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Best Practices for Virtual Care: A Consensus Statement From the Canadian Rheumatology Association

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Best Practices for Virtual Care: A Consensus Statement From the Canadian Rheumatology Association

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ABSTRACT. ***Objective.*** To develop best practice statements for the provision of virtual care in adult and pediatric rheumatology for the Canadian Rheumatology Association's (CRA) Telehealth Working Group (TWG).

Methods. Four members of the TWG representing adult, pediatric, university-based, and community rheumatology practices defined the scope of the project. A rapid literature review of existing systematic reviews, policy documents, and published literature and abstracts on the topic was conducted between April and May 2021. The review informed a candidate set of 7 statements and a supporting document. The statements were submitted to a 3-round (R) modified Delphi process with 22 panelists recruited through the CRA and patient advocacy organizations. Panelists rated the importance and feasibility of the statements on a Likert scale of 1–9. Statements with final median ratings between 7–9 with no disagreement were retained in the final set.

Results. Twenty-one (95%) panelists participated in R1, 15 (71%) in R2, and 18 (82%) in R3. All but 1 statement met inclusion criteria during R1. Revisions were made to 5/7 statements following R2 and an additional statement was added. All statements met inclusion criteria following R3. The statements addressed the following themes in the provision of virtual care: adherence to existing standards and regulations, appropriateness, consent, physical examination, patient-reported outcomes, use in addition to in-person visits, and complex comanagement of disease.

Conclusion. The best practice statements represent a starting point for advancing virtual care in rheumatology. Future educational efforts to help implement these best practices and research to address identified knowledge gaps are planned.

Key Indexing Terms: rheumatology, virtual care

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The rheumatology community has a long history of virtual patient care, often referred to as "telerheumatology."[1] *Virtual care* is an emerging term adopted by the Canadian Medical Association (CMA) as "any interaction between patients and/or members of their circle of care, occurring remotely, using any forms of communication or information technologies with the aim of facilitating or maximizing the quality and effectiveness of patient care."[2] Prior to the coronavirus disease 2019 (COVID-19) pandemic, virtual care was practiced infrequently in rheumatology[3] and was used primarily to deliver care to more rural and remote regions across Canada. This was often through telehealth with a physical exam presenter conducting a musculoskeletal exam at the patient's site with the rheumatologist remaining at their usual clinical site.[4]

During the COVID-19 pandemic, there has been a rapid increase in virtual care in many specialties, including rheumatology, where it poses unique challenges. Rheumatologic conditions often affect multiple organ systems, some of which can be challenging to assess by virtual care. Additionally, the standard of care for many autoimmune inflammatory diseases is "treating to target,"[5,6,7] which involves the frequent reassessment of disease activity; this reassessment may, depending on the disease, include review of laboratory and other appropriate diagnostic tests and a physical exam (ie, tender and/or swollen joint count). Additional challenges for both patients and rheumatology healthcare providers have included overcoming technological barriers, determining the appropriateness of virtual visits, involving learners in virtual care, and determining the long-term effect of virtual care on patient outcomes.

To address rheumatologists' needs for guidance on best practices for virtual care, the Canadian Rheumatology Association (CRA) convened the Telehealth Working Group (TWG) on virtual care in October 2020. The group deployed a survey in December 2020 to better understand Canadian rheumatologists' virtual care practices and knowledge needs,[8] and then developed the CRA's virtual care position statement.[9] Development of rheumatology virtual care best practice guidance was recognized as a potentially valuable additional support for clinicians.

METHODS

There were 4 phases in the development of the best practice statements.

Phase 1: *Drafting initial topics for best practice statements*. In phase 1, a core working group of 4 rheumatologists (1 pediatric [DML], and 3 adult rheumatologists [BO, CEHB, VA], 2 of whom were community-based) met 4 times and ascertained the scope and approach for the project, which was then approved by the TWG. An initial list of potential topics was developed based on group discussion and in response to the results of the CRA's virtual care survey.[8] The scope included the provision of virtual care in rheumatology across adult and pediatric populations. Virtual care education for rheumatology trainees was excluded from the scope of this work.

