COVID-19:
Innovations in Delivering Science to Rheumatologists and Patients

By Sindhu R. Johnson, MD, PhD

In order to efficiently meet the needs of our patients during the COVID-19 pandemic, innovations in the way we conduct science and disseminate new knowledge have emerged. In my capacity as Chair of the American College of Rheumatology (ACR) Quality of Care Committee, I have had the opportunity to participate in or oversee a few COVID-19 initiatives.

Global Rheumatology Alliance

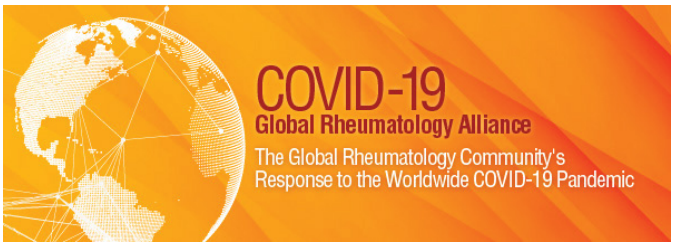
The Global Rheumatology Alliance (GRA) is a grassroots organization with origins in social media and a vision of "bringing together the global rheumatology community to curate and disseminate accurate and comprehensive knowledge to advance rheumatology care in the COVID-19 pandemic." Many Canadian rheumatologists have been involved in this effort, in conjunction with the Canadian Rheumatology Association (CRA), including Dr. Diane Lacaille, Dr. Marie Hudson, Dr. Carter Thorne, Dr. Evelyn Sutton and Dr. Louis Bessette. To achieve this vision, the GRA has four research arms:

- Provider registries
- Patient experience survey
- Systematic reviews
- Patient telemedicine survey

In a year, this collaboration has been shockingly productive. The ability to leverage social media to bring people together, to collect data, to write collaboratively, and publish needed information in a short time period is remarkable. The GRA is a new model of not only doing business, but of doing science. For a list of COVID-19 related publications from the GRA and ACR, visit *rheum-covid.org/publications/* and *rheumatology.org/Practice-Quality/Clinical-Support/COVID-19-Guidance.*

ACR COVID-19 Vaccine Clinical Guidance Task Force

In 2019, the ACR Board approved the creation of the Guidance Subcommittee, charged with overseeing the development of guidance documents for clinical areas the membership wanted guidance on; areas for which the evidence is insufficient or timeline too short for more formal, GRADE-process driven guidelines. The ACR Guidance subcommittee includes Canadian rheumatologists Dr. Shahin Jamal and Dr. Alex Legge.



The ACR convened two task forces to address the needs of rheumatology providers during the COVID 19 pandemic, in which I had leadership roles. First, the COVID-19 Clinical Task Force was charged by ACR leadership to rapidly provide guidance to rheumatology providers relevant to the management of rheumatic disease in adult patients during the pandemic. Clinical guidance generated from this effort was intended to aid in the care of individual patients, but not meant to supplant clinical decision making. Early in the pandemic, this document provided guidance on the use of rheumatic disease treatments including ACE inhibitors, ARBs, NSAIDs, glucocorticoids, and immunosuppressives following known SARS–CoV 2 exposure and in the context of active or presumptive COVID-19.

Second, the ACR COVID-19 Vaccine Clinical Guidance Task Force was struck, consisting of North American rheumatologists, infectious disease specialists and public health experts with current or past employment at the Center for Disease Control and Prevention (CDC). Using a balance of consensus-based methods and largely indirect evidence from the literature, guidance on the use of the COVID-19 vaccine in individuals with rheumatic and musculoskeletal diseases (RMD), and in particular individuals with autoimmune and inflammatory rheumatic disease (AIIRD) was created. Topics included risk of COVID-19 infection and outcomes in RMD patients, vaccine immunogenicity in the setting of active disease or immunosuppressive therapy and vaccine safety. No evidence was found to support a concern regarding the use or timing of immunomodulatory therapies in relation to mRNA vaccine safety. Therefore, guidance regarding immunomodulatory medication and vaccination timing was given considering the intent to optimize vaccine response. Highlights from the ACR COVID-19 Vaccine Clinical Guidance are summarized in Tables 1 and 2. The draft summary was approved by the ACR Board of Directors on February 8, 2021; and a full manuscript is pending journal peer review.

