**Supplemental Digital Content**

*Tripathi S, Gist K, Bjornstad E et al. COVID-19 associated Pediatric ICU Admissions: A report from the SCCM Discovery Network VIRUS Registry.*

SDC: Appendix Collaborative co-authors list

SDC A: Comparison of inflammatory markers between MIS-C and non-MIS-C at presentation.

SDC B: Discrete signs/symptoms in the virus registry, categorization, frequency distribution and comparison between MIS-C and non-MIS-C

SDC C: Discrete co-morbidities in the virus registry, categorization, frequency distribution and comparison between MIS-C and non-MIS-C

SDC D: Discrete complications in the virus registry, categorization, frequency distribution and comparison between MIS-C and non- MIS-C

SDC E: Comparison of patients with critical illness and moderate illness related to SARS-CoV-2 (MIS-C and non-MIS-C)

SDC F: Survey requesting information on overlap from participating sites.

SDC G: Other manuscripts with potentially overlapping patients.

SDC H: Contributing site list with maximum possible overlap.

SDC I: STROBE checklist

**eAppendix**

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**SDC Table A:** Inflammatory mediators in the total cohort of ICU admissions with COVID-19 related diseases and comparative analysis between MIS-C and non-MIS-C admissions

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Category |  | Total cohortN=394 | MIS-CN=171 | Non-MIS-CN=223 | P value |
| Total leukocyte count(103/mm3) | Highest | 11.5 (7.1, 16.6)N= 278 | 12.4 (8.4, 18.7)N= 140 | 9.7 (5.6, 16.0)N= 138 | <0.01 |
| Platelet count(103/µL) | Lowest | 193 (128, 274)N= 284 | 152 (104, 236)N= 148 | 222 (165, 309)N= 136 | <0.01 |
| C-reactive protein(mg/Lt) | Highest | 42 (8, 185)N= 243 | 96.9 (20.6, 218.2)N= 142 | 12.2 (3.3, 57.0)N= 101 | <0.01 |
| Procalcitonin(ng/mL) | Highest | 2.4 (0.2, 17.7)N= 178 | 6.8 (0.8, 31.6)N= 120 | 0.2 (0.07, 1.0)N= 58 | <0.01 |
| Ferritin(ng/mL) | Highest | 376 (163, 948)N= 191 | 569 (274, 1180)N= 123 | 238 (61.6, 476.7)N= 68 | <0.01 |
| Interleukin-6(pg/mL) | Highest | 41.4 (11.2, 186.9)N= 56 | 69.1 (15.7, 198.2)N= 40 | 12.9 (5.4, 28.5)N= 16 | <0.01 |
| Serum albumin(gm/dL) | Lowest | 3.1 (2.4, 3.8)N= 233 | 2.6 (2.2, 3.2)N= 111 | 3.5 (2.9, 4.0)N= 119 | <0.01 |
| ALT/SGPT(units/L) | Highest | 32 (19, 59)N= 266 | 39 (23.7, 61)N= 142 | 27 (18, 53)N= 124 | <0.01 |
| Platelets <150 |  | 35.9% (102/284) | 49.3%(73/148) | 21.3% (29/136) | <0.01 |

