

Supporting Equity in Rheumatoid Arthritis Outcomes in Canada: Population-Specific Factors in Patient-Centered Care

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Abstract

Background: Health equity considerations have not been incorporated into prior Canadian Rheumatology Association guidelines. Our objective was to identify the challenges and possible solutions to mitigate threats to health equity in rheumatoid arthritis (RA) care in Canada.

Methods: A consultation process informed selection of priority populations, determined to be rural and remote, Indigenous, elderly with frailty, first generation immigrant and refugee, low income and vulnerably housed, and diverse gender and sex populations. Semi-structured interviews were completed with patients with lived experience, healthcare providers and equity-oriented researchers. These interviews probed on population factors, initial and ongoing healthcare access issues, and therapeutic considerations influencing RA care. Known or proposed solutions to mitigate inequities during implementation of service models for the population group were requested. The research team used a phenomenological thematic analysis model and mapped the data into a logic model. Solutions applicable to several population groups were proposed.

Results: 35 interviews were completed to identify realities for each population in accessing RA care. Five themes emerged as primary solutions to population-based inequities, including actively improving the patient-practitioner relationship; increasing accessibility and coordination of care through alternative models of care; upholding autonomy in treatment selection while actively addressing logistical barriers and individualized therapy needs; collaborating with health supports valued by the patient; and being advocates for policy change and health system restructuring to ensure appropriate resource redistribution.

Conclusion: The challenges for populations facing inequities in rheumatology care and promising solutions should inform guideline development and implementation, policy change and health system restructuring.

Introduction

Inequities in health status reflect differences in social, economic and political circumstances that contribute to unfair and avoidable consequences for health outcomes (1). While not minimizing the experiences of any individual population group, nor the intersectionality of being a member in several populations facing inequities (2), an acronym to define broad categories of populations facing disparities is PROGRESS-Plus (Place of residence; Race/ethnicity/culture/language; Occupation; Gender/sex; Religion; Education; Socioeconomic status; Social capital; and other characteristics (Plus) such as age and disability) (3). Persons from these populations face inequities in several aspects of rheumatoid arthritis (RA) care and outcomes, some of which are introduced through implementation of treatment recommendations (an example of intervention-generated inequity (4)).

While there is an awareness of the need to address health equity (5) in the process of guideline development (6), and considerations for addressing equity in all phases of guideline development have been suggested (7-10), this should be based on understanding disease manifestations, treatment preferences, and realities of health service access and delivery that vary between populations with RA in Canada. The aim of this research was to explore challenges to health equity in RA care in Canada, and identify possible solutions to inform improved implementation strategies and approaches.

Methods

Population Selection

We consulted a variety of sources in determining which population groups were of highest priority to address. In an online survey distributed by the Canadian Rheumatology Association (CRA), Quality Care and Guidelines Committee members were asked to rank priority populations in the context of Canadian rheumatology practice. Respondents (n=43) ranked place of residence (rural/remote), Indigenous status, low income, low health literacy and minority populations as the priorities. We conducted a literature review to identify randomized controlled trials of RA therapy conducted specifically in groups at risk for

inequity or which reported differences in response to RA therapy; only two studies were identified reporting sex- (11,12) and age- (11) stratified results. A previously conducted systematic review identified that demographic characteristics of sex, age, income, education, ethnicity, and employment status were associated with variations in patient treatment preferences (13). Finally, a review of existing chronic disease guidelines in Canada (Diabetes Canada, Heart and Stroke Foundation, Hypertension Canada, Obesity Canada, Society of Obstetrician and Gynecologists of Canada) identified specific discussions or recommendations based on low-income status, pregnancy, sex, minority populations, Indigenous people, age and place of residence (rural/remote). The survey results, literature review results, and population inclusions in other chronic disease guidelines were presented to the research team, with consensus to focus on rural and remote, Indigenous, elderly with frailty, first generation immigrant and refugee, low income and vulnerably housed, and diverse gender and sex populations.

