



Telerheumatology: What Should We Be Thinking About Now?

Authors:	*Christine Peoples, ¹ Steven Taylor ² 1. University of Pittsburgh Medical Center, Pennsylvania, USA 2. University of Colorado, Anschutz Medical Campus, Aurora, USA *Correspondence to peoplesc2@upmc.edu
Disclosure:	The authors have declared no conflicts of interest.
Received:	09.04.24
Accepted:	25.06.24
Keywords:	AI, eConsults, population health, telerheumatology.
Citation:	EMJ Rheumatol. 2024;11[1]:69-73. https://doi.org/10.33590/emjrheumatol/ZCTY8961 .



EXCITING INNOVATIONS

The present era of rheumatology is unmatched in history in terms of disease understanding, disease treatment, and disease discovery; yet it is faced with new problems that may not readily yield to our scientific prowess. Considering disease discovery, two new diseases entered the field recently, VEXAS syndrome and Dedicator of Cytokines 11 (DOCK11), defined primarily by their genetics as opposed to their syndromic presentations. The arena of therapeutics has achieved previously inconceivable outcomes, particularly with the use of chimeric antigen receptor T cells (CAR-T), resulting in drug-free remission in otherwise treatment-refractory lupus.¹ While time will ultimately tell, it is incredibly exciting to consider we might be on the verge of deeming a case of lupus 'cured'. Each of these incredible advances depends on talented rheumatologists to bring them to the bedside of patients suffering from rheumatic diseases. Standing in seeming opposition to these advances is the rheumatology workforce shortage. To ensure the future of this vibrant speciality, we must implement creative volume-based solutions that look beyond the important work of numerically expanding the workforce. Telemedicine will be crucial to tying these new innovations together to

improve the care of our patients regardless of where they live.

Rheumatology Workforce Shortage: Is It Over Now?

To say that rheumatology is experiencing a workforce shortage is an understatement, mainly due to a supply of rheumatologists that cannot keep pace with the increasing demand. In fact, the scene from the 'I Love Lucy' show where Lucy and Ethel are working in a chocolate factory, trying to keep up with wrapping pieces of chocolate coming down the conveyor belt, comes to mind. An American College of Rheumatology (ACR) workforce projection predicts a shortage of about 2,500 rheumatologists by the year 2025.² In 2007, when this article was published, 2025 seemed to be a distant horizon that is now rapidly approaching. The news about the rheumatology workforce is not all bad. The number of clinically active rheumatology providers in the USA grew more than 20% from 2009–2019, and the number of advanced practice providers has experienced tremendous growth.³ Despite these two positive trends, there are still not enough rheumatology providers to meet the projected demand.

Each workforce analysis highlights the disproportionate lack of rheumatology care in rural areas, with 95% of rheumatology

practices being in urban settings, and 93% of rural counties without any adult rheumatologists, in contrast to only 48% of urban counties.³ How can we try to keep up with the demand? Telemedicine provides a key piece of the solution. Telemedicine modalities allow for efficient use of a rheumatologist's time and for the type of care to be what is needed by each patient at that specific time point. The goal is telehealth access to any patient who needs it. There has been an increasing demand from patients and healthcare systems for access to rheumatologists through telemedicine for decades. The COVID-19 pandemic thrust telemedicine into the spotlight, resulting in most of us adapting quickly to providing virtual care. This is not to suggest that only telemedicine modalities will solve the problem. However, telerheumatology serves as an important cornerstone to address the increased demand for rheumatology care.

Telerheumatology: We Know it Works... How Do We Use it Strategically?

Providing virtual rheumatology care is not a new concept. Many patients with rheumatic disease need a rheumatologist and the rheumatologist is often far away. We were aware of the impending rheumatology workforce shortage well before the COVID-19 pandemic. The pandemic simply put our foot harder on the gas pedal in terms of providing rheumatology care using various virtual methods. Additional systematic reviews and published studies will always be needed; however, the question is not 'can' we provide rheumatology care virtually but 'how' can we provide the right care for the right patient at the right time in the best way. When we look at addressing the distribution of rheumatologists in the USA, there will not be a solution that involves spreading rheumatologists evenly throughout the country. But that is okay; we must use a shared decision-making approach when deciding how a patient's follow-up care should be delivered. Many patients have access to the appropriate technology and broadband internet to participate in audio-visual visits from home. However, access to technology

and broadband internet must be improved for all rheumatology patients; otherwise, there is a risk of worsening healthcare disparities. Another strategy for patients in rural and underserved communities is to travel to a localised telehealth centre for care that involves the local primary care provider. It is crucial to consider both patient factors and rheumatologist factors when deciding the type of follow-up visits. Consideration should be given to pre-visit screening and/or a disease activity measure that can be used to help determine the most appropriate visit type. Additionally, it is important to train rheumatology fellows in telemedicine modalities. It goes without saying that the field continues to face challenges. Several articles have discussed the limitations with various telerheumatology modalities.⁴⁻⁶ Additional research is needed, which will guide best practice recommendations and allow for the development of practical and efficient guidelines, just as what is done for any other tool in medicine, from lab testing to imaging studies. While the COVID-19 pandemic caused us to 'floor it' when it came to providing virtual care, we should not 'let up on the gas', but find a navigation system to determine the potential routes and pick the best route for each situation.