**SDC Table B**: All discreet signs/symptoms in the VIRUS registry and their categorization. Patients could have more than one sign or symptom selected, so columns will add to more than 100%.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Category | Included symptoms | Total COVIDCohort | MIS-C |  Non-MIS-C  | p-value |
| **Gastrointestinal** | **Combined** | **237 (60.2%)** | **142 (83.0%)** | **95 (42.6%)** | **<0.001** |
|  | Abdominal pain | 118 (29.9%) | 80 (46.8%) | 38 (17.0%) | <0.001 |
|  | Loss of appetite | 73 (18.5%) | 48 (28.1%) | 25 (11.1%) | <0.001 |
|  | Diarrhea | 100 (25.4%) | 71 (41.5%) | 29 (13.0%) | <0.001 |
|  | Nausea, vomiting | 163 (41.0%) | 99 (57.9%) | 64 (28.7%) | <0.001 |
| **Respiratory** | **Combined** | **183(46.4%)** | **59 (34.5%)** | **124 (55.6%)** | **<0.001** |
|  | Chest pain/tightness | 32 (8.0%) | 9 (5.3%) | 23 (10.3%) | 0.09 |
|  | Cough | 128 (32.5%) | 41 (24.0%) | 87 (39.0%) | 0.002 |
|  | Dyspnea/shortness of breath | 116 (29.4%) | 31 (18.1%) | 85 (38.1%) | <0.001 |
|  | Hemoptysis | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
| **Neurology** | **Combined** | **108 (27.4%)** | **62 (36.3%)** | **46 (20.6%)** | **<0.001** |
|  | Confusion/delirium | 12 (3.0%) | 6 (3.5%) | 6 (2.7%) | 0.70 |
|  | Dizziness/lightheadedness | 20 (5.1%) | 13 (7.6%) | 7 (3.1%) | 0.60 |
|  | Headache | 80 (20.3%) | 52 (30.4%) | 28 (12.6%) | <0.001 |
|  | Seizures | 21 (5.3%) | 3 (1.8%) | 18 (8.1%) | 0.005 |
| **Constitutional** | **Combined** | **318 (80.7%)** | **163 (95.3%)** | **155 (69.5%)** | **<0.001** |
|  | Chills/rigors | 12 (3.0%) | 9 (5.3%) | 3 (1.3%) | 0.03 |
|  | Fever | 278 (70.6%) | 154 (90.1%) | 124 (55.6%) | <0.001 |
|  | Myalgia/fatigue | 106 (26.9%) | 64 (37.4%) | 42 (18.8%) | <0.001 |
|  | Malaise | 44 (11.1%) | 27 (15.8%) | 17 (7.6%) | 0.01 |
|  | Night sweats | 2 (0.5%) | 1 (0.5%) | 1 (0.4%) | 1.0 |
|  | Lymphadenopathy | 16 (4.1%) | 15 (8.7%) | 1 (0.4%) | <0.001 |
|  | Rash | 77 (19.5%) | 68 (39.8%) | 9 (4.0%) | <0.001 |
|  | Arthralgia | 6 (1.5%) | 2 (1.1%) | 4 (1.8%) | 0.70 |
| **Head/ENT** | **Combined** | **115 (28.2%)** | **64 (37.4%)** | **51 (22.9%)** | **0.002** |
|  | Loss of taste | 5 (1.3%) | 4 (2.3%) | 1 (0.4%) | 0.17 |
|  | Loss of smell | 9 (2.3%) | 4 (2.3%) | 5 (2.2%) | 1.0 |
|  | Conjunctival congestion | 40 (10.0%) | 35 (20.5%) | 5 (2.2%) | <0.001 |
|  | Nasal congestion/rhinorrhea | 43 (10.9%) | 10 (5.8%) | 33 (14.8%) | 0.005 |
|  | Sneezing | 3 (0.8%) | 0 (0%) | 3 (1.3%) | 0.26 |
|  | Sore throat/throat pain | 35 (8.9%) | 23 (13.5%) | 12 (5.4%) | 0.007 |
| **Other** | **Combined** | **146 (37.1%)** | **59 (34.5%)** | **88 (39.2%)** | **0.29** |

