ECLS Registry Form
Extracorporeal Life Support Organization (ELSO)

Please refer to the ELSO Registry Data Definitions Document for Details

Unique ID: _____ Birth Date: _____
(include time for neonates)

Sex: _____ (M, F, unknown)   Race: _____ (Asian, Black, Hispanic, White, Middle Eastern or North African, Native American, Native Pacific Islander, Other, Unknown)

Run Information

Date/Time On: _____   Date/Time Off: _____   Support Type: ☐ Pulmonary
Run No: _____   ☐ Cardiac
Weight (kg): _____   Height (cm): _____   ☐ ECPR

Intubation:
☐ Yes, Date Known: _____
☐ Pre-existing Ventilation: _____
☐ Yes, Date Estimated: _____
☐ Yes, Date Unknown
☐ No

Invasive Ventilation:
☐ Yes, New Date/Time Known: _____
☐ Pre-existing Ventilation: _____
☐ Yes, Date/Time Estimated: _____
☐ Yes, Date/Time Unknown
☐ No

☐ CoVID 19: _____
confirmed by testing, suspected-no testing, no clinical suspicion, or confirmed negative

☐ MIS-C: _____
Clinically suspected/confirmed, not clinically suspected

Neonatal patients only:

Birth weight (kg): _____   Gestational age: _____

Apgar (1 min): _____   Delivery: _____ (Vaginal, ER or Elective C-section, Unknown)

Apgar (5 min): _____   Maternal age: _____

CDH: ☐ Y ☐ N ☐ Unknown   CDH Prenatal diagnosis: ☐ Y ☐ N ☐ Unknown

CDH Side: _____ (Right, Left, Bilateral, Unknown)

Repair: _____ (None, Pre-ECLS, On ECLS, Post-ECLS)

Pre-ECLS Assessment

ABG: Closest to/before ECLS, no more than 6 hours before ECLS
Date/Time: _____
FiO2 (at ABG draw): _____ (%)
Lactate: _____
pH: _____ unknown? ☐
PaCO2: _____
PaO2: _____
HCO3: _____ unknown? ☐

SaO2(%): _____
SpO2 (%): _____

Vent Settings: Closest to/before ECLS, no more than 6 hours before ECLS
No Ventilator in use: ☐
Date/Time: _____
Vent Type: _____ unknown/unavail? ☐
Rate(BPM) or Hz: _____
PIP/Ampl: _____
PEEP: _____
MAP: _____

Hand bagging: ☐ Y ☐ N ☐ Unknown
(Select if hand bagged beginning in the 6hrs pre ECLS AND continuing to the time of cannulation)

Hemodynamics (Closest to and before ECLS start, ideally no more than 6 hours before ECLS start)
Date/Time: _____
Systolic BP: _____ unknown/unavail? ☐
Diastolic BP: _____ unknown/unavail? ☐
Mean BP: _____
SvO2: _____

Systolic PAP: _____
Diastolic PAP: _____
Mean PAP: _____
PCWP: _____
Cardiac Index: _____

Pre ECLS Support

Hospital Admit Date/Time: _____

☐ Transported on ECMO   ☐ Transported not on ECMO   ☐ Not Transported   ☐ Unknown
- *If the patient was transferred on ECMO, enter the ECLS Start Date/Time as the time that your Center assumed care for the patient*
- *Select of an ELSO Center will allow either entering ELSO Center Number or typing name of Center. Non-ELSO Center is a free text field.*

☐ To an ELSO Center?   ☐ To a Non ELSO Center? Center Name: _____

☐ Cannulated with Mobile ECMO?   Pre-ECLS cardiac arrest? ☐ Y ☐ N ☐ Unknown

Bridge to transplant?   ☐ Y ☐ N ☐ Unknown

Is Trauma the underlying reason for ECLS?   ☐ Y ☐ N ☐ Unknown (if yes, consider completing the Trauma Addendum)

Mechanical Cardiac Support (Select those used or in place within 24 hours pre ECLS)

☐ Berlin Heart   ☐ BiVAD   ☐ Cardiac pacemaker   ☐ Cardiopulmonary bypass (CPB)   ☐ Intra-aortic balloon   ☐ LVAD
☐ Perc Ventricular Assist Device   ☐ RVAD

Renal, Pulmonary and Other Support (Select those used or in place within 24 hours pre ECLS)

☐ HFOV ☐ Inhaled Anesthetic ☐ Inhaled Epoprostenol (>6 hours) ☐ Inhaled NO (>6 hours) ☐ Liquid ventilation ☐ Plasmapheresis
☐ Prone Positioning (>16 hours) ☐ Renal Replacement Therapy ☐ Surfactant ☐ Therapuetic Hypothermia < 35 degrees C

