refugee health experts, and people with lived experience of migration, in the conceptualization of our methods and interpretation and integration of our findings in the curriculum framework. This project was reviewed by the Ottawa Health Science Network Review and Ethics Board and approved as a quality improvement study.

**Phase 1: Scoping Review**

The objective of our systematic scoping review was to identify and map published international educational content and educational approaches that address medical undergraduate level refugee and migrant/newcomer health training. This scoping review also aimed to identify knowledge gaps regarding refugee and migrant health education at the undergraduate medical level. The methodology for this scoping review followed the approach developed by Arksey and O’Malley (2005).\textsuperscript{33} Findings were grouped by educational content, content delivery methods and educational outcomes. Detailed methods concerning our information sources, search strategy, record screening and extraction and data mapping and reporting are described in Additional file 1.

**Phase 2: a) Key Informant Interviews with Global Health Faculty**

We conducted interviews from December 2018 to February 2019 with global health and medical faculty to identify existing curriculum initiatives and to explore perspectives regarding opportunities for refugee and newcomer health education at the undergraduate level. Using the Association of Faculties of Medicine of Canada Global Health contact list, we purposely selected key informants from 17 medical schools. Each key informant was invited to participate in a virtual interview (phase 2a) and an e-survey (phase 2b). A total of 13 interviews, ranging from 21–51 minutes in length were conducted with global health key informants representing 14 of the 17 undergraduate medical programs across Canada. Our interview guide (see Additional file 2) was informed by the results of our scoping review as well as input from refugee health experts on our team (DG,KP).
The semi-structured interviews were recorded using Zoom Video Communications. Each interview was transcribed verbatim with the assistance of an online voice-recognition platform (Otter.ai) and manually reviewed by one of our team members (YF) to ensure transcription accuracy.

Two independent reviewers (HT, SSH, MV as the first reviewer, and YF as the second reviewer) analyzed the interview data and emerging themes using a “best-fit” framework analysis approach (using constructs from the Bierman migration framework model). We selected the Bierman model as our theoretical framework because it incorporates elements of theory, the experience of migration and its intersection with social determinants of health, racial and ethnic disparities, and gender equity. We identified and coded themes manually, sought outliers and developed an overall analysis, topics, methods and challenges.

**Phase 2: b) Refugee Health Curriculum e-Surveys**

We used Survey Monkey to conduct e-surveys in order to elicit practical refugee curriculum data from our selected faculty key informants. We used topics from the scoping review and interviews to refine our survey questions and collected data from December 2018 to May 2019. We then used the tailored design method for conducting surveys to maximize our response rate, by sending key informants three separate reminders to complete the survey. We descriptively analyzed demographics, dedicated undergraduate medical education curriculum hours, refugee and migrant health topics and learning (delivery) methods. We also identified existing undergraduate medical education refugee learning objectives (see Additional file 3 for survey questions).

**Phase 3: Developing a Refugee and Migrant Health competency-based framework**

In an effort to build on related social accountability medical curriculum frameworks, our team reviewed and adopted existing values and principles on global health curricula development. We then proceeded to integrate our emerging refugee and migrant health learning topics as learning objectives within CanMeds competencies (2017) and existing teaching methods to create a complementary refugee health curriculum framework. We followed the methods outlined in Hashmi et al. (2020), integrating learning objectives and teaching methods from the scoping, interview and e-survey results into a CanMEDs framework that includes refugee and migrant health. Two reviewers (SH,HT) systematically integrated our topics into curriculum objectives and teaching methods. Three reviewers (DG, KP, DA) challenged, verified and sought a consensus on the integrated curriculum objectives and methods. As a final step, to improve the reliability of our framework analysis, we brought the emerging values and principles, curriculum learning objectives and delivery methods back to four faculty key informants as a final member checking exercise.

**Results**

Our mixed methods approach identified a series of values and principles, topics and teaching methods relevant for refugee and migrant health curriculum. Examples of key topics included cross-cultural communication skills, access to care barriers for newcomers, systemic approaches to address ‘migration,’ social determinants of health, and community service learning and evaluation strategies.

**Scoping Review**

Seventeen articles met our eligibility criteria and were included in this scoping review (Please see Additional file 4 - PRISMA Flow Diagram). The most prevalent topics from the scoping review included cultural safety and cross-cultural
communication, working with interpreters, clinical experience with refugee/migrant patients, refugee and migrant law and health policies, as well as disease screening, prevention and immunization. Content delivery methods most commonly used included experiential and community service learning, but other methods included didactic teaching, group and case based learning, and interactive seminars as well as panels. Articles reporting on educational outcomes and evaluation strategies were rare, however learners self-report increased cross-cultural knowledge and communication skills and generally reported positive and satisfying experiences. See Additional file 5 for full results of the scoping review.