**SDC Table C**: Discrete comorbidities in the VIRUS registry and frequency distribution.

| Group | Comorbidity | Total COVID Cohort | MIS-C | Non-MIS-C | P-value |
| --- | --- | --- | --- | --- | --- |
| **Cardiac** | **Combined** | **35 (8.9%)** | **9 (5.3%)** | **26 (11.7%)** | **0.03** |
|  | Congenital corrected | 8 (2.0%) | 3 (1.8%) | 5 (2.2%) | 1.0 |
|  | Congenital uncorrected | 10 (2.5%) | 2 (1.1%) | 8 (3.6%) | 0.19 |
|  | Cardiomyopathy/heart failure | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Arrhythmia | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Single ventricle with/without palliation | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Acquired cardiac disease | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Other | 15 (3.8%) | 4 (2.3%) | 11 (4.9%) | 0.19 |
| **Pulmonary** | **Combined** | **98 (24.9%)** | **26 (15.0%)** | **73 (32.7%)** | **<0.001** |
|  | Chronic ventilation (tracheostomy) | 7 (1.8%) | 1 (0.6%) | 6 (2.7%) | 0.14 |
|  | Chronic ventilation (NIPPV) | 7 (1.8%) | 2 (1.2%) | 5 (2.2%) | 0.70 |
|  | Asthma | 58 (14.7%) | 21 (12.3%) | 37 (16.6%) | 0.25 |
|  | Chronic lung disease/BPD | 17 (4.3%) | 0 (0%) | 17 (7.6%) | <0.001 |
|  | Cystic fibrosis | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | Other | 24 (6.1%) | 5 (2.9%) | 19 (8.5%) | 0.02 |
| **Renal** | **Combined** | **15 (3.8%)** | **3 (1.7%)** | **12 (5.4%)** | **0.06** |
|  | Chronic kidney disease on dialysis | 1 (0.3%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Chronic kidney disease not on dialysis | 1 (0.3%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Congenital anomalies of kidney and urinary tract | 3 (0.8%) | 1 (0.6%) | 2 (0.9%) | 1.0 |
|  | Other | 11 (2.8%) | 2 (1.2%) | 9 (4.0%) | 0.12 |
| **Neurology** | **Combined** | **74 (18.8%)** | **19 (10.9%)** | **56 (25.1%)** | **<0.001** |
|  | Static encephalopathy/CP | 12 (3.0%) | 1 (0.6 %) | 11 (4.9%) | 0.01 |
|  | Seizure/epilepsy | 41 (10.4%) | 7 (4.1%) | 34 (15.3%) | <0.001 |
|  | Stroke | 5 (1.3%) | 0 (0%) | 5 (2.2%) | 0.07 |
|  | Developmental delay | 33 (8.4%) | 8 (4.7%) | 25 (11.2%) | 0.03 |
|  | Other | 43 (10.9%) | 9 (5.3%) | 34 (15.2%) | 0.003 |
| **GI/liver** | **Combined** | **74 (18.8%)** | **23 (13.2%)** | **52 (23.32%)** | **0.01** |
|  | Chronic liver disease | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Chronic cholestasis | 2 (0.5%) | 1 (0.6%) | 2 (0.9%) | 1.0 |
|  | Inflammatory bowel disease | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | Obesity | 40 (10.2%) | 16 (9.2%) | 24 (10.7%) | 0.73 |
|  | Malnutrition | 4 (1.0%) | 0 (0%) | 4 (1.8%) | 0113 |
|  | Other | 34 (8.6%) | 6 (3.5%) | 28 (12.6%) | 0.001 |
| **Other** | **Combined** | **62 (15.7%)** | **11 (6.3%)** | **51 (22.8%)** | **<0.001** |
|  | Immune deficiency | 5 (1.3%) | 1 (0.6%) | 4 (1.8%) | 0.39 |
|  | Lupus | 3 (0.8%) | 1 (0.6%) | 2 (0.9%) | 1.0 |
|  | Diabetes (type I or type II) | 19 (4.8%) | 4 (2.3%) | 15 (6.7%) | 0.06 |
|  | Leukemia/lymphoma | 6 (1.5%) | 0 (0%) | 6 (2.7%) | 0.03 |
|  | Solid tumor | 4 (1.0%) | 0 (0%) | 4 (1.8%) | 0113 |
|  | Cancer in remission | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Other | 32 (8.0%) | 6 (3.5%) | 26 (11.7%) | 0.002 |
| **Transplant** | **Combined** | **5 (1.3%)** | **0 (0%)** | **5 (2.2%)** | **0.07** |
|  | Bone marrow transplant | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Liver transplant | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Heart transplant | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Lung transplant | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | Multi visceral transplant | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | Other transplant | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |

Patients could have more than one comorbidity, so columns total to more than 100%.

