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Supplementary Table 1. Demographic and disease characteristics of individuals with rheumatic disease diagnosed with SARS-CoV-2 infection after vaccination reported to the C19-GRA registry (n=197)

	Frequency (%) or Mean (SD)	
	Overall (n=197)	**Partial (n=110)**
Mean age (years), SD	53.2 (16.2)	52.8 (16.1%)
Female	143 (72.6%)	76 (69.1%)
Race or ethnicity		
White	109 (55.3%)	60 (54.6%)
Black	13 (6.6%)	7 (6.4%)
Latin American	14 (7.1%)	4 (3.6%)
East or South Asian	29 (14.7%)	22 (20.0%)
Other	25 (12.7%)	16 (14.6%)
Unknown	7 (3.6%)	1 (0.9%)
WHO Regions		
African Region	5 (2.5%)	3 (2.7%)
Region of the Americas - North	32 (16.2%)	25 (22.7%)
Region of the Americas - South	27 (13.7%)	19 (17.3%)
South-East Asian Region	115 (58.4%)	50 (45.5%)
European Region	2 (1.0%)	1 (0.9%)
Eastern Mediterranean Region	1 (0.5%)	1 (0.9%)
Western Pacific Region	15 (7.6%)	11 (10.0%)
Rheumatic Disease+		
Rheumatoid Arthritis	85 (43.2%)	51 (46.4%)
Systemic Lupus Erythematosus	30 (15.4%)	20 (18.2%)
Psoriatic Arthritis	19 (9.6%)	7 (6.4%)

Vasculitis	17 (8.6%)	7 (6.4%)
Inflammatory Myopathy	13 (6.6%)	5 (4.6%)
Spondyloarthritis (Axial and other)	12 (6.1%)	9 (8.2%)
Sjogren's Syndrome	7 (3.6%)	3 (2.7%)
Systemic Sclerosis	5 (2.5%)	1 (0.9%)
Gout	3 (1.5%)	3 (2.7%)
Other	15 (7.6%)	7 (6.4%)
Comorbidity Count		
0	106 (53.8%)	60 (54.6%)
1	59 (30.0%)	33 (30.0%)
≥ 2	32 (16.2%)	17 (15.5%)
Most Common Comorbidities		
Hypertension	56 (28.4%)	32 (29.1%)
Obesity	42 (21.3%)	24 (21.8%)
Lung disease	33 (16.8%)	17 (15.5%)
Diabetes	23 (11.7%)	14 (12.7%)
Chronic kidney disease	12 (6.1%)	4 (3.6%)
Medication Prior to COVID-19 Diagnosis^		
No DMARD	27 (13.7%)	21 (19.1%)
csDMARDs	125 (63.5%)	68 (61.8%)
Methotrexate	54 (27.4%)	33 (30.0%)
Hydroxychloroquine	51 (25.9%)	26 (23.6%)
Leflunomide	13 (6.6%)	7 (6.4%)
Azathioprine	10 (5.1%)	4 (3.6%)
Mycophenolate	21 (10.7%)	11 (10.0%)
Sulfasalazine	10 (5.1%)	6 (5.5%)

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Colchicine	6 (3.1%)	4 (3.6%)
b/tsDMARDs	88 (44.7%)	37 (33.6%)
BCDT	22 (11.2%)	6 (5.5%)
TNF inhibitors	37 (18.8%)	18 (16.4%)
Other biologics**	17 (8.6%)	7 (6.4%)
JAK inhibitors	12 (6.1%)	6 (5.5%)
Glucocorticoid Dose	**(N=191)**	**(N=106)**
0 mg/day	128 (67.0%)	67 (60.9%)
1-9 mg/day	45 (23.6%)	27 (24.5%)
$\geq$ 10 mg/day	18 (9.4%)	12 (10.9%)
Disease Activity	**(N=196)**	**(N=109)**
Remission/Low	155 (79.1%)	86 (78.2%)
Moderate/High	41 (20.9%)	23 (20.9%)
Confirmed COVID-19#	191 (97.0%)	104 (94.5%)
Vaccine		
Pfizer-BioNtech	108 (54.8%)	63 (57.3%)
Moderna	31 (15.7%)	10 (9.1%)
Astra Zeneca/Oxford	23 (11.7%)	17 (15.5%)
Sinovac	11 (5.6%)	6 (5.5%)
Janssen/Johnson & Johnson	10 (5.1%)	4 (3.6%)
Don't Know/Missing	10 (5.1%)	6 (5.5%)
Other	4 (2.0%)	4 (3.6%)
Number of Doses Received (excluding J&J) (N=187)		--
1	42 (22.5%)	--
2	141 (75.4%)	--

