Extracorporeal Life Support Organization (ELSO)

ELSO COVID-19 Addenda
04/19/2020

For all comments, questions and concerns please email
registrysupport@elso.org
**ELSO COVID-19 Addenda**

This form collects information about the patient during the admission for COVID-19. This is a quick form, please complete the entire ELSO Registry Data form for the patient as soon as possible.

<table>
<thead>
<tr>
<th>Data Field</th>
<th>Definition/ Explanation/ Example</th>
<th>Data Entry Rules</th>
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<th>Table Name</th>
<th>Column Name/ Stored Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID Comorbidity</td>
<td>This field collects any comorbidities existing prior to ECLS but during the same hospitalization as the ECLS run.</td>
<td>If Yes selected, then at least one must be selected.</td>
<td>03/23/2020 – present 04/19/2020 – present</td>
<td>COVID.CovidAddendum COVID.Comorbidity</td>
<td>CovidComorbidity Lookup Table: COVID.ComorbidityCodes Cancer – 1 Pregnancy – 2 Immunocompromised – 3 Chronic heart disease – 4 Diabetes – 5 Chronic lung disease – 6 Chronic Renal Insufficiency – 7 Frailty – 8 Obesity (BMI &gt;30 kg/m2) – 9 Hypertension - 10</td>
</tr>
</tbody>
</table>

- **Select Yes or No**
  - If Yes, select all that apply:
    - **Cancer:** Broad term for any proliferative abnormal growth of cells. Previously diagnosed
    - **Pregnancy:** Patient was pregnant at time of admission with COVID-19. If delivered prior to ECLS, still indicate pregnancy.
    - **Immunocompromised:** Patients who are immuno-compromised are considered vulnerable and may include:
      - a. Persons with primary or acquired immunodeficiency
      - b. Persons on anti-rejection therapy following solid organ transplant or bone marrow transplant
      - c. Persons on biologic therapeutic agents such as tumor necrosis factor inhibitors
      - d. Persons with malignancy and ongoing or recent chemotherapy
      - e. Persons receiving systemic immunosuppressive therapy, including corticosteroids equivalent to 20 mg/day of prednisone for ≥2 weeks
    - **Chronic heart disease:** Chronic Heart Failure is a condition in which the heart has consistently decreased function over a prolonged period of time. This may have acute onset or can develop slowly over a long period of time. Symptoms include shortness of breath, problems exercising, fatigue, and swelling of the feet, ankles, and abdomen. Chronic heart failure may be the result of a congenital anomaly or by acquired disease such as coronary artery disease, dysrhythmia, or hypertension.
    - **Chronic lung disease (excluding asthma):** Chronic Lung Disease is a disorder that affects the lungs and other parts of the respiratory system, usually develops slowly, and may get worse over time. Chronic lung disease can occur in both adults and in children. It can be developmental or acquired. Types of chronic lung disease include: pulmonary hypertension, chronic
obstructive pulmonary disease (COPD), pulmonary fibrosis, asbestosis, pneumonitis, and other lung conditions. This also includes, but not limited to, patients requiring oxygen >30 days due to a primary pulmonary problem.

**Asthma:** Previously diagnosed condition characterized by bronchial responsiveness, prolonged expiratory phase and wheezing.

**Diabetes:** Previously diagnosed and managed either with medication or diet.

**Chronic renal insufficiency:** A condition resulting in progressive and likely irreversible decreased renal function. This may be either from a primary renal problem (e.g., glomerulonephritis) or secondary (i.e., heart failure) and can be developmental or acquired. Diagnostic indicators include persistent abnormalities (>90 days) in BUN and Cr, urine concentration defects or production abnormalities, and/or abnormal imaging or biopsy results which predict insufficiency. This includes but is not limited to all patients receiving chronic renal replacement therapies (e.g., hemodialysis, peritoneal dialysis, etc.)

**Frailty:** Patients > 65 years of age with three or more of the following:
  a. Unintentional weight loss of 10 or more pounds in past year
  b. Self-reported exhaustion
  c. Weakness (grip strength)
  d. Slow walking speed
  e. Low physical activity