Key Informant Interviews and e-Surveys

Description of Participants

The (n=13) key informants who participated in the interviews and surveys were invited to participate based on their role at their respective institutions. Most were faculty leads in global health or faculty who advised and had input into their undergraduate medical school curriculum or were refugee health experts who were responsible for the delivery of the refugee health curriculum at their institution. We elected to anonymize the institutions to protect the privacy of the key informants.

Interviews

The following five themes emerged from the interviews: recognizing existing specific refugee and migrant health learning objectives, active teaching methods, overlap with other underserved populations and social accountability education, challenges of implementing a refugee and migrant health curricula within undergraduate medical education, and the value of sharing educational resources across Canadian medical schools (see Figure 2).

The majority of key informants reported that their undergraduate medical curricula covered topics such as the demographics of refugees and migrants, barriers faced when accessing health care, challenges of providing health care to migrants, settlement support services in the community, communications skills and cultural competency/safety, preventive care screening guidelines and social determinants of health.

Key informants spoke about the various methods of how they delivered the refugee health curriculum. Delivery methods included large group didactic sessions, panel discussions with different professionals, small group workshops with standardized patients, online modules, and independent readings. Most informants also reported community service-learning programs (e.g., pairing students with refugee families to help them acclimatize to Canada). Key informants also discussed partnering opportunities with settlement agencies for students to do observerships within primary care clinics and/or settlement housing, where they would be assessed on their ability to perform medical histories and intake assessments.

Several key informants mentioned that the majority of their refugee and migrant health content overlapped or was integrated with other underserved populations within the curriculum. For example, education sessions discussing topics such as social determinants of health or cultural competencies were also felt to be applicable to refugee and migrant populations but were sometimes discussed in the context of indigenous populations, those struggling with addictions and patients reporting unstable housing. Further refugee health content was often embedded in talks.
related to acute and chronic infectious diseases (i.e., Tuberculosis (TB), Human Immunodeficiency Virus (HIV), Hepatitis C Virus (HCV)) and other curriculum.

Challenges to implementing refugee health curricula included “limited faculty support”, specifically the small number of refugee health clinicians who are able to deliver the curriculum. Another challenge involved “time constraints within the curriculum”, so when advocating for curriculum change, balancing the overcrowded curriculum to ensure refugee health did not displace other underserved populations. Other key informants discussed difficulty regarding student engagement with non-mandatory learning topics that do not have significant weight on examinations.

Finally, several key informants expressed a desire to share existing refugee teaching resources and materials across Canadian medical schools. (See Additional file 6 for other significant quotes).

“I would love to expand on refugee health teaching. Why start from scratch when things already exist. If other universities have good resources, I would be delighted to access and piggyback on those resources.”- Interview #3

**e-Surveys**

A follow-up e-survey provided details related to the refugee health curriculum at 14 of the 17 medical schools. The survey took an average of 3 minutes to complete. We used fourteen* survey responses in the final analysis (response rate: 82.4%). Thirteen surveys were completed in English and one in French. Moreover, five surveys came from Western Canada, four from Ontario, three from Quebec and two from Eastern Canada. The majority of respondents reported having mandatory refugee health learning objectives (8/14). The most prevalent learning objectives included access to care barriers (13/14), social determinants of health for refugees (12/14), cross-cultural communication skills (12/14), global health disease epidemiology (11/14), challenges and pitfalls of providing care (11/14) and mental health (9/14) (See Table 1 below).

* NB: Queens did the interview but not the survey. Laval did the survey but not the interview.
Table 1

| Educational content present in the various university curriculum | No. of universities (n=14) |
|------------------------------------------------------------------|---------------------------|
| Content description                                             |                           |
| Epidemiology/demographics of refugees and immigrants new to Canada | 11                        |
| Barriers refugees and immigrants face when accessing care         | 13                        |
| Challenges and pitfalls of providing care to refugees and immigrants | 11                        |
| Refugee and immigrant support services in the community           | 11                        |
| Collaborating with allied health, settlement staff and lawyers when providing care to newcomers to Canada | 8                          |
| Communication skills, cultural and ethical issues when dealing with refugee and immigrant populations (including working with interpreters) | 12                        |
| Vaccination and screening newly arrived refugees and immigrants for infectious diseases in children and adults | 9                          |
| Mental health of refugee and immigrant populations (posttraumatic stress disorder (PTSD), depression, adjustment disorders) | 9                          |
| Reproductive health in refugee and immigrant populations (contraception, pregnancy care, female genital mutilation, intimate partner violence etc.) | 5                          |
| Managing chronic non-communicable diseases in refugee and immigrant adults (cancer screening, diabetes screening, cardiovascular disease screening, etc.) | 8                          |
| Managing chronic non-communicable diseases in refugee and immigrant children (Oral health, vision care, malnutrition, hereditary anemias, etc.) | 5                          |
| Demonstrate basic understanding between health and human rights    | 7                          |
| Social determinants affecting health of refugee populations        | 12                        |
| Being aware of boundary issues that can come up with refugee and vulnerable populations | 5                          |