Phase 2: *Evidence reviews for best practices in virtual care*. To support the best practice statements, a rapid review was conducted using methodology proposed by the National Collaborating Center for Methods and Tools[10] between March and April 2021. The review was conducted by a single primary reviewer skilled in literature reviews (CEHB). Literature to support the best practice statements was derived through a review of the following sources: (1) existing systematic reviews on relevant topics including virtual care in rheumatology identified through targeted literature searching,[11,12,13,14] mobile health (mHealth) applications or electronic health (eHealth) technologies,[15,16,17] patient-reported joint exams in rheumatology,[18,19] and diagnostic accuracy of virtual care[20]; (2) reviews of best practices, guidelines, and policy documents on virtual care from other organizations in Canada, the US, Europe, and Australia; (3) abstracts from the rheumatology scientific meetings since 2020, including the CRA and the American College of Rheumatology (ACR) Annual Scientific Meetings; (4) Medical Subject Headings (MeSH) term search of Pubmed from database inception including the terms "telemedicine" AND "rheumatic diseases" conducted on April 20, 2021; (5) a Cochrane library search from database inception conducted on April 20, 2021 ("telehealth" rheumatology); and (6) a hand search of the literature conducted by members of the TWG to provide any additional documents on the provision of virtual care that were available provincially/locally.

Data from the rapid literature review were extracted using a standardized format to document the purpose, approach, and main findings of each study or guidance. Articles that were included in the systematic reviews of rheumatology virtual were not reabstracted.

Phase 3: Development of the best practice statements draft. Initial drafts of the best practice statements were compiled by the core working group. The group used the Canadian Quality and Patient Safety Framework for Health Services,[21] developed by the Canadian Patient Safety Institute, as a framework for creating the best practice statements. The framework outlines 5 overarching goals for healthcare: people-centered care, safe care, accessible care, appropriate care, and integrated care.[21] The group also reviewed equity considerations for each best practice recommendation using the PROGRESS-Plus tool.[22] This tool can be used to help understand which populations face inequities in social determinants of health.

Phase 4: 3-round modified Delphi consensus process to finalize best practice statements. Panelists in the modified Delphi panel included rheumatologists, allied healthcare providers (AHPs), patients, and parents. Rheumatologists and AHPs were recruited through the CRA's TWG and Quality of Care Committees, and patients were recruited from 2 organizations (Cassie + Friends, a pediatric rheumatology patient organization, and the Canadian Arthritis Patient Alliance). Panelists were provided a background description of the project, including a summary of the results of the literature review, the candidate best practice statements, and the associated proposed rationale. A 1-hour teleconference was held to review this information and outline the Delphi process. Next, participants were sent an electronic survey for round 1 voting and asked to answer 2 questions on a Likert scale of 1–9 for each draft best practice statement: (1) How important is this "best practice" in providing high-quality virtual rheumatology care (1 = not important at all, 9 = extremely important); and (2) How feasible/easy do you think it is to do this "best practice" (1 = not feasible at all, 9 = extremely

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DML received honoraria from Amgen, Janssen, Novartis, and Sobi. VA received honoraria from AbbVie, Amgen/Wyeth, Janssen, Roche, UCB, Sandoz, Novartis, Fresenius Kabi, Sobi, Gilead, and Pfizer. KJ received honoraria from AbbVie, Lilly, Janssen, Novartis, Pfizer, and UCB. CB received honoraria from Sanofi, Gilead, Celltrion, Novartis, and Pfizer. SZA received honoraria from AbbVie, Celgene, UCB, Novartis, Janssen, Pfizer, and Sanofi, and holds shares in Clarius. BO received honoraria from AbbVie, Gilead, Janssen, Novartis, Pfizer, Sandoz, Celltrion, Fresenius Kabi, and Eli Lilly. The remaining authors declare no conflicts of interest relevant to this article.

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feasible). Open text boxes were available for participants to share their response rationale. Participants had approximately 10 days to provide their votes.

In round 2, a facilitated discussion was held by teleconference with panelists to review and discuss the group ratings. Following the group discussion, the survey was readministered for the final vote using the same 2 questions for each statement, as described for round 1. To be included in the final set of best practice statements, a median vote of 7–9 with no disagreement was required. Disagreement was defined according to the RAND/University of California Los Angeles Appropriateness Method[23] when the interpercentile range for a particular question was larger than the interpercentile range adjusted for symmetry.

All participants in the Delphi panel provided informed consent to participate and the study was approved by the University of Calgary Conjoint Health Research Ethics Board (REB21-0569).

RESULTS

Development of candidate best practice statements. Results of the rapid review are shown in Supplementary Figure 1 and Supplementary Tables 1–3 (available with the online version of this article). These results informed the generation of 7 candidate best practice statements for virtual care in rheumatology. During the development process, the statements were mapped to 5 overarching goals for health services from the Canadian Quality and Patient Safety Framework.[21] Table 1 describes the relationship between the statements and 5 overarching goals for safe and high-quality care.