Data Collection

Semi-structured interview guides (Appendix 1) were constructed to probe on population factors, initial and ongoing healthcare access issues, and therapeutic considerations influencing RA care specific to the existing CRA RA Guidelines (14) for the selected populations. Known or proposed solutions to resolve, minimize or not worsen existing inequities during implementation of service models for the population groups were requested. Patients with lived experience, healthcare providers for the selected populations, and equity-oriented health service researchers with expertise with one or more of the selected populations were engaged through patient organizations, through email invitation distributed by the research team and recruitment by other research participants (15). Semi-structured interviews were conducted with consenting participants during the summer and fall of 2019 by members of the research team (EP, RH). Care was taken to engage participants from all Canadian regions. Recruitment continued until saturation was achieved for that population group or no further participants could be recruited. Interviews were audio-recorded and transcribed verbatim, with field notes supplementing analysis. Interview transcripts were then reviewed by two other team members (GH, CB) to begin a collaborative data synthesis process.

Analysis

The research team used a phenomenological thematic analysis model (16,17) to generate a coding tree for inequities in RA care. This iterative approach to analysis is appropriate in understanding how barriers are experienced by specific groups through their lived experience. The cut and sort method, a categorization technique, was utilized to label data and group concepts appropriately for each population group independently (18). This step was completed by EP and CB with peer debriefing and verified for face validity by GH to ensure qualitative rigor (18). The final step was to map the data into a logic model (19) highlighting evidence and expert solutions for approaches, activities, and models of care promoted as mechanisms to mitigate threats to equity. This is similar to the 'equity matrix' (20) utilized by the National Advisory Committee on Immunization in advising the Public Health Agency of Canada.

Ethics:

Research activities were approved by the University of Calgary Conjoint Health Research Ethics Board (certificate REB19-0695) and participants in all stages of the study provided written informed consent as well as reconfirmed verbal consent prior to interviews.

Results

A total of 35 semi-structured interviews were conducted. The study population represented a pan-Canadian sample, with participants from British Columbia (n=10), Alberta (n=10), Manitoba (n=1), Ontario (n=9), Quebec (n=2), Nova Scotia (n=2) and New Brunswick (n=1). As some of the participants could speak to their membership or interactions with multiple population groups of interest (e.g., some responses described both rural/remote and Indigenous populations), data was available from 8 stakeholders and 3 patients speaking to rural and remote population realities, 11 stakeholders and 1 patient speaking to Indigenous population realities, and 3 stakeholders and 1 patient representing perspectives for elderly persons with frailty. Despite attempts to recruit stakeholders and patients from

refugee and first-generation immigrant populations and low socioeconomic populations, it is likely that saturation was not achieved here (2 stakeholders and 1 patient for each group). Participants recruited to speak to diverse gender and sex population considerations provided perspectives of those identifying as female sex and discussed the pre-conception, pregnancy and postpartum periods (5 stakeholders and 2 patient participants), but we were unable to recruit persons with perspectives from other gender or sexual identities.

Analysis of the interview transcripts focused on 16 domains that demonstrate obstacles for RA care: population factors (goals of treatment, patient beliefs and preferences, manifestations impacting management, differences in efficacy and safety), initial and ongoing management (access, reassessment of disease activity, baseline testing, monitoring tests, coordination of care), and medication considerations (access, storage, strategy, adherence). Analysis of these domains and guideline implementation solutions are summarized here for each of the six population groups separately, and recurrent solutions and approaches to mitigate inequity are visualized in Figure 1.

Rural and Remote Residents (Table 1)

Patients who reside in rural and remote communities experience differential healthcare access compared to urban populations. Diagnostic delay due to reduced provider access and availability (both primary and specialty care), reduced availability of testing in rural and remote communities or extensive travel distance to larger centers for appointments significantly impact patients in this population. Travel financially strains patients who must take time off work, pay out of pocket for travel and accommodation or secure childcare. Alternative models of care (eg., telehealth, outreach clinics, distributed advanced practitioners and tele-allied health professional visits) and rheumatologist flexibility were perceived to support consistent disease assessment and management. Enhanced collaboration and relationship building with primary care, including strong communication protocols and enhancement of rheumatology assessment skills, could facilitate stepwise therapy initiation and escalation within the medical home and

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reduce travel requirements. Pharmacotherapeutic strategies could incorporate options to minimize specialized monitoring needs, provide convenient routes of administration, and integrate bridging therapy. Since pharmacy supply may be variable, engaging in regular communication with local pharmacists and drug sampling programs would support consistent medication access. Issues of transportation and variable pharmacy supply is intensified by insurers limiting pharmacologic supply to one month, and a suggestion was for providers to advocate for medication to be dispensed in intervals of several months. Pharmacy delivery programs and cold chain assurance should be engaged to safely transport medication for long distances, while primary health supports should be considered for long-term medication storage; shelf-stable therapeutic options could eliminate some of these concerns.