Respondents reported a range of education methods used to deliver educational elements from their respective curricula. Methods included large group lectures, small group workshops, pre-clerkship experiences such as service-learning placements (i.e., partnering with settlement agencies), and clinical experiences during clerkship. Other tools included refugee health e-learning (see Table 2).

Table 2

Methods of content delivery mentioned in the university survey responses
Methods of content delivery & No. of universities (n=14)

| Method                                                   | No. |
|----------------------------------------------------------|-----|
| Large group lectures                                     | 12  |
| Small group workshops                                    | 7   |
| Electronic/internet tools such as e-learning modules     | 3   |
| Teaching sessions with standardized patients             | 2   |
| Portfolio/self-reflection guide                          | 0   |
| Pre-clerkship exposures (settlement agency placements, etc.) | 8   |
| Clerkship exposures (core rotations working with refugee or immigrant populations, etc.) | 4   |

Over 40% (6/14) medical schools in Canada spend between 5-10 hours during the entire undergraduate medical program delivering refugee/migrant health curriculum. Another 40% provide less than 5 hours, and the remaining 2 schools spend 10-20 hours over the entire undergraduate program.

We collated the key (primary and secondary) learning topics from the scoping review, the interviews, and the surveys in Tables 3 and 4.

Table 3

Primary Learning Topics

By the end of the undergraduate medical training a student will be able to:

| Topic                                                                 |
|-----------------------------------------------------------------------|
| Understand the importance and need to offer culturally safe and competent healthcare in a trauma informed manner. |
| Communicate effectively across cultures with humility and openness.   |
| Explore the issues related to the care of refugees including screening for infectious and chronic illness, prevention and promotion of health including mental health and women's health. |
| Review the demographics related to refugees and migrant patient populations. |
| Identify the social determinants of health which create barriers for refugees and migrants when accessing health care. |
| Understand the importance of a collaborative team-based approach including being aware of the various support services available to refugees and migrants in the community. |
| Reflect on personal bias and knowledge gaps, while showing respect for cultural and gender diversity of the patient population. |

Table 4

Secondary Learning Topics

In addition to adopting primary topics, medical learners may also be able to:
Learn from and work collaboratively with interpreters and settlement workers.

Acknowledge challenges in providing care for refugee and migrant populations and continuously work towards overcoming such challenges.

Obtain updated information on pertinent information from refugee health and policy, as well as understand how they may impact care.

Offer referral services for refugee and migrant families who may require additional counselling and psychological based services.

Describe the various resources in the community to support refugees with the aim to improve health outcomes.

Understand local vaccination guidelines and approaches for refugees and migrants

Develop an appreciation for how to advocate for refugee clients with letter writing including supporting legal, social and personal needs, including housing, literacy, and citizenship.

Gain an understanding of health equity and how system level changes led by socially accountable physicians can lead to improved health outcomes for refugees and migrants.

Identify key patient centered factors when reviewing the latest refugee and migrant specific evidence-based guidelines.

We adopted existing values and principles from Redwood-Campbell et al., (2011) (See Table 5).

| Table 5 | Values and Principle to Guide the Curriculum Framework (Redwood Campbell 2009) |
|---------|--------------------------------------------------------------------------------|
| Social justice | fair and impartial access to the benefits of society including the right to health |
| Sustainability | living and working within the limits of available physical, natural and social resources in ways that allow living systems to thrive in perpetuity. |
| Reciprocity | multidirectional sharing and exchange of experience and knowledge among collaborating partners |
| Respect | for the history, context, values and cultures of communities with whom we engage |
| Honesty and openness | in planning and implementation of all collaborations |
| Humility | in recognizing our own values, biases, limitations, and abilities |
| Responsiveness and accountability | to students and faculty and diverse communities with whom we are involved |
| Equity | promoting the just distribution of resources and access, especially with respect to marginalized and vulnerable groups |
| Solidarity | ensuring that objectives are aligned with those of the communities with which we are working |

