

Supplemental Table 1: Co-Morbidity and Medication Data

	Adult		Pediatric	
	CPD (n=19)	COVID-ARDS (n=13)	MIS-C (n=16)	Non MIS-C (n=31)
Co-Morbidities (%)				
Asthma	na	0	4 (25%)	1 (3%)
Current or Former Smoker	na	3 (23%)	0	0
Chronic Obstructive Pulmonary Disease	na	2 (15%)	0	0
Chronic Neurologic Diseases and Dementia	na	1 (7%)	0	0
Chronic Kidney Disease	na	0	0	1 (3%)
Diabetes	na	4 (31%)	0	0
Hypertension	na	4 (31%)	0	1 (3%)
Treatment^a				
Convalescent Plasma	na	4 (31%)	0	0
Hydrocortisone	na	6 (46%)	3 (19%)	0
Intravenous Immunoglobulin	na	0	14 (88%)	2 (6%)
Methylprednisone	na	9 (69%)	15 (94%)	1 (3%)
Monoclonal Antibody ^b	na	7 (54%)	3 (19%)	0
Remdesevir	na	6 (40%)	1 (6%)	1 (3%)
Abbreviations: CPD, convalescent plasma donor; ARDS, Acute Respiratory Distress Syndrome; MIS-C, Multisystem Inflammatory Syndrome in Children				
a Samples obtained post treatment; Convalescent plasma (n=1 COVID-ARDS), Hydrocortisone (n=1 COVID-ARDS, n=3 MIS-C), Intravenous Immunoglobulin (n=6 MIS-C, n=0 Non MIS-C), Methylprednisone (n=8 COVID-ARDS, n=10 MIS-C, n=1 Non MIS-C), Monoclonal Antibodies (n=6 COVID-ARDS, n=1 MIS-C), Remdesevir (n=2 COVID-ARDS, n=1 MIS-C, n=1 Non MIS-C)				
b Received or enrolled in blinded trial; Anikinra (n=2 MIS-C), Eculizumab (n=1 MIS-C), Tocilizumab (n=5 COVID-ARDS, n=1 MIS-C), Sarilumab (n=2 COVID-ARDS)				

Supplemental Table 2: Characteristics of Pediatric Non MIS-C Subjects

	Pediatric Non MIS-C Subjects (n=31)
Clinical Presentation	
Surgical	9 (29%)
COVID-19 Symptoms	7 (23%)
Psychiatric	4 (13%)
Trauma	3 (10%)
Fever – non COVID	2 (6%)
Other	6 (19%)
Abbreviations: MIS-C, Multisystem Inflammatory Syndrome in Children	

Supplemental table 3: Multivariate analysis of anti-SARS-CoV-2 antibody measurements in this study.

Variable	Neutralizing Activity			Anti-S IgG			Anti-S IgM			Anti-N IgG		
	Regression Coefficient ^a	SE	P value ^b	Regression Coefficient ^a	SE	P value ^b	Regression Coefficient ^a	SE	P value ^b	Regression Coefficient ^a	SE	P value ^b
Combined adult and pediatric (n=79)												
Time post symptom onset	0.0056	0.0044	0.2083	0.0255	0.0076	0.0015	0.0149	0.0136	0.2779	-0.0061	0.0057	0.2870
Male	-0.0015	0.1002	0.9884	0.2426	0.1747	0.1703	0.6404	0.3125	0.0450	0.0872	0.1296	0.5037
ARDS	0.4317	0.1423	0.0036	1.5280	0.2482	<0.0001	1.8680	0.4439	<0.0001	0.0242	0.1841	0.8961
MIS-C	0.0765	0.1788	0.6705	1.0390	0.3118	0.0015	0.8714	0.5576	0.1235	-0.2938	0.2313	0.2091
Pediatric	-0.3181	0.1311	0.0184	-0.3797	0.2285	0.1021	-0.9692	0.4087	0.0211	-0.4703	0.1696	0.0074
Adult subjects (n=32)												
Age	-0.0018	0.0043	0.6853	-0.0069	0.0082	0.4076	-0.0063	0.0161	0.6968	0.0128	0.0065	0.0600
Time post symptom onset	0.0092	0.0083	0.2775	0.0272	0.0159	0.0982	0.0257	0.0311	0.4172	-0.0120	0.0126	0.3491
Male	0.0508	0.1585	0.7511	0.1975	0.3041	0.5215	0.7707	0.5962	0.2071	-0.0018	0.2416	0.9942
ARDS	0.4632	0.1751	0.0134	1.6120	0.3359	<0.0001	1.9780	0.6584	0.0057	-0.1029	0.2668	0.7029
Pediatric subjects (n=47)												
Age	-0.0268	0.0124	0.0394	-0.0360	0.0188	0.0661	-0.0363	0.0269	0.1889	-0.0008	0.0085	0.9295
Time post symptom onset	0.0016	0.0049	0.7407	0.0219	0.0074	0.0064	0.0057	0.0106	0.5965	-0.0008	0.0033	0.8179
Male	-0.0600	0.1246	0.6344	0.2888	0.1894	0.1388	0.4898	0.2709	0.0817	0.1750	0.0854	0.0503
MIS-C	-0.0722	0.1843	0.6985	0.9261	0.2800	0.0027	0.5393	0.4006	0.1894	-0.1206	0.1263	0.3479

Abbreviations: ARDS, Acute Respiratory Distress Syndrome; MIS-C, Multisystem Inflammatory Syndrome in Children; SE, standard error.

^aResults shown are from multiple linear regression models (least squares regression type) in which the outcome variables are neutralizing activity, abundance of anti-S IgG, anti-S IgM or anti-N IgG. For each variable,

^bP values were calculated using the *t* statistic with two-sided hypothesis testing. The unadjusted P values are reported.