



Hot Topics

October 23, 2025

Disclaimer

This forum is intended for discussion purposes only and does not aim to replace or contradict any official Guideline or Coding Clinic advice. Please remember that our clinical backgrounds, experiences, and CDI programs vary. We encourage you to share your knowledge and learn from others.



Hot Topics October 2025

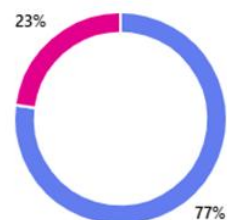


<https://forms.office.com/r/biTENeuv4>

1. Does your facility place pediatric or neonatal patients on ECMO?

[More details](#)

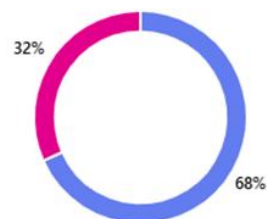
Yes	47
No	14
N/A-My role isn't tied to a healthcare facility	0



2. Does your facility have a program for patients with congenital heart disease?

[More details](#)

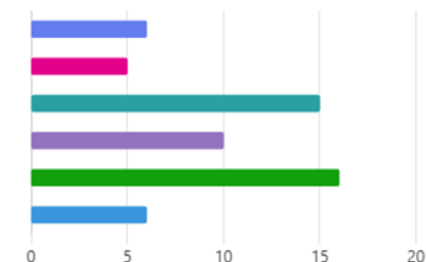
Yes	41
No	19
N/A-My role isn't tied to a healthcare facility	0



3. If ECMO is performed at your facility, how confident are you in reviewing documentation for these patients? Please rate your comfort level on a scale from 1 (not comfortable) to 5 (very comfortable).

[More details](#)

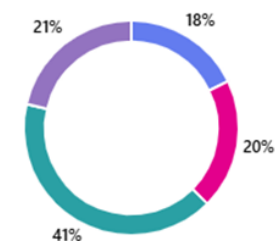
1-not comfortable	6
2	5
3-neutral	15
4	10
5-very comfortable	16
N/A-My role isn't tied to a healthcare facility	6



4. Since data started being formally collected in 1989, approximately how many neonatal and pediatric patients do you think have been placed on ECMO?

[More details](#)

