Telemedicine Use During the COVID-19 Pandemic by Resilient Rheumatology Providers: A National Veterans Affairs Follow-up Survey

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Word Count: 3,448

References: 23

Tables: 4

Figures: 2

Appendix: 5

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Funding: Dr. Singh is supported through a Veterans Affairs Health Services Research and Development Award (IIR-13-314). This material is the result of work supported by research funds from the Division of Rheumatology

at the University of Alabama at Birmingham and the resources and use of facilities at the Birmingham VA Medical Center, Birmingham, Alabama, USA.

Role of the Funder/Supporter: The funding body did not play any role in design, in the collection, analysis, and interpretation of data; in the writing of the manuscript; and in the decision to submit the manuscript for publication.

Conflict of Interest Disclosures: There are no financial conflicts related directly to this study. JAS has received consultant fees from Crealta/Horizon, Medisys, Fidia, PK Med, Two labs Inc., Adept Field Solutions, Clinical Care options, Clearview healthcare partners, Putnam associates, Focus forward, Navigant consulting, Spherix, MediQ, Jupiter Life Science, UBM LLC, Trio Health, Medscape, WebMD, and Practice Point communications; and the National Institutes of Health and the American College of Rheumatology. JAS has received institutional research support from Zimmer Biomet Holdings. JAS received food and beverage payments from Intuitive Surgical Inc./Philips Electronics North America. JAS owns stock options in TPT Global Tech, Vaxart pharmaceuticals, Atyu biopharma, Adaptimmune Therapeutics, GeoVax Labs, Pieris Pharmaceuticals, Enzolytics Inc., Seres Therapeutics, Tonix Pharmaceuticals Holding Corp., and Charlotte's Web Holdings, Inc. JAS previously owned stock options in Amarin, Viking and Moderna pharmaceuticals. JAS is on the speaker's bureau of Simply Speaking. JAS is a member of the executive of Outcomes Measures in Rheumatology (OMERACT), an organization that develops outcome measures in rheumatology and receives arms-length funding from 8 companies. JAS is a member of the veterans Affairs Rheumatology Field Advisory Committee. JAS is the editor and the Director of the UAB Cochrane Musculoskeletal Group Satellite Center on Network Meta-analysis. JAS served as a member of the American College of Rheumatology's (ACR) Annual Meeting Planning Committee (AMPC) and Quality of Care Committees, the Chair of the ACR Meet-the-Professor, Workshop and Study Group Subcommittee and the co-chair of the ACR Criteria and Response Criteria subcommittee. AMJ has received research support from Bristol Myers Squibb. JR, EC, and BN have no conflicts. There are no non-financial competing interests for any of the other authors.

Abstract

Objective: To assess rheumatology provider experience and practices at Veterans Affairs (VA) facilities during the COVID-19 pandemic.

Methods: We performed an anonymized follow-up national cross-sectional survey (11/2020-1/2021) to assess provider resilience, experience, practices, views, and opinions about changes to medications and laboratory monitoring of veterans with rheumatic disease.

Results: Of the 143 eligible VA rheumatology providers, 114 (80%) responded. Compared to the original survey, fewer providers reported using telephone visits, 91% vs. 78% ($p=0.009$), and more used clinical video telehealth (CVT), 7% vs. 16% ($p=0.04$) or in-person visits, 59% vs. 76% ($p=0.007$). Most providers were somewhat or very comfortable with the quality of clinical encounter for *established but not new patients* for telephone, video-based VA video connect (VVC), and CVT. The mean Connor-Davidson Resilience Scale (CD-RISC2) score was 6.8 (SD, 1.11; range 0-8; higher=more resilient), significantly higher than the original April-May 2020 survey score of 6.35 (SD, 1.26; $p=0.004$). Adjusted for age, sex and ethnicity, high provider resilience was associated with significantly higher odds ratio (OR) of comfort with technology and the quality of the VVC visit: (1) established patient, 1.71 (95% CI, 0.67-4.40) and 4.13 (95% CI, 1.49-11.44); (2) new patient, 2.79 (95% CI, 1.11-7.05); and 2.69 (95% CI, 1.06-6.82), respectively.