**SDC Table D:** Discrete complications in the VIRUS registry by category.

| Group | Complication | Total COVID Cohort | MIS-C |  Non-MIS-C | p-value  |
| --- | --- | --- | --- | --- | --- |
| **Cardiac** | **Combined** | **106 (26.9%)** | **85 (49.5%)** | **23 (10.3%)** | **<0.001** |
|  | Acute cardiac injury | 24 (6.1%) | 22 (13.0%) | 2 (0.9%) | <0.001 |
|  | Cardiac arrest | 9 (2.3%) | 5 (2.9%) | 4 (1.8%) | 0.34 |
|  | Cardiomyopathy | 7 (1.8%) | 7 (4.0%) | 0 (0%) | 0.002 |
|  | Congestive heart failure | 4 (1.0%) | 3 (1.8%) | 1 (0.4%) | 0.32 |
|  | Cardiac arrhythmia (new onset) | 10 (2.5%) | 6 (3.5%) | 4 (1.8%) | 0.34 |
|  | Myocarditis | 38 (9.6%) | 32 (18.7%) | 6 (2.6%) | <0.001 |
|  | Pericarditis | 2 (0.5%) | 0 (0%) | 2 (0.9%) | 0.50 |
|  | Endocarditis | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | High BNP/NT Pro BNP | 63 (16.0%) | 56 (32.7%) | 7 (3.1%) | <0.001 |
|  | ST elevation | 3 (0.8%) | 2 (1.1%) | 1 (0.4%) | 0.58 |
| **Pulmonary** | **Combined** | **47 (11.9%)** | **23 (13.5%)** | **24 (10.8%)** | **0.43** |
|  | Bacterial pneumonia | 22 (5.6%) | 6 (3.5%) | 16 (7.2%) | 0.12 |
|  | Pleural effusion  | 21 (5.3%) | 14 (8.2%) | 7 (3.1%) | 0.04 |
|  | Lung abscess | 0 (0%) | 0 (0%) | 0 (0%) | NA |
|  | Empyema | 2 (0.5%) | 1 (0.6%) | 1 (0.4%) | 1.0 |
|  | Pleurisy | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Pneumothorax | 4 (1.0%) | 3 (1.8%) | 1 (0.4%) | 0.32 |
|  | Cryptogenic organizing pneumonia | 0 (0%) | 0 (0%) | 0 (0%) | NA |
| **Renal** | **Combined** | **67 (17.0%)** | **46 (26.9%)** | **21 (9.4%)** | **<0.001** |
|  | Acute kidney injury | 62 (16.7%) | 43 (25.1%) | 19 (8.5%) | <0.001 |
|  | Renal failure (not included in the above) | 5 (1.3%) | 3 (1.8%) | 2 (0.9%) | 0.45 |
| **Hematology** | **Combined** | **50 (12.7%)** | **30 (17.5%)** | **20 (9.0%)** | **0.009** |
|  | Anemia | 35(9.1%) | 23 (13.5%) | 12 (5.4%) | 0.004 |
|  | Deep vein thrombosis | 4 (1.0%) | 0 (0%) | 4 (1.8%) | 0.13 |
|  | Disseminated intravascular coagulation | 19 (4.8%) | 13 (7.7%) | 6 (2.7%) | 0.01 |
| **Infectious disease** | **Combined** | **60 (15.2%)** | **42 (24.5%)** | **18 (8.1%)** | **<0.001** |
|  | Bacteremia | 9 (2.3%) | 5 (2.9%) | 4 (1.8%) | 0.51 |
|  | Co or secondary infection | 12 (3.0%) | 5 (2.9%) | 7 (3.1%) | 1.0 |
|  | Septic shock | 44 (11.1%) | 35 (20.5%) | 9 (4.0%) | <0.001 |
|  | Bed ulcers | 0 (0%) | 0 (0%) | 0 (0%) | NA |
| **Gastrointestinal** | **Combined** | **26 (6.6%)** | **17 (9.9%)** | **9 (4.0%)** | **0.01** |
|  | Liver dysfunction | 20 (5.1%) | 15 (8.8%) | 5 (2.2%) | 0.004 |
|  | Gastrointestinal hemorrhage | 5 (1.3%) | 3 (1.8%) | 2 (0.9%) | 0.41 |
|  | Pancreatitis | 3 (0.8%) | 0 (0%) | 3 (1.3%) | 0.26 |
| **Endocrine** | **Combined** | **28 (7.0%)** | **15 (8.8%)** | **13 (5.8%)** | **0.24** |
|  | Hyperglycemia | 28 (7.1%) | 16 (9.2%) | 13 (5.8%) | 0.24 |
|  | Hypoglycemia | 1 (0.2%) | 1 (0.6%) | 1 (0.4%) | 1.0 |
| **Neurology** | **Combined** | **15 (3.8%)** | **6 (3.5%)** | **9 (4.0%)** | **1.0** |
|  | Meningitis/encephalitis | 6 (1.5%) | 4 (2.3%) | 2 (0.0%) | 0.4 |
|  | Seizures | 9 (2.3%) | 2 (1.1%) | 7 (3.1%) | 0.30 |
|  | Stroke/Cerebrovascular accident | 1 (0.2%) | 0 (0%) | 1 (0.4%) | 1.0 |
|  | Rhabdomyolysis/myositis | 1 (0.2%) | 1 (0.6%) | 0 (0%) | 0.43 |
| **Other** | **Combined** | **126 (32.0%)** | **61 (35.7%)** | **65 (29.0%)** | **0.19** |

Patients could have more than one complication, so columns may sum to more than 100%.

