

THE LANCET

Rheumatology

Supplementary appendix

This appendix formed part of the original submission. We post it as supplied by the authors.

Supplement to: Barbhaiya M, Levine J M, Bykerk V P, et al. Immunomodulatory and immunosuppressive medication modification among patients with rheumatic diseases at the time of COVID-19 vaccination. *Lancet Rheumatol* 2021; published online Dec 7. [https://doi.org/10.1016/S2665-9913\(21\)00372-6](https://doi.org/10.1016/S2665-9913(21)00372-6).

Supplementary Table 1. Source of Immunomodulatory and Immunosuppressive Medication Modifications Among Rheumatology Patients At the time of COVID-19 Vaccination

N (%)	1 st Dose N=1852			2 nd Dose N=1173			
	Any Modifications	Medication Taken Early Before Vaccine	Medication Delayed or Skipped Before Vaccine	Any Modifications	Medication Delayed or Skipped Between 1 st and 2 nd Vaccine Dose	Medication Taken Early Before Vaccine	Medication Delayed or Skipped After Vaccine
Any Immunomodulatory/Immunosuppressive Medication (including corticosteroids)							
Total, N	215	41	174	251	105	41	105
• By rheumatologist (N,%)	94/215 (43.7)	17/41 (41.5)	77/174 (44.3)	116/251 (46.2)	51/105 (48.6)	10/41 (24.4)	55/105 (52.4)
• By another physician (N, %)	9/215 (4.2)	3/41 (7.3)	6/174 (3.4)	11/251 (4.4)	4/105 (3.8)	1/41 (2.4)	6/105 (5.7)
• By patient (N,%)	112/215 (52.1)	21/41 (51.2)	91/174 (52.3)	124 /251(49.4)	50/105 (47.6)	30/41 (73.2)	44/105 (41.9)
Any Immunomodulatory/Immunosuppressive Medication (excluding corticosteroids)							
Total, N	204	37	167	241	102	36	103
• By rheumatologist (N, %)	90/204 (44.1)	15/37 (40.5)	75/167 (44.9)	113/241 (46.9)	50/102 (49)	9/36 (25)	54/103 (52.4)
• By another physician (N, %)	8/204 (3.9)	3/37 (8.1)	5/167 (3)	11/241 (4.6)	4/102 (3.9)	1/36 (2.8)	6/103 (5.8)
• By patient (N, %)	106/204 (52)	19/37 (51.4)	87/167 (52.1)	117/241 (48.5)	48/102 (47.1)	26/36 (72.2)	43/103 (41.7)
Hydroxychloroquine	24	11	13	20	5	13	2
• By rheumatologist (N, %)	2/24 (8.3)	1/11 (9.1)	1/13 (7.7)	3/20 (15)	0/5 (0)	3/13 (23.1)	0/2 (0)
• By another physician (N, %)	2/24 (8.3)	1/11 (9.1)	1/13 (7.7)	2/20 (10)	1/5 (20)	1/13 (7.7)	0/2 (0)
• By patient (N, %)	20/24 (83.3)	9/11 (81.8)	11/13 (84.6)	15/20 (75)	4/5 (80)	9/13 (69.2)	2/2 (100)
Biologics*	94	13	81	104	46	10	48
• By rheumatologist (N, %)	40/94 (42.6)	8/13 (61.5)	32/81 (39.5)	44/104 (42.3)	20/46 (43.5)	3/10 (30)	21/48 (43.8)
• By another physician (N, %)	4/94 (4.3)	2/13 (15.4)	2/81 (2.5)	6/104 (5.8)	2/46 (4.3)	0/10 (0)	4/48 (8.3)