Table 2 provides considerations for the application of the statements on rheumatology virtual care based on equity considerations.[22] In many instances the rapid review discovered little evidence, signaling the need for more research on the equity considerations of virtual care delivery in rheumatology.

Delphi panel results. Twenty-two panelists agreed to participate in the panel; 21 (95%) participated in round 1, 15 (68%) in round 2, and 18 (82%) in round 3. There were representatives from 10 Canadian provinces and territories (Supplementary Table 4, available with the online version of this article). Of those who responded to demographic questions (n = 20), 15 (75%) were female and 5 (25%) were male. Participants were asked about their experience with rheumatic conditions and could select multiple roles. Fourteen participants indicated they were healthcare providers (6 adult and 4 pediatric rheumatologists, 3 AHPs, and 1 trainee) and 9 were persons with a lived experience with a rheumatologic condition (patient or parent). Four healthcare providers worked in outreach clinics and/or traveled to a remote site for clinics, 9 worked at university-based clinics, and 2 in community-based clinics.

During round 1 voting, all but 1 of the 7 statements met criteria for inclusion in the final set (Supplementary Table 5, available with the online version of this article). There was concern about the feasibility of the 4th statement on the topic of virtual physical exam, leading to a median rating of 6. Despite high ratings of all the other statements in the domains of importance and feasibility, participants had several comments about the wording of the statements; these comments were collected during round 1 and discussed during round 2. This prompted revision of 5 of the original statements (Supplementary Table 6).

Table 1. Quality and patient safety considerations when developing the best practice statements (BPS) for rheumatology virtual care.

Goals from the Canadian Quality and Patient Safety Framework for Health Services[21]	How the Framework Was Considered in the Development of the BPS for Virtual Care
People-centered care: “People using health services are equal partners in planning, developing, and monitoring care to make sure it meets their needs and to achieve the best outcomes.”	• Virtual care is a shared decision between healthcare providers and patients (see BPS 3[a]). • The development of the BPS should include persons living with rheumatic diseases and their families.
Safe care: “Health services are safe and free from preventable harm.”	• Various considerations need to be taken into account to ascertain the medical appropriateness of virtual care to reduce any safety considerations and avoid harm (see BPS 2[a]). • Patient privacy, consent, and confidentiality are important considerations (see BPS 1[a]).
Accessible care: “People have timely and equitable access to quality health services.”	• Accessibility to scarce rheumatology resources should be considered when determining the appropriateness of virtual care (see BPS 2[a]). • Accessible care is an overarching principle in this document, as when used appropriately, virtual care can increase access to care for many individuals living with rheumatic diseases, especially in underserviced, rural, and remote areas in Canada.
Appropriate care: “Care is evidence-based and people-centered.”	• Various considerations need to be taken into account to ascertain the medical appropriateness of virtual care to ensure optimal outcomes (see BPS 2[a]). • Appropriate physical exam techniques should be used and patient-important outcomes need to be monitored (see BPS 4,5[a]).
Integrated care: “Health services are continuous and well-coordinated, promoting smooth transitions.”	• Virtual care may be used in between scheduled appointments to enhance care (BPS 6[a]). • In complex comanagement of disease, virtual care may be used to enhance communication between providers (BPS 7[a]).

[a] BPS can be found in Table 3.

Table 2. Equity considerations[22] when applying best practice statements to rheumatology virtual care.

