

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): _____ or Unknown Height (cm): _____ or Unknown ECPR

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

Intubation:

Yes, Date/Time Known: _____
 Pre-existing invasive Ventilation: _____
 Yes, Date/Time Estimated: _____
 Yes, Date/Time Unknown
 No

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 Repair: _____ (Pre-ECLS, On ECLS, Post-ECLS)
Date/Time of repair: _____

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.

From an ELSO Center? ELSO Center number: _____ From a Non-ELSO Center? Center Name: _____

Cannulated with Mobile ECMO?

- To cannulations by a mobile ECMO team either outside a hospital or within a separate hospital from the mobile ECMO team's home hospital.

Bridge to transplant? Y N Unknown Pre-ECLS cardiac arrest? Y N Unknown

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

Pre-ECLS Assessment

ABG: Closest to/before ECLS, no more than 6 hours before ECLS

Date/Time: _____
FiO₂ (at ABG draw): _____ (%)
Lactate: _____ (mmol/L)
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?
(Type: Other, Conventional, HFO, Other HFV, No Ventilator)
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

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

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

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) Partial Liquid ventilation **Plasmapheresis**
 Prone Positioning (>16 hours) **Renal Replacement Therapy** Surfactant Therapeutic Hypothermia < 35 degrees C

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

Pulmonary Vasodilators **IV Bicarbonate** Narcotics **Neuromuscular blockers** Systemic Steroids 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 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: _____
FiO2 (at ABG draw): _____ (%)
Lactate: _____ (mmol/L)
pH: _____ Unknown?
PaCO2: _____
PaO2: _____
HCO3: _____ Unknown?
SaO2 (%): _____
SpO2 (%): _____

No Ventilator in use:
Date/Time: _____
Vent Type: _____ unknown/unavail?
(Type: Other, Conventional, HFO, Other HFV, No Ventilator)
Rate(BPM) or Hz: _____
PIP/Ampl: _____
PEEP: _____
MAP: _____
Hand bagging: Y N Unknown

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 BP: _____ unknown/unavail?
Diastolic BP: _____ unknown/unavail?
Mean BP: _____
SvO2: _____

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

Blood Pump Flow Rates (L/min)

Pump flow at 4 hours: _____ unknown/unavail? Pump flow at 24 hours: _____ unknown/unavail?

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)
<input type="checkbox"/> 0 Nothing (lying in bed)	<input type="checkbox"/> 0 Nothing (lying in bed)
<input type="checkbox"/> 1 Sitting in bed, exercises in bed	<input type="checkbox"/> 1 Sitting in bed, exercises in bed
<input type="checkbox"/> 2 Passively moved to chair (no standing)	<input type="checkbox"/> 2 Passively moved to chair (no standing)
<input type="checkbox"/> 3 Sitting over edge of bed	<input type="checkbox"/> 3 Sitting over edge of bed
<input type="checkbox"/> 4 Standing (with or without assist)	<input type="checkbox"/> 4 Standing (with or without assist)
<input type="checkbox"/> 5 Transferring bed to chair	<input type="checkbox"/> 5 Transferring bed to chair
<input type="checkbox"/> 6 Marching on spot (at bedside)	<input type="checkbox"/> 6 Marching on spot (at bedside)
<input type="checkbox"/> 7 Walking with assistance of 2 or more people	<input type="checkbox"/> 7 Walking with assistance of 2 or more people
<input type="checkbox"/> 8 Walking with assistance of 1 person	<input type="checkbox"/> 8 Walking with assistance of 1 person
<input type="checkbox"/> 9 Walking independently with a gait aid	<input type="checkbox"/> 9 Walking independently with a gait aid
<input type="checkbox"/> 10 Walking independently without a gait aid	<input type="checkbox"/> 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-ECCO2R VP (Venopulmonary) Other

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: _____

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

Is this a concurrent mode? Yes No ***If yes, you must enter concurrent membrane lung and pump devices.*

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: _____

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

Is this a concurrent mode? Yes No ***If yes, you must enter concurrent membrane lung and pump devices.*

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

Conversion mode: V-A (Venoarterial) V-V (Venovenous) V-VA (Veno venoarterial) A-VCO2R
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Is this a concurrent mode? Yes No ***If yes, you must enter concurrent membrane lung and pump devices.*

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

Is this a concurrent mode? Yes No ***If yes, you must enter concurrent membrane lung and pump devices.*