FUTURE OF RHEUMATOLOGY AND TELEMEDICINE

Population Level Approaches

The modern paradigm for rheumatoid arthritis (RA) and other rheumatic disease treatment is early intervention with the goal of reducing accumulated end-organ damage. Active research in pre-clinical RA states challenges where the definition of early RA sits, and recent trials have explored the impact of disease-modifying antirheumatic drugs on disease development in these early states.⁷⁻⁹ As a speciality, we should expand this line of inquiry to transition towards thinking more broadly about caring for whole populations: those at risk for disease (shared epitope etc.), those with pre-clinical disease, established early disease, and those on

maintenance medications. We cannot manage each of these individuals in our respective clinics, but as a speciality, we should be proactively defining how these populations are best cared for by the whole healthcare system. This will optimise our impact on the individuals as they move through these different disease stages. A chronic care model for common rheumatic diseases could provide a framework for organising the approach, and a useful case study would be the approach taken by the American Diabetes Association (ADA) for patients with diabetes.¹⁰ The most recent Standards of Care in Diabetes outlines screening protocols and diagnostic criteria. In RA, on the other hand, classification criteria for research appropriately emphasise that the disease is a clinical diagnosis. However, these classification criteria are being suggested as screening criteria outside of the European Alliance of Associations for Rheumatology (EULAR) and American College of Rheumatology (ACR), a role these criteria are not designed to play. This misapplication is resulting in an overemphasis on serologies, as opposed to a clinical diagnosis of inflammatory arthritis, contributing to over-testing and misaligned referrals. Future work of our speciality should focus on translating the ongoing research into guidelines with screening algorithms. A Chronic Care Model focuses on moving to a proactive healthcare delivery system, providing self-management support, creating patient registries, building decision support tools, developing community resources, and promoting quality-oriented healthcare systems. These same goals are likely shared by rheumatologists; however, they have not been broadly put to paper.¹¹ We in rheumatology need to be proactive in developing these care models as we face the workforce crisis. We cannot define rheumatic care simply as care that occurs when a patient is in the rheumatology clinic, and much of this effort will rely on telemedicine.

eConsults

Thinking about providing virtual care to rheumatology patients, we tend to focus on synchronous methods. However, many

common rheumatology questions can be addressed more efficiently by using eConsults. Joint pain, back pain, and fatigue are extremely common reasons for any patient to see a doctor. However, a rheumatologist does not need to see most patients with joint pain, back pain, or fatigue. It can be challenging for the ordering provider, most often a primary care provider, to know when a rheumatology question would be most appropriate for an eConsult versus a traditional consult. As rheumatologists, we need to provide primary care providers with guidelines for which patient questions fit with which modality. eConsults can also be used as a triage method to determine which patients need to be seen more urgently and serve as a type of pre-visit preparation. For rheumatology eConsults to be successful, the ordering provider needs to prepare the necessary information that needs to be reviewed by the rheumatologist and review the eConsult recommendations with the patient.

The majority of eConsults focus on outpatient clinical questions. However, in-patient eConsults are part of our near future. As rural areas lose their hospital systems, there will be a dramatic shortage of rheumatologists to cover in-patient services. We should have a similar thought process as to a neurologist managing potential stroke patients in rural and underserved areas. It is important to consider those patients with serious rheumatology diagnoses, such as various forms of vasculitis and lupus nephritis. The hospitalist or intensivist can be guided to allow for proper and timely rheumatology care, especially when the alternative is no care at all.

Artificial Intelligence

Society is becoming increasingly technology-driven, with a growing interest in using AI to enhance rheumatology care. When we think about AI, a 'glamorous' topic is transformer models such as ChatGPT (OpenAI, Microsoft, Redmond, Washington, USA). Can an AI modality replace the job of a rheumatologist to diagnose and treat patients? While this is 'trendy' to discuss, AI

in rheumatology can best be used in other ways. For example, when a new patient is seen or when making a diagnosis of a chronic systemic rheumatic disease such as rheumatoid arthritis or lupus, there are many topics to address during that patient visit. This also arises during follow-up visits, with additional information regarding treatment, supportive care, physical therapy and occupational therapy, and other important parts of care such as updated vaccinations and age-appropriate malignancy screening. Can we use an AI modality to answer patient questions and provide patient education and counselling? This is an intriguing concept that could make patient visits more efficient and improve their satisfaction as all their questions are being answered fully.² Rheumatologists certainly should employ the use of AI for documentation.¹² Many of the reasons they face burnout is due to the increased requirements for documentation in the electronic medical record and increasing demands for administrative work. Can AI modalities be used to aid with rheumatology education for medical students, residents, fellows, nursing students, and physical therapy students?¹² This seems like a good idea as it is known that providing education to primary care providers about common rheumatology issues is a goal that is worth achieving. To make that goal easier and more efficient, AI could be an ace in our pocket.