Equity Consideration	Rationale
Place of residence	• Access to high-speed internet and/or cellular service may affect accessibility of virtual care. This often varies along urban/rural divides.[2] • Rheumatologists are located primarily in major urban centers across Canada, and residing outside of these centers may adversely affect access to in-person visits. Access may be improved through virtual care. • There may be limited access to presenters skilled in musculoskeletal exam (eg, ACPAC-trained extended role practitioners). • There may be different license requirements that affect access to virtual care in different provinces across Canada.[2] • Access to medical charts (eg, having a single patient chart) varies in different jurisdictions and may affect connectivity and virtual care.[2]
Race/ethnicity/ culture/language	• The use of virtual care should improve and not exacerbate existing inequities in healthcare delivery and outcomes in Black, Indigenous, other people of color, and other minority populations living with rheumatic diseases (further research is needed in this area of rheumatology). • Translation services should be used to facilitate communication with patients when required using virtual care. • When developing mHealth[a], eHealth[b] interventions to support care, or educational resources delivered virtually, they must be translated into languages prevalent in the population served and be culturally appropriate (further research is needed in this area of rheumatology).
Occupation	• The use of virtual care may be highly appropriate for individuals in a variety of occupations, especially those who may not be readily able to take time out of work to come to in-person appointments. • The safety of doing virtual care appointments while at work should still be considered (eg, not operating heavy machinery or driving during a virtual appointment). • The privacy of virtual appointments conducted at work should be considered.
Gender/sex	• Gender/sex considerations in virtual care have not been broadly investigated (further research is needed in this area of rheumatology). • For those in caregiver roles, virtual care may offer more convenience as there is less of a need to find alternative caregivers.
Religion	• It is possible that some religious beliefs may limit the access of virtual care (further research is needed in this area).
Education	• Lower health and digital literacy may affect ability to use virtual care (further research is needed in this area).
Socioeconomic status	• Access to a computer, smart phone, or internet may be limited for those with lower socioeconomic means, limiting access to virtual care.
Social capital	• An individual's networks and relationships may influence knowledge of virtual care resources. • Some types of virtual care may enhance social capital by increasing social networking and peer support.
Personal characteristics associated with discrimination (eg, age, disability)	• Age may influence patient acceptability of certain virtual care modalities, but access to technology and digital literacy may be more important factors. • Additional technology considerations for individuals who are blind, deaf, or hard of hearing may be required when considering the most appropriate modality for virtual care and any specific adaptations. • Individuals with significant mobility impairment may find a virtual visit more convenient and comfortable.
Time-dependent relationships (eg, transitions between care providers)	• Virtual care may be used to facilitate triage and reduce waiting times for care. • Virtual care may be used to enhance communication between providers for complex cases. • Virtual care (especially through nurse-led help lines) may facilitate access to care in between appointments.

[a] Mobile health (mHealth) refers to the delivery of healthcare and innovations in healthcare using mobile technologies. [b] Electronic health (eHealth) refers to innovations in the use of information and communication in healthcare. ACPAC: Advanced Clinical Practitioner in Arthritis Care.

Based on feedback, an additional statement was generated to address obtaining a medical history from a proxy decision maker and submitted for voting in round 3. While it was felt that ideally, it is best practice that patients are present for all their virtual care encounters, in select circumstances patient family members or caregivers may be substitute decision makers to maintain continuity of care. Examples of such scenarios may include when a pediatric rheumatologist needs to communicate investigation results and treatment plans to the parents of a young child due to age of consent. In adult rheumatology, this can occur with elderly patients who may have dementia and have an advanced directive in place to help guide their care. While the proposed statement regarding proxy decision makers technically met panel thresholds set for inclusion, there were concerns that it may not adequately represent all appropriate proxy scenarios. Additionally, some panelists expressed concern it may be used to justify excluding patients from participating in care. For these reasons, this statement was ultimately removed from the final set.

The final wording and voting results for the 7 statements are shown in Table 3 and a rationale for each is discussed below.

Best practice statements

1. Rheumatologists should adhere to national recommendations on best practices, and provincial standards and regulations for virtual care, including licensing considerations, patient privacy, confidentiality, documentation, and consent.

Rationale. In Canada, physicians are licensed provincially and must adhere to the provincial regulations of their licensing bodies. Organizations including the Canadian Medical Protective Agency (CMPA) and the CMA, among others, have also developed specific recommendations to consider for

Table 3. Round 3 Delphi panel ratings on best practice statements for virtual care in rheumatology.

Best Practice Statement	Delphi Median Ratings (IPRAS Rule Decision)	
	Importance	Feasibility
1. Rheumatologists should adhere to national recommendations on best practices, and provincial standards and regulations for virtual care, including the following: licensing considerations, patient privacy, confidentiality, documentation, and consent.	9 (Agreement)	8 (Agreement)
2. The appropriateness of virtual care for a rheumatology encounter should be considered based on the following factors: access to local rheumatology care; reason for, urgency, and complexity of the clinical encounter (including clinical, cultural, and language considerations); patient preferences; and type of virtual care available.	9 (Agreement)	8 (Agreement)
3. If virtual care is determined to be medically appropriate, the rheumatology provider should ensure that the provision of care is a shared decision with patients and that patient consent is documented.	8.5 (Agreement)	8 (Agreement)
4. The standard of care for physical exam by virtual care should allow for appropriate clinical decision making. If this is not possible, then an in-person physical exam is required and should be completed (either at an in-person rheumatologist visit or by a skilled presenter at a remote site).	9 (Agreement)	8 (Agreement)
5. Where appropriate, patient-reported outcomes that help direct approaches for care should be used during virtual encounters.	8 (Agreement)	8 (Agreement)
6. Virtual care may be used in addition to in-person follow-ups to enhance care.	9 (Agreement)	9 (Agreement)
7. In complex comanagement of disease, virtual care may be used to enhance communication between providers.	8.5 (Agreement)	7 (Agreement)

IPRAS: interpercentile range adjusted for symmetry.

the provision of virtual care. Selected resources are outlined in Table 4 and include discussing the limitations of virtual care with patients, obtaining and documenting consent for virtual care, protecting the privacy and confidentiality of virtual care encounters, and ensuring appropriate documentation of virtual care encounters and appropriate communication of the encounter to other care providers.