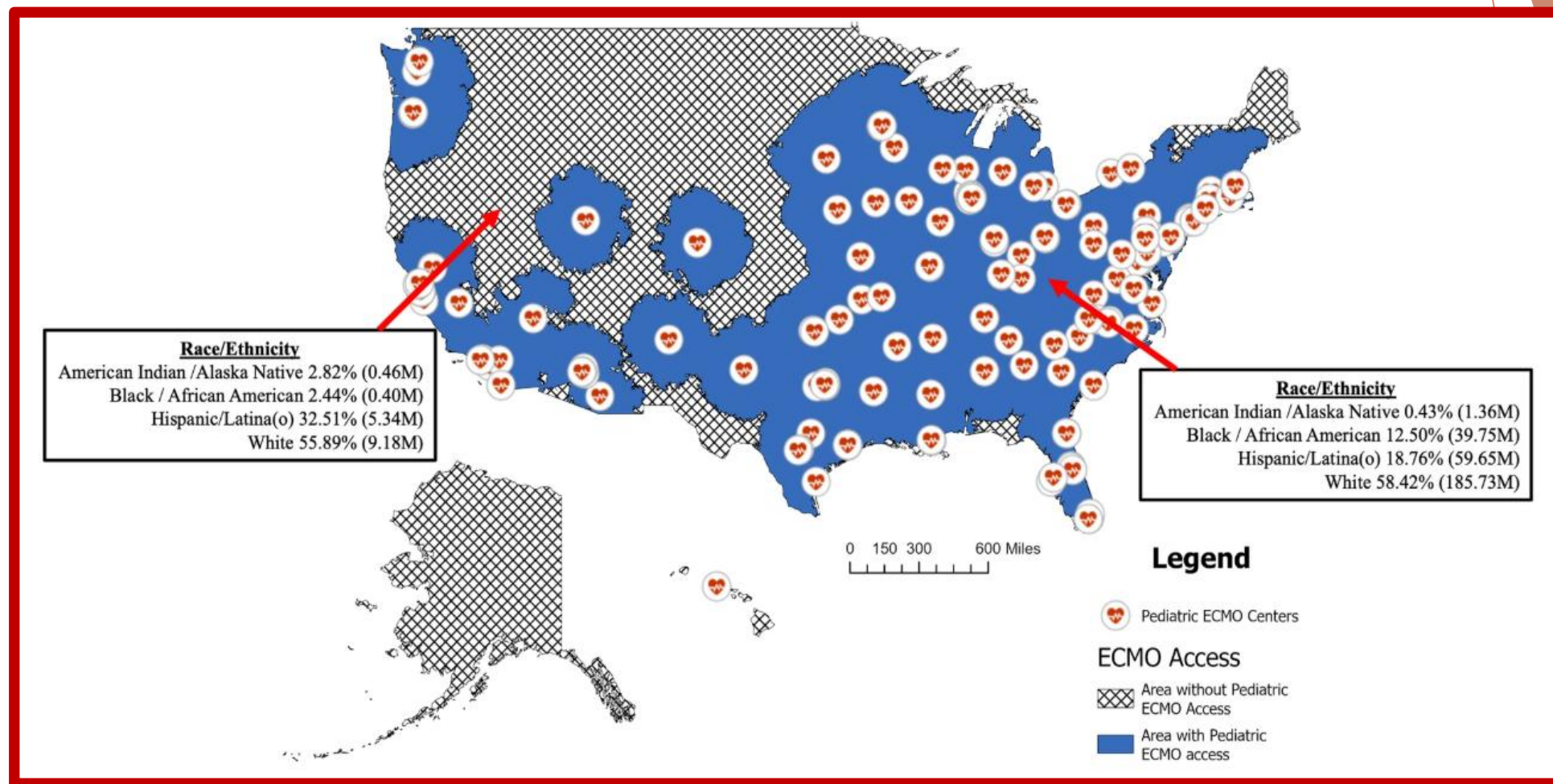
49,000	10
61,000	11
74,000	23
86,000	12



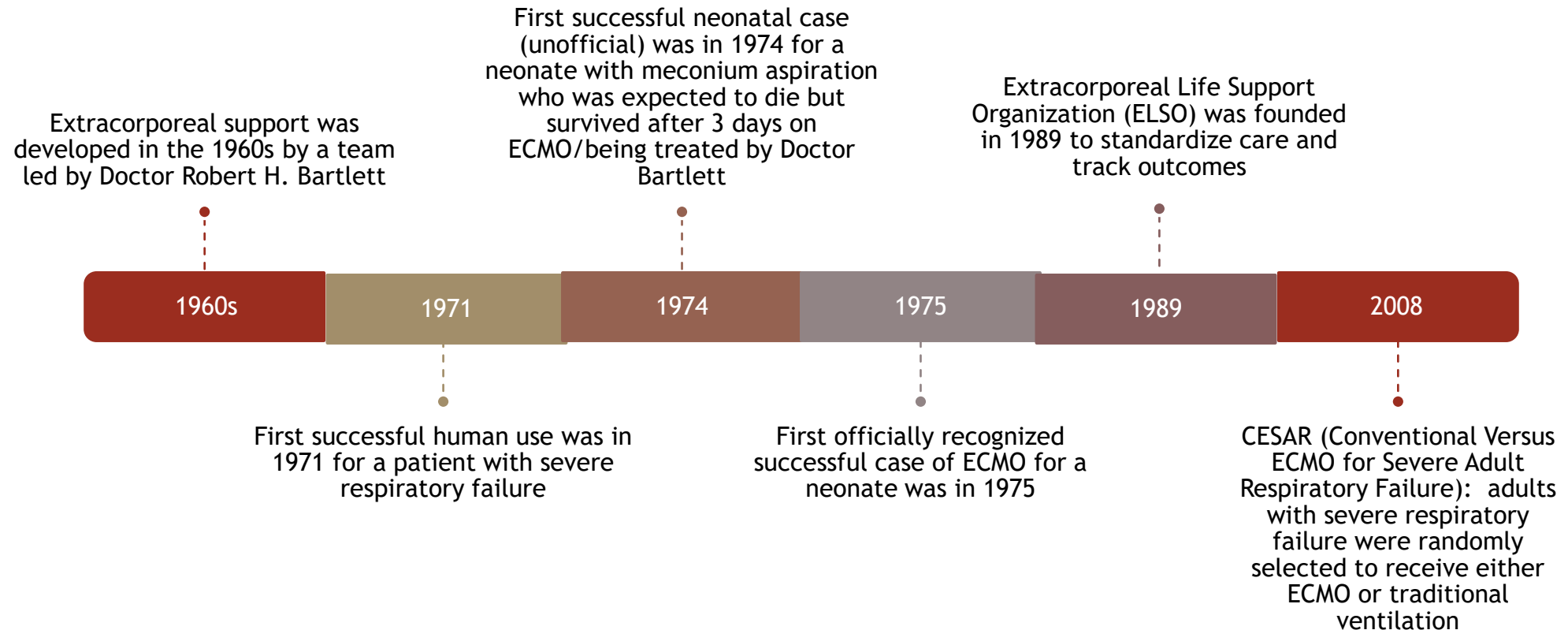
Interesting Facts about ECMO

- ▶ ECMO is one of the top highest paying DRGs
- ▶ 150 pediatric ECMO centers per the ELSO Registry
 - ▶ Nine states do not have a pediatric ECMO program listed within the ELSO Registry: Alaska, Idaho, Kansas, Maine, Montana, New Hampshire, North Dakota, Vermont, Wyoming
- ▶ Research, published in the *International Journal for Equity in Health*, used publicly available data to investigate how access to pediatric ECMO varies by race and ethnicity.