**SDC Table E:** Comparison of patients with critical disease and moderate disease related to COVID-19 (with or without MIS-C)

| **Category** | **Subcategory** | **Moderate illness** | **Critical** **illness** | **P value** |
| --- | --- | --- | --- | --- |
| ***MIS-C*** | ***N= 76*** | ***N= 95*** |  |
| Age (years) |  | 7 (2, 12.8) | 10 (6, 13.4) | <0.01 |
| Age a |  |  |  | <0.01 |
|  | Neonate | 0 (0%) | 1 (1.1%) |  |
|  | Infant | 17 (22.4%) | 6 (6.3%) |  |
|  | Child | 38 (50.0%) | 47 (48.5%) |  |
|  | Adolescent | 21 (27.6%) | 41 (43.1%) |  |
| Sex | Male | 45 (59.2%) | 59 (60.8%) | 0.87 |
| Race b |  |  |  | 0.43 |
|  | Black | 19 (29.7%) | 38 (40.0%) |  |
|  | White | 31 (48.4%) | 39 (41.1%) |  |
|  | Other | 14 (21.8%) | 18 (18.5%) |  |
| Ethnicity | Hispanic | 17 (30.9%) | 21 (25.0%) | 0.70 |
| Obese c | Yes | 22 (37.3%) | 39 (45.3%) | 0.30 |
| Symptoms | Fever | 72 (94.7%) | 82 (86.7%) | 0.08 |
|  | Nausea/vomiting | 39 (51.3%) | 60 (63.2%) | 0.12 |
|  | Cough | 17 (22.4%) | 24 (25.2%) | 0.72 |
|  | Abdominal pain | 31 (40.8%) | 49 (50.6%) | 0.17 |
|  | Dyspnea | 11 (14.5%) | 20 (21.1%) | 0.32 |
| > 3 symptoms |  | 65 (85.5%) | 89 (93.7%) | 0.12 |
| Comorbidities | Asthma | 7 (9.2%) | 14 (14.7%) | 0.35 |
|  | Seizure disorder | 3 (4.0%) | 4 (4.2%) | 1.00 |
|  | Developmental delay | 4 (5.3%) | 4 (4.1%) | 1.00 |
|  | Diabetes | 1 (1.3%) | 3 (3.2%) | 0.63 |
|  | Chronic lung disease | 0 (0%) | 0 (0%) | NA |
| Any Comorbidity | Yes | 23 (30.3%) | 34 (36.0%) | 0.51 |
| >2 comorbidities | Yes | 7 (9.2%) | 18 (19.5%) | 0.08 |
| PRISM Ⅲ score |  | 3 (0, 8) (n= 65) | 5 (2, 10) (n= 85) | <0.01 |
| Bacterial co-infection | Yes | 11 (14.5%) | 12 (12.6%) | 0.82 |
| ***Non-MIS-C*** | ***N= 154*** | ***N= 69*** |  |
| Age (years) |  | 10.2 (1.0, 15) | 11.5 (3.1, 15.6) | 0.11 |
| Age a | Neonate | 9 (5.8%) | 0 (0%) | 0.06 |
|  | Infant | 37 (24.0%) | 11 (15.9%) |  |
|  | Child | 39 (25.3%) | 24 (34.8%) |  |
|  | Adolescent | 69 (44.8%) | 34 (49.2%) |  |
| Sex | % Male | 77 (50.0%) | 38 (55.1%) | 0.56 |
| Race b |  |  |  | 0.34 |
|  | Black | 30 (19.5%) | 17 (24.6%) |  |
|  | White | 69 (44.8%) | 25 (36.2%) |  |
|  | Other | 48 (31.2%) | 26 (37.7%) |  |
| Ethnicity | % Hispanic | 50 (35.0%) | 23 (36.5%) | 0.85 |
| Obese c | Yes | 44 (43.1%) | 29 (50.1%) | 0.40 |
| Symptoms | Fever | 80 (52.0%) | 44 (63.8%) | 0.11 |
|  | Nausea, vomiting | 47 (30.5%) | 17 (24.6%) | 0.43 |
|  | Cough | 58 (37.7%) | 29 (42.0%) | 0.56 |
|  | Abdominal pain | 27 (17.5%) | 11 (15.9%) | 0.85 |
|  | Dyspnea | 53 (34.4%) | 32 (46.4%) | 0.10 |
| > 3 symptoms |  | 98 (63.6%) | 45 (65.2%) | 0.88 |
| Comorbidities | Asthma | 26 (16.9%) | 11 (15.9%) | 1.00 |
|  | Seizure disorder | 17 (11.0%) | 17 (24.6%) | 0.01 |
|  | Developmental delay | 11 (7.1%) | 14 (20.3%) | 0.06 |
|  | Diabetes | 13 (8.4%) | 2 (2.9%) | 0.16 |
|  | Chronic lung disease | 8 (5.2%) | 9 (13.0%) | 0.06 |
| Any comorbidity | Yes | 89 (57.8%) | 49 (71.0%) | 0.07 |
| >2 comorbidities |  | 47 (30.5%) | 38 (55.1%) | <0.01 |
| PRISM score |  | 2 (0, 5) n= 106 | 5 (0, 10) n= 53 | <0.01 |
| Bacterial co-infection |  | 12 (7.8%) | 25 (36.2%) | <0.01 |