2. The appropriateness of virtual care for a rheumatology encounter should be considered based on the following factors: access to local rheumatology care; reason for, urgency, and complexity of the clinical encounter (including clinical, cultural, and language considerations); patient preferences; and type of virtual care available.

Rationale. Virtual care may be offered if medically appropriate. According to CMPA, "virtual care is not a substitute for in-person assessments or clinical examinations,"[24] and it is also not a substitute for attending the emergency department for urgent evaluation if required. Various patient, clinical, and system-level factors need to be considered to determine the appropriateness of a virtual care encounter. Based on multiple systematic reviews

Table 4. Key points to consider when providing virtual care.

General considerations
- Telephone, videos, and/or photos may not provide a substitute for in-person care.
- An in-person visit may be necessary to complete the assessment.
- Document data used to make a diagnosis and how these data were obtained.
- Document what could not be assessed due to the limitations of virtual care.
- Document who was present for the visit.
- Document clinical considerations and any impact of the type of visit on how diagnosis/approach was made.
- Document follow-up instructions provided to the patient.
- Ensure other care providers receive a document outlining care plan.

Consent considerations
- Obtain and document consent.
- Discuss clinical and/or technology limitations of virtual care.
- Discuss alternatives to virtual care.
- CMPA suggests considering PARQ to frame discussion, and to allow the patient to ask questions.

Helpful resources
- CMPA microlearning activities and resources: https://www.cmpa-acpm.ca/en/covid19/telehealth-and-virtual-care
- CMA Virtual Care Playbook and Virtual Care Taskforce: https://www.cma.ca/sites/default/files/pdf/Virtual-Care-Playbook_mar2020_E.pdf
- RCPSC links to provincial virtual care guidelines and resources: https://www.royalcollege.ca/rcsite/documents/about/covid-19-resources-telemedicine-virtual-care-e

CMA: Canadian Medical Association; CMPA: Canadian Medical Protective Agency; PARQ: Procedure (virtual care), Alternatives, Risks, and Benefits; RCPSC: Royal College of Physicians and Surgeons of Canada.

Table 5. Considerations for the appropriateness of rheumatology virtual care encounters.