Interesting Facts about ECMO

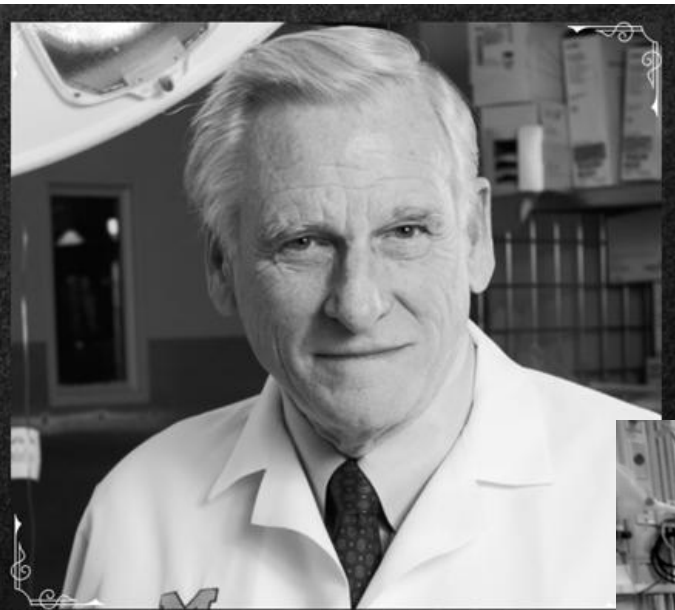


History of ECMO



In Loving
Memory
FOREVER IN OUR HEARTS

Robert Hawes Bartlett, MD
1939 - 2025



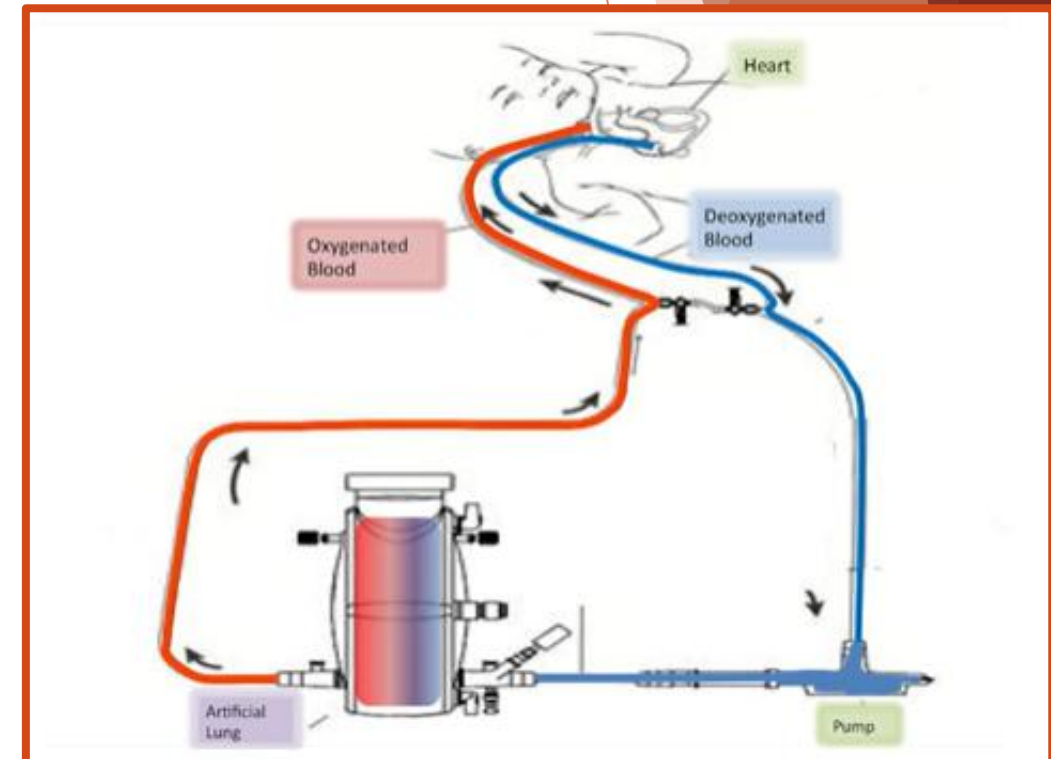
Facts about ECMO

	Total	Survived to DC or Transfer
Total	187,766	54%
Neonatal	42,706	65%
Pulmonary	30,907	72%
Cardiac	9,378	45%
ECPR	2,421	41%
Pediatric	31,291	54%
Pulmonary	11,188	61%
Cardiac	13,851	55%
ECPR	6,252	40%
Adult	113,769	51%
Pulmonary	45,871	60%
Cardiac	53,583	48%
ECPR	14,315	30%

<https://elso.org/registry/elsoliveregistrydashboard.aspx>

ECMO Basics

- ▶ What diagnoses might patients have that necessitate being placed on ECMO?
 - ▶ Acute respiratory distress syndrome (ARDS)
 - ▶ Cardiogenic shock
 - ▶ Cardiomyopathy
 - ▶ Congenital heart disease
 - ▶ Congenital diaphragmatic hernia
 - ▶ Meconium aspiration
 - ▶ Myocarditis
 - ▶ Pneumonia
 - ▶ Pulmonary hypertension
 - ▶ Sepsis