a Neonate (≤28 days); Infant (> 28 days to < 2 years); Child (≥ 2 years to 12 years); Adolescent (≥ 12 years).

b Race category included 374 patients (12 patients in the MIS-C group and 8 patients in the non-MIS-C group had race listed as unknown and were excluded from this analysis).

c Obesity by BMI percentiles for ≥2 years of age only. Total eligible patients for BMI categorization 147 and 166 in MIS-C and non-MIS-C group respectively. Missing data on 2 and 7 respectively. Proportion out of 145 MIS-C patients and 159 non-MIS-C patients

**SDC Figure F**: Survey to request overlapping publications



**SDC Table G:** Manuscripts with potential overlapping patients.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Maximum Possible Overlap (N)** | **PubMed ID** |  **Author** | **Journal** | **Type of Patients** | **Last enrollment** |
| NA | 32649399 | Sachdeva et al | Pediatr Crit Care Med | PICU patients with COVID-19 - VPS database | May 26, 2020 |
| 36 | 32392288 | Shekerdemian et al |  JAMA Pediatr | Characteristics and Outcome of PICU patients with COVID-19 | April 10, 2020 |
| 167 | 33625505 | Feldstein et al | JAMA | MIS-C and Non-MIS-C | Oct 31, 2020 |
| 167 | 32598831 | Feldstein et al | N Engl J Med | MIS-C | May 20, 2020 |
| 27 | 33144276 | Bjornstad et al | Clin J Am Soc Nephrol | Acute kidney injury in patients with SARS-CoV-2 infection | May 20, 2020 |
| 24 | 33290544 | Diorio et al | Blood Adv | Thrombotic microangiopathy in children with SARS-CoV-2 | July 7, 2020 |
| 13 | 32730233 | Diorio et al | J Clin Invest | MIS-C and COVID-19 | May 15, 2020 |
| 12 | 32975439 | Minocha et al | Clin Pediatr (Phila) | Cardiac findings in patients with MIS-C | June 8, 2020 |
| 6 | 32463092 | Chiotos et al | J Pediatric Infect Dis Soc | MIS-C case series | Pre May 9, 2020 |
| 5 | 32970023 | Corwin et al | Pediatr Emerg Care | Differentiating MIS-C from Kawasaki, and benign inflammatory illness | May 15, 2020 |
| 4 | 33640331 | Becker et al | J Pediatr | Case series, Intracranial hypertension in MIS-C | Oct 31, 2020 |
| 3 | 32885904 | Diorio et al | Pediatr Blood Cancer | Convalescent plasma for pediatric patients with SARS-CoV-2-associated acute respiratory distress syndrome | Pre July 2020 |
| 3 | 32553861 | Kaushik et al | J Pediatr | MIS-C from New York | May 23, 2020 |
| 3 | 32681989 | Derespina et al | J Pediatr | Critically ill children with COVID-19 from New York | May 2, 2020 |
| 1 | 32795406 | Verkuil et al | Lancet | Pseudotumor cerebri with MIS-C | Pre Aug 2020 |
| 1 | 33450039 | Hoskins et al | Pediatr Ann | Case report: IgA vasculitis in a child with COVID-19 | Pre Jan 2021 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Site Name** | **Current study (N)** | **Maximum possible overlap with** **Feldstein et al (1) (N)** | **Maximum possible overlap with other studiesa (N)** | **Total possible maximum overlap excluding Sachdevaat al (2) (N)** | **Data reported to VPS (Max possible overlap)** |