Unknown	4 (2.1%)	--
Infection after first or second dose, among those who ultimately received two doses (N=141)		--
1	13 (9.2%)	--
2	119 (84.4%)	--
Unknown	9 (4.6%)	--
Fully vaccinated*	87 (44.2%)	--

+Cases could have more than one disease diagnosis

^Conventional synthetic DMARD (csDMARD) medications included: antimalarials (hydroxychloroquine, chloroquine), azathioprine, cyclophosphamide, cyclosporine, leflunomide, methotrexate, mycophenolate mofetil/mycophenolic acid, sulfasalazine, tacrolimus; Biologic or targeted synthetic DMARDs (b/tsDMARD) included: abatacept, belimumab, CD-20 inhibitors, IL-1 inhibitors, IL-6 inhibitors, IL-12/23 inhibitors, IL-17 inhibitors, anti-TNF, and Janus-kinase inhibitors

 #Confirmed COVID-19 diagnosis: Diagnosis made via PCR, antigen, or antibody test.

*Fully vaccinated: infection $\geq$14 days after 2nd dose of two dose vaccine, or 1st if Janssen/Johnson & Johnson

**Other biologics include: abatacept (n=6); IL-6 (n=4); IL-17, belimumab, IL-1 (n=2); cyclosporine, tacrolimus, ustekinumab (n=1).

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Supplemental Table 2. Baseline medications at the time of SARS-CoV-2 infection in individuals with rheumatic disease who were previously vaccinated

	Overall (n=197)	Fully Vaccinated (n=87)	Fully Vaccinated and Hospitalized (n=22)
csDMARDs	125 (63.5%)	57 (65.5%)	10 (45.5%)
Methotrexate	54 (27.4%)	21 (24.1%)	2 (9.1%)
Hydroxychloroquine	51 (25.9%)	25 (28.7%)	2 (9.1%)
Leflunomide	13 (6.6%)	6 (6.9%)	2 (9.1%)
Azathioprine	10 (5.1%)	6 (6.9%)	2 (9.1%)
Mycophenolate	21 (10.7%)	10 (11.5%)	3 (13.6%)
Sulfasalazine	10 (5.1%)	4 (4.6%)	--
Colchicine	6 (3.1%)	2 (2.3%)	--
b/tsDMARDs	88 (44.7%)	51 (58.6%)	17 (77.3%)
BCDT	22 (11.2%)	16 (18.4%)	10 (45.5%)
TNF inhibitors	37 (18.8%)	19 (21.8%)	2 (9.1%)
Other biologics*	17 (8.6%)	10 (11.5%)	4 (18.2%)
JAK inhibitors	12 (6.1%)	6 (6.9%)	1 (4.6%)
Steroids			

Glucocorticoids** (n=131)
  0 mg/day
  1-9 mg/day
  >= 10 mg/day
	
	128 (67.0%)
	45 (23.6%)
	18 (9.4%)
		
		61 (71.8%)
		18 (21.2%)
		6 (7.1%)
			
			14 (63.6%)
			4 (18.2%)
			4 (18.2%)

*Other biologics include: abatacept, belimumab, IL-1, IL-6, IL-12/23, IL-17, ustekinumab
Overall: abatacept (n=6); IL-6 (n=4); IL-17, belimumab, IL-1 (n=2); cyclosporine, tacrolimus, ustekinumab (n=1).
Fully vaccinated: abatacept (n=4); IL-6, IL-1 (n=2); belimumab, ustekinumab (n=1)
Fully vaccinated & hospitalized: abatacept, IL-6, belimumab, ustekinumab (n=1)
**Prednisone-equivalent doses

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Supplemental Table 3. Medication status at time of vaccination among the fully vaccinated (n=79 with available information)

Medication discontinued before vaccine	
	Timing relative to vaccine
Glucocorticoids, n=3	At either vaccine dose
Hydroxychloroquine, n=1	Before dose 1 and dose 2
Methotrexate, n=1	Before dose 1 and dose 2
TNF inhibitor, n=1	Before dose 1 and dose 2
Azathioprine, n=1	Before dose 2
Medication discontinued after vaccine	
	Timing relative to vaccine
Azathioprine, n=2	1: After dose 1 and dose 2 1: After dose 2
Methotrexate, n=1	After dose 1 and dose 2
TNF inhibitor, n=1	After dose 1 and dose 2
JAK inhibitor, n=1	After dose 1 and dose 2