Pre-existing Conditions & Comorbidities

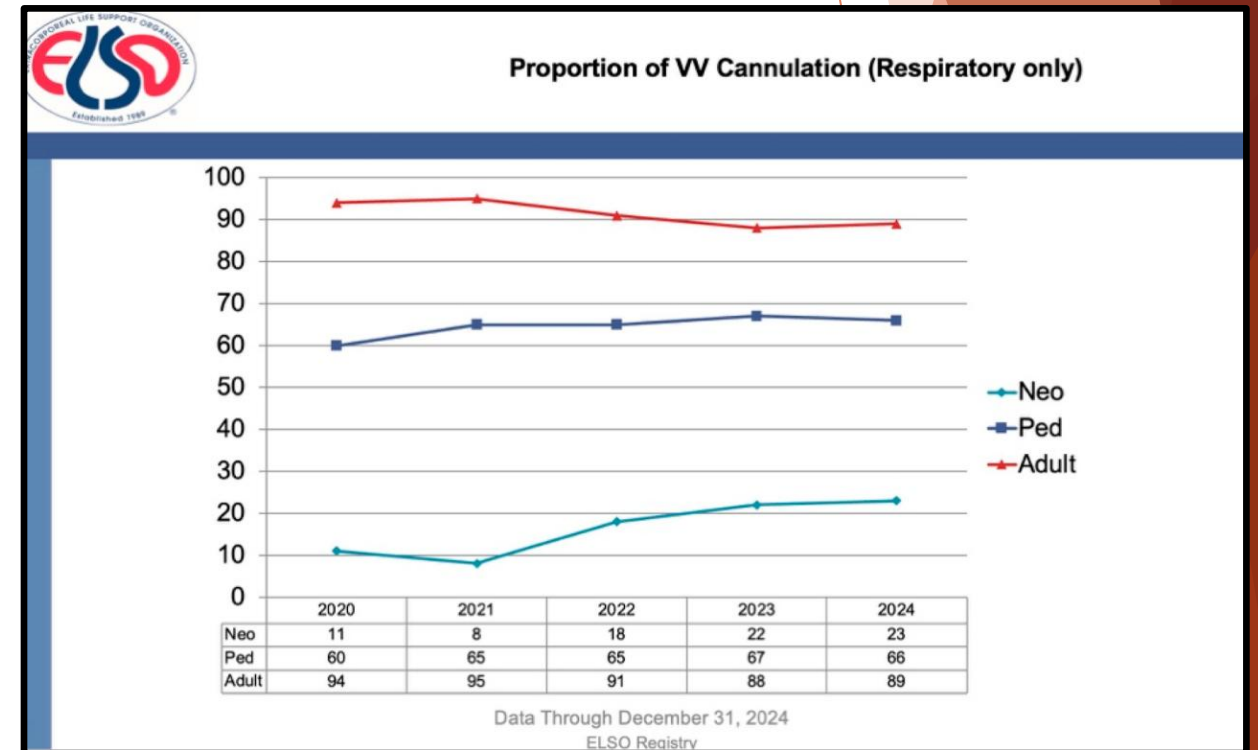
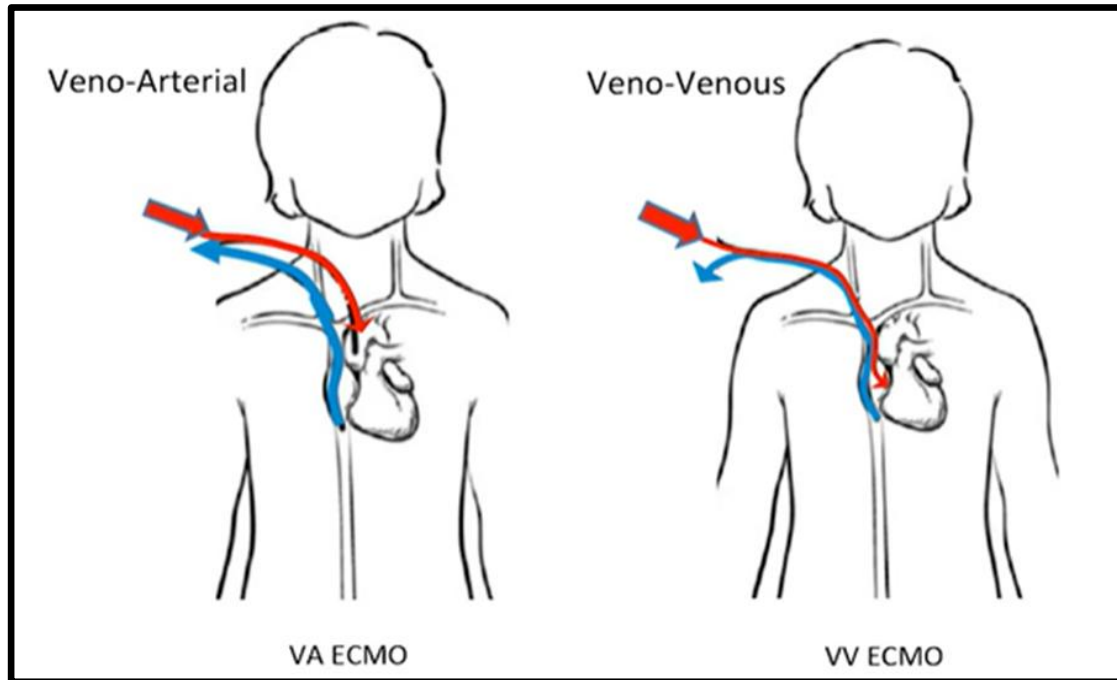
Table 1: Patients demographics and outcomes