Indigenous Populations (Table 2)

Although not universal within the population, Indigenous peoples employ a holistic approach to health and wellness, and engaging health supports with families and traditional healers to bring Indigenous ways of achieving wellness are an expectation. Family and community experiences are highly influential in patient decision making, which may amplify discordance between the patient and provider goals. Using strategies such as shared decision making, collaborating with primary care providers, and supporting community education about RA were proposed as mechanisms to inform patient goals and preferences in their rheumatologic care while also responding to increased disease severity and worse prognosis.

Provider bias, structural racism and experiences of racism in the healthcare system are barriers to Indigenous patient access to care, amplified by social and clinical complexities, difficulties navigating the healthcare system, low health literacy and low trust in the healthcare system due to personal or historical experiences. Provider education and models of care to ensure equitable access to care were recommended to be implemented to provide positive patient experiences. Providers were advised to be knowledgeable about local resources and form alliances with primary care, social agencies, and health navigators whom are proficient in government programs to help guide patient care. Extending the medical team to include collaborative multidisciplinary team-based care, case conferencing between providers and longer

appointment times were seen to promote holistic, individualized care and would serve to increase patient trust in their rheumatology provider and in the larger healthcare system.

The national formulary for Status First Nations and Inuit patients has separate processes from provincial and private plans for medication access; medication coverage options for non-Status and Métis patients will need to be explored with the patient. Medications that are easily administered, non-temperature dependent for storage, or those with longer dosing intervals were preferred to mitigate travel-related interruptions when participating in traditional activities. Safety and logistical concerns for medication storage were raised in the context of socioeconomic realities related to poverty, such as shared living environments and homelessness. Alliance with shelters, community programs and pharmacies for medication storage as well as primary care or speciality clinics providing therapy on-site were suggested to mitigate these concerns.

Elderly Persons with Frailty (Table 3)

Patients with frailty have multiple medical conditions, complex medical regimes, and face cognitive and physical decline in their health status. Patient-centered goals for outcomes shift as life expectancy and treatment burden favor quality of life over prevention of damage progression. Multiple providers are typically involved and there is an increased risk of drug interactions, decreased metabolism of therapies, and non-adherence due to polypharmacy. thus a well-documented integrated care plan was advised. A cautious, individualized treatment approach using conservative approaches, medication minimization and selection of non-pharmacotherapeutic options was advised, recognizing that most trials exclude elderly patients and those with frailty, resulting in a paucity of efficacy and safety evidence in this population. Participants shared that patients with frailty are at risk for difficulties in initial and ongoing access to rheumatology care, reliant on family and support networks for appointment attendance related to transportation issues, poor mobility, and cognitive impairment. Alternative models of care, including virtual visits and direct communication with primary care providers or geriatricians, and engaging

community services for patient transport and lab investigations are potential avenues to ensuring ongoing rheumatic disease assessment and treatment. Therapeutic strategies may need to shift to support routes of administration that enable safe self-administration or administration by the patient's supports including family, home care, or paramedic programs while ensuring access to secure medication storage in supported living environments. Finally, it was highlighted that insurance coverage may be impacted by a transition from private to public funding sources.