|  | ***US Sites*** |  |  |  |  |  |
| 1 | Arkansas Children's Hospital, AK  | 13 | 13 | 0 | 13 | NAc |
| 2 | University of Alabama at Birmingham, AL  | 15 | 15 | 15 | 15 | NA |
| 3 | Lucile Packard Children's Hospital Stanford, CA  | 1 | 0 | 0 | 0 | NA |
| 4 | University of Colorado Anschutz Medical Campus, CO  | 36 | 36 | 36 | 36 | Yes  |
| 5 | Nicklaus Children’s Hospital, FL | 9 | 0 | 9 | 9 | Yes  |
| 6 | University of Florida Health Shands Hospital, FL | 4 | 0 | 0 | 0 | NA |
| 7 | Medical Center Navicent Health. GA | 3 | 0 | 0 | 0 | NA |
| 8 | St. Joseph's Candler Health System, GA | 1 | 0 | 0 | 0 | NA |
| 9 | Advocate Children's Hospital, IL | 27 | 4 | 1 | 4 | Yes (10) |
| 10 | OSF Children's Hospital of Illinois, IL | 8 | 0 | 0 | 0 | Yes  |
| 11 | University of Chicago, IL | 4 | 0 | 0 | 0 | NA |
| 12 | University of Iowa Carver College of Medicine, IO | 3 | 3 | 3 | 3 | NA |
| 13 | KCPCRU at Norton Children’s Hospital Louisville, KY | 13 | 13 | 13 | 13 | Yes  |
| 14 | Beaumont Children's Hospital, MI | 11 | 0 | 0 | 0 | NA |
| 15 | M Health-Fairview, University of Minnesota, MN | 16 | 16 | 16 | 16 | Yes  |
| 16 | Children’s Center, Mayo Clinic Rochester, MN | 10 | 10 | 10 | 10 | Yes  |
| 17 | Allina Health (Abbott Northwestern Hospital, United Hospital and Mercy Hospital in Minnesota), MN | 1 | 0 | 0 | 0 | NA |
| 18 | Cardinal Glennon Children's Hospital, MO | 13 | 0 | 0 | 0 | No |
| 19 | St. Louis Children’s Hospital, MO | 3 | 3 | 3 | 3 | Yes  |
| 20 | Wake Forest University School of Medicine; Wake Forest Baptist Health Network, NC | 2 | 0 | 0 | 0 | No |
| 21 | Hassenfeld Children's Hospital at NYU Langone, NY | 28 | 28 | 28 | 28 | NA |
| 22 | Lincoln Medical Center, NY | 18 | 0 | 0 | 0 | No |
| 23 | Albany Medical Center, NY | 4 | 0 | ? | 0 |  |
| 24 | Jacobi Medical Center, NY | 3 | 0 | 3 | 3 | Yes  |
| 25 | The Children's Hospital at OU Medicine, OK | 22 | 0 | 0 | 0 | Yes  |
| 26 | Children's Hospital of Philadelphia, PA | 60 | 20 | 29 | 57 | Yes (56) |
| 27 | The Children's Hospital of San Antonio, Baylor College of Medicine, TX | 22 | 0 | 0 | 0 | No |
| 28 | Baylor Scott & White Health, TX | 6 | 0 | 0 |  | Yes  |
| 29 | Virginia Commonwealth University Medical Center, VA | 3 | 0 | 0 | 0 | NA |
| 30 | Seattle Children's Hospital, WA | 6 | 6 | 6 | 6 | Yes  |
|  | ***Non-US sites*** |  |  |  |  |  |
| 31 | King Saud University, Saudi Arabia | 2 | 0 | 0 | 0 | No |
| 32 | The Aga Khan University Hospital, Pakistan | 11 | 0 | 0 | 0 | No |
| 33 | Dow University Hospital, Pakistan | 1 | 0 | 0 | 0 | No |
| 34 | Sapporo City General Hospital, Japan | 1 | 0 | 0 | 0 | No |
| 35 | Panimalar Medical College Hospital & Research Institute, India | 5 | 0 | 0 | 0 | No |
| 36 | Gandhi Medical College and Hospital, India | 4 | 0 | 0 | 0 | No |
| 37 | Medicover Hospitals, India | 3 | 0 | 0 | 0 | No |
| 38 | University Hospital of Split, Croatia | 2 | 0 | 0 | 0 | No |
|  |  | *394* | *167 b* | *172* | *216* |  |