Conclusions: Reassuringly, VA rheumatology providers became increasingly comfortable with video visits during the first 10 months of the pandemic. High provider resilience, and its association with better quality video visits, raise the possibility that video visits might be an acceptable substitute for in-person visits under appropriate circumstances.

Keywords: COVID-19 pandemic; Telemedicine; Telehealth; Veterans; Rheumatology provider; Rheumatic Disease Management

Introduction

The coronavirus disease 2019 (COVID-19) pandemic led to substantial morbidity and mortality¹, and interruption of healthcare delivery. Face masks, physical distancing and stay-at-home orders were implemented to abate the COVID-19 pandemic². An undesirable consequence of the stay-at-home directives was the failure or delay in seeking medical care for acute and chronic medical conditions³. Rheumatologists pivoted to virtual care to maintain continuity of care and for new referrals to rheumatology.

A survey of VA rheumatology providers early in the pandemic April-May 2020 found that most providers were comfortable providing virtual care to established stable patients with autoimmune and inflammatory rheumatic diseases (AIIRD) and a significantly smaller proportion to new patients or those with active disease⁴. High provider resilience was associated with comfort with technology for telemedicine in our original survey⁴. In June/July 2020 many VA healthcare centers re-opened their facilities to in-person visits but at limited capacity. It was thus timely to repeat the national VA rheumatology provider survey to evaluate provider resilience and changes in providers' view of telemedicine and their comfort with it in managing patients with AIIRD. Veterans Affairs (VA) is the largest integrated healthcare system in the U.S.⁵ and provides care to more than 9 million veterans annually; 900,000 received care via VA telemedicine in 2019⁶. Most VA facilities saw a significant increase in telemedicine visits, using telephone, clinical video telehealth (CVT, a video visit with the patient at a clinic remote from the provider with a facilitator to assist) or VVC (VA Video connect) a video visit without a facilitator with the patient at home) in March 2020, with a reduction in in-person outpatient visits.

Our study objectives for this national rheumatology provider follow-up survey were to examine the (1) providers' experience/practices, i.e., modalities of VA rheumatology healthcare delivery and associated quality of clinical encounter; (2) providers' views/opinions of outpatient management of rheumatic diseases; (3) modification to laboratory monitoring for disease-modifying anti-rheumatic drugs (DMARDs) and immunosuppressive agents; and (4) provider resilience and the association of provider resilience with various modalities for outpatient care of veterans with rheumatic diseases.

Methods

We performed a follow-up cross-sectional survey of a national cohort of VA rheumatology providers listed as members of the VA Rheumatology Consortium (VARC), a volunteer work group of VA rheumatology providers who practice across the US with a free membership, previously surveyed in April-May 2020. VARC maintains an email list of its participants. The survey was sent to this email list.

We updated our April-June 2020 survey questions ⁴ to keep them relevant to the study focus and to allow the examination of time trends, including adding questions related to **laboratory** monitoring for high-risk medication toxicity. We piloted our survey with five rheumatologists and finalized the content. We emailed an anonymized survey to all VA VARC members on November 5, 2020, using the Qualtrics™ survey software; all responses were deidentified. Non-responders received reminders to complete the survey from November 13 to December 13, 2020. The survey closed on January 25, 2021. The Human Ethics Committee at the University of Alabama at Birmingham (UAB) approved this study. Key differences in phrasing of questions between this follow-up vs. the original survey are provided in **Appendix 1**.

We assessed providers' experience, views and opinions regarding various aspects of the outpatient management of veterans with rheumatic disease, including but not limited to the following: (1) the best healthcare delivery modality (in-person, telephone or video visit), and which diseases were appropriate for telephone or video visits; (2) the current modes of outpatient rheumatology care delivery; (3) providers' use of technology and their comfort with technology used (*"What is your level of comfort with technology with providing healthcare"*) and the quality of the clinical encounter during the outpatient visits (*"What is your level of comfort with the quality of the clinical encounter when providing healthcare .."*); and (4) the challenges with and the frequency of laboratory monitoring for high-risk medication toxicity.