Patient	Age (year)	Weight (kg)	Pre-existing condition	Comorbidities	ECMO modality	Decanulated from ECMO	Alive at discharge
1	9	52	Posterior mediastinal mass	B Cell ALL	VV	Yes	Yes
2	14	40	Heart failure		VA	No	No
3	2.5	10	Trauma, PARDS		VV	Yes	No
4	12	50	Pneumonia, air leak	Langerhans cell histiocytosis	VV	Yes	No
5	14	47	Dilated cardiomyopathy		VA	No	No
6	2	10	Fulminant hepatitis	Liver transplantation atypical HUS	VV	No	No
7	4	12	Myocarditis		VA	Yes	No
8	11	36	PARDS	Cystic fibrosis	VV	No	No
9	18	70	Postpartum cardiomyopathy		VA	No	No
10	15	47	Calcium channel blocker intoxication		VA	Yes	Yes
11	0.5	6	Cardiopulmonary arrest		VA	Yes	No
12	1.5	12	PARDS		VV	Yes	No
13	4.5	15	PARDS		VV	Yes	Yes
14	12	78	Septic shock	AML M2	VV	Yes	No
15	16	30	Dilated cardiomyopathy		VA	No	No
16	2.5	4.5	Myocarditis		VA	No	No
17	0	3.7	Bacterial pneumonia, PARDS	LAD	VV	No	No
18	2	12	Viral Pneumonia, PARDS	Common B ALL	VV	Yes	Yes
19	3	19	Viral Pneumonia, PARDS	B Cell ALL	VV	No	No
20	3	15	COVID-19 pneumonia, PARDS	SCID	VV	No	No
21	11	47	Hydrocarbon inhalation, PARDS		VV	Yes	Yes
22	1.3	10	Viral pneumonia, PARDS		VV	Yes	Yes

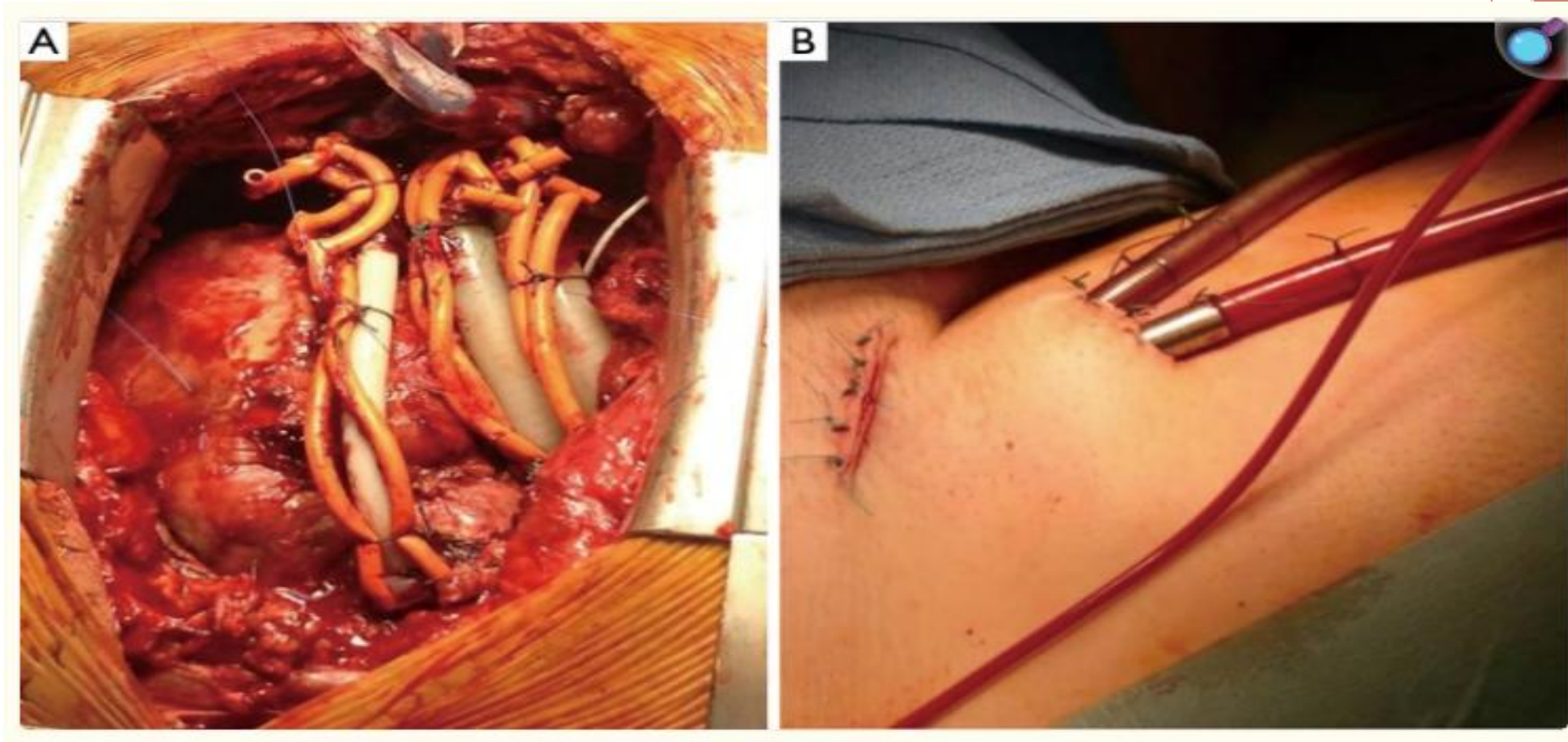
ECMO: Extracorporeal membrane oxygenation, ALL: Acute lymphoblastic leukemia, PARDS: Pediatric acute respiratory distress syndrome, HUS: Hemolytic uremic syndrome, AML: Acute myeloid leukemia, LAD: Leukocyte adhesion deficiency, COVID-19: Coronavirus disease-2019, SCID: Severe combined immunodeficiency