**Proposed Curriculum Framework**
We reviewed and debated the emerging key topics, learning objectives and educational delivery and evaluation methods. Using the CanMEDS Family Medicine competency framework we created a list of competencies integral towards providing care and addressing health inequities for refugee and migrant patients. After consensus within the team, a set of unique refugee health competencies emerged which are outlined in Table 6.

| Table 6 |
|-----------------|
| **Refugee Health Competency-Based Learning Objectives:** |
| **The learner engaged in refugee and migrant health will be able to:** |

| Expert | Establish therapeutic, patient centered rapport and understand the importance of delivering comprehensive evidence-based care that is specific to the needs of refugee and migrant populations. |
| Communicator | Communicate with refugee and migrant patient populations and identify student inherent bias’ and address relevant gaps such as language barriers, differing cultural perspectives, and health literacy. Use a ‘trauma informed care’ approach when addressing disease screening and prevention strategies. |
| Collaborator | Practice a collaborative team-based approach, including establishing positive working relationships with other health care professionals, medical interpreters and community leaders, including legal, religious and cultural representatives. |
| Leader | Describe various trauma informed approaches to improve cultural safety (choice, collaboration, trustworthiness and empowerment), evidence based clinical care and constant quality improvement for refugee and migrant clinical care. |
| Health Advocate | Identify the social determinants of health and barriers to culturally appropriate care affecting refugee and migrant patients. Describe the various resources in the community to support refugees with the aim to improve health outcomes. Gain an understanding of health equity and how system level changes led by socially accountable physicians can lead to improved health outcomes for refugees and migrants. |
| Professional | Show respect for, and knowledge of, the demographic and cultural and gender diversity of their patient population. Reflect on their own bias and knowledge gaps pertaining to the unique needs and barriers refugee and migrant patient populations face when accessing healthcare. |
| Scholar | Identify key patient-centered factors when reviewing the latest refugee and migrant evidence-based clinical prevention guidelines. |

**Discussion**

The COVID-19 pandemic has highlighted and often magnified the health and social inequities that refugee and migrant populations face. Coinciding with this reality, medical students have expressed a desire to work with refugees and to address the needs of migrant populations. Refugees show great resilience and thus may provide important learning opportunities for medical students. Our proposed undergraduate medical curriculum framework for
refugee and migrant health provides students, faculty, and medical schools with a practical guide to enhance their competency-based current curriculum development and approach.

Our mixed methods sequential approach allowed us to explicitly identify and build on existing curriculum topics, values, and resources. Indeed, we were able to bring these curriculum topics to our interviews and to therefore collect real world experience from Canadian medical schools on existing curriculum. Finally, the richness of our findings allowed us to ultimately bring together learning objectives, teaching methods and evaluation. Our weakest findings related to curriculum evaluation methods, and we suggest more research is needed in this area.

The proposed primary learning objectives for our refugee and migrant health curriculum framework were based on the CanMEDS 2015 competency based framework and CanMEDS Family Medicine 2017 framework. Our cross cutting learning objectives incorporate many of the topics discussed in the leading refugee and migrant health textbooks and published evidence based clinical guidelines for refugees and migrants. Similar to existing education frameworks, our practical curriculum framework incorporates proposed values and principles, core learning objectives and competencies, and recommended teaching methods (see Fig. 3).

Of the learning objectives identified, the ‘communicator’ competency emerged as a fundamental skill that every student requires to be able to provide effective care for refugees and migrants. Cross-cultural communication in refugee health goes beyond the basic communication skills needed to provide care to Canadian-born patients. For example, a recent four-country study on the use of interpreters with refugee populations in primary care emphasized the importance of using interpreters, but also reports on the ongoing technology, human and time challenges of consistently working with interpreters. Given the high prevalence of trauma in most refugee populations, clinical approaches are now integrating more refugee-friendly systems, such as clinical navigators and communication approaches that are included in trauma informed care. The field of medical anthropology and cultural psychiatry have contributed both a better understanding of cultural idioms of distress and global mental health and it is now important to ensure students have an opportunity to explore culturally diverse disease explanatory models within their training.

In addition to the core competency of communication, the ‘advocate’ competency appeared prominently in our findings. Current literature points to the impact of forced migration on mental health, health equity and social determinants of health. Refugee and migrant patients are vulnerable to system inequities and thus require more physician awareness and resources to ensure a successful health equity approach. Teaching advocacy was highlighted by our key informants to be a fundamental requirement to ensure the next generation of physicians understand and are able to implement a health equity approach. This conceptual approach will include learning how to use their expertise and influence to be agents of change to improve health outcomes for their refugee patients. Advocacy skills can be enhanced with community service-learning programs, mentorship by more senior students and engaged faculty, as well as taking part in other student-led advocacy initiatives.