We used a validated 2-item Connor-Davidson Resilience Scale (CD-RISC2) ⁷, scored from 0 to 8 to measure provider resilience (or stress coping ability), where higher scores correspond with higher resilience, with a general population mean of 5.9-6.9 ⁷⁻⁹, and a score of 6.5 in physicians ¹⁰.

We assessed summary statistics as proportions or mean (standard deviation). Comparisons with baseline survey were done using t-test for continuous variables (means; e.g., resilience scores) or comparison of proportions for categorical variables, as appropriate; p-values are provided based in these comparisons. For those who responded to both baseline and follow-up surveys, a paired t-test was done for the comparison of means. The results from March-April survey, i.e., the last survey, and the associated p-values are shown in the results section narrative, but not in tables, since tables represent only the new data from the current survey.

We used logistic regression analysis to assess whether provider resilience (categorized as high resilience, score of 7 or 8, i.e., scores higher than the general population) was independently associated with comfort with technology and comfort with the quality of the clinical visit in providing virtual care to new or established clinic patients, after adjusting for provider age, sex, race/ethnicity, in multivariable-adjusted regression. The outcome for comfort with technology and comfort with the quality of the clinical visit was defined as somewhat or very comfortable. We obtained the information on sex and age for all potential participants from Healthgrades and other publicly available search websites. Analyses were done using IBM® SPSS v27 (Armonk, NY, USA).

Results

Of the 143 eligible (after removing 10 duplicate/incorrect email addresses), 114 VA rheumatology providers completed this follow-up COVID-19 VA provider survey, i.e., the overall response rate was 80%. Of these, 64 providers (56%) reported that they had participated in the original VA COVID-19 survey, and 50 providers were first-time survey responders.

Of these 32% were 45-54 years old; 51% were white, 31% Asian, 10% Hispanic and 6% African American; 66% were female; and 78% had practiced rheumatology for at least 10 years (**Table 1**).

Non-responder characteristics: Potential responders, i.e., all eligible responders, were slightly older (16% vs. 9% were ≥ 65 years) and more likely to be male compared to the survey responders (45% vs. 34%).

Rheumatic diseases and adjudicated appropriateness of healthcare delivery methods later in the COVID-19 pandemic

Best Modality for Established Patients. The proportion of rheumatology providers who chose telephone or VVC as the best modality for follow-up of established patients varied widely across rheumatic diseases (**Figure 1**), ranging from 90-100% for gout, osteoporosis, polymyalgia rheumatica, and osteoarthritis (OA) to 9-20% for patients with lupus, scleroderma, vasculitis, RA, or SpA requiring changes in immunosuppressive, glucocorticoid or disease modifying antirheumatic disease drug (DMARD)/biologic (**Figure 1**). Compared to the original survey, the use of telephone visit was lower by 10-20% for each condition, while VVC use, and in-person visits were higher by about 10% each.

Provision of Healthcare Safely and Efficiently to Veterans. Providers responded to these general questions regarding healthcare provision, regardless of the type of visit. Forty-four percent of responders agreed or strongly agreed that they were able to provide healthcare efficiently, 72% were able to provide it safely, and 72% spent a lot of extra time providing this care. A higher proportion spent extra time providing care compared with the baseline survey, 72% vs. 51% ($p<0.001$).

Current Modes of Outpatient Rheumatology Care Delivery and Recent Changes Since June 2020

Compared to the original survey, fewer rheumatology providers were using telephone visits, 78% vs. 91% ($p=0.009$), more used CVT (16% vs. 7%; $p=0.04$), and in-person visits (76% vs. 59%; $p=0.008$), while VVC visits remained essentially unchanged (60% vs. 59%; $p=0.88$) (**Table 2**). A significant proportion of providers reported a 50% or more increase in the following types of visits related to COVID-19, at rates higher than the original survey, 73% for telephone visits and 51% for VVC visits; but only 2% for CVT visits (**Appendix 2**).

Providers' Use of Technology and Their Comfort with the Technology Used and the Quality of Outpatient Visits in Providing VA Healthcare 8 Months into the COVID-19 Pandemic

Compared to March-April 2020, VA rheumatology providers more commonly used VA issued laptops (28% vs. 18%; $p=0.08$) and less commonly used their personal desktop or laptop (37% vs. 50%; $p=0.054$) (**Table 2**). Nearly half, 49%, were working entirely at the VA, up from 31% in the previous survey ($p=0.007$) with 2% working exclusively from home, the remaining 49% worked from both locations.