a Pubmed ID and citations of other manuscripts with potential overlap provided in SDC X

b This number includes maximum patients that may have been included in the Overcoming COVID registry and not necessarily in the manuscript. Total overlapping number expected to be much less as Feldstein included all hospitalized patients, while we only included ICU patients.

C Information about participation in VPS registry not available.

1. Feldstein LR, Tenforde MW, Friedman KG, et al. Characteristics and Outcomes of US Children and Adolescents With Multisystem Inflammatory Syndrome in Children (MIS-C) Compared With Severe Acute COVID-19. JAMA 2021.

2. Sachdeva R, Rice TB, Reisner B, et al. The impact of coronavirus disease 2019 pandemic on US and Canadian PICUs. Pediatric Critical Care Medicine 2020;21(9):e643-e650.

**SDC I:** STROBE checklist

STROBE Statement—checklist of items that should be included in reports of observational studies

|  |  |  |  |
| --- | --- | --- | --- |
|  | Item No. | Recommendation | Page No. |
| **Title and abstract** | 1 | (*a*) Indicate the study’s design with a commonly used term in the title or the abstract | 1 |
| (*b*) Provide in the abstract an informative and balanced summary of what was done and what was found | 2 |
| Introduction |
| Background/rationale | 2 | Explain the scientific background and rationale for the investigation being reported | 4, 5 |
| Objectives | 3 | State specific objectives, including any prespecified hypotheses | 5 |
| Methods |
| Study design | 4 | Present key elements of study design early in the paper | 6 |
| Setting | 5 | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection | 6 |
| Participants | 6 | (*a*) *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up*Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls*Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants | 6 |
| (*b*)*Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed*Case-control study*—For matched studies, give matching criteria and the number of controls per case | 6 |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable | 6 |
| Data sources/ measurement | 8\* | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group | 6, 7 |
| Bias | 9 | Describe any efforts to address potential sources of bias | 7 |
| Study size | 10 | Explain how the study size was arrived at | 6 |

Continued on next page

|  |  |  |  |
| --- | --- | --- | --- |
| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why | 7, 8 |
| Statistical methods | 12 | (*a*) Describe all statistical methods, including those used to control for confounding | 8 |
| (*b*) Describe any methods used to examine subgroups and interactions | 8 |
| (*c*) Explain how missing data were addressed | 8 |
| (*d*) *Cohort study*—If applicable, explain how loss to follow-up was addressed*Case-control study*—If applicable, explain how matching of cases and controls was addressed*Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy | 8 |
| (*e*) Describe any sensitivity analyses | NA |
| **Results** |  |  |  |
| Participants | 13\* | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed | 10 |
| (b) Give reasons for non-participation at each stage | 10 |
| (c) Consider use of a flow diagram | NA |
| Descriptive data | 14\* | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders | 10, 11 |
| (b) Indicate number of participants with missing data for each variable of interest | NA |
| (c) *Cohort study*—Summarise follow-up time (eg, average and total amount) | 11 |
| Outcome data | 15\* | *Cohort study*—Report numbers of outcome events or summary measures over time | NA |
| *Case-control study—*Report numbers in each exposure category, or summary measures of exposure | 11 |
| *Cross-sectional study—*Report numbers of outcome events or summary measures | NA |
| Main results | 16 | (*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 12, 13Table 3Supplement 2 |
| (*b*) Report category boundaries when continuous variables were categorized | 12, 13Table 3Supplement 2 |
| (*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period | 12, 13 |
| Other analyses | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses | NA |
| **Discussion** |  |  | 14 |
| Key results | 18 | Summarise key results with reference to study objectives | 14, 16 |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias | 18 |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 18, 19 |
| Generalisability | 21 | Discuss the generalisability (external validity) of the study results | 18, 19 |
| Other information |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based | NA |

\*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.