Refugee and First-Generation Immigrant Populations (Table 4)

Patients from ethnic minority groups represent different paths to immigration to Canada: immigrants relocate by choice, whereas refugees are fleeing situations in their home countries. Both groups experience their own pre-migration stressors and relocation stress; however, refugees will have likely had severely traumatizing experiences. Trauma-informed care approaches were related as necessary to provide a supportive care environment and to build trust while mitigating risk for stigma in patient care. Sociocultural approaches to health, levels of self-advocacy for health needs and acceptance of treatment were accepted as varying. Utilizing translation services and having multilingual health literacy supports were mechanisms to support care delivery. Social and clinical complexity, socioeconomic disparities, incomplete healthcare coverage, and patient inexperience with the new healthcare system were issues identified that could be supported by multidisciplinary care teams, close alliance with primary care providers, and engaging navigators or community support workers with government program knowledge to promote ongoing disease management and minimize loss to follow up. There is also a potential that differences of disease phenotype, comorbidities and treatment response between population groups may impact therapy choices, with a general preference for medication minimization. Employing shared decision-making was deemed essential to support positive patient outcomes. Strategies to mitigate marginalization could include employing universal latent infection screening (e.g., tuberculosis, hepatitis) policies to eliminate provider's subjective selection of 'high risk' patients. Several factors unique to migrant populations which could influence medication strategy were shared. For immigrants established

on advanced therapies, providers may need to secure documentation of past treatment to avoid the need to re-establish treatment failures. Preferential administration of non-temperature dependent therapies and advocacy for additional supply for prolonged travel were strategies to mitigate travel-related disruptions to medication administration when patients return to their home country for long-term visits.

Persons of Low Socioeconomic Status and Who Are Vulnerably Housed (Table 5)

Economically disadvantaged populations are widely stigmatized and marginalized in the healthcare system. Experiences of trauma impact decisions to seek and maintain healthcare system interactions, and social and clinical complexities pose a burden to accessing and coordinating appointments; other health conditions and social situations are prioritized over rheumatology care. Low health literacy may amplify issues regarding healthcare system navigation, and financial limitations pose barriers to modern appointment notification systems. For this population, participants spoke of the imperative need for healthcare providers to ensure safe and trauma-informed care interactions and environments. Longer appointment times and collaborative multidisciplinary team-based care would increase patient trust in the healthcare system and support patients with substance misuse and mental health conditions. Extending care team members to include social services resources to provide ‘wrap around’ individualized care coordination strategies, and health navigators or community support workers with government program knowledge were strategies to engage in care coordination as they expand knowledge of availability and access of local resources. Communication strategies to include low health literacy supports, adapting modes of communication, and providing the patient with communication devices were suggested. Medication strategies that incorporate therapies that minimize infection risk if the patient is an intravenous substance user or at risk for lung infections from pre-existing inhalation injury were proposed. Financial concerns influencing medication access could be addressed by subsidizing essential medication, using sampling programs or assisting the patient in applying for compassionate coverage policies. Cost-effective approaches such as cycling through less expensive first-line therapies prior to exploring expensive alternatives may be practically necessary. Alliance with shelters and community

programs, pharmacies, and primary care or specialty care clinics for safe and temperature-stable medication storage and on-site administration was seen as necessary to maintain optimal pharmacotherapeutic strategies.

Females During Pre-Conception, Pregnancy and Postpartum Periods

Recent guidelines (21-23) uphold remission (or low disease activity) goals prior to conception and for the duration of the pregnancy. If tapering or therapy discontinuation is necessary related to teratogenicity or patient preference, shared decision-making, multi-disciplinary care and availability of credible data sources for patient education are supportive approaches. It is important to ensure ongoing monitoring throughout pregnancy, but this should be balanced with the requirements for the patient to be attending several other healthcare providers (e.g., obstetrical care, other specialty care) and more frequent laboratory monitoring. Collaborative multidisciplinary team-based care with strong communication protocols was promoted as imperative to ensure consistent messaging and positive patient outcomes; local rheumatology expertise in the management of pregnant patients may be a natural venue for team-based care. Participants reported that fatigue, physical and emotional stress, and financial or caregiving burden for other family members arise, and alternative models of care including virtual visits should be provided. Patients receiving infusion therapies will need to have childcare support to attend these appointments, thus therapies delivered orally or subcutaneously may be preferable. Insurance coverage may vary during maternity leaves, and advocacy may be required to maintain effective therapies, especially if first line therapies were not trialed for safety reasons. In the postpartum period, social supports may be required for caring of the neonate and the rheumatologist should liaise with public health and/or pediatrics to address any safety concerns for neonatal immunization around immunosuppressed mothers.