The proportion of rheumatology providers reporting difficulty using VA resources from non-VA/home settings for providing care/accessing VA ranged from 29% for telephone visit to 57% for accessing radiographic images, and 72% for VVC (**Table 2**).

Comfort with Technology: Established Patients. The proportion of responders who were somewhat or very comfortable with technology in providing healthcare to established clinic patients using each of these methods was essentially unchanged compared to the original survey (**Figure 2a**). *New patients.* A greater number of responders were somewhat or very comfortable providing healthcare to new clinic patients compared to the original survey: telephone visits, 40% vs. 25% ($p=0.019$); VVC visits, 47% vs. 34% ($p=0.051$). About 30% were comfortable with CVT visits (no previous comparator question; **Figure 2b**).

Comfort with the Quality of Outpatient Visits Since June 2020 (no previous data): Established Patients. The proportion of responders who were somewhat or very comfortable with the quality of clinical encounters were as follows: (1) telephone visits, 63%; (2) VVC visits, 63%; and (3) CVT visits 32% (**Figure 2b**). *New Patients.* The proportion of responders who were somewhat or very comfortable with the quality of clinical encounters with new clinic patients were as follows: telephone visits, 27%; VVC visits, 47%; and CVT visits 27% (**Figure 2b**).

Improvement in Comfort with the Quality of Outpatient Visits Since June 2020 (no previous data): Established Patients. The proportion of providers whose comfort with the quality of the clinical encounter improved since June 2020 were as follows: telephone visits, 66%; VVC visits, 67%; and CVT visits, 31%. *New Patients.* The proportion of providers whose comfort with the quality of the clinical encounter improved since June 2020 were as follows: telephone visits, 46%; VVC visits, 58%; and CVT visits, 27%.

Laboratory Monitoring for High-Risk Medication Use in Veterans with Rheumatic Diseases Since June 2020

This was a new question/domain assessed only in the follow-up survey, i.e., it was not assessed in the April-May 2020 survey. According to the providers, the mean proportion of patients reported to be getting their monitoring laboratory done at various locations were as follows: VA medical center, 55%; VA community-based outpatient clinic (CBOC), 27%; local non-VA lab facility, 3%; non-VA primary care provider office, 2%; and 12% of veterans were missing/skipping the monitoring laboratory testing (**Table 3**).

Rheumatology providers reported some difficulty getting veterans' monitoring laboratory tests completed since June 2020: very difficult (3%), somewhat difficult (58%), neither difficult nor easy (14%), somewhat easy (19%), and very easy (4%).

A majority of the providers indicated optimal frequency of laboratory monitoring since June 2020 as follows: Methotrexate or leflunomide, every 3 months (93%); Immunosuppressive drugs, every 3-4 months (92%); Sulfasalazine, every 3-4 months (80%); Janus kinase (JAK) inhibitors, every 3-4 months (87%); tumor necrosis factor inhibitors (TNFi), every 4-6 months (96%); Non-TNFi-biologics, every 4-6 months (88%); belimumab, every 3-6 months (99%); IL-17 or IL-23 inhibitor biologics, every 3-6 months (100%); and glucocorticoids at 20 mg daily dose equivalent or higher, every 2-4 months (83%) (**Appendix 3**).

A large proportion of rheumatology providers had reduced the frequency of laboratory monitoring since June 2020 due to the ongoing COVID-19 pandemic: sulfasalazine, 63%; methotrexate or leflunomide, non-TNFi biologics, TNFi-biologics, and IL-17 or IL-23 inhibitor biologics, 50-51%; JAK inhibitors, belimumab, glucocorticoids, 20 mg daily or higher, 41-46%; and immunosuppressive drugs, 39% (**Appendix 4**).

