



## Extracorporeal Membrane Oxygenation (ECMO)

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<b>State(s):</b> <input checked="" type="checkbox"/> Idaho <input checked="" type="checkbox"/> Montana <input checked="" type="checkbox"/> Oregon <input checked="" type="checkbox"/> Washington <input type="checkbox"/> Other:	<b>LOB(s):</b> <input checked="" type="checkbox"/> Commercial <input checked="" type="checkbox"/> Medicare <input checked="" type="checkbox"/> Medicaid
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### Enterprise Policy

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*Clinical Guidelines are written when necessary to provide guidance to providers and members in order to outline and clarify coverage criteria in accordance with the terms of the Member's policy. This Clinical Guideline only applies to PacificSource Health Plans, PacificSource Community Health Plans, and PacificSource Community Solutions in Idaho, Montana, Oregon, and Washington. Because of the changing nature of medicine, this list is subject to revision and update without notice. This document is designed for informational purposes only and is not an authorization or contract. Coverage determination are made on a case-by-case basis and subject to the terms, conditions, limitations, and exclusions of the Member's policy. Member policies differ in benefits and to the extent a conflict exists between the Clinical Guideline and the Member's policy, the Member's policy language shall control. Clinical Guidelines do not constitute medical advice nor guarantee coverage.*

### Background

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Extracorporeal membrane oxygenation (ECMO) provides extracorporeal circulation and physiologic gas exchange for temporary cardiorespiratory support in cases of severe respiratory and cardiorespiratory failure. ECMO is used in clinical situations in which there is respiratory or cardiac failure, or both, in which death would be imminent unless medical interventions can immediately reverse the underlying disease process or physiologic functions can be supported for long enough that normal reparative processes or treatment can occur (e.g., resolution of acute respiratory distress syndrome (ARDS) or treatment of infection) or other life-saving intervention can be delivered (e.g., provision of a lung transplant). It may also be referred to as Extracorporeal Life Support (ECLS).

### Criteria

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#### Commercial

#### **Extracorporeal Membrane Oxygenation (ECMO) for Newborn Infants (starting on date of birth or immediately afterwards):**

PacificSource considers ECMO medically necessary in newborn infants who meet **ALL** of the following criteria:

- Diagnosis of **ONE** or more of the following:
  - Congenital diaphragmatic hernia;
  - Hyaline membrane disease;
  - Meconium aspiration;
  - Persistent fetal circulation;
  - Cardiac anomaly;

- Refractory neonatal septic shock;
  - Respiratory distress syndrome; or
  - Uncontrollable air leak.
- Gestational age of at least 34 weeks;
  - Birth weight of 2,000 grams or greater; **AND**
  - Age less than 10 days.

### **ECMO for Children and Adults:**

PacificSource considers ECMO and extracorporeal life support (ECLS) medically necessary for children and adults who have at least **ONE** of the following clinical situations:

- Adult respiratory distress syndrome (ARDS);
- As a short-term (i.e., hours to a few days) bridge to heart, lung, or heart-lung transplantation;
- As a short-term bridge to durable mechanical circulatory support (MCS) (e.g., ventricular assistive device (VAD), Intra-aortic balloon pump (IABP) and percutaneous MCS devices such as Thoratec pVAD, Centrimag, Tandem Heart and the Impella);
- Following heart surgery to ease transition from cardiopulmonary bypass to ventilation;
- Non-necrotizing pneumonias;
- Primary graft failure after heart, lung, or heart-lung transplantation;
- Refractory pediatric septic shock;
- Smoke inhalation injury;
- respiratory or cardiac failure (e.g., myocarditis, cardiogenic shock) that is unresponsive to all other measures.

### **Medicaid**

PacificSource Community Solutions follows Oregon Health Plan (OHP) Oregon Administrative Rules (OARs) 410-141-3820 to 3835 & 410-120-1200 for coverage of Extracorporeal Membrane Oxygenation (ECMO).

### **Medicare**

PacificSource Medicare follows CMS guidelines and criteria. In the absence of internal policy guidelines, CMS criteria, and evidence-based criteria, requests are reviewed on an individual basis for determination of coverage and medical necessity.