This refugee and migrant health framework also identifies methods of curriculum delivery and evaluation to support longitudinal learning. Medical schools have used a wide range of delivery methods to teach refugee and migrant health. For example, the use of online resources (i.e., e-learning) has become significant due to reduce in-person learning opportunities. Our study also emphasizes the continued importance of community service learning as a practical, hands-on and reflection opportunity to develop cultural safety practices, trauma-informed cross cultural communication skills and the appreciation for interprofessional collaboration and advocacy towards improving refugee and migrant health outcomes.
Our findings showed limited formal, well developed evaluation components for refugee health curriculum. Such findings suggest the refugee health curriculum is still early in its development. Robust evaluation metrics could improve the value and outcomes of refugee health curriculum. Our scoping review identified learners self-reported increased communication skills and positive and satisfying experiences. Rashid et al (2020) also identified that learning outcomes were based primarily on student perception, including more confidence in working with refugee populations, development of advocacy skills and understanding barriers to care. Community service learning also includes useful reflection exercises. However, ultimately, there needs to be effective metrics and tools to assess whether students have improved skills and are able to apply these skills in practice.

Strengths and Limitations

The strength of our framework comes from our scoping review of literature on education and competency-based roots of refugee and migrant health. The scoping review provided the foundation and direction for our interview and survey questions. Together, the findings from these first two phases informed the development of a robust framework. The framework aims to guide educators in developing curricula and does not aim to prescribe exact topics and exact teaching methods. Global migration includes South-South, South-North, and North-North migration and thus refugee and migrant health curricula should begin by acknowledging our historic colonial bias and emphasis on migration as a South-North phenomena. Refugees and migrants bring hard earned strengths but are complex and diverse populations. Our adopted global health values and principles are a positive first step, but may not be applicable to all countries.

The limitations of our framework include the paucity of our findings on evaluation methods for refugee health curriculum. We were often unable to clearly discern teaching and evaluation approaches when refugee and migrant population content was already embedded within other undergraduate medical education curricula (i.e., infectious diseases or social determinants of health). For example, there was often overlap between other vulnerable populations (i.e., Indigenous populations) due to differing priorities of each medical school. It was possible that medical schools covered topics such as cultural safety, cross cultural communication, equity while working with different vulnerable populations.

Conclusions

Our mixed-methods undergraduate medical curriculum framework development study takes an in-depth look at existing refugee and migrant health topics, learning objectives, delivery, and evaluation strategies. It was encouraging to find that most medical schools in Canada do already have some mandatory learning objectives related to refugee and migrant health within the undergraduate medical education curricula. We hope enhancing medical school curricula with our guiding framework will increase the likelihood of success in offering equitable, effective, and universal healthcare across the world. We also recognize that medical schools and institutions must collaborate and share their work and curriculum resources to allow for greater advocacy and change.

Abbreviations

GRAMMS: Good Reporting of a Mixed Methods Study

TB: Tuberculosis

HIV: Human Immunodeficiency Virus
Declarations

Ethics approval and consent to participate

This project was conducted in adherence to international guidelines and regulations including those in the Declaration of Helsinki and the ones followed at the University of Ottawa. The Ottawa Health Science Network Research Ethics Board (OHSN-REB) reviewed and approved this project as a quality initiative, quality improvement, quality assurance, and/or program evaluation therefore not requiring OHSN-REB approval. The key informants who participated in this project were asked if they would like to complete an interview and a survey as part of this project. Those who agreed provided verbal consent to participate and for the data to be used for publication purposes.

Consent for publication

Not applicable.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Competing Interests

DG received funding to evaluate the CCIRH KEN Refugee Health e-Learning Program. YF received funding from the University of Ottawa Family Medicine Resident Scholarly Project. KP led and received funding for the Canadian and European Evidence Based Guidelines for Refugee and Migrant Health, DynaMed Refugee Health Module and created the CCIRH KEN Refugee Health e-Learning Program. No financial conflicts to declare.

MJV, SSH, AS, DA have no conflicts to declare.