Medications Excluding Vasoactives (Select those used or in place within 24 hours pre ECLS)

☐ Alprostadil ☐ IV Bicarbonate ☐ Epoprostenol (all synthetic prostacyclin analogues) ☐ Narcotics ☐ Neuromuscular blockers
☐ Sildenafil ☐ Systemic Steriods ☐ THAM

Vasoactive Infusions (Select those used within 24 hours AND continuously for 6 hours pre ECLS)

☐ Dobutamine ☐ Dopamine ☐ Enoximone ☐ Epinephrine ☐ Esmolol ☐ Inamrinone ☐ Levosimendan ☐ Metaraminol ☐ Metoprolol
☐ Milrinone ☐ Nicardipine ☐ Nitroglycerin ☐ Nitroprusside ☐ Norepinephrine ☐ Phenylephrine ☐ Tolazoline ☐ Vasopressin

ECLS Assessment

Arterial Blood Gas	Ventilator Settings
Closest to 24 hours after ECLS start, but no less than 18 hours and not more than 30 hours after ECLS start	
Date/Time: _____	No Ventilator in use: ☐
FiO2 (at ABG draw): _____ (%)	Date/Time: _____
Lactate: _____	Vent Type: _____ unknown/unavail? ☐
pH: _____ Unknown? ☐	Rate(BPM) or Hz: _____
PaCO2: _____	PIP/Ampl: _____
PaO2: _____	PEEP: _____
HCO3: _____ Unknown? ☐	MAP: _____
SaO2(%): _____	Hand bagging: ☐ Y ☐ N ☐ Unknown
SpO2 (%): _____	

Hemodynamics Closest to 24 hours after ECLS start, but no less than 18 hours and not more than 30 hours after ECLS start

Date/Time: _____	Systolic PAP: _____
Systolic BP: _____ unknown/unavail? ☐	Diastolic PAP: _____
Diastolic BP: _____ unknown/unavail? ☐	Mean PAP: _____
Mean BP: _____	PCWP: _____
SvO2: _____	Cardiac Index: _____

Blood Pump Flow Rates (L/min)

Pump flow at 4 hours: _____   Pump flow at 24 hours: _____

ECLS Care

Unit Where Majority of ECLS Care Received

☐ Adult Medicine ICU ☐ Adult Surgical ICU ☐ Adult Cardiac ICU ☐ Adult Cardiovascular ICU ☐ ECLS ICU ☐ Emergency Dept. ☐ Burn ICU

☐ Mixed ICU ☐ Neonatal ICU ☐ Pediatric ICU ☐ Pediatric Cardiac ICU ☐ Operating Room/Cath Lab ➡ Initiated for procedure? Yes No

Nutrition and Mobility

Enteral Feeding Date/Time (started and continued for at least 2 days) _____

Level of Mobilization at day 7 of ECLS (>8 years)	Maximum Level Achieved During ECLS (>8 years)
☐ 0 Nothing (lying in bed)	☐ 0 Nothing (lying in bed)
☐ 1 Sitting in bed, exercises in bed	☐ 1 Sitting in bed, exercises in bed
☐ 2 Passively moved to chair (no standing)	☐ 2 Passively moved to chair (no standing)
☐ 3 Sitting over edge of bed	☐ 3 Sitting over edge of bed
☐ 4 Standing (with or without assist)	☐ 4 Standing (with or without assist)
☐ 5 Transferring bed to chair	☐ 5 Transferring bed to chair
☐ 6 Marching on spot (at bedside)	☐ 6 Marching on spot (at bedside)
☐ 7 Walking with assistance of 2 or more people	☐ 7 Walking with assistance of 2 or more people
☐ 8 Walking with assistance of 1 person	☐ 8 Walking with assistance of 1 person
☐ 9 Walking independently with a gail aid	☐ 9 Walking independently with a gail aid
☐ 10 Walking independently without a gait aid	☐ 10 Walking independently without a gait aid

Modes of ECLS

Initial Mode of ECLS

ECLS Start Date/Time: _____   ECLS/Mode Stop Date/Time: _____

ECLS mode: ☐ V-A (Venoarterial)   ☐ V-V (Venovenous)   ☐ V-VA (Veno - venoarterial)   ☐ A-VCO2R
☐ VV-ECO2R   ☐ VP (Venopulmonary)   ☐ Other

Cannulas Placed for the Initial Mode of ECLS

- *Please see ELSO Registry Data Definitions for specifics*
- *If a manufacturer or model is not listed, please contact RegistrySupport@ELSO.org*

	Cannula #1	Cannula #2	Cannula #3	Cannula #4	Cannula #5
	• *Note: Times will autopopulate with time on and off ECLS.* • *Only note new date/time for cannulas placed and removed during the run.*				
Start Date/Time					
End Date/Time					
Manufacturer					
Cannula Model/Size					
Pre-Existing?					
Percutaneous?					
Site					
Initial Purpose?					
Replaced?					
Reason?					