High Responder Resilience

Resilience was high among responders. The mean CD-RISC2 score was 6.8 (SD, 1.06) for the respondents and for the sub-sample of people who had responded to the original survey, 6.9 (SD, 1.14). Both were higher than the original survey score of 6.35 in April-May 2020 (SD, 1.26; $p=0.004$ and $p=0.008$, respectively) (**Table 4**). Compared to the original survey (21%), the proportion with high resilience scores (i.e.,

CD-RISC2 score of 7 or 8) was higher at 48% in overall responders ($p=0.002$) and 57% in repeat responders ($p<0.0001$; **Table 4**).

Association of Provider Resilience with Comfort with Technology and Quality of Clinical Encounters for Virtual Healthcare Visits

Adjusted for age, sex and race/ethnicity, a high provider resilience score was independently associated with a significantly higher odds ratio (OR; 95% confidence interval [CI]) of more comfort with technology and more comfort with the quality of the clinical encounter/visit (somewhat or very comfortable) for VVC visits: (1) Comfort with technology: established patient, 1.71 (95% CI, 0.67-4.40) and new patient, 2.79 (95% CI, 1.11-7.05); (2) Comfort with the quality of the clinical encounter: established patient, 4.13 (95% CI, 1.49-11.44) and new patient, 2.69 (95% CI, 1.06-6.82) (**Appendix 5**). No other significant associations were noted, except for comfort with the quality of the clinical encounter with telephone visits for established patients, with OR 3.97 (95% CI, 1.40-11.21) (**Appendix 5**).

Discussion

The COVID-19 pandemic necessitated the adoption of telemedicine. Many VA medical centers re-introduced in-person patient visits at limited capacity in June or July 2020, forcing providers to triage which new and established patients could be evaluated by in-person, VVC, CVT or telephone visits. Thus, it was timely to conduct this national VA rheumatology provider COVID-19 survey as a follow-up to the original survey conducted in April-May of 2020 ⁴. The response rate of 79% for this follow-up, improved on the 67% for the initial survey ⁴ related to the use of an updated VARC email list for this follow-up survey (10 duplicate or incorrect email addresses were removed) and encouragement to members to respond by the VARC leadership. Both rates were greater than the 61% reported for physician surveys ¹¹. Non-responders were slightly older and more likely to be men. Several findings are interesting and merit further discussion.

We found that a high provider resilience score was associated with a 3- to 5-fold higher likelihood of comfort with technology for telephone and VVC visits for established patients, and VVC for new patients. This

is among the first few studies to examine the relationship between rheumatology providers' resilience and comfort levels with using telemedicine. Resilience score for U.S. rheumatologists is unknown to our knowledge. Greater rates of comfort with telephone visit quality for established vs. new patients, may be related to familiarity with established patients. Providers with high personal resilience, high professional fulfillment, and low burn-out, tended to be more stable in their jobs ¹². A recent study showed that the burnout in physicians could be reduced using a mobile application to increase physician resilience ¹³.

Therefore, provider resilience is an important construct/characteristic, that is related to stability of healthcare provider workforce. Provider resilience improved during a short span in our study indicates that this is a modifiable characteristic. It is worthwhile for healthcare systems to focus on ways to enhance provider resilience, an increasingly important issue in the evolving COVID-19 pandemic.

Most rheumatology providers were comfortable with telemedicine technology to provide healthcare to established patients with rheumatic diseases, like that previously reported ¹⁴⁻¹⁶. Although the percentage of rheumatology providers who were comfortable utilizing telemedicine for new patients increased from 25% to 40% for telephone and 34% to 47% for VVC, it remains below 50% for both modalities. This improved comfort with new patient telemedicine visits may be due to greater experience by rheumatology providers with telephone and VVC visits over time and the availability of in-person visits as a potential back-up to the virtual visit. Further improvement may be achieved through training and added resources, such as the provision of support from the technology personnel, better/improved Wi-Fi, and bandwidth to ensure stable connection, especially for rural-dwelling veterans and those in Wi-Fi drop zones, and administrative support for setting up telemedicine clinics similar to the in-person clinics. Our national study is among the first to assess a change over time in rheumatology provider comfort with technology for new vs. established patient outpatient visits.

A recent study showed that the use of telehealth increased substantially during the COVID-19 transition (41% of all follow-up visits) and slightly decreased during the post-COVID-19 transition (27.7% of visits) ¹⁷. Telemedicine is a viable alternative to in-person rheumatology follow-up visits in many AIIRD during

the COVID-19 pandemic ⁴, due to lower transportation costs and high patient satisfaction ¹⁸⁻²⁰, confirmed in a meta-analysis of rheumatology telemedicine studies ²¹.