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Author Contributions Statement

Douglas Gruner and Kevin Pottie contributed to the conception and design of this work. Yael Feinberg, Maddie Venables and Syeda Shanza Hashmi contributed to data collection and analysis. Douglas Archibald, Ammar Saad and Kevin Pottie were involved in the conceptualization of methods. All the authors contributed substantially to the interpretation of the findings, drafting and revisions of the article. All authors gave final approval of the version submitted for publication.
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References

1. European Centre for Disease Prevention and Control. Public health guidance on screening and vaccination for infectious diseases in newly arrived migrants within the EU/EEA [Internet]. European Centre for Disease Prevention and Control. 2018 [cited 2021 May 16]. Available from: https://www.ecdc.europa.eu/en/publications-data/public-health-guidance-screening-and-vaccination-infectious-diseases-newly

2. McAuliffe M, Khadria B, editors. World Migration Report 2020. Geneva: International Organization for Migration; 2019.

3. Axel Pries, Luciano Saso, Santino Severoni, Ozge Karadag Caman, Paul Spiegel, letza Bojorquez Chapela, et al. M8 Alliance Expert Meeting - Webinar: The Impact of COVID-19 on Migrant and Refugee Health [Internet]. 2021 [cited 2021 Feb 8]. Available from: https://www.interacademies.org/event/m8-alliance-expert-meeting-webinar-impact-covid-19-migrant-and-refugee-health

4. Berkhout E, Galasso N, Lawson M, Morales PAR, Taneja A, Pimentel DAV. The Inequality Virus: Bringing together a world torn apart by coronavirus through a fair, just and sustainable economy. Oxfam Int. 2021 Jan;83.

5. Marmot M, Bell R. Fair society, healthy lives. Public Health. 2012;126:S4–10.

6. Whitehead M. The concepts and principles of equity and health. Health Promot Int. 1991;6(3):217–28.

7. Rourke J. Social accountability: a framework for medical schools to improve the health of the populations they serve. Acad Med. 2018;93(8):1120–4.

8. Becker AE, Kleinman A. Mental health and the global agenda. N Engl J Med. 2013;369(1):66–73.

9. Betancourt JR. Cross-cultural medical education: conceptual approaches and frameworks for evaluation. Acad Med. 2003;78(6):560–9.

10. Hui C, Dunn J, Morton R, Staub LP, Tran A, Hargreaves S, et al. Interventions to improve vaccination uptake and cost effectiveness of vaccination strategies in newly arrived migrants in the EU/EEA: a systematic review. Int J Environ Res Public Health. 2018;15(10):2065.

11. Sweileh WM, Wickramage K, Pottie K, Hui C, Roberts B, Sawalha AF, et al. Bibliometric analysis of global migration health research in peer-reviewed literature (2000–2016). BMC Public Health. 2018;18(1):1–18.

12. Lu C, Ng E. Healthy immigrant effect by immigrant category in Canada. Health Rep. 2019;Volume 30:Issue 4 April 2019 Pages 3–11.

13. Pottie K, Greenaway C, Feightner J, Welch V, Swinkels H, Rashid M, et al. Evidence-based clinical guidelines for immigrants and refugees. Cmaj. 2011;183(12):E824–925.

14. Bernhardt LJ, Lin S, Swegman C, Sellek R, Vu A, Solomon BS, et al. The refugee health partnership: A longitudinal experiential medical student curriculum in refugee/asylee health. Acad Med. 2019;94(4):544–9.