Reason for Clinical Encounter	Clinical Considerations	Types of Virtual Care Available	Patient Preferences and Access Considerations
Reviewing test results	Consider if routine vs emergent, and whether asynchronous vs synchronous discussion is clinically appropriate	Telephone, asynchronous electronic communication, video consultation, patient accesses, or patient portal for directly accessing and reviewing test results	· May depend on access to internet, availability of a computer, and computer literacy · Patients may also have varied individual preferences for telephone or asynchronous notification of results, and/or accessing their own results online
Stable disease (eg, may apply to a variety of rheumatic conditions, including but not limited to gout, osteoporosis, PMR, RA, vasculitis, connective tissue disease, SpA, osteoarthritis, and JIA)	· Whether a disease is stable or not may depend on clinical factors (eg, stability of laboratory investigations, duration of disease, length of stability) and patient experience with disease (eg, patient perception of any unmet care-related needs that would require an in-person assessment) · Risk of missing subtle clinical findings	· Telephone or video consultations in the short term for assessing disease activity for DMARD or biologic renewals (note lack of evidence to date for long-term outcomes from this strategy) · If an extended-role practitioner is monitoring physical exam periodically, virtual care could be done indefinitely	· Access to rheumatologist (eg, virtual care may be the only option available) · As above, access to internet and other technologies may affect availability of virtual care · Patient preference may vary depending on their current needs, healthcare concerns, and other work and social obligations that may affect ability to attend in-person visits
Prescreening to assess suitability for virtual care vs in-person visit (may ensure appropriate investigations done or avoid misdirected referral)	May help triage new and/or follow-up assessments for appropriateness for virtual care	Telephone, electronic survey (note lack of widely used well-validated surveys), video consultation	Need to ensure patient understands that the nature of the encounter is to assess needs and to help determine urgency of care.
New complex patients (eg, those with SLE, vasculitis, undifferentiated connective tissue disease), especially if there is rapid development of symptoms or they are clinically unwell	Risk of missing subtle clinical findings must be weighed against greater access to care, especially if no local rheumatologist is readily available	· Telephone-only appointments may be enhanced by discussion with another healthcare provider to help relay clinical findings from physical exam · Videoconference directly with patients or with the assistance of an ERP to conduct and relay the physical exam findings · eConsultation with local internist or GPs for comanagement	· May depend on access to internet, availability of a computer, and computer literacy. Patients may also have varied individual preferences for telephone or videoconference. · Access to rheumatologist (eg, virtual care may be only option available).
New inflammatory disease with clear serologic and/or imaging features	· Seropositive RA, AS with sacroiliitis and HLA-B27, select SLE cases[a], gout · Risk of missing subtle clinical findings that must be weighed against greater access to care (especially for those with no local rheumatologist readily available)	Telephone, videoconference with or without an ERP, eConsultation with local internist or GPs for comanagement	As above
Undifferentiated disease	· Likely greater risk of missing clinical findings when disease is undifferentiated. · Consider as preliminary to guiding additional investigations and to help triage timing of in-person review.	Telephone follow-up likely less appropriate, unless for triage purposes	As above
Monoarthritis (new, cannot exclude septic arthritis)	Requires arthrocentesis, which entails an in-person appointment but may be done by other practitioners (eg, guided aspirate, primary care, local orthopedics if no rheumatologist readily available)	NA	Rheumatologic emergency requires an in-person arthrocentesis but can be done by a local provider (not necessarily a rheumatologist)

Table 5. Continued.

Reason for Clinical Encounter	Clinical Considerations	Types of Virtual Care Available	Patient Preferences and Access Considerations
Required infusion/injection of treatment (eg, in-office IM steroid, IA steroid, denosumab, administration of other IV or IM medications including biologics)	· Depends on the type of agent being administered · Choose a locally appropriate provider based on the availability and nature of the injection/infusion	NA	Intraoffice infusion/injection should be a shared decision with the patient and options discussed (if available) for alternatives that would not require a visit
"Failed" virtual care/challenges	Challenges with virtual care may include technology failures, identifying during the virtual visit that an in-person visit is required, missed diagnosis, difficulties in rapport, communication, or other challenges	· If challenges occur using one type of virtual care and were specific to that modality (eg, internet connectivity), another modality (eg, telephone) may be used if virtual care is still appropriate · Requesting the help of a skilled presenter may help with some virtual care challenges · If an in-person visit is required, it should be offered	If patients experience challenges with virtual care and communication with their provider, they should be able to have a face-to-face encounter within a reasonable time frame

[a] While SLE can be a complex disease involving multiple organ systems, in selected cases, initial diagnosis may be possible, as with other rheumatic conditions, using virtual care if appropriate history, laboratory, and other investigations are available. AS: ankylosing spondylitis; DMARD: disease-modifying antirheumatic drug; eConsultation: electronic consultation; ERP: extended role practitioner; GP: general practitioner; IA: intraarticular; IM: intramuscular; IV: intravenous; JIA: juvenile idiopathic arthritis; NA: not applicable; PMR: polymyalgia rheumatica; RA: rheumatoid arthritis; SLE: systemic lupus erythematosus; SpA: spondyloarthritis.

of virtual care in rheumatology, there is limited evidence for the safety and efficacy of virtual care for many rheumatologic conditions.[12,13,14] There is conflicting evidence from small, older studies that a videoconference for a new patient may offer a similar diagnostic accuracy to an in-person assessment,[1,25,26] and additional high-quality studies are needed. Many (or all) of these challenges may be alleviated by having a skilled presenter such as an Advanced Clinician Practitioner in Arthritis Care[27,28] at the patient site to assist with examination. There is also limited evidence for the long-term efficacy of virtual care, with most data available for rheumatoid arthritis (RA).[11] Only surveys[29] and opinion-based recommendations exist as to the types of rheumatic conditions that may be more or less appropriate for virtual care.[30,31] Further, patient factors such as comorbidities, language, culture, and other factors should be considered when determining appropriateness of virtual care.

A major factor is access to local in-person rheumatology care, which is limited across many regions in Canada as rheumatologists are primarily located in larger urban centers. Virtual care allows for greater access to rheumatology specialist care in centers without a local rheumatologist and for greater continuity of care in centers where there may only be sporadic access to rheumatology care due to traveling rheumatology clinics.