VA and VV ECMO

- ▶ The two most common types of ECMO used:
 - ▶ Veno-arterial (VA) ECMO does the work of the heart and lungs
 - ▶ Veno-venous (VV) ECMO does the work of the lungs



Central vs Peripheral VA ECMO



PCS Codes for Continuous ECMO

- ▶ 5A1522G Extracorporeal Oxygenation, Membrane, Peripheral Veno-arterial
- ▶ 5A1522H Extracorporeal Oxygenation, Membrane, Peripheral Veno-venous
- ▶ 5A1522F Extracorporeal Oxygenation, Membrane, Central

NOTE: Cannulation and decannulation of an ECMO support system are integral to the ECMO code and are not typically reported. However, codes may be assigned for the removal and insertion of an access cannula if the procedure occurred in a separate surgical episode.



DRGs Related to ECMO

► MS DRG

- 003 ECMO or Tracheostomy with MV >96 Hours or Principal Diagnosis Except Face, Mouth and Neck with Major OR Procedures

► APR DRG

- 583 Neonate with ECMO
 - *The SOI and ROM for APR DRG 583 bypass the 18-step process and use different logic*
 - Zeros may be displayed for SOI/ROM associated with each diagnosis/code due to the different logic
 - Each individual diagnosis/code does not factor into the final SOI/ROM
- 009 Extracorporeal Membrane Oxygenation (ECMO)

Medicare DRG and MDC Information

003

ECMO OR TRACHEOSTOMY WITH MV >96 HOURS OR PRINCIPAL DIAGNOSIS EXCEPT FACE, MOUTH AND NECK WITH MAJOR O.R. PROCEDURES
CMS wt 21.4316 A/LOS 34.3 G/LOS 24.1
Length of stay, discharge to a post-acute care provider, and home health service condition codes can significantly impact reimbursement for this DRG.

015

NEWBORNS AND OTHER NEONATES WITH CONDITIONS ORIGINATING IN PERINATAL PERIOD

CO Mcd APR DRG and MDC Information

583

Neonate with ECMO
CO wt 31.2543 ALOS 63.73 SOI 3

015

NEWBORNS AND OTHER NEONATES WITH CONDITIONS ORIGINATING IN THE PERINATAL PERIOD

3

Major Severity of Illness

3

Major Risk of Mortality

Admit Diagnosis

Code	Description
1. Z3801	Single liveborn infant, delivered by cesarean

Codebook Coding CI CDR CM Coding HB

Diagnosis Code Detail

Code	Description	Affect	MCC	CC	SOI	ROM	PSI	PDI
1. Z3801	Principal Single liveborn infant, delivered by cesarean Affects secondary DRG	✓			0	0	+	+
2. Q790	Congenital diaphragmatic hernia		✓		0	0		
3. P251	Pneumothorax originating in the perinatal period		✓		0	0		
4. P2930	Pulmonary hypertension of newborn		✓		0	0		
5. P285	Respiratory failure of newborn		✓		0	0		
6. P260	Unspecified pulmonary hemorrhage originating in the perinatal period		✓		0	0		

Codebook Coding CI CDR CM Coding HB

Complications/Query Opportunities

- ▶ **Bleeding**
 - ▶ Most common complication
 - ▶ Can occur at the cannulation site or elsewhere in the body due to heparin
 - ▶ Consider acute blood loss anemia depending on the severity of bleeding/hemorrhage
- ▶ **Coagulopathy**
- ▶ **Infection/Sepsis**
 - ▶ Nosocomial due to comorbidities, immunocompromised state d/t critical illness/condition, invasive lines, mechanical ventilation, etc
- ▶ **Neurological**
 - ▶ Stroke (embolic or hemorrhagic) and seizures
 - ▶ Cerebral edema
 - ▶ Encephalopathy
- ▶ **Vascular**
 - ▶ Blocked or damaged blood vessels
- ▶ **AKI or ATN**
- ▶ **“Multi-organ failure”**
- ▶ **Shock**
- ▶ **Air embolism** (if air enters the ECMO circuit and travels within the body)
- ▶ **Failure or rupture of the ECMO circuit**
- ▶ **Accidental decannulation**
- ✓ **POA status**
- ✓ **Cause and effect relationship between ECMO and complications**

Documentation of Complications of Care

ICD-10-CM Official Guidelines for Coding and Reporting FY 2026 Page 16

Section I.B.16

Code assignment is based on the provider's documentation of the relationship between the condition and the care or procedure, unless otherwise instructed by the classification. The guideline extends to any complications of care, regardless of the chapter the code is located in. It is important to note that not all conditions that occur during or following medical care or surgery are classified as complications. There must be a cause-and-effect relationship between the care provided and the condition, and the documentation must support that the condition is clinically significant. It is not necessary for the provider to explicitly document the term "complication." For example, if the condition alters the course of the surgery as documented in the operative report, then it would be appropriate to report a complication code. Query the provider for clarification if the documentation is not clear as to the relationship between the condition and the care or procedure.