Most VA rheumatology providers were comfortable with the quality of telemedicine clinical encounters, i.e., telephone visits or VVC, for established patients, but fewer were comfortable with them for new patients. This confirms our finding from the original survey ⁴. This highlights the importance of physical examination and personal interaction, and the ease of getting laboratory tests and imaging during an in-person versus a virtual visit for a new patient. Importantly, most VA rheumatology providers reported improved comfort with the quality of the telephone and VVC visits since June 2020, for both new and established patients. The proportion comfortable with the quality of CVT visits was only 32%, identifying this as an area of potential improvement for the VA. Potential reasons for lower level of comfort with CVT are the need for more support for visit coordination, and the rheumatologist's confidence in the skills of the examiner on the other end, when examiner is needed.

Most VA rheumatology providers reported patients getting their monitoring laboratory testing done at VA medical centers, but other sites (VA CBOCs, local non-VA lab facilities, etc.) were also commonly used. Importantly, 12% were missing monitoring laboratory testing. Not surprisingly, most rheumatology providers reported difficulty getting these tests completed and a large proportion had reduced the frequency of laboratory monitoring in veterans since June 2020 due to the ongoing COVID-19 pandemic to avoid potentially exposing AIIRD patients to COVID-19. Both are novel findings to our knowledge. We do not have data regarding ease of obtaining lab work in the pre-pandemic period, but most would have been obtained without difficulty at the time of our routine in-person clinic visits. Potential solutions to the challenge of obtaining monitoring labs include more team support to rheumatology providers with ordering and scheduling of these tests at sites convenient to the patient, and more efficient results communication.

Rheumatology providers continued to view gout, osteoporosis, osteoarthritis, and polymyalgia rheumatica (PMR) as appropriate for telephone visits or video-based healthcare visits for established patients. However, despite more experience with telemedicine, they deemed active systemic autoimmune rheumatic

conditions (RA, SpA, SLE, vasculitis, scleroderma *etc.*) as most appropriate for in-person visits. Comparing this follow-up survey 6-8 months into the pandemic to the baseline April-May 2020 survey, 10-20% fewer providers chose telephone visits for all AIIRD, and a similar proportion chose video-based or in-person visits as the most appropriate, indicating a slight shift in favor of in-person or video-based visits, possibly related to experience with and the availability of functional platforms for video-based visits and some resumption of in-clinic visits. A recent study found high agreement between video consultations and face-to-face visits (within 2 weeks) in treatment decisions for RA, SLE, and SpA patients with inadequate disease activity control ²². The perception of the providers in our study could be influenced by the low rate of use for video consultation for new patients. It is reported that teleconsultations conducted through a telephone call are less reliable than video consultations ^{21,23}.

Our study findings must be interpreted considering limitations. These findings cannot be generalized to non-VA settings. Non-response bias is a potential study limitation despite the similarity of responders to the overall sample in age and sex (non-responders were only slightly older and more likely to be male); however, our response rate of 79% is higher than average physician survey response rate ⁴. Examining provider experience, practice, views and opinions and their change over time was our study goal. The study design did not allow the validation of provider experience and practices with provider-level or patient-level clinical/resource utilization data, which is not available due to anonymized nature of the survey. Most visits are likely for continuing care of rheumatic diseases, although some may be COVID-19 related; however, these visit-level data were not available for this study. Future studies should examine such data to examine the impact of COVID-19 on outcomes of patients with AIIRD. Fifty-six percent of respondents indicated that they participated in the original survey (n=64), but it is possible that a slightly larger proportion actually did but did not recall having done so, given the high response rate.

In conclusion, we conducted a national follow-up study of experiences, practices, views, and opinions of VA rheumatology providers during the COVID-19 pandemic. Despite greater than 6 months experience with telemedicine, providers continued to have reservations with its utilization for new patients and specific AIIRD

subpopulations. Greater technology education for patients and providers, and more ancillary staff support to providers, could improve the acceptance of telemedicine and its appropriate use. The knowledge of barriers to the use of technology in providing optimal rheumatology care, and the association of provider resilience with comfort with telemedicine, can inform healthcare policymakers and allow delivery of optimal health care to patients with rheumatic diseases in one of the largest integrated healthcare systems in the U.S.