Discussion

We have summarized contributors and threats to equity in RA care in Canada and share recommended and proposed solutions to incorporate in treatment guidelines implementation strategies to support

attainment of equity in outcomes. Despite positive progressive work and widespread recognition of the importance of health equity, inclusion of equity considerations in treatment guidelines is still infrequent (24,25) and has not occurred to date in any Canadian rheumatology guidelines.

In contrast to considering health equity as a ‘stand alone’ domain (5), a four-part series by authors from GRADE outlined a rigorous evaluation process to include equity considerations through each step of the evidence to decision process, including rating the certainty of evidence and incorporating issues of preferences, acceptability and feasibility in implementation (7-10). The research presented in this manuscript aims to provide preliminary information for the upcoming update to the CRA RA Guidelines, and outlines existing knowledge gaps and health service interventions that should inform the research agenda of health services researchers. While there are some priority populations in Canada that have had RA inequities previously described (26-29), and active health service intervention research continue to close care gaps, we present the challenges faced by populations who are infrequently discussed in rheumatology clinical care or research in Canada, including elderly persons with frailty, those who are first-generation immigrants or refugees to Canada, persons with low socioeconomic status or who are vulnerably housed, and patients with unique considerations relating to peri-partum and post-partum care. Larger scale engagement and understanding of the unique experiences and positions of these population groups will increase the relevance and applicability of CRA Guidelines for the future.

While the contributors to inequities may be unique to each of the populations, approaches common to all groups to support equity in arthritis care delivery were suggested. These include actively improving the patient-practitioner relationship through approaches and actions that support meeting patients where they are at; increasing accessibility and coordination of care through alternative models of care; upholding autonomy and patient knowledge in treatment selection while actively mitigating logistical barriers and addressing individualized therapy needs; collaborating with health supports valued by the patient; and being advocates for policy change and health system restructuring to ensure appropriate resource

redistribution. The novelty of this work further suggests the need for monitoring of short and long-term implementation outcomes, including inequality and disparity analyses (30), to ensure that care gaps are closing and resolved.

The research presented here has limitations. This study included a pan-Canadian selection of healthcare practitioners, researchers and patients from seven Canadian provinces, recruited through convenience, purposive, and snowball sampling techniques commonly used in community-based work (31) to assure that data collected represented national opinions and views. Sampling bias is a risk, due to possible alternative motivation for participation, such as personal or professional relationships. Additionally, there is underrepresentation of patients from population groups where we encountered difficulties in recruitment. Although we chose to recruit from patient-focused webpages and to communicate via phone call, videoconference, and email for convenience and cost-effectiveness, these modes may be unattainable for certain patients. In ongoing studies, we are continuing to recruit additional patient perspectives from the populations perceived to require further exploration, as well as other population groups facing inequities in rheumatology care. Furthermore, we intentionally reported our results for each of the six population groups separately. In doing so, we ignored intersectionality experiences, which describes the synergistic impact of identifying with multiple structural identities (32). This theory was originally presented in the context of Black women, with unique issues that could not be simply characterized as the sum of their gender or sex characteristics, and as a result, should be considered as an independent population. In the context of our study, identities of race, class, gender, sex, and geographical location have the potential to intersect and perpetuate inequities. Though creating guidelines unique to individual identities is not feasible, these intersections must be considered upon interpreting and implementing as to not perpetuate discrimination and health inequities. These results should be used to supplement and comprehensively tailor care to individual needs.

Ultimately, the disparities identified between general and disadvantaged populations in the Canadian healthcare system, and the subsequent necessary alterations to guidelines, should spearhead policy change and health system restructuring to achieve these goals.