Coding Clinics

► 3rd Q 2021 Placement and removal of cannulas for extracorporeal membrane oxygenation

Question:

The patient was admitted with a large mediastinal goiter and underwent surgical removal of the goiter via median sternotomy, along with cannulation of bilateral femoral veins in anticipation of extracorporeal membrane oxygenation (ECMO) perfusion. Due to severe narrowing of the patient's airway, there was concern that on induction of anesthesia, the airway would not be accessible and ECMO would be required as backup. Cannulas were placed in the right and left femoral veins and the cannulas were connected to the circuit. Anesthesia was induced and the patient was intubated without incident. Therefore, the use of ECMO was not needed. At the completion of the procedure, both cannulas were removed. Is it appropriate to assign an additional code for the cannulation when ECMO perfusion was not provided during the surgery?

Answer:

Assign each of the following ICD-10-PCS codes twice for the placement and the removal of the ECMO cannulas in the left and right femoral vein:

- 06HY33Z** Insertion of infusion device into lower vein, percutaneous approach;
and
06PY33Z Removal of infusion device from lower vein, percutaneous approach.

Coding Clinics

► 4th Q 2019 Intraoperative ECMO

Question:

VA ECMO used for hemodynamic support during a cath lab procedure. Is it appropriate to assign intraoperative ECMO codes for procedures performed in the cardiac catheterization lab rather than the operating suite? How should the procedures be coded?

Answer:

Yes, it is appropriate to assign codes for intraoperative ECMO performed in the cardiac catheterization lab. The term "intraoperative" is applicable to ECMO that is used during an operative episode only and is no longer used at the conclusion of the procedure, regardless of the setting. The intraoperative ECMO procedure codes are not limited to procedures performed in the operating room. Assign the following ICD-10-PCS codes:

5A15A2G Extracorporeal oxygenation, membrane, peripheral venoarterial, intraoperative, for the intraoperative ECMO performed in the cardiac catheterization laboratory

Coding Clinics

► 3rd Q 2019 Insertion of left ventricular catheter

Question:

A 66-year-old woman presented with severe congestive heart failure (CHF) and coronary artery disease. Her CHF worsened, leading to cardiogenic shock with cardiac arrest. She was taken to the cardiac catheterization lab for urgent percutaneous coronary intervention and placed on peripheral extracorporeal membrane oxygenation (ECMO). Due to continued significant left ventricular distension, the patient underwent surgery for insertion of a left ventricular catheter (vent). Following open sternotomy and dissection of the mediastinum the ECMO was reduced to leave volume inside the heart, then a 20-French left ventricular (LV) catheter was inserted. This was then connected to the Y circuit of the venous limb of the ECMO circuit after tunneling through the right upper quadrant. How is the LV vent insertion coded in ICD-10-PCS?

Answer:

Assign the follow ICD-10-PCS code:

02HL0DZ Insertion of intraluminal device into left ventricle, open approach, for placement of the ventricular vent

When a ventricular vent is placed during initiation of central ECMO, the ventricular vent is considered integral to the ECMO configuration and is not coded separately. In this case, a code is assigned for placement of the ventricular vent because peripheral ECMO was initiated, and then a subsequent surgical procedure was performed to place the ventricular vent using an open sternotomy. Left ventricular decompression is done to treat refractory cardiogenic shock and lung failure to assist in heart recovery. The insertion of the left ventricular vent for decompression is a separate surgical procedure from the previously initiated peripheral ECMO, and was done to reduce the pressure inside the left ventricle. The procedure required an open sternotomy and dissection of the mediastinum in order to place the device.

Coding Clinics

► 3rd Q 2019 Removal and revision of ECMO component

Question:

The patient was placed on venoarterial extracorporeal membrane oxygenation (ECMO) earlier during the day. Bleeding was noted from the right femoral artery cannula site and the patient was emergently returned to surgery for management of the bleed. Because the surgeon determined that it would be too difficult to identify and control the bleeding, the cannula was moved from the right to the left femoral artery. ECMO support was temporarily stopped; the cannulas were clamped; the outflow cannula was separated from the right femoral artery and transferred to a new cannula in the left femoral artery. ECMO support was then restarted. What ICD-10-PCS codes should be assigned for the removal of right femoral artery cannula and insertion of a new left femoral artery cannula?

Answer:

Assign the follow ICD-10-PCS code:

04PY33Z Removal of infusion device from lower artery, percutaneous approach, for the removal of the cannula/perfusion catheter from the right femoral artery

04HY33Z Insertion of infusion device into lower artery, percutaneous approach, for placement of the cannula/perfusion catheter in the left femoral artery

In addition, assign the appropriate code for the ECMO. Cannulation and decannulation (removal) of an ECMO support system are not typically reported. In this case, codes are assigned for the removal and insertion of the arterial access cannula because the procedure occurred in a separate surgical episode

Coding Clinics

► 3rd Q 2019 Exchange of extracorporeal membrane oxygenation component (oxygenator)

Question:

A 56-year-old patient who had venovenous extracorporeal membrane oxygenation (ECMO) previously placed, presented because of issues with the ECMO support. Upon examination, a clot and fibrin strands were found within the oxygenator. Venovenous ECMO support was briefly interrupted. The oxygenator was removed and a new oxygenator was placed. How should the replacement of the oxygenator be reported?

Answer:

In this case, no procedure was performed directly on the patient; therefore, no ICD-10- PCS code from the Medical/Surgical section should be assigned. The ECMO support was briefly interrupted in order to exchange the oxygenator, an extracorporeal component of the system. Exchange or adjustment of extracorporeal components of an ECMO system are integral to the extracorporeal assistance/performance procedure, so no additional code is assigned beyond the ECMO code.