15. Joshi C, Russell G, Cheng I-H, Kay M, Pottie K, Alston M, et al. A narrative synthesis of the impact of primary health care delivery models for refugees in resettlement countries on access, quality and coordination. Int J Equity Health. 2013;12(1):1–14.
16. Pottie K, Hostland S. Health advocacy for refugees: medical student primer for competence in cultural matters and global health. Can Fam Physician. 2007;53(11):1923–6.
17. Gushulak BD, Pottie K, Roberts JH, Torres S, DesMeules M. Migration and health in Canada: health in the global village. Cmaj. 2011;183(12):E952–8.
18. Kalich A, Heinemann L, Ghahari S. A scoping review of immigrant experience of health care access barriers in Canada. J Immigr Minor Health. 2016;18(3):697–709.
19. Mota L, Mayhew M, Grant KJ, Batista R, Pottie K. Rejecting and accepting international migrant patients into primary care practices: a mixed method study. Int J Migr Health Soc Care. 2015;
20. Hashmi SS, Saad A, Leps C, Gillies-Podgorecki J, Feeney B, Hardy C, et al. A student-led curriculum framework for homeless and vulnerably housed populations. BMC Med Educ. 2020;20(1):1–7.
21. Redwood-Campbell L, Pakes B, Rouleau K, MacDonald CJ, Arya N, Purkey E, et al. Developing a curriculum framework for global health in family medicine: emerging principles, competencies, and educational approaches. BMC Med Educ. 2011;11(1):1–8.
22. Frank J, Snell L, Sherbino J. CanMEDS 2015 Physician Competency Framework. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015; R Coll Physicians Surg Can. 2015;
23. Pottie K, Doug Gruner, Mariella Ferreyra, Omar Ezzat, David Ponka, Meb Rashid, et al. Refugee and Elderly Global Health – Refugee and Elderly Global Health E-learning Program [Internet]. 2013 [cited 2021 Feb 8]. Available from: http://ccirhken.ca/e-learning/
24. Abubakar I, Aldridge RW, Devakumar D, Orcutt M, Burns R, Barreto ML, et al. The UCL–Lancet Commission on Migration and Health: the health of a world on the move. The Lancet. 2018 Dec 15;392(10164):2606–54.
25. Asgary R, Segar N. Barriers to health care access among refugee asylum seekers. J Health Care Poor Underserved. 2011;22(2):506–22.
26. Matlin SA, Depoux A, Schütte S, Flahault A, Saso L. Migrants’ and refugees’ health: towards an agenda of solutions. 2018;
27. Papic O, Malak Z, Rosenberg E. Survey of family physicians’ perspectives on management of immigrant patients: attitudes, barriers, strategies, and training needs. Patient Educ Couns. 2012;86(2):205–9.
28. Merritt K, Pottie K. Caring for refugees and asylum seekers in Canada: Early experiences and comprehensive global health training for medical students. Can Med Educ J. 2020;11(6):e138–40.
29. Mishori R, Aleinikoff S, Davis DM. Primary care for refugees: challenges and opportunities. Am Fam Physician. 2017;96(2):112–20.
30. Creswell JW, Clark VLP. Designing and conducting mixed methods research. Sage publications; 2017.
31. O’cathain A, Murphy E, Nicholl J. The quality of mixed methods studies in health services research. J Health Serv Res Policy. 2008;13(2):92–8.
32. Boaz A, Hanney S, Borst R, O’Shea A, Kok M. How to engage stakeholders in research: design principles to support improvement. Health Res Policy Syst. 2018;16(1):1–9.
33. Arksey H, O’Malley L. Scoping studies: towards a methodological framework. Int J Soc Res Methodol. 2005;8(1):19–32.
34. Zoom Video Communications [Internet]. [cited 2018 Dec 4]. Available from: https://zoom.us/
35. Otter Voice Meeting Notes - Otter.ai [Internet]. [cited 2021 Feb 8]. Available from: https://otter.ai/login
36. Bierman AS, Ahmad F, Mawani FN. Gender, Migration, and Health. 2009;98.
37. Booth A, Carroll C. How to build up the actionable knowledge base: the role of ‘best fit’ framework synthesis for studies of improvement in healthcare. BMJ Qual Saf. 2015;24(11):700–8.

38. Dillman DA, Smyth JD, Christian LM. Internet, phone, mail, and mixed-mode surveys: the tailored design method. John Wiley & Sons; 2014.

39. Bertelsen NS, DallaPiazza M, Hopkins MA, Ogedegbe G. Teaching global health with simulations and case discussions in a medical student elective. Glob Health. 2015;11(1):1–8.

40. Dussán KB, Galbraith EM, Grzybowski M, Vautaw BM, Murray L, Eagle KA. Effects of a refugee elective on medical student perceptions. BMC Med Educ. 2009;9(1):1–8.

41. Griswold K, Kerman JB, Servoss TJ, Saad FG, Wagner CM, Zayas LE. Refugees and medical student training: results of a programme in primary care. Med Educ. 2006;40(7):697–703.

42. Laven G, Newbury JW. Global health education for medical undergraduates. Rural Remote Health. 2011;11(2):268.

43. Palmer VS, Mazumder R, Spencer PS. Interprofessional global health education in a cosmopolitan community of North America: the iCHEE experience. Acad Med. 2014;89(8):1149–52.

44. Spencer J, McNulty A, Brice A. Providing Care for ‘hard to reach out to’ Patient Groups. Med Educ. 2010;44(3):52.

45. Asgary R, Saenger P, Jophlin L, Burnett DC. Domestic global health: a curriculum teaching medical students to evaluate refugee asylum seekers and torture survivors. Teach Learn Med. 2013;25(4):348–57.

46. Casillas A, Paroz S, Dory E, Vu F, Bodenmann P. Building the diversity bridge abroad: The strategy to implement pre-graduate cultural competency medical education in Lausanne, Switzerland. In Springer, New York, NY 10013 USA; 2014. p. S509–S509.

47. Duke P, Brunger F. The MUN Med Gateway Project: marrying medical education and social accountability. Can Fam Physician. 2015;61(2):e81–7.