At the present time, given the varied potential clinical scenarios encountered, we recommend an approach to determining the appropriateness of a virtual encounter that considers multiple system, clinical, and patient factors (Table 5).

3. If virtual care is determined to be medically appropriate, the rheumatology provider should ensure that the provision of care is a shared decision with patients and that patient consent is documented.

Rationale. Virtual care is not always medically appropriate (statement 2, Table 3). If virtual care is appropriate, it should be a shared decision with the patient, weighing the benefits and risks of missing subtle clinical findings, which could affect patient outcomes. Whereas the concept of consent is encompassed in statement 2, the panel voted to include statement 3 to emphasize this important concept (Supplementary Table 6, available with the online version of this article). Various organizations have developed tools and templates to help educate patients about virtual care and to document consent. The Doctors Technology Office Virtual Care Toolkit[32] developed by the Doctors of BC is an example that has been referenced in national CMA documents[33] and adapted for use in other provinces.

4. The standard of care for physical exam by virtual care should allow for appropriate clinical decision making. If this is not possible, then an in-person physical exam is required and should be completed (either at an in-person rheumatologist visit or by a skilled presenter at a remote site).

Rationale. A variety of tools for physical exams in virtual care have been developed,[34,35,36] although additional validation work is required as they are largely consensus-based. A physical exam may not always be required and depends on the nature of the clinical encounter. In general, the required exam should be directed based on clinical need to inform appropriate decision

Table 6. Virtual physical exam considerations in rheumatology.

Virtual Physical Exam Approach	Clinical Considerations	Resource Considerations
Skilled presenter at a remote site	· There is evidence of the effectiveness of this approach[11] · Limited evidence shows potential harms/delays in diagnosis for unskilled remote presenters[26]	More resource intensive (requires appropriate resources and training; may involve travel of patients and skilled presenters to remote site)
Videoconference directly with patients using a screening physical exam or targeted exam for areas of concern	· There have been some tools developed in pediatrics[35] and adults[34,36] for joint exam · Parts of physical exam limited or excluded due to technology limitations (eg, lung and cardiac auscultation)	· May take more time to orient patients and healthcare providers to new methods for physical exam · Requires good internet connection and patient access to computer or a mobile phone with videoconferencing capabilities
Asynchronous collection of patient-reported joint counts/disease activity or other patient-reported outcomes using a validated tool	· A variety of tools have been developed and can be employed for the collection of patient-reported joint counts and disease activity · Most studies of joint counts have found good agreement between physicians and patients with tender joint counts, but lower in swollen joint counts[18,19] · More accurate in lower disease states · Patient-reported outcome measures including pain, fatigue, and functional status may be readily collected	· Collection electronically, by paper, or by telephone may all require different resource considerations · Incorporation into the electronic medical record is ideal but not always feasible
Telephone description of active vs stable joints or other clinical problems of concern	· Not necessarily validated and may depend on patient report of physical exam findings[18,19] · May be appropriate for stable follow-up patients with no new concerns	Less resource intensive but may require physical exam (in person or by video) to confirm findings if concerned about flares/active disease and if major intensification of therapy is required
Photography	Resolution may not be sufficient for a joint exam but may be useful for skin exam	· Need a secure method to transmit photos · Patients require a smartphone with a camera

making. Table 6 outlines potential physical exam approaches and their clinical and resource considerations.

5. Where appropriate, patient-reported outcomes (PROs) that help direct approaches for care should be used during virtual encounters.

Rationale. "Treat-to-target" refers to the frequent reassessment of disease activity to direct the adjustment of disease-modifying therapy to target low or inactive disease activity. This paradigm is part of current guidelines for RA[7] and is emerging for many other rheumatic diseases. The reporting of patient disease activity and/or functional status may be necessary to obtain coverage for advanced therapies for many rheumatic diseases. In addition to measures of disease activity, best practices for RA care may include monitoring functional status.[37,38] The ACR has recently proposed modifications for the reporting of disease activity and functional status in RA to account for the provision of virtual care.[39] Whereas recommended PROs do not require modification, some composite disease activity measures do require patient-completed joint counts in lieu of provider joint counts, and further validation of this approach is required.

For other rheumatic conditions, PRO measures may also be readily obtained using electronic collection, through telephone or emailed surveys. For example, in juvenile idiopathic arthritis, measures of functional status such as the Childhood Health Assessment Questionnaire may be collected routinely. In ankylosing spondylitis, disease activity indices may be recorded including the Ankylosing Spondylitis Quality of Life score and Bath Ankylosing Spondylitis Functional Index. A variety of PRO measures have been proposed in systemic lupus erythematosus,[40] but there remains limited guidance from professional societies as to which measures should be routinely collected.