Coding Clinics

► 3rd Q 2019 Extracorporeal membrane oxygenation transfers

Question:

An infant was transferred to our hospital while on extracorporeal membrane oxygenation (ECMO). Should our facility assign a code for the ECMO since it was continued at our facility?

Answer:

Yes. When a patient is on ECMO at one hospital and is then transferred to another facility and ECMO is either continued or restarted, the receiving facility can report the ECMO.

Coding Clinics

► 2nd Q 2019 Veno-arterial extracorporeal membrane oxygenation via sternotomy

Question:

A patient with postcardiotomy cardiogenic shock, pulmonary edema, right ventricular failure and mediastinal bleeding underwent surgical exploration and extracorporeal membrane oxygenation (ECMO). The patient's chest was opened and explored and venoarterial ECMO was performed by placement of the arterial cannula centrally in the aorta and venous cannulation peripherally in the femoral vein. New ICD-10-PCS codes were created to capture central, veno-arterial peripheral ECMO and veno-venous peripheral ECMO. However, this procedure does not seem to fall into any of these categories. Is this coded as central ECMO or peripheral veno-arterial ECMO? What is the appropriate PCS code for this procedure?

Answer:

In this case, assign a code for central ECMO. If the arterial or venous cannula of an ECMO circuit is placed via open sternotomy, assign the ICD-10-PCS code as follows:

5A1522F Extracorporeal oxygenation, membrane, central

Coding Clinics

~~5A15223~~

► 4th Q 2018 Percutaneous extracorporeal membrane oxygenation

There are three types of ECMO that correspond to the new ICD-10-PCS qualifiers: Central, Venous-Arterial (VA) Peripheral and Venous-Venous (VV) Peripheral.

Central ECMO cannulation is an open-chest procedure with direct surgical cannulation of the right atrium and aorta. It involves two open insertions, arterial and venous, and provides cardiorespiratory support. In the past, central ECMO was more commonly used; however, peripheral ECMO is more common now. For central ECMO, assign code 5A1522F, Extracorporeal oxygenation, membrane, central.

VA peripheral ECMO cannulation involves two femoral percutaneous insertions: arterial and venous. The VA ECMO is used when there are problems with both the heart and lungs. This type of ECMO provides respiratory and circulatory support. Code 5A1522G, Extracorporeal oxygenation, membrane, peripheral veno-arterial, is used for VA peripheral ECMO.

VV ECMO involves two venous insertions, one in the upper veins and one in the lower veins. It is used when the problem is only in the lungs. Code 5A1522H, Extracorporeal oxygenation, membrane, peripheral veno-venous, is used for VV peripheral ECMO.

Coding Clinics

► (cont) 4th Q 2018 Percutaneous extracorporeal membrane oxygenation

Question:

A patient with a history of cirrhosis secondary to alcohol dependence was admitted for liver transplant surgery. The hepatectomy was performed on venovenous bypass. Cannulas were placed in the right femoral vein and the portal vein. The cannulas were connected to the circuit and veno-venous bypass was instituted at 2.5L per minute. What is the procedure code assignment for veno-venous bypass?

Answer:

Assign the following procedure code:

5A1522H Extracorporeal oxygenation, membrane, peripheral veno-venous, for veno-venous bypass used during surgery

Question:

The patient presented with cardiogenic shock and ECMO support was provided at the bedside in the intensive care unit. The central jugular vein and the left femoral artery were cannulated and ECMO support initiated. What is the appropriate ICD-10-PCS code for this type of ECMO support?

Answer:

Assign the following procedure code:

5A1522G Extracorporeal oxygenation, membrane, peripheral veno-arterial

The cannulations of both the jugular vein and the femoral artery indicate VA ECMO support.

Coding Clinics

► (cont) 4th Q 2018 Percutaneous extracorporeal membrane oxygenation

Question:

A patient was transferred to our facility on Impella support and required ECMO for respiratory support upon arrival to the intensive care unit. The provider placed two cannulas into the femoral veins and ECMO support was started. She was eventually weaned from both the Impella and ECMO after two days. How should the continued Impella assistance and removal be coded? What is the appropriate code assignment for the ECMO support?

Answer:

Assign the following procedure codes:

- | | |
|----------------|---|
| 5A1522H | Extracorporeal oxygenation, membrane, peripheral veno-venous, for the VV ECMO |
| 02PA3RZ | Removal of external heart assist system from heart, percutaneous approach, for the removal of the Impella |

Coding Clinics

► 3rd Q 2006 Extracorporeal membrane oxygenation (ECMO) decannulation

Question:

The physicians at our facility have started to document extracorporeal membrane oxygenation (ECMO) decannulation with repair of the right common carotid artery when the catheter is removed from the carotid artery. The artery is repaired with sutures. Since an additional code is not assigned for the removal of the catheter, is the repair of the carotid artery also inherent to the removal and does not require an additional code?

Answer:

Assign code 39.31, Suture of artery, for the repair of the carotid artery. Suturing of the vessel may be required following decannulation of the ECMO and should be coded when carried out. If the removal of the cannula is accomplished without arterial repair, no code is assigned. This current information supersedes advice previously published in [Coding Clinic, Second Quarter 1990, page 23](#)



Questions?

Comments?

Thank you
for your time
and
attention!

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