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Figure 1. Solutions and Approaches Supporting Equity in Rheumatoid Arthritis Care

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Table 1. Factors Contributing to Inequities in RA Care for Rural and Remote Populations and Proposed Mitigation Approaches through Guideline Recommendations and Implementation

	Contributors to Inequity	Mitigation Approaches
Population Factors	No data to suggest differences in goals of treatment, patient beliefs and preferences, or efficacy differences	Support individualized therapy decisions related to a perception of more severe disease and increased frequency of comorbidities
Initial and Ongoing Healthcare Access	Delays to secure a rheumatology consultation, travel distances and socioeconomic considerations impact access to specialty care Primary care providers in a community may be itinerant	Propose alternative models of care for treatment initiation and monitoring Reinforce enhanced collaboration with primary care for co-management Coordinate care with other specialists the patient accesses and promote rheumatologist flexibility for patient visits Providers should investigate and advocate for travel subsidies for patient travel
	Reduced allied health resources	Propose alternative modes of care delivery (e.g., telephysio)
	Baseline testing and monitoring	Recommend required tests are completed prior to rheumatologist assessment to ensure treatment can begin immediately when indicated Recommend therapies and monitoring regimens that minimize testing frequency or specialized monitoring needs when possible
Medication Access and Strategy	Variable pharmacy supply and dispensation limits could result in discontinuous access	Rheumatologist to be proactive in building relationships with local pharmacies, offering patient support programs including sampling, and advocating for approval of larger dispensation quantities
	Storage concerns (e.g., power supply) and transportation could result in disruption of the cold chain for injection medications	Recommendation may preferentially suggest shelf-stable medications Rheumatologist encouraged to help patient navigate primary health supports for medication storage and pharmacy delivery programs
	Intravenous and intra-articular therapies may be difficult to administer in rural/remote locations	Recommendation may preferentially suggest selection of therapy minimizing need for provider intervention Use of intra-muscular bridging instead of intra-articular injections if needed Collaborative care with primary care providers to minimize use of prednisone

Table 2. Factors Contributing to Inequities in RA Care for Indigenous Populations and Proposed Mitigation Approaches through Guideline Recommendations and Implementation

	Contributors to Inequity	Mitigation Approaches
Population Factors	Health systems do not resource a holistic approach to health nor incorporate traditional medicine in treatment plans	Engage with health supports beyond biomedical providers and collaborate with the cultural health system
	Worse prognosis and refractory disease, including increased frequency of extra-articular manifestations and comorbidities	Support individualized therapy decisions Incorporate shared decision-making approaches to support need for aggressive therapy, including collaboration with primary care to provide wrap-around supports
	Younger disease onset has implications for childbearing potential	Offer medication options that are safe in pregnancy
	Increased risk of TB reactivation with certain pharmacotherapies	Offer medication options associated with reduced TB reactivation Engage public health supports for screening and treatment of latent TB
Initial and Ongoing Healthcare Access	Low trust in the healthcare system due to provider bias, structural racism, and past experiences of racism in the healthcare system	Promote a safe care environment by educating providers, engaging health navigators in the care team, and building trust and rapport with the patient Delay preliminary testing until the provider can communicate reasons for testing with patients Rheumatologist encouraged to advocate for universal latent infection screening policy
	Stigma of 'high risk patient' often assigned to Indigenous patients which perpetuates feelings of bias and racism	
	Social and clinical complexity	Advocate for resource redistribution to address inequities in social determinants of health Coordinate care with multidisciplinary care teams that engage health navigators, primary care and social agencies Specialist should have extensive knowledge of local resources and offer longer appointment times to review all aspects of the patient's health
	Difficulties achieving frequent reassessment of disease activity or monitoring tests due to long travel distance to see rheumatologist	Build rapport with primary care: empower local primary care to begin initial treatment, and co-manage the patient Offer alternative models of care Promote rheumatologist flexibility for patient visits
	Personal identification needed for testing	Engage health navigators and social resources team to acquire necessary documentation
	Socioeconomic considerations impacting access to care	Health system restructuring and/or utilization of alternative models of care to increase provider availability and accessibility Embed specialty care in the medical home
	Difficulties with health system navigation (to primary care, to specialty care)	Engage health navigators or community support workers with government program knowledge Use different modes of communication if traditional appointment notification systems are a barrier to accessing care
Medication Access and	Storage concerns (e.g., power supply, shared living environments and	Recommendation may preferentially suggest shelf-stable medications