### **Experimental/investigational/Unproven**

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PacificSource considers ECMO for neonates experimental, investigational or unproven for all other indications because of insufficient evidence of its safety and effectiveness.

PacificSource considers ECMO/ECLS for children and adults experimental, investigational or unproven for all other indications because of insufficient evidence of its safety and effectiveness.

## Coding Information

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The following list of codes are for informational purposes only and may not be all-inclusive. Deleted codes and codes which are not effective at the time the service is rendered may not be eligible for reimbursement.

- 33946 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; initiation, veno-venous
- 33947 Initiation, veno-arterial
- 33948 Daily management, each day, veno-venous
- 33949 Daily management, each day, veno-arterial
- 33951 Insertion of peripheral (arterial and/or venous) cannula (e), percutaneous, birth through 5 years (includes fluoroscopic guidance, when performed)
- 33952 Insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)
- 33953 Insertion of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age
- 33954 Insertion of peripheral (arterial and/or venous cannula(e), open, 6 years and older
- 33955 Insertion of central cannula(e), by sternotomy or thoracotomy, birth through 5 years of age
- 33956 Insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older
- 33957 Reposition peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33958 Reposition peripheral (arterial and/or venous) cannula(e), percutaneous 6 years and older (includes fluoroscopic guidance, when performed)
- 33959 Reposition peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33962 Reposition peripheral (arterial and/or venous) cannula(e), open, 6 years and older (includes fluoroscopic guidance, when performed)
- 33963 Reposition of central cannula(e), by sternotomy or thoracotomy, birth through 5 years of age (includes fluoroscopic guidance when performed)
- 33964 Reposition of central cannula(e), by sternotomy or thoracotomy, 6 years and older (includes fluoroscopic guidance when performed)
- 33965 Removal of peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age
- 33966 Removal of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years or older
- 33969 Removal of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age

- 33984 Removal of peripheral (arterial and/or venous) cannula(e), open, 6 years and older
- 33985 Removal of central cannula(e), by sternotomy or thoracotomy, birth through 5 years of age
- 33986 Removal of central cannula(e), by sternotomy or thoracotomy, 6 years and older
- 33987 Arterial exposure with creation of graft conduit (eg, chimney graft) to facilitate arterial perfusion for ECMO/ECLS (List separately in addition to code for primary procedure)
- 33988 Insertion of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS
- 33989 Removal of left heart vent by thoracic incision (eg, sternotomy, thoracotomy) for ECMO/ECLS

## References

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Extracorporeal Life Support Organization (ELSO). ELSO Guidelines for Adult Respiratory Failure v1.-4 August 2017; 7/30/2020

[https://www.else.org/Portals/0/ELSO%20Guidelines%20For%20Adult%20Respiratory%20Failure%201\\_4.pdf](https://www.else.org/Portals/0/ELSO%20Guidelines%20For%20Adult%20Respiratory%20Failure%201_4.pdf)

Extracorporeal Life Support Organization (ELSO). ELSO Guidelines for ECPR Cases v1.3. December 2013; Accessed on October 12, 2015, December 21, 2017, 11/15/2018, 10/2/2019, 7/30/2020.

<https://www.else.org/Resources/Guidelines.aspx>

Extracorporeal Life Support Organization (ELSO). Guidelines for Neonatal Respiratory Failure. v1.3.4 December 2017; Accessed 7/30/2020.

[https://www.else.org/Portals/0/ELSOGuidelinesNeonatalRespiratoryFailurev1\\_4\\_1.pdf](https://www.else.org/Portals/0/ELSOGuidelinesNeonatalRespiratoryFailurev1_4_1.pdf)

Extracorporeal Life Support Organization (ELSO). Ultrasound Guidance for Extra-corporeal Membrane Oxygenation. Veno- Arterial ECMO specific guidelines. May 2015. Accessed on October 12, 2015, December 21, 2017, 11/15/2018, 10/2/2019, 7/30/2020

<https://www.else.org/Resources/Guidelines.aspx>

## Appendix

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**Policy Number:**

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