• By patient (N, %)	50/94 (53.2)	3/13 (23.1)	47/81 (94.0)	54/104 (51.9)	24/46 (52.2)	7/10 (70)	23/48 (47.9)
Conventional DMARDs †	76	12	64	106	48	11	47
• By rheumatologist (N, %)	42/76 (55.3)	6/12 (50)	36/64 (56.3)	62/106 (58.5)	28/48 (58.3)	3/11 (27.3)	31/47 (66)
• By another physician (N, %)	2/76 (2.6)	0/12 (0)	2/64 (3.1)	3/106 (2.8)	1/48 (2.1)	0/11 (0)	2/47 (4.3)
• By patient (N, %)	32/76 (42.1)	6/12 (50)	26/64 (40.6)	41/106 (38.7)	19/48 (39.6)	8/11 (72.7)	14/47 (29.8)
Small Molecules‡	10	1	9	5	3	2	6
• By rheumatologist (N, %)	6/10 (60)	0/1 (0)	6/9 (66.7)	2/5 (40)	2/3 (66.7)	0/2 (0)	2/6 (33.3)
• By another physician (N, %)	0/10 (0)	0/1 (0)	0/9 (0)	0/5 (0)	0/3 (0)	0/2 (0)	0/6 (0)
• By patient (N, %)	4/10 (40)	1/1 (100)	3/9 (33.3)	3/5 (60)	1/3 (33.3)	2/2 (100)	4/6(66.7)
Corticosteroids§							
Total	11	4	7	8	3	5	2
• By rheumatologist (N, %)	4/11 (36.4)	2/4 (50)	2/7 (28.6)	2/8 (25)	1/3 (33.3)	1/5 (20)	1/2 (50)
• By another physician (N, %)	1/11 (9.1)	0/4 (0)	1/7 (14.3)	0/8 (0)	0/3 (0)	0/5 (0)	0/2 (0)
• By patient (N, %)	6/11 (54.5)	2/4 (50)	4/7 (57.1)	6/8 (75)	2/3 (66.7)	4/5 (80)	1/2 (50)
Individual numbers were rounded to the nearest tenth. Percentages are reported as column percentages.							
*Infliximab, Etanercept, Adalimumab, Golimumab, Certolizumab, Anakinra, Canakinumab, Rilonacept, Tocilizumab , Sarilumab, Secukinumab, Ixekizumab, Ustekinumab, Guselkumab, Abatacept, Rituximab, Belimumab †Methotrexate, Azathioprine/6-MP, Leflunomide, Mycophenolate Mofetil/Mycophenolic Acid, Sulfasalazine ‡Baricitinib, Tofacitinib, Upadacitinib §Prednisone, Methylprednisolone, Steroid Injection ("Cortisone Shot")							

Supplementary Table 2. Distribution of Systemic Rheumatic and Musculoskeletal Diseases Among Survey Recipients and Respondents

	Survey Recipients N=7505	Survey Respondents N=2753	Survey Respondents Who Received COVID-19 Vaccination* N=1852
Systemic Rheumatic Disease, N (%)	3545/7505 (47.2)	1493/2753 (54.2)	1076/1852 (58.1)
• Autoinflammatory Syndrome	2/7505 (0)	0/2753 (0)	0/1852 (0)
• Primary Antiphospholipid Syndrome	93/7505 (1.2)	43/2753 (1.6)	36/1852 (1.9)
• Ankylosing spondylitis/sacroiliitis	131/7505 (1.7)	52/2753 (1.9)	30/1852 (1.6)
• Behcets	15/7505 (0.2)	3/2753 (0.1)	1/1852 (0.1)
• Diffuse eosinophilic fasciitis	4/7505 (0.1)	3/2753 (0.1)	1/1852 (0.1)
• Enteropathic arthritis-multiple sites, Inflammatory ASsociated with IBD	21/7505 (0.3)	8/2753 (0.3)	5/1852 (0.3)
• IgG4-Related Disease	0/7505 (0)	0/2753 (0)	0/1852 (0)
• Juvenile Arthritis	55/7505 (0.7)	23/2753 (0.8)	13/1852 (0.7)
• Myositis	105/7505 (1.4)	45/2753 (1.6)	31/1852 (1.7)
• Overlap	80/7505 (1.1)	28/2753 (1)	19/1852 (1)
• Palindromic rheumatism	10/7505 (0.1)	3/2753 (0.1)	2/1852 (0.1)
• Polyarthrits	80/7505 (1.1)	36/2753 (1.3)	26/1852 (1.4)
• Polymyalgia Rheumatica	182/7505 (2.4)	74/2753 (2.7)	63/1852 (3.4)
• Psoriatic Arthritis	455/7505 (6.1)	212/2753 (7.7)	162/1852 (8.7)
• Rheumatoid arthritis	1394/7505 (18.6)	610/2753 (22.2)	444/1852 (24)
• Relapsing Polychondritis	7/7505 (0.1)	5/2753 (0.2)	5 /1852 (0.3)
• Sarcoidosis	53/7505 (0.7)	23/2753 (0.8)	16/1852 (0.9)
• Sjogren’s/Sicca Syndrome	292/7505 (3.9)	128/2753 (4.6)	81/1852 (4.4)
• Lupus	466/7505 (6.2)	186/2753 (6.8)	135/1852 (7.3)
• Inflammatory Spondyloarthropathy	89/7505 (1.2)	39/2753 (1.4)	29/1852 (1.6)
• Systemic sclerosis	114/7505 (1.5)	43/2753 (1.6)	28/1852 (1.5)
• UCTD	410/7505 (5.5)	157/2753 (5.7)	104/1852 (5.6)
• MCTD	25/7505 (0.3)	12/2753 (0.4)	9/1852 (0.5)
• Vasculitis	132/7505 (1.8)	50/2753 (1.8)	39/1852 (2.1)