**Obesity:** Patients with a calculated Body Mass Index (BMI) > 30 kg/m²

**Hypertension:** Blood pressure ≥ 140/90 mm Hg or taking antihypertensive medications.

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<td>COVID Co-infection</td>
<td>This field collects information regarding concern the patient has another infection in addition to COVID. Select Yes or No; if Yes, check any that apply: Bacterial pneumonia, Co-viral infection, Blood stream infection, Urinary tract infection. Further define the infection as one of the following: Culture confirmed, Confirmed with Reverse Transcriptase Polymerase chain reaction (TR PCR), Suspected.</td>
<td>If Yes selected, then at least one must be selected</td>
<td>03/23/2020 -- present</td>
<td>COVID.CovidAddendum</td>
<td>CoInfection: BacterialPneumonia, CoViral, BloodStream, UrinaryTract</td>
</tr>
<tr>
<td>Acute Co-diagnoses</td>
<td>This field collects any secondary diagnoses in addition to COVID. Check any that apply: ARDS, Pneumonia, Septic shock, Myocarditis, Heart failure. Acute renal failure related to current illness: AKI can be diagnosed if any one of the following is present: a. Increase in SCr by ≥0.3 mg/dl (≥26.5 μmol/l) within 48 hours b. Increase in SCr to ≥1.5 times baseline, which has occurred within the prior 7 days c. Urine volume &lt; 0.5 ml/kg/h for 6 hours. Reference: Kidney Disease: Improving Global Outcomes (KDIGO) Acute Kidney Injury Work Group. KDIGO Clinical Practice Guideline for Acute Kidney Injury. Kidney inter.</td>
<td>03/23/2020 -- present</td>
<td>COVID.CoDiagnoses</td>
<td>Lookup table: COVID. CoDiagnosesCodes</td>
<td>ARDS – 1, Septic Shock – 2, Heart Failure – 3, Pneumothorax – 4, Pneumonia – 5, Myocarditis – 6, Acute Renal Failure – 7, None of these – 8</td>
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| COVID Pre-intubation Respiratory Support        | This field collects information on whether the patient received high flow or non-invasive ventilation **prior to intubation**?  
Select **Yes** or **No**  
If **Yes**, check all that apply:  
**BiPAP**: Non-invasive ventilation where breathing support is delivered via two alternating levels of airway pressure  
**CPAP**: Non-invasive ventilation where breathing support is offered via a single continuous airway pressure  
**Heated high flow nasal cannula**: Non-invasive breathing support provided by heated, humidified air and oxygen, generally allowing for tolerance of higher rates of flow  
If **Yes** selected, then at least one must be selected                                                                                                                                                                                                                                                                                                                        | If Yes selected, then at least one must be selected                                                                 | 03/23/2020 -- present                                           | COVID.CovidAddendum | PreIntRespSupp  
BiPAP  
CPAP  
HeatedNasalCannula |
| COVID Renal Replacement Therapy Required        | This field collects information on whether the patient received renal replacement therapy while on ECLS (can be Peritoneal Dialysis (PD), Continuous Venovenous Hemodiafiltration (CVVHD), Continuous Venovenous Hemofiltration (CVVHF) or Continuous Venovenous Hemodiafiltration (CVVHDF) or Hemodialysis (HD) based on the patient’s ultimate mode of therapy).  
Select **Yes** or **No**                                                                                       | 03/23/2020 -- present                                                                                           | COVID.CovidAddendum                                           | RepTherapyRequired   |
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<td>COVID Immunomodulator and therapies</td>
<td>This field collects information about any immunomodulator that was started as treatment during the admission for COVID. Select Yes or No. If Yes, check all that apply: <strong>Steroids:</strong> Systemic Glucocorticosteroids <strong>IVIG:</strong> Intravenous Immunoglobulin <strong>Selective cytokine blockade</strong> (Anakinra or Tocilizumab) <strong>JAK inhibition:</strong> Januse Kinase or JAK inhibitors belong to a family of medicine called DMARDs (disease-modifying antirheumatic drugs) and may include methotrexate, baricitinib (Olumiant), tofacitinib (Xeljanz), and upadacitinib (Rinvoq) <strong>Chloroquine/ Hydroxychloroquine</strong> <strong>Remdesivir</strong> <strong>Lopinavir/Ritonavir</strong> (Kaletra): <strong>Convalescent Plasma:</strong> transfusion with convalescent plasma containing SARS-CoV2 specific antibodies</td>
<td>If Yes selected, then at least one must be selected</td>
<td>03/23/2020 – present 04/18/2020 – present Convalescent Plasma added</td>
<td>COVID.CovidAddendum COVID.ImmunomodulatorTherapies</td>
<td>CovidImmunomodulatorTherapies</td>
</tr>
<tr>
<td>COVID CRP day of intubation</td>
<td>This field collects a C-reactive protein level drawn within 24 hours of intubation (either pre or post). If multiple values are available, please select the one closest to intubation (pre or post). If not drawn, please check not measured</td>
<td>Precision 1 decimal point US units of Entry Reference range 0.8 – 3.1 mg/L 0.0 – 0.6 mg/dL (multiply by 10 to get to mg/L)</td>
<td>03/23/2020 -- present</td>
<td>COVID.CovidAddendum</td>
<td>CRPDayOfIntubation CRPDayOfIntubationNM</td>
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Lookup Table: COVID.ImmunomodulatorTherapiesCodes
Steroids: Systemic Glucocorticosteroids – 1
IVIG: Intravenous Immunoglobulin – 2
Selective cytokine blockade (Anakinra or Tocilizumab) – 3
Lopinavir/Ritonavir (Kaletra) – 4
JAK inhibition – 5
Chloroquine/Hydroxychloroquine – 6
Remdesivir – 7
Convalescent Plasma - 8
| **COVID CRP pre-ECLS** | This field collects a C-reactive protein level drawn within 24 hours pre-ECLS start. If multiple values are available, please select the one closest to and before ECLS start.  
If not drawn, please check **not measured** | Precision 1 decimal point  
**International Units**  
**Reference range**  
0.76–28.5 nmol/L (divide by 9.524 to get to mg/L) | 03/23/2020 -- present | COVID.CovidAddendum | CRPPreEcmoCRPPreEcmoNM |
| **COVID Procalcitonin day of intubation** | This field collects a Procalcitonin level drawn within 24 hours of intubation (either pre or post). If multiple values are available, please select the one closest to intubation (pre or post).  
If not drawn, please check **not measured** | Precision 1 decimal point  
**US units of Entry**  
**Reference range**  
0.8 – 3.1 mg/L  
0.0 – 0.6 mg/dL  
(multiply by 10 to get to mg/L)  
**Soft Limit:**  
< 0.10 or > 10.0 ng/mL  
Precision 1 decimal point | 03/23/2020 -- present | COVID.CovidAddendum | CRPProcDayOfIntubationCRPProcDayOfIntubationNM |
| COVID Procalcitonin pre-ECLS | International Units  
**Soft Limit:**  
< 0.10 or > 10.0 mcg/L  
Precision 1 decimal point  
**US units of Entry**  
**Soft Limit:**  
< 0.10 or > 10.0 ng/mL  
Precision 1 decimal point  
**International Units**  
**Soft Limit:**  
< 0.10 or > 10.0 mcg/L | 03/23/2020 -- present | COVID.CovidAddendum  
CRPProcPreEcmo  
CRPProcPreEcmoNM |