Dissemination of rapidly changing information

Given that information regarding the intersection of RMD, risk of COVID-19 infection and outcomes, and immunogenicity/safety of the COVID-19 vaccine is rapidly emerging,

Table 1. **Selected Guidance Statements from the ACR COVID-19 Vaccine Guidance Summary for Patients with Rheumatic and Musculoskeletal Diseases**

Guidance Statement	Level of Consensus
The rheumatology healthcare provider is responsible for engaging the RMD patient in a discussion to assess COVID-19 vaccination status and engage in a shared decision-making process to discuss receiving the COVID-19 vaccine.	Strong-Moderate
Acknowledging heterogeneity due to disease- and treatment-related factors, and after considering the influence of age and sex, AIIRD patients are at higher risk for hospitalized COVID-19 and worse outcomes compared to the general population.	Moderate
Based on their risk for COVID-19, AIIRD patients should be prioritized for vaccination before the non-prioritized general population of similar age and sex.	Moderate
The expected response to COVID-19 vaccination for many AIIRD patients on systemic immunomodulatory therapies is likely to be blunted in its magnitude and duration compared to the general population.	Moderate
Household members and other frequent, close contacts of AIIRD patients should undergo COVID-19 vaccination when available to them to facilitate a 'cocooning effect' that may help protect the AIIRD patient. No priority for early vaccination is recommended for household members.	Moderate

Adapted from: *www.rheumatology.org/Portals/0/Files/COVID-19-Vaccine-Clinical-Guidance-Rheumatic-Diseases-Summary.pdf*

Table 2. **Guidance on Timing of Immunosuppressive Therapy and COVID-19 Vaccination**

Medication	Timing of Treatment and COVID-19 Vaccination	Level of Consensus
Hydroxychloroquine; IVIG; glucocorticoids, prednisone-equivalent dose < 20mg/day	No modifications	Strong-Moderate
Sulfasalazine; Leflunomide; Mycophenolate; Azathioprine; Cyclophosphamide (oral); TNFi; IL-6R; IL-1; IL-17; IL-12/23; IL-23; Belimumab; oral calcineurin inhibitors; Glucocorticoids, prednisone-equivalent dose ≥ 20mg/day	No modifications	Moderate
Methotrexate	Hold MTX 1 week after each vaccine dose, for those with well-controlled disease	Moderate
JAKi	Hold JAKi for 1 week after each vaccine dose	Moderate
Abatacept SQ	Hold SQ abatacept both one week prior to and one week after the first COVID-19 vaccine dose (only); no interruption around the second vaccine dose	Moderate
Abatacept IV	Time vaccine administration so that the first vaccination will occur four weeks after abatacept infusion (i.e., the entire dosing interval), and postpone the subsequent abatacept infusion by one week (i.e., a 5-week gap in total); no medication adjustment for the second vaccine dose	Moderate
Cyclophosphamide IV	Time CYC administration so that it will occur approximately 1 week after each vaccine dose, when feasible	Moderate
Rituximab	Assuming that patient's COVID-19 risk is low or is able to be mitigated by preventive health measures (e.g., self-isolation), schedule vaccination so that the vaccine series is initiated approximately 4 weeks prior to next scheduled rituximab cycle; after vaccination, delay RTX 2-4 weeks after 2nd vaccine dose, if disease activity allows	Moderate

Adapted from: *www.rheumatology.org/Portals/0/Files/COVID-19-Vaccine-Clinical-Guidance-Rheumatic-Diseases-Summary.pdf*

mechanisms to update and release new information needed to be developed. In his capacity as Associate Editor at the journal *Arthritis and Rheumatology*, Dr. Brian Feldman has been integral to the rapid review and dissemination of COVID-related manuscripts from the ACR Quality of Care Committee. Using a new model, the ACR COVID-19 Guidance documents are considered "living documents." As new information is published, the guidance documents are updated.

In short, Canadian rheumatologists have been active participants in a variety of facets related to the conduct and dissemination of science during the COVID-19 pandemic. We will continue to work together for the betterment of the patients we serve.

Sindhu R. Johnson, MD, PhD
Associate Professor of Medicine, University of Toronto
Clinician-Scientist, Toronto Western Hospital, Mount Sinai Hospital
Associate Director,
Clinical Epidemiology & Health Care Research Program,
Institute of Health Policy, Management and Evaluation
Toronto, Ontario