Strategy	homelessness) and transportation could result in disruption of the cold chain for injection medications	Rheumatologist encouraged to help patient navigate primary health supports for medication storage and pharmacy delivery programs
	Variable pharmacy supplies, insurers limiting supply to one month or formulary limitations could result in discontinuous access	Rheumatologist encouraged to build a strong relationship and frequent communication with local pharmacist Use sampling programs and patient support programs to ensure treatment continuation Advocate to enable dispensation of several months of medication and to ensure equal access to medication across the country
	Loss of trust when side effects or adverse events occur may impact adherence to treatment regime, intensified by family and community experience	Use health navigators and brokers for education to improve patient, family and community understanding of disease and treatment Increase provider availability and appointment times to build trust and rapport with the patient Use shared decision-making approaches

Table 3. Factors Contributing to Inequities in RA Care for Elderly Persons with Frailty and Proposed Mitigation Approaches through Guideline Recommendations and Implementation

	Contributors to Inequity	Mitigation Approaches
Population Factors	Short life expectancy informs individualized outcome goals	Document and communicated an integrated care plan and goals of care Use shared decision-making approaches to reinforce patient centered care Assess treatment burden relative to benefit and use conservative approaches
	Exclusion from clinical trials results in paucity of outcome data	Support reasonable use of therapy given lack of data
	Side effects vary based on comorbidities, polypharmacy, cognitive impairment and degree of frailty	Individualize treatment approach with safe and appropriate medication Deprescribe and minimize medication to increase adherence and reduce side effects Include family and healthcare proxies in care plan
Initial and Ongoing Healthcare Access	Barriers in accessible transportation	Propose alternative models of care including telehealth and telephone consultations Engage community organizations or services for patient transportation Include family and support networks but be mindful of not creating extra burden Minimize testing or use mobile labs where available
	Multimorbidity, complex medical history and cognitive decline impact continuity of care	Use collaborative multidisciplinary team-based care with strong communication protocols and information systems Form a strong alliance with primary care and geriatrics Engage family and support networks
Medication Access and Strategy	Treatment strategy should be aligned with patient outcome goals	Promote shared decision-making approaches Use a conservative approach to pharmacotherapy Select safe alternatives or non-pharmacotherapy where possible
	Necessary to avoid or minimize medications associated with adverse events (eg. steroids or NSAIDs)	
	Administration preferences may vary based on the cognitive abilities of the patient and the availability of their supports	Understand the patient's available supports (family, home care, paramedic program) for medication administration
	Insurance may vary once the patient is considered a senior	Advocacy to ensure medication coverage for seniors

Table 4. Factors Contributing to Inequities in RA Care for Refugees and First-Generation Immigrants and Proposed Mitigation Approaches through Guideline Recommendations and Implementation

	Contributors to Inequity	Mitigation Approaches
<i>Population Factors</i>	Varying goals of treatment based on previous socioeconomic status and reason for immigration	Shared decision-making approaches Employ relationship building skills and provide trauma-informed care to build rapport with the patient
	Different sociocultural approaches to healthcare Patients risk having poor self-advocacy and difficulties communicating their preferences	Shared decision-making approaches Rheumatologist encouraged to improve communication skills and build rapport with the patient Engage health navigators and community support workers in the care team
	Variations in disease phenotype, comorbidities between populations, treatment effect and tolerability by race or ethnicity	Individualize therapy approach to meet patient needs
<i>Initial and Ongoing Healthcare Access</i>	Difficulties navigating the healthcare system and appointment notification systems incompatible with patients' technological skills may impact reoccurring care	Use different modes of communication as needed by the patient Use health navigators or community support workers with government program knowledge Engage family members in the care team
	Socioeconomic considerations	Advocate for health system restructuring to increase provider availability and accessibility
	Stigma and bias of 'high risk patient'	Rheumatologists encouraged to advocate for a policy change to universal screening
<i>Medication Access and Strategy</i>	Variable coverage for refugees	Engage with health navigators and multidisciplinary care teams Compassionate coverage policies
	Variable transfer of prior medication exposure history may force the patient to re-try ineffective pharmacotherapies	Rheumatologist encouraged to advocate variances in medication order with formulary companies
	Storage and accessibility concerns for prolonged travel to home country could result in disruption of the cold chain for injection medications	Recommendation may preferentially suggest shelf-stable medications Rheumatologist encouraged to help patient navigate patient support programs to access additional supply for prolonged travel
	Low initial trust in the healthcare system, and rapid loss of trust when side effects or adverse events occur may impact adherence and loss to follow up	Use a health navigator or broker for effective communication Encourage increasing provider accessibility to build trust and rapport with the patient