Equipment

- *Please see ELSO Registry Data Definitions for specifics*
- *Specific reasons for membrane and pump replacement require a complication to be entered within 4 hours of the equipment exchange, UNLESS ECMO Stop Date/Time or Date/Time of Death is not entered within 4 hours.*

Membrane Lung	#1	#2	#3
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Membrane?			
Membrane Replaced? Reason?			
Blood Pump	**#1**	**#2**	**#3**
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Blood Pump?			
Pump Replaced? Reason?			

Other Equipment	Manufacturer	Device
Hemofilter		
Temp Regulation Device		

Membrane Lung	#4	#5	#6
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Membane?			
Membrane Replaced? Reason?			
Blood Pump	**#4**	**#5**	**#6**
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Blood Pump?			
Pump Replaced? Reason?			

Duplicate this page as required for multiple changes

Add New Mode Conversion (this section to be used only for mode conversions – must enter a Stop Date/Time for the initial mode)

ECLS Mode Start Date/Time: _____   ECLS Mode Stop Date/Time: _____

ECLS mode: ☐ V-A (Venoarterial)   ☐ V-V (Venovenous)   ☐ V-VA (Veno venoarterial)   ☐ A-VCO2R
☐ VV-ECCO2R   ☐ VP (Venopulmonary) ☐ Other

Is this a concurrent mode? If yes, you must enter concurrent membrane lung and pump devices.

Cannulas Placed for this Mode of ECLS					
	Cannula #1	**Cannula #2**	**Cannula #3**	**Cannula #4**	**Cannula #5**
	Note: Times will autopopulate with time on and off ECLS. Only note new date/time for cannulas placed during the run.				
Start Date/Time					
End Date/Time					
Manufacturer					
Cannula Model/Size					
Pre-Existing?					
Percutaneous?					
Site					
Initial Purpose?					
Replaced?					
Reason?					

Add Another Mode Conversion (this section to be used only for mode conversions – must enter a Stop Date/Time for the previous mode)

ECLS Mode Start Date/Time: _____   ECLS Mode Stop Date/Time: _____

ECLS mode: ☐ V-A (Venoarterial)   ☐ V-V (Venovenous)   ☐ V-VA (Veno venoarterial)   ☐ A-VCO2R
☐ VV-ECCO2R   ☐ VP (Venopulmonary) ☐ Other

Is this a concurrent mode? If yes, you must enter concurrent membrane lung and pump devices.

Cannulas Placed for this Mode of ECLS					
	Cannula #1	**Cannula #2**	**Cannula #3**	**Cannula #4**	**Cannula #5**
	Note: Times will autopopulate with time on and off ECLS. Only note new date/time for cannulas placed during the run.				
Start Date/Time					
End Date/Time					
Manufacturer					
Cannula Model/Size					
Pre-Existing?					
Percutaneous?					
Site					
Initial Purpose?					
Replaced?					
Reason?					

Duplicate this page as required for multiple mode changes

ICD-10 Diagnoses

Primary Diagnosis: _____ (check box as primary)

Neonatal Respiratory Diagnosis Categories: Please refer to the ELSO Registry Definitions for specifics.

- *Select the primary diagnosis from the choices. If a general category is selected, you will be prompted to choose a specific subcategory or causative etiology. Some sub-categories may require additional branching characterization. List any additional diagnoses. There is no limit to the number of diagnoses you may enter.*

Secondary Diagnoses: (unlimited)	

CPT Procedure Codes (List all relevant procedures related to the patient even if preceding this admission)

Date/Time	Estimated? Y/N	Code/Procedure

ECLS Complications

- *Please see ELSO Registry Data Definitions for specifics regarding each complication definition.*
- *Enter multiple complications of the same type by 'add new complication' with new date/time for each occurrence.*
- *Complications that 'continue' for several days only need the first date of occurrence. (ie creatine >3.0) If the complication were to cease, and then re-occur, please enter the new date/time of the occurrence.*
- *A complication of Brain Death must be entered to allow a Date/Time of Death prior to ECMO Stop Date/Time.*
- *If a membrane lung failure or Blood Pump Failure is entered, an exchange should be entered in most circumstances.*

Mechanical	Date/Time	Date/Time	Date/Time	Date/Time
Oxygenator Failure				
Blood Pump Failure				
Raceway Rupture				
Other Tubing Rupture				
Cannula Problems				
Circuit Change				
Temp Reg Device Malfunction				
Clots and Air Emboli				
Thombosis/Clots in Circuit Component				
Clots Hemofilter				
Air in Circuit				