Other PROs may be appropriate to capture including fatigue,[41] pain,[42] and measures of mental health.[43,44] Additionally, there may be specific considerations for the collection of PROs in individuals with limited English proficiency or who have limited health literacy.[45,46]

6. Virtual care may be used in addition to in-person follow-ups to enhance care.

Rationale. In between rheumatology appointments, virtual care has been used to support patients in a variety of ways. Some examples include self-monitoring using mobile applications[17,47]; nurse-led telephone lines[48]; patient self-management courses, education, and/or resources[47]; methotrexate or biologic injection classes; and rapid-access rheumatology hotlines for practitioners to get timely specialist advice. Last, alternating virtual and in-person appointments may be appropriate. Ongoing evaluation and reporting on these care strategies is suggested.

7. In complex comanagement of disease, virtual care may be used to enhance communication between providers.

Rationale. Patients with rheumatic disease may have multiple comorbidities that require consultation with different specialists. Across the country there are several examples of combined clinics where a patient may be seen by ≥ 2 specialists in a single clinical encounter to enhance communication and clinical decision making and reduce the need for multiple visits. These clinics may be amenable to virtual encounters, if appropriate. Scenarios where this may occur include comanagement of rheumatology care with primary care providers or internists (eg, through structured educational and case-based discussion in Project ECHO[49]), virtual transition clinics where adult and pediatric rheumatologists assist young adults with transition to adult care, or interdisciplinary visits (eg, with a social worker, physiotherapist, or nurse present for part of a visit or the entire visit). Further research is needed in these advanced models of rheumatology virtual care.

DISCUSSION

The COVID-19 pandemic has removed many logistical barriers to virtual care that previously existed and improved our understanding of what constitutes an effective virtual care encounter. We recommend that virtual care should continue following the pandemic. The present work contributes an initial set of best practice statements that can be expanded upon as we learn more about the optimal delivery of virtual care in rheumatic diseases. Our intent is not to replace good clinical judgment nor to supplant regional regulatory requirements.

Importantly, through this work, several areas in need of further study were highlighted, including a lack of studies describing the diagnostic accuracy of virtual care modalities for different rheumatic diseases and the safety and long-term efficacy of virtual care for follow-up. Further, limited information exists on equity considerations in the provision of virtual care. A research agenda for future areas of study of virtual care has been outlined in Supplementary Table 7 (available with the online version of this article).

Although the final panel ratings met the threshold for inclusion for all the statements through the Delphi process, some points of discussion were identified. For example, some panelists emphasized that in certain regions of Canada, there are no local rheumatologists or even skilled physical exam presenters, and that all patient care may be delivered virtually with no availability of a future in-person rheumatology exam. The best practice statements should not be used to dissuade the provision of rheumatology virtual care in such circumstances. Another point of discussion arose around the final statement on patient proxies, which was added during the Delphi process. Many physician members of the panel indicated that this practice was ongoing in select circumstances to ensure continuity of care. Patient panel members in particular urged caution in the application of this statement as active engagement in care for adults and children is critical to optimize outcomes. Due to these concerns, as well as challenges with wording a statement that would be appropriate for all circumstances, it was removed from the final list.

While the process for the development of the best practice statements was rigorous and transparent, there are important limitations to highlight. First, a rapid review was used instead of a systematic review and as such could have potentially resulted in missed evidence. Additionally, the literature available was limited, indicating that future research in this area is needed, and many statements relied on expert opinion. Some Delphi participants wanted better guidance on clinical scenarios most appropriate for virtual care and on physical exam techniques required. Unfortunately, given the existing challenges with access to in-person rheumatology care in some regions, myriad possible clinical scenarios, and general lack of evidence, it was not possible to generate prescriptive recommendations at this time. Finally, whereas it is possible that a different panel composition may have generated different recommendations, our panel was geographically diverse and well-balanced regarding participant type.

In conclusion, this work represents a starting point for future research and practice advances in virtual care for rheumatology. We anticipate increased research in this area over time and will look to updating these statements in accordance with advances in the field. In the interim, the work will be used to advocate for resources and develop educational materials to support current virtual care best practices for rheumatologists and persons living with rheumatic diseases.

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ONLINE SUPPLEMENT

Supplementary material accompanies the online version of this article.

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