Abbreviations

VA, Veterans Affairs

CVT, clinical video telehealth with a facilitator

VVC, video-based VA video connect

VARC, VA Rheumatology Consortium

UAB, University of Alabama at Birmingham

AIIRD, autoimmune or inflammatory rheumatic diseases

CD-RISC2, Connor-Davidson Resilience Scale

OA, osteoarthritis

RA, rheumatoid arthritis

SpA, spondyloarthritis

DMARD, disease modifying antirheumatic disease drug

CPRS, computerized patient record system

CBOC, community-based outpatient clinic

OR, odds ratio

CI, confidence interval

Declarations:

Author contributions: Dr. Singh had full access to all the data in the study and takes the responsibility for the integrity of the data and accuracy of the data analysis.

Study Concept and Design: Singh

Data acquisition and analysis: Singh

Interpretation of results: Singh, Richards, Chang, Joseph, and Ng

Drafting of the manuscript: Singh

Critical revision of the manuscript for important intellectual content: Singh, Richards, Chang, Joseph, and Ng

Obtained Funding: Singh

Administrative, technical, or material support: Singh

Study Supervision: Singh

Additional Contributions: None

Acknowledgements: We thank all participating VARC members who responded to the survey. We also thank the members of the VA Rheumatology Field Advisory Committee (FAC) for their support.

Ethics/IRB approval and consent to participate: The University of Alabama at Birmingham's Institutional Review Board approved this study, and all investigations were conducted in conformity with ethical principles of research (UAB X120207004). The IRB waived the need for an informed consent for this anonymous survey.

Consent for publication: No individual person's data were presented in any form in this study and therefore no consent to publish is required.

Availability of Data and materials: These data are available from the authors after appropriate approvals have been obtained from the Ethics Committee at the University of Alabama at Birmingham and meeting all privacy policies and regulations.

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Figure Titles and Legends

Figure 1. Provider preferred clinic follow-up appointment modality for established patients due to COVID-19, by the type of rheumatic disease during the COVID-19 pandemic, since June 2020

Figure Legend: Y-axis represents the percent of all valid non-missing responses. The number of missing responses for each condition varied n=16 to n=18. Providers responded to the question: *Which of the following conditions in established patients do you feel are **best suited** for telephone or video-based visits during follow-up during the COVID-19 pandemic? Choose the single best response.* This was followed by listing each rheumatic condition in a separate row. Response options included telephone, VA Video connect, and in-person visit.

Figure 2. Provider comfort with technology in providing care to new or established patients using each of the modality (2a) and provider comfort with the quality of clinical encounter (2b) during COVID-19 pandemic, since June 2020

Figure Legend: The Y-axis represents the percent of all valid non-missing responses. Providers responded to two questions: (Figure 2a) *What is your level of comfort with technology with providing healthcare to **new patients** in your clinic during the COVID-19 pandemic, since June 2020? What is your level of comfort with technology with providing healthcare to **established patients** in your clinic during the COVID-19 pandemic, since June 2020?* (Figure 2b) *What is your level of comfort with the quality of the clinical encounter when providing healthcare to **new patients** in your clinic during the COVID-19 pandemic since June 2020? What is your level of comfort with the quality of the clinical encounter when providing healthcare to **established patients** in your clinic during the COVID-19 pandemic, since June 2020?* Each question was followed by listing telephone, VA Video connect, and in-person visit in a separate row. Response options for each question was a 5-point ordinal scale: very uncomfortable, somewhat uncomfortable, neither comfortable nor uncomfortable, very comfortable, and somewhat comfortable.