Cannulation

Cannulas placement for the ECLS Run

- 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
	<ul style="list-style-type: none"> • Note: Times will autopopulate with time on and off ECLS. • Only note new date/time for cannulas placed and removed during the run. • If the purpose of the cannula changes over the life of the cannula, enter the new purpose of the cannula and the date and time for change in purpose 				
Start Date/Time					
End Date/Time					
Manufacturer					
Cannula Model					
Size					
Pre-Existing (Y/N/Unk)					
Percutaneous (Y/N/Unk)					
Site					
Initial Purpose (Return, Drainage, Both, DPC)					
Replaced (Y/N)					
Reason?					
Ligated or repaired? <i>* Required for non adult patients</i>					

	Cannula #6	Cannula #7	Cannula #8	Cannula #9	Cannula #10
	<ul style="list-style-type: none"> • Note: Times will autopopulate with time on and off ECLS. • Only note new date/time for cannulas placed and removed during the run. • If the purpose of the cannula changes over the life of the cannula, enter the new purpose of the cannula and the date and time for change in purpose 				
Start Date/Time					
End Date/Time					
Manufacturer					
Cannula Model					
Size					
Pre-Existing (Y/N/Unk)					
Percutaneous (Y/N/Unk)					
Site					
Initial Purpose (Return, Drainage, Both, DPC)					
Replaced (Y/N)					
Reason?					
Ligated or repaired? <i>* Required for non adult patients</i>					

Duplicate this page as required for multiple mode changes

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 (Y/N)			
Membrane Replaced (Y/N)			
Membrane Reason			
Blood Pump	#1	#2	#3
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Pump (Y/N)			
Pump Replaced (Y/N)			
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 Membrane (Y/N)			
Membrane Replaced (Y/N)			
Membrane Reason			
Blood Pump	#4	#5	#6
Start Date/Time			
End Date/Time			
Manufacturer			
Device			
Concurrent Pump (Y/N)			
Pump Replaced (Y/N)			
Pump Replaced Reason			

Duplicate this page as required for multiple changes

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.

Is there any ECLS complication during this run? Yes No Is complication verified? Yes No

Mechanical	Date/Time	Date/Time	Date/Time	Date/Time
Membrane Lung Failure				
Blood Pump Failure				
Raceway Rupture				
Other Tubing Rupture				
Circuit Change				
Cannula Problems				
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/Chemical Code Required				
Cardiac Arrhythmia				
Tamponade (blood)				
Tamponade (not blood)				

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

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				
Limb Amputation				
Ischemia Requiring Limb Reperfusion Cannula				

Infections (pre and those occurring on ECMO)

Does this run have any infections? Yes No

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 Definitions. 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*

- | | |
|---|---|
| <input type="checkbox"/> Expected recovery | <input type="checkbox"/> Pumpless Lung Assist (Pa to LA) |
| <input type="checkbox"/> Poor prognosis followed by death | <input type="checkbox"/> Poor prognosis followed by unexpected survival |
| <input type="checkbox"/> Resource limitation | <input type="checkbox"/> Heart transplant |
| <input type="checkbox"/> ECLS complication | <input type="checkbox"/> Lung transplant |
| <input type="checkbox"/> Transition to VAD Support | <input type="checkbox"/> Heart and Lung transplant |
| <input type="checkbox"/> Unknown | |

Cannulation Repair

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

- | | |
|--|---|
| <input type="checkbox"/> None | <input type="checkbox"/> Common Carotid Artery |
| <input type="checkbox"/> Internal Jugular Vein | <input type="checkbox"/> Both Carotid and Jugular |
| <input type="checkbox"/> Other | |

Extubated

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

- | | |
|---|---|
| <input type="checkbox"/> Endotracheally extubated ≥ 48 hrs | <input type="checkbox"/> N/A - Tracheostomy |
| <input type="checkbox"/> N/A - Transferred intubated | <input type="checkbox"/> N/A - Intubated at time of death |
| <input type="checkbox"/> N/A - Other | |

Oral 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.*

- | | | |
|-------------------------------------|---|-----------------------------------|
| <input type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> On ECMO? |
| ICU Discharge Date/Time: _____ | <input type="checkbox"/> ELSO Center? ELSO Center ID: _____ | |
| Hospital Discharge Date/Time: _____ | <input type="checkbox"/> Non ELSO Center? Name of Center: _____ | |
| Death Date/Time: _____ | | |

Discharge Location

- | | |
|---|--|
| <input type="checkbox"/> Home | <input type="checkbox"/> Transfer to Long Term Care (LTAC) |
| <input type="checkbox"/> Transfer to Another Hospital | <input type="checkbox"/> Transfer to Rehab |
| <input type="checkbox"/> Other/Unknown | <input type="checkbox"/> 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