

Panorama

The Development of Online Resources to Support Medical Trainees in Providing Virtual Rheumatology Care

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The musculoskeletal (MSK) physical examination is one of the core components of the rheumatologic clinical assessment for trainees. The pandemic has restricted in-person assessments, and as such, rheumatologists have found themselves having to adapt their clinical skills in the virtual setting while dealing with the restrictions of such an approach to “hands-on” rheumatology education. With virtual care anticipated to continue playing a prominent role in care delivery in the postpandemic era, there exists a large educational gap on how best to educate medical trainees in providing high-quality assessments of rheumatic and MSK diseases (RMDs) through telemedicine platforms.¹ This is further compounded by the vital role of the physical examination in arriving at an RMD diagnosis, including how best to adapt the physical exam into a virtual format. There currently exists knowledge deficiencies even among advanced medical trainees, highlighting an urgent need to equip physicians with skills required for the intricacies of remote RMD evaluation.

Recognizing the urgency to upskill resident physician trainees in providing virtual care for patients with RMDs, the Department of Medicine within the Temerty Faculty of Medicine at the University of Toronto assembled a working group of clinician teachers alongside senior residents in May 2021. The primary objective was to formulate a task force to develop an online learning platform for the provision of MSK-based virtual care assessments. The first goal of the working group was to survey the current landscape including shortcomings in how RMD virtual care was provided at the time. Expert opinions from experienced clinician educators and senior residents in internal medicine, rheumatology, and psychiatry frequently involved in the provision of virtual care were consulted to pinpoint gaps in knowledge, identifying several distinct themes (Table 1).

Understanding the current knowledge gaps from experienced clinicians and trainees, the content experts (TSHK, AO) within the working group then developed modules targeted toward internal medicine and family medicine trainees. The content of the teaching platform was adjudicated by a senior resident (TSHK), who had recently successfully completed his Royal College of Physicians and Surgeons of Canada specialty examination in Internal Medicine and who deemed the content appropriate for the level of a resident physician. The modules were reviewed and

Table 1. Knowledge gaps within the current practice of virtual RMD care delivery among clinicians and trainees.

Prior to Virtual Assessment	During Virtual Assessment
<i>Triaging:</i> Which patients are appropriate for virtual assessment?	<i>Technological:</i> Techniques to troubleshoot issues with video quality arising during assessment.
<i>Patient preparation:</i> How is it best to counsel a patient to facilitate a virtual MSK exam?	<i>Functional assessment:</i> Methods of assessing a patient’s functional status remotely.
<i>Medicolegal risk:</i> How is it best to convey to patients the limitations of virtual assessment?	<i>Contingency planning:</i> How to complete patient assessment in the event of technical difficulties.
<i>Examination framework:</i> Which physical examination maneuvers can be adapted virtually?	

supported by medical educators to ensure that pertinent educational principles were upheld. Although parallel modules were developed for the purposes of psychiatry-focused MSK examinations, the purpose of this report will focus on the rheumatology components.

Recognizing the important role of patients in optimal health-care encounters, we then sought to consult our rheumatology patient partners early in the development process to optimize our existing modules and to create patient-directed resources. As part of separate workshop activities that included both senior rheumatology trainees and patient partners, we engaged these patient partners and facilitated breakout rooms for residents to practice core virtual care skills. After the sessions were completed, we solicited subsequent feedback from both the patients and the residents, which provided invaluable insight in helping residents optimize their communications skills and virtual physical examinations. Further, the 2-way discussion facilitated learning and helped to inform recommendations on future training content. This process presented an intriguing opportunity to help inform and guide future curricular development, as well as to optimize the delivery of patient-centered virtual care. Patient-guided curricular development, or co-production with stakeholders (including learners), is well described, and more recently in the virtual space as well, but evidence for this in the rheumatology setting is lacking

Table 2. Overview of developed online rheumatology virtual care resources.

Resource	Link	Target Audience	Contents
Telemedicine and virtual care resources	https://www.rheumguide.ca/telemedicine.html	<ul style="list-style-type: none"> Physicians (including trainees) 	<ul style="list-style-type: none"> Virtual care toolbox (eg, forms, templates, checklists) Telerheumatology guide (privacy/legal considerations, billing guide) Virtual care handbook for Internal Medicine residents Telehealth/OTN video tutorials
How to prepare patients and providers for video or phone clinic visits	https://www.clinicvisit.ca	<ul style="list-style-type: none"> Physicians (including trainees) Patients Clinic administrative staff 	<ul style="list-style-type: none"> Preparation framework prior to video or phone clinic appointment Online disease activity calculators (BASDAI, MDHAQ/RAPID-3) Patient education resources (disease-specific) Patient forms (consent, clinical history)
Case-based modules on delivering virtual MSK care	https://rise.articulate.com/share/sfYa5Y-FKopdJyluQ0uDF36ihohLt0hE#	<ul style="list-style-type: none"> Trainees (resident physicians and medical students) 	<ul style="list-style-type: none"> Patient preparation and virtual MSK physical examination frameworks Case-based learning modules (back, knee, hand/wrist)

Please contact corresponding author if links are not working. BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; MDHAQ: Multidimensional Health Assessment Questionnaire; MSK: musculoskeletal; OTN: Ontario Telemedicine Network; RAPID-3: Routine Assessment of Patient Index Data 3.

and is much needed.² There is scope for both adapting established co-production experiences with the potential for innovative developments related to rheumatology and its unique requirements.

We believed that a multimedia platform was best suited to deliver education to a diverse set of learning styles and target audiences including clinicians, administrative staff, and patients (Table 2). We developed 2 publicly available websites (<https://www.clinicvisit.ca> and <https://www.rheumguide.ca/telemedicine.html>) to provide residents and patients with key resources for asynchronous learning. As guided by the existing literature, the publicly available virtual modules (<https://rise.articulate.com/share/sfYa5Y-FKopdJyluQ0uDF36ihohLt0hE#>) were created within a framework first developed by Murray et al, using a “look, point, move” approach for RMD complaints.³ The components encompassed content knowledge questions and information. We further supplemented with case-based teaching focusing on 2 common rheumatology presentations including rheumatoid arthritis and ankylosing spondylitis to highlight the approach to delivering a virtual assessment focused on the rheumatology hand exam and inflammatory back exam, respectively.

Within rheumatology, we plan on completing a needs-based assessment among rheumatology educators to supplement higher-level content to cater modules for subspecialty trainees. We also aim to widen the scope of the modules to include other commonly examined body parts within a rheumatology context, such as the knee and shoulder.

Outside of rheumatology, we will strive to collaborate with educators in other medical and surgical specialties with a high degree of virtual care uptake to develop modules applicable to their content areas. Moreover, outside of the postgraduate medical education silo, there has been an expanding desire to move upstream in adapting education principles in the training trajectory of future physicians. Specifically, there exists a curric-

ular gap within undergraduate medical education in equipping medical students with virtual care skills that will be needed once they transition into residency and beyond.⁴ As such, there is also a strong need for virtual platforms akin to the one described in this report to complement traditional didactic teaching paradigms within medical education.

As competency-based medical education in the training of medical specialists is now broadly accepted, discussions into whether the delivery of virtual care should be a component of mandatory competencies toward the licensure of various specialties should be critically explored. This is, in large part, due to the promise of virtual care in removing various barriers with regard to access among our healthcare systems as well as the unique skill set required for delivering high-quality virtual care. Therefore, next steps will also involve the use and application of principles outlined within the rheumatology modules presented in this report as virtual care benchmarks for competency-based medical education.

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