



Extracorporeal Membrane Oxygenation (ECMO)

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

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 determinations 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

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 transplant). ECMO may also be referred to as Extracorporeal Life Support (ECLS).

ECMO In Neonates

The technology is similar to cardiopulmonary bypass as used during cardiac surgery, only modified for prolonged use at the bedside intensive care unit. Extra-corporeal membrane oxygenation is capable of effectively and safely supporting respiration and circulation in neonates with severe reversible respiratory failure and a moribund clinical presentation.

ECMO in Children and Adults

ECMO is used in children and adults with irreversible heart or lung failure for prolonged (days to weeks) mechanical support. The goal of ECMO/ECLS for pediatric or adult patients is to provide lung rest from the high levels of oxygen and higher airway pressures that are necessary to support oxygenation and ventilation.

Criteria

Commercial

ECMO may be subject to post-service review

A. Extracorporeal Membrane Oxygenation (ECMO) for Neonates

PacificSource may consider ECMO to be medically necessary in neonates who meet **ALL** of the following criteria:

1. Diagnosis of **ONE** or more of the following:
 - a. Congenital diaphragmatic hernia
 - b. Hyaline membrane disease
 - c. Meconium aspiration
 - d. Persistent fetal circulation
 - e. Cardiac anomaly
 - f. Refractory neonatal septic shock
 - g. Respiratory distress syndrome
 - h. Uncontrollable air leak
2. Gestational age of at least 34 weeks
3. Birth weight of 2,000 grams or greater **AND**
4. Age less than 10 days.

B. Extracorporeal Membrane Oxygenation (ECMO) for Children and Adults

PacificSource may consider ECMO to be medically necessary for children and adults who have at least **ONE** of the following clinical situations:

1. Adult respiratory distress syndrome (ARDS)
2. As a short-term bridge (i.e., hours to a few days) to heart, lung, or heart-lung transplantation
3. 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)
4. Following heart surgery to ease transition from cardiopulmonary bypass to ventilation
5. Non-necrotizing pneumonias
6. Primary graft failure after heart, lung, or heart-lung transplantation
7. Refractory pediatric septic shock
8. Smoke inhalation injury
9. 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 (OAR) 410-120-1200 and 410-141-3820 to 3835 for coverage of Extracorporeal Membrane Oxygenation (ECMO).

Medicare

PacificSource Medicare follows CMS guidelines and criteria. In the absence of CMS guidelines and criteria, PacificSource Medicare will follow internal policy for determination of coverage and medical necessity.

Experimental/investigational/Unproven

PacificSource considers ECMO for neonates to be experimental, investigational, or unproven for any other indication than listed above.

PacificSource considers ECMO for children and adults to be experimental, investigational, or unproven for any other indication than listed above.

Coding Information

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 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-venous
- 33948 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-venous
- 33949 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; daily management, each day, veno-arterial
- 33951 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33952 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)
- 33953 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age
- 33954 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of peripheral (arterial and/or venous) cannula(e), open, 6 years and older

- 33955 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age
- 33956 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older
- 33957 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33958 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), percutaneous, 6 years and older (includes fluoroscopic guidance, when performed)
- 33959 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33962 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition peripheral (arterial and/or venous) cannula(e), open, 6 years and older (includes fluoroscopic guidance, when performed)
- 33963 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age (includes fluoroscopic guidance, when performed)
- 33964 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; reposition central cannula(e) by sternotomy or thoracotomy, 6 years and older (includes fluoroscopic guidance, when performed)
- 33965 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), percutaneous, birth through 5 years of age
- 33966 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; insertion of central cannula(e) by sternotomy or thoracotomy, 6 years and older
- 33969 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, birth through 5 years of age
- 33984 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of peripheral (arterial and/or venous) cannula(e), open, 6 years and older
- 33985 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, birth through 5 years of age
- 33986 Extracorporeal membrane oxygenation (ECMO)/extracorporeal life support (ECLS) provided by physician; removal of central cannula(e) by sternotomy or thoracotomy, 6 years and older
- 33987 Arterial exposure with creation of graft conduit (e.g., 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 (e.g., sternotomy, thoracotomy) for ECMO/ECLS
- 33989 Removal of left heart vent by thoracic incision (e.g., sternotomy, thoracotomy) for ECMO/ECLS

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Definitions

Extracorporeal Life Support (ECLS) - a term used to describe prolonged (days to weeks) mechanical support for patients with reversible heart or lung failure. It may also be referred to as Extracorporeal Life Support (ECLS).

Mechanical Circulatory Support - a group of mechanical devices which can be added to the physiological circulation providing support or replacement of the heart and/or the lungs.

Neonate – an infant less than four weeks old.

Ventricular assist device – mechanical circulatory support device that pumps blood from lower chambers of the heart to different parts of the body.

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Appendix

Policy Number:

Effective: 9/1/2020

Next review: 9/1/2024

Policy type: Enterprise

Author(s):

Depts: Health Services

Applicable regulation(s): N/A

Commercial Ops: 11/2023

Government Ops: 12/2023