• SRD not meeting ICD-10 criteria**	25/7505 (0.3)	12/2753 (0.4)	7/1852 (0.4)
Non-Systemic Rheumatic Diseases (%)	2832/7505 (37.7)	935/2753 (34.0)	580/1852 (31.3)
• Primary Antiphospholipid Antibody Positive without Syndrome	26/7505 (0.3)	10/2753 (0.4)	10/1852 (0.5)
• Fibromyalgia	95/7505 (1.3)	24/2753 (0.9)	14/1852 (0.8)
• Gout	191/7505 (2.5)	59/2753 (2.1)	40/1852 (2.2)
• Joint Pain	0/7505 (0)	0/2753 (0)	0/1852 (0)
• Musculoskeletal Other	652/7505 (8.7)	218/2753 (7.9)	156/1852 (8.4)
• Myalgia	43/7505 (0.6)	11/2753 (0.4)	8/1852 (0.4)
• Neuralgia	0/7505 (0)	0/2753 (0)	0/1852 (0)
• Osteoarthritis	798/7505 (10.6)	293/2753 (10.6)	204/1852 (11)
• Osteoporosis	417/7505 (5.6)	160/2753 (5.8)	131/1852 (7.1)
• Pseudogout	34/7505 (0.5)	5/2753 (0.2)	4/1852 (0.2)
• Raynauds	48/7505 (0.6)	19/2753 (0.7)	15/1852 (0.8)
• Synovitis	22/7505 (0.3)	7/2753 (0.3)	6/1852 (0.3)
• Trigger Finger	0/7505 (0)	0/2753 (0)	0/1852 (0)
• Uveitis	0/7505 (0)	0/2753 (0)	0/1852(0)
• Non- SRD not meeting study ICD-10 criteria***	1293/7505 (17.2)	404/2753 (14.7)	211/1852 (11.4)
<p>*Survey respondents who answered the COVID-19 vaccine survey and received at least one dose of SARS-CoV-2 vaccination were included in the current analysis.</p> <p>**Includes any patient with 2 or more visits who have 2 or more SRD ICD-10 codes that are not the same.</p> <p>***Includes any patient with 1 or more visits who has 1 or more non-SRD codes that are not the same</p>			

Supplementary Table 3. Demographics of Survey Recipients and Respondents			
	Survey Recipients N=7505	Survey Respondents N=2753	Survey Respondents Who Received COVID-19 Vaccination* N=1852
Age (mean), years	60.2	61.3	63.0
Sex			
Male	1731/7505 (23.1)	589/2753 (21.4)	378/1852 (20.4)
Female	5772/7505 (76.9)	2164/2753 (78.6)	1474/1852 (79.6)
Race			
American Indian/Alaskan Native/Native Hawaiian/Other	380/7505 (5.1)	112/2753 (4.1)	67/1852 (3.6)
Asian/ Indian Subcontinent	286/7505 (3.8)	79/2753 (2.9)	55/1852 (3)
Black	347/7505 (4.6)	104/2753 (3.8)	58/1852 (3.1)
White	6236/7505 (83.1)	2377/2753 (86.3)	1619/1852 (87.4)
Prefer not to answer	254/7505 (3.4)	81/2753 (2.9)	53/1852 (2.9)
Ethnicity			
Hispanic or Latinx	497/7505 (6.6)	168/2753 (6.1)	88/1852 (4.8)
Not Hispanic or Latinx	6809/7505 (90.7)	2518/2753 (91.5)	1716/1852 (92.7)
Unknown	197/7505 (2.6)	67/2753 (2.4)	48/1852 (2.6)
*Survey respondents who answered the COVID-19 vaccine survey and received at least one dose of SARS-CoV-2 vaccination were included in the current analysis.			