LOOKING FORWARD

The future of rheumatology is bright; we are facing challenging diseases armed with treatments with previously unfathomable results. But we also must begin revolutionising the provisions of these treatment advances. Healthcare in the USA is shifting from a volume-based system to a value-based system. Increasing the

workforce on its own is a volume-based solution; value-based solutions should be searched for to complement ongoing efforts at expanding the workforce. A common reason for a rheumatology consult is an isolated positive antinuclear antibody (ANA), often ordered for non-specific and vague symptoms. Let's look at an example of how this might be handled in the future drawing on volume-based, telemedicine supported, solutions.

Imagine a visit with a primary care provider; the patient is a 65-year-old female, she describes new fatigue, a little numbness, but is otherwise well. The provider begins entering an ANA order; the electronic ordering system shows the provider a message mentioning that the patient's symptoms are non-specific and that non-clinically concerning ANAs are very common in this age group. The ANA is not ordered, and additional workup is performed by the provider identifying sleep apnea. This patient avoids both a face-to-face evaluation with a rheumatology provider and an eConsult through the implementation of decision support tools at the point of care.

Perhaps another patient; a 43-year-old female, was seen in a rheumatology clinic, which is 400 miles from her home, 2 years ago for an ANA with vague symptoms. During the visit, she was enrolled in a registry of patients with positive ANAs. When she sees her primary care provider for an annual wellness exam, the complete blood count reveals a low lymphocyte count and new proteinuria, and her chart is flagged in the registry. When proteinuria is persistent, the rheumatology clinic contacts the patient for re-evaluation via telemedicine. Careful history and lab testing results in an early lupus nephritis diagnosis and prompt initiation of treatment in her hometown.

References

1. Mackensen A et al. Anti-CD19 CAR T cell therapy for refractory systemic lupus erythematosus. *Nat Med.* 2022;28(10):2124-32.
2. Deal CL et al. The United States rheumatology workforce: supply and demand, 2005-2025. *Arthritis Rheum.* 2007;56(3):722-9.
3. Mannion ML et al. Changes in the workforce characteristics of providers who care for adult patients with rheumatologic and musculoskeletal disease in the United States. *Arthritis Rheumatol.* 2024;76(7):1153-61.
4. Ahmed S et al. APLAR recommendations on the practice of telemedicine in rheumatology. *Int J Rheum Dis.* 2022;25(3):247-58.
5. Jackson LE et al. Telemedicine in rheumatology care: a systematic review. *Semin Arthritis Rheum.* 2022;56:152045.

6. Grainger R et al., "Telerheumatology during the COVID-19 pandemic and beyond." Peoples C (ed.), *Telerheumatology* (2022), New York: Springer International Publishing, pp.263-80.
7. Rech J et al. Abatacept inhibits inflammation and onset of rheumatoid arthritis in individuals at high risk (ARIAA): a randomised, international, multicentre, double-blind, placebo-controlled trial. *Lancet*. 2024;403(10429):850-9.
8. Niemantsverdriet E et al. TREAT early arthralgia to reverse or limit impending exacerbation to rheumatoid arthritis (TREAT EARLIER): a randomized, double-blind, placebo-controlled clinical trial protocol. *Trials*. 2020;21(1):862.
9. Gerlag DM et al. Effects of B-cell directed therapy on the preclinical stage of rheumatoid arthritis: the PRAIRI study. *Ann Rheum Dis*. 2019;78(2):179-85.
10. Wagner EH. Chronic disease management: what will it take to improve care for chronic illness? *Eff Clin Pract ECP*. 1998;1(1):2-4.
11. Russell-Westhead M et al. Mixed methods study of a new model of care for chronic disease: co-design and sustainable implementation of group consultations into clinical practice. *Rheumatol Adv Pract*. 2020;4(1):rkaa003.
12. Chandwar K, Misra DP. What does artificial intelligence mean in rheumatology? *Arch Rheumatol*. 2024;39(1):1-9.

FOR REPRINT QUERIES PLEASE CONTACT: INFO@EMJREVIEWS.COM