Appropriateness of Visit Type for each condition: Established Patients

2a

2b

Table 1. Responder characteristics for the national VA rheumatology provider COVID-19 follow-up survey

	Study Cohort (n=114*) N (%)
Age, in years	
25-34	2 (2%)
35-44	25 (24%)
45-54	34 (32%)
55-64	35 (33%)
65 or older	9 (9%)
Sex	
Male	36 (34%)
Female	69 (66%)
Race/ethnicity	
White	54 (51%)
African-American	6 (6%)
Hispanic	10 (10%)
Asian	32 (31%)
Other	3 (3%)
Years practiced rheumatology	
5 or fewer years	6 (6%)
>5 to <10 years	17 (16%)
10-20 years	43 (41%)
>20 years	39 (37%)
Number of rheumatology FTEs at facility	
One	17 (16%)
Two	26 (25%)
Three or more	61 (59%)
Completed the previous VA COVID-19 provider survey	64 (62%)
*Of the 114 who opened the questionnaire, 112 indicated they provided care to veterans and completed the questionnaire; The percentages are for non-missing responses for each variable	
*Missing data: Age, n=9; Sex, n=9; Race/ethnicity, n=9; Years practiced rheumatology, n=7; Rheumatology FTEs, n=10; Completed previous survey, n=10	
FTE, full time equivalent	
Percent indicate valid percent with responders as the denominator	

Table 2. The type of hardware used and the healthcare setting used to provide VA rheumatology healthcare during the COVID-19 pandemic since June 2020

	Telephone	VVC	CVT with facilitator	In-person				
Currently using	89 (78%)	69 (60%)	18 (16%)	87 (76%)				
	VA laptop computer only	Personal desktop and/or laptop computer	VA desktop computer only					
Hardware being used to provide VA healthcare	32 (28%)	42 (37%)	82 (72%)					
	Working 100% from VA med ctr/VA clinic	Working 100% off-site	Working off-site and from VA med ctr /VA clinic					
Location of provision of VA healthcare	48 (49%)	2 (2%)	49 (49%)					
	Telephone visit	VVC	CVT	Imaging	Outlook	VA Network drive	CPRS	VA VPN
Difficulty accessing **	26 (29%)	65 (72%)	27 (31%)	51 (57%)	33 (37%)	42 (47%)	44 (49%)	38 (42%)
Had not attempted to use	5 (6%)	17 (19%)	56 (64%)	17 (19%)	6 (7%)	15 (17%)	4 (5%)	16 (18%)
<p>*Missing, n=15; ** Missing, n=25; Difficulty = Impossible, very difficult or somewhat difficult; Difficulty accessing from home or a non-VA setting since June 2020 CVT, clinical video telehealth; VVC, video-based VA video connect; VPN, VA Private network; CPRS, computerized patient record system</p>								

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Table 3. Rheumatology provider-reported monitoring laboratory test being completed since June 2020 for rheumatic disease medication toxicity monitoring

	VA medical center*	VA Community-based outpatient clinic (CBOC)	Local, non-VA lab*	Local, non-VA primary care office*	Missing or skipping labs*
Average	55% (21%)	27% (19%)	3% (6%)	2% (4%)	12% (12%)
	Very difficult	Somewhat difficult	Neither difficult nor easy	Somewhat easy	Very easy
Difficulty in monitoring labs**	3 (3%)	57 (58%)	14 (14%)	19 (19%)	5 (5%)
*Missing, n=19; ** Missing, n=16					

Table 4. Rheumatologist resilience using the CD-RISC2 score in the current national VA rheumatology provider COVID-19 follow-up survey compared to the original provider survey (April-May 2020)

	Original survey (n=103)	Current survey (n=114)	Repeat responders in current survey (n=64)
CD-RISC2 score			
≤4	7 (7%)	2 (2%)	2 (3%)
5-6	43 (42%)	42 (37%)	22 (34%)
7-8	32 (21%)	55 (48%)	36 (57%)
CD-RISC2 score, mean (standard deviation); p-value compared to the original survey	6.35 (1.26)	6.85 (1.06); *p=0.004	6.90 (1.14); *p=0.008
Missing	21 (20%)	15 (13%)	4 (6%)
Proportion with CD-RISC2 score 7-8; p-value compared to the original survey	32 (21%)	55 (48%) *p=0.0002	36 (57%) * p<0.0001
*p-value compared to the original survey using t-test Repeat responders in the current survey were those who indicated that they responded to the previous VA rheumatology provider survey during April-May 2020			