48. Gagnon S. Interdisciplinary Rotation in Refugee Health for Undergraduate Students at Laval University with the Collaboration of a Community Organism: To Innovate to Sensibilize Physicians of Tomorrow to the Reality of Refugees just after their arrival in Canada: OP-107. Med Educ. 2011;45(1).

49. Warmington R, Sickand M, Saliba L, Snyder E, Martel N, Farren-Dai L, et al. Global health education locally: A community service-learning program to support refugees, engage medical students, and fill a gap in the community. Ann Glob Health. 2014;80(3).

50. Albritton TA, Wagner PJ. Linking cultural competency and community service: a partnership between students, faculty, and the community. Acad Med J Assoc Am Med Coll. 2002;77(7):738–9.

51. Griswold KS. Refugee health and medical student training. Fam Med-Kans CITY-. 2003;35(9):649–54.

52. Hill L, Gray R, Stroud J, Chiripanyanga S. Inter-professional learning to prepare medical and social work students for practice with refugees and asylum seekers. Soc Work Educ. 2009;28(3):298–308.

53. McKenzie KC, Mishori R, Tajeda S. Engaging students in the evaluation of asylum seekers: Building capacity, teaching service and resilience. In Springer, New York, NY 10013 USA; 2017. p. S674–S674.

54. Hayward SE, Deal A, Cheng C, Crawshaw A, Orcutt M, Vandrevala TF, et al. Clinical outcomes and risk factors for COVID-19 among migrant populations in high-income countries: A systematic review. J Migr Health. 2021;3:100041–100041.

55. Shaw E, Oandasan I, Fowler N eds. CanMEDS-FM 2017: A competency framework for family physicians across the continuum. Mississauga Coll Fam Physicians Can [Internet]. 2017; Available from: https://portal.cfpc.ca/resourcesdocs/uploadedFiles/Resources/Resource_Items/Health_Professionals/CanMEDS-Family-Medicine-2017-ENG.pdf

56. Gushulak BD, MacPherson DW. Migration medicine and health: principles and practice. BC Decker; 2006.
57. Kumar BN, Diaz E. Migrant health: a primary care perspective. 1st ed. CRC Press; 2019. 336 p.
58. Walker PFrye, Barnett EDay. Immigrant medicine. St. Louis, Mo: Saunders Elsevier; 2007.
59. Centers for Disease Control and Prevention. Guidance for the U.S. Domestic Medical Examination for Newly Arriving Refugees | Immigrant and Refugee Health | CDC [Internet]. 2021 [cited 2021 May 20]. Available from: https://www.cdc.gov/immigrantrefugeehealth/guidelines/domestic-guidelines.html
60. Chaves NJ, Paxton GA, Biggs B, Thambiran A, Gardiner J, Williams J, et al. The Australasian Society for Infectious Diseases and Refugee Health Network of Australia recommendations for health assessment for people from refugee-like backgrounds: an abridged outline. Med J Aust. 2017;206(7):310–5.
61. Pottie K, Greenaway C, Hassan G, Hui C, Kirmayer LJ. Caring for a newly arrived Syrian refugee family. CMAJ. 2016;188(3):207–11.
62. Beach MC, Gary TL, Price EG, Robinson K, Gozu A, Palacio A, et al. Improving health care quality for racial/ethnic minorities: a systematic review of the best evidence regarding provider and organization interventions. BMC Public Health. 2006;6(1):1–11.
63. MacFarlane A, Huschke S, Pottie K, Hauck FR, Griswold K, Harris MF. Barriers to the use of trained interpreters in consultations with refugees in four resettlement countries: a qualitative analysis using normalisation process theory. BMC Fam Pract. 2020;21(1):1–8.
64. Steel Z, Chey T, Silove D, Marnane C, Bryant RA, Van Ommeren M. Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: a systematic review and meta-analysis. Jama. 2009;302(5):537–49.
65. Rashid M, Cervantes AD, Goez H. Refugee Health Curriculum in Undergraduate Medical Education (UME): A Scoping Review. Teach Learn Med. 2020;32(5):476–85.
66. Wickramage K, Simpson PJ, Abbasi K. Improving the health of migrants. 2019;
67. Spitzer DL, Torres S, Zwi AB, Khalema EN, Palagana E. Towards inclusive migrant healthcare. bmj. 2019;366.

**Figures**

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**Figure 1**

Logic Model of Refugee Health Curriculum Framework Mixed-Methods Development
Figure 2

Emerging themes from interviews with faculty concerning undergraduate refugee health curriculum in Canada.
Design 1

Figure 3

Refugee Health Curriculum Framework. Outer shell: values and principles, inner shell: learning methods, innermost shell: core refugee health competencies (see Table 4)

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