Table 5. Factors Contributing to Inequities in RA Care for Persons of Low Socioeconomic Status and Vulnerably Housed and Proposed Mitigation Approaches through Guideline Recommendations and Implementation

	Contributors to Inequity	Mitigation Approaches
Population Factors	Past or current intravenous drug use or substance abuse may alter administration feasibility and patient preferences	Offer medications with minimized infection risk
	Increased frequency of mental health conditions, history of trauma or substance abuse	Engage multidisciplinary teams in patient care with strong coordination strategy Promote a safe and trauma-informed care environment
	Poor health literacy	Use appropriate communication tools to engage with the patient Use health navigators in the care team
Initial and Ongoing Healthcare Access	Socioeconomic considerations	Advocacy for health system restructuring and alternative models of care to increase provider availability and accessibility Embed speciality care in the medical home
	Social and clinical complexity affects patient monitoring and coordination of care	Ally with health navigators, social agencies and primary care Provider knowledgeable of local resources Engage with multidisciplinary care teams and case conferencing between providers Increase appointment duration
	Difficulties navigating the healthcare system and appointment notification systems that are incompatible with patients' technological realities may impact reoccurring care	Use different modes of communication as needed by the patient Use health navigators or community support workers with government program knowledge
Medication Access and Strategy	Prioritizing cost effective approaches	Offer more first line therapies to increase adherence Use sampling programs, and pharmaceutical companies should subsidize necessary medications and have compassionate coverage policies
	Storage concerns (e.g., power supply, refrigeration access, shared living environments, homelessness) could result in disruption of the cold chain for injection medications	Recommendation may preferentially suggest shelf-stable medications Rheumatologist encouraged to help patient navigate primary health supports for medication storage and pharmacy delivery programs or seek out alliances with shelters, community programs and pharmacies for storage
	Low initial trust in the healthcare system, and rapid loss of trust when side effects or adverse events occur, which may impact adherence and loss to follow up	Use a health navigator or broker for effective communication Improve provider accessibility to build trust and rapport with the patient

Considerations	Populations	Solutions and Approaches	
<p>Population Factors</p> <p>Initial and Ongoing Healthcare Access</p> <p>Medication Access and Strategy</p>	<p>Rural and Remote Residents</p> <p>Indigenous Peoples</p> <p>Elderly Persons with Frailty</p> <p>Refugee and First-Generation Immigrant Populations</p> <p>Persons of Low Socioeconomic Status and Vulnerably Housed</p> <p>Gender and Sex Diversity</p>	<p>Improved Patient-Practitioner Interactions</p>	<ul style="list-style-type: none"> • Relational, safe and trauma-informed care environment • Flexible office procedures and scheduling • Additional communication methods
		<p>Alternative Models of Care to Increase Accessibility and Coordination of Care</p>	<ul style="list-style-type: none"> • Telehealth • Outreach clinics and distributed advanced care practitioners • Patient navigators
		<p>Treatment Options</p>	<ul style="list-style-type: none"> • Use shared decision making and support health literacy to align decisions with patient beliefs and preferences • Where possible offer options that minimize burden on patients • Consider patient storage options and living situations • Individualize therapy for disease phenotype and comorbidities
		<p>Collaboration</p>	<ul style="list-style-type: none"> • With patient community and family • With primary care and multidisciplinary healthcare practitioners • With other health supports
		<p>Advocacy</p>	<ul style="list-style-type: none"> • Universal screening policy for latent infections • Medication access through flexibility in insurance formularies, pharmaceutical company patient support programs, and enhanced pharmacy distribution • Travel subsidies • Health system restructuring and resource redistribution