Hemorrhage	Date/Time	Date/Time	Date/Time	Date/Time
GI Hemorrhage				
Peripheral Cannulation Site Bleeding				
Mediastinal Cannulation Site Bleeding				
Surgical Site Bleeding				

Neurological	Date/Time	Date/Time	Date/Time	Date/Time
Brain Death				
Seizures Clinically Determined				
Seizures Confirmed by EEG				
CNS Diffuse Ischemia				
CNS Infarction				
Intra/extra Parenchymal CNS Hemorrhage				
Intraventricular CNS Hemorrhage				
Neurosurgical intervention performed				

ECLS Complications (cont'd)

Renal	Date/Time	Date/Time	Date/Time	Date/Time
Creatinine 1.5 – 3.0				
Creatinine > 3.0				
Renal Replacement Therapy Required				

Cardiovascular	Date/Time	Date/Time	Date/Time	Date/Time
CPR Required				
Cardiac Arrhythmia				
Tamponade (blood)				
Tamponade (not blood)				

Pulmonary	Date/Time	Date/Time	Date/Time	Date/Time
Pneumothorax				
Pulmonary Hemorrhage				

Infectious	Date/Time	Date/Time	Date/Time	Date/Time
WBC < 1,500				

Metabolic	Date/Time	Date/Time	Date/Time	Date/Time
Hyperbilirubinemia				
Moderate Hemolysis				
Severe Hemolysis				

Patient Limb	Date/Time	Date/Time	Date/Time	Date/Time
Compartment Syndrome				
Fasciotomy				
Amputation				
Ischemia Requiring Limb Reperfusion Cannula				

Infections (pre and those occurring on ECMO)

Date/Time/Estimated?	Culture Site	Organism Type	Organism

- Sites: Blood, Bone, Cerebrospinal fluid, Peritoneal fluid, Pleural fluid, Respiratory tract, Skin/soft tissue, Stool, Urine, Wound – surgical, Wound – traumatic, Other, Unknown
- Type: Unknown, Gram+ Bacteria, Gram– Bacteria, Mycobacterium, Fungus (yeast and mold), Viruses and Prions, Protozoa
- Selection of Type will populate specific associated organisms.
- Organisms are listed in the Data Definiitons. If an organism is not listed, please contact RegistrySupport@elso.org

Outcomes

Discontinuation Reason (Why the patient was separated from ECLS)

- *This may be left blank if patient was transferred on ECLS*

☐ Expected recovery   ☐ Pumpless Lung Assist (Pa to LA)
☐ Poor prognosis followed by death   ☐ Poor prognosis followed by unexpected survival
☐ Resource limitation   ☐ Heart transplant
☐ ECLS complication   ☐ Lung transplant
☐ Transition to VAD Support   ☐ Heart and Lung transplant
☐ Unknown

Cannulation Repair

- *This may be left blank if patient was transferred on ECLS*

☐ None   ☐ Common Carotid Artery
☐ Internal Jugular Vein   ☐ Both Carotid and Jugular
☐ Other

Extubated

- *This may be left blank if patient was transferred on ECLS*

☐ Endotracheally extubated ≥48 hrs   ☐ N/A - Tracheostomy
☐ N/A - Transferred intubated   ☐ N/A - Intubated at time of death
☐ N/A - Other

Endotracheal Tube Removed Date/Time: _____

Discharged Alive / Transferred on ECMO

- *If the patient was transferred on ECMO, enter the ECLS Stop Date/Time as the Discharged Date/Time and the Discharged Date/Time will autopopulate.*
- *Select of an ELSO Center will allow either entering ELSO Center Number or typing name of Center. Non-ELSO Center is a free text field.*
- *Death Date/time is allowed to be prior to time off ECMO in the case of Brain Death – must enter brain death as a complication.*

☐ Yes   ☐ No   ☐ On ECMO?

ICU Discharge Date/Time: _____   ☐ ELSO Center?   ☐ Non ELSO Center?

Hospital Discharge Date/Time: _____   Center Name: _____

Death Date/Time: _____

Discharge Location

☐ Home   ☐ Transfer to Long Term Care (LTAC)
☐ Transfer to Another Hospital   ☐ Transfer to Rehab
☐ Other/Unknown   ☐ Transfer to Hospice

Form completed by: _____   *Completed date is automatically added when you submit the run.*

- Select Validate Data – to assure mandatory fields complete, dates are correct.

- Select Submit and Lock – to finalize the record and submit to ELSO.

- Selection of Edit Run after Submission will allow the user to change data, but the form must be re-validated and re-submitted.

- Deletion of a record must be done by ELSO Staff – please email RegistrySupport@elso.org

- Any questions and concerns may be directed